



Religiosity, Thought Action Fusion, and
Obsessive-Compulsive Disorder in the UK and
Malaysia

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Thesis submitted for the degree
of Doctor of Philosophy

The Institute of Neuroscience,
Newcastle University

June 2025

Author's Declaration

This thesis is submitted to Newcastle University for the degree of Doctor of Philosophy. The research detailed within was performed between the years 2008- 2025, and it was supervised by Professor Mark Harry Freeston and Dr. Patrick Rosenskranz. I certify that none of the material offered in this thesis has been previously submitted by me for a degree or any other qualification at this or any other university.

Abstract

Over decades, many authors have suggested that religiosity is related to obsessive symptoms and cognitive model of OCD (Steketee, Quay, & White, 1991; Shafran, Thordarson, & Rachman, 1996; Shafran, Watkins, & Charman, 1996; Abramowitz, Huppert, Cohen, Tolin, & Cahill, 2002; Yorulmaz, et al., 2009; Williams, et al., 2013) but the relationship is unclear and the evidence to date is weak. The lack of scales to adequately assess religiosity/spirituality among individuals may have affected the findings to date.

Therefore, the present study primarily aimed to investigate the relationship between religiosity, Thought Action Fusion (TAF), and OCD among two multicultural samples, namely 1) in the United Kingdom and 2) Malaysia. For the purpose of the main study, a multidimensional measure of religiosity/spirituality was developed in order to be used for a range of religions and cultures. The existing definitions of religiosity and spirituality in academic literature have yet to achieve universal consensus, as they are influenced by various disciplinary viewpoints and research environments. Additionally, discrepancies in the conceptualization and measurement of these constructs may diminish the significance of studies in this field. In response to this challenge, the Newcastle Spirituality and Religiosity Scale (NSRS) was developed as a multidimensional instrument that can be applied across different religious traditions, non-religious groups, and cultural contexts. This scale consists of eighty-two items, organized into eight dimensions: Religious Behavior, Non-Theistic Spirituality, Theistic Spirituality, Intrinsic Religiosity, Personal Extrinsic Religiosity, Social- Family Extrinsic Religiosity, Religious Fundamentalism, and Quest.

In the beginning, multiple steps were conducted in the development of 82 items of the Newcastle Religiosity and Spirituality Scale (NSRS). Results of Exploratory Factor Analysis (EFA) showed consistencies in terms of factor structures in both samples, with a few differences in the factor structure. The NSRS subscales showed excellent internal consistency and validity in both samples.

A previous study has investigated the internal consistency and construct validity of the Newcastle Spirituality and Religiosity Scale (NSRS) through Exploratory Factor Analysis (EFA). Nonetheless, the absence of studies confirming the scale's reliability and validity, coupled with varying results, has prompted significant inquiries in both the United Kingdom and Malaysia. Consequently, the present study aims to further examine the psychometric properties of both the original and Short Versions of the NSRS.

The initial phase concentrates on the convergent and divergent reliability of the NSRS-Short Version, utilizing a sample of 130 participants from Malaysia. The findings revealed consistent results that affirm the convergent and divergent validity of the NSRS-SV. Although some unexpected and noteworthy outcomes were noted, the majority of the subscales exhibited correlations that met expectations, indicating strong convergent and divergent validity. The second phase evaluated the test-retest reliability among a sample of 130 individuals in Malaysia over four weeks, employing Pearson correlation and Intraclass Correlation. The results, derived from Pearson correlation and the Intraclass Correlation Coefficient (ICC), demonstrated a high degree of reliability.

In the final phase, Confirmatory Factor Analysis (CFA) was utilized to assess the original version of the NSRS with a sample of 564 individuals from the United Kingdom. The CFA was based on three models developed from the EFA findings from the previous study (Alias, Freeston, & Rosenkranz, 2012): (a) Model 1 - an eight correlated factor model, (b) Model 2 - a seven correlated factor model based on the UK sample identified in EFA, and (c) Model 3 - a seven correlated factor model based on the Malaysian sample identified in EFA.

It is crucial to acknowledge that the samples in this study differed in ethnicity, religion, cultural dimensions, and other characteristics. However, none of the models assessed achieved an optimal goodness of fit, highlighting the need for further investigation. This is especially crucial in heterogeneous samples that encompass particular religious or non-religious demographics. Although the optimal models for the samples were not identified and some discrepancies among the models were noted, the findings from the CFA indicated that the eight factors of the scale exhibited an adequate goodness of fit following the requisite modifications. Additionally, the findings consistently supported the factor structures and the removal of certain items, which aligned with the shortened version of the NSRS.

Next, the relationship between the key components of the main study (i.e., religiosity/spirituality variables, Thought Action Fusion (TAF), and OCD) was investigated among 493 participants in the UK and 581 participants in Malaysia. In both samples, participants were recruited through both paper and pencil and Internet-based methods. Five measures were used in the studies, namely the Obsessive-Compulsive Inventory- Revised (OCI-SV), the Depression Anxiety Stress Scale (DASS-21), the Student Thought-Action Fusion Questionnaire (STAF-Q), the Vancouver Index of Acculturation Revised (VIA-R), and the new religiosity measure, Newcastle Religiosity and Spirituality Scale (NSRS). Further, Thought Action Fusion (TAF) variables were examined as a mediator in understanding how religiosity/spirituality relates to OC symptoms. Next, the role of Religious Fundamentalism as a moderator was examined in the indirect effect relationship.

The studies in the UK and Malaysia found several consistent findings with a few inconsistent findings. First, there were positive correlations between TAF and OCD in both samples. Second, religiosity/spirituality was indirectly related to OC symptoms through TAF Likelihood in both studies, but in opposite directions (i.e., positive direction in the UK study and negative direction in the Malaysian study). Third, results of the conditional indirect effect showed that Religious Fundamentalism did moderate the indirect effect of religiosity/spirituality on OC symptoms in both samples. This finding also suggests that Religious Fundamentalism may potentially be a protective factor against the development of obsessions by the direction of the direct and indirect effects of religiosity/spirituality on obsessions through TAF Likelihood in the Malaysian sample.

The consistent findings across the two samples may be due to the similarities, such as age group, young, educated, and with a modern outlook, while the differing findings are perhaps understandable considering different sample characteristics, religions, and cultures. In terms of the cognitive model of OCD, the present results provide some support for theoretical proposals and empirical findings that suggest TAF Likelihood is related to OCD in the expected direction (i.e., higher TAF with higher OCD) in both studies. Although future studies are needed to replicate this finding in different samples, there is some support that some aspects of the cognitive model of OCD may be universal in both Western and non-Western countries. In sum, although subsequent studies are required in order to increase our understanding of cognitive models of OCD and vulnerability factors in OCD, these studies can contribute to a better understanding of religiosity, thought-action fusion, and OCD. There are also implications for cognitive therapy that addresses beliefs and appraisals of thoughts across countries and cultures.

Keywords: Religiosity, Spirituality, Thought Action Fusion, OC symptoms, Religious Fundamentalism, Acculturation

Acknowledgements

To begin, I express my gratitude to Allah for granting me the ability to finish this research. My journey towards obtaining my Ph.D. has been challenging, as I have faced numerous difficulties that have had both emotional and academic impacts.

Next, I would like to extend my appreciation to my primary supervisor, Professor Mark Harry Freeston, for his unwavering support, vast knowledge, valuable skills, and guidance. I have gained a wealth of knowledge from him, not only pertaining to my studies but also in managing stress and anxiety. Thank you to Dr. Patrick, too.

I am also deeply indebted to my beloved husband, Zulkifli Mohd, whose prayers, understanding, unwavering support, advice, and assistance have continuously motivated me to persevere despite the challenges encountered throughout this research process. There were moments when I contemplated giving up, but he steadfastly believed in me and ensured that I could overcome any obstacles. I am truly grateful for his unwavering support.

Additionally, I wish to extend my sincere thanks to my mother, Hindun Abdullah, and my deceased father, Alias Mat Amin, for motivating me to pursue my studies at this stage. My late father played a crucial role in guiding me to this point, and even though he is no longer here, I am confident that he would be proud of my achievements.

Lastly, I would like to express my gratitude to my beloved children - Al Iman, Alanna, Alarra, Ezkyle, and Alayya - for their affection, humor, smiles, and joy that have illuminated even the toughest days of thesis writing. They are my motivation to stay resilient and determined in finishing this research.

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List of Abbreviations

APA	American Psychiatric Association
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
MREC	Malaysian Medical Research Ethical Committee
OC	Obsessive-Compulsive
OCS	Obsessive-Compulsive Symptoms
CFA	Confirmatory factor analysis
EFA	Exploratory Factor Analysis
ICC	Intraclass correlation coefficient
NSRS	Newcastle Scale of Religion and Spirituality
NSRS-SV	Newcastle Scale of Religion and Spirituality-Short Version
SCSRFQ	Santa Clara Strength of Religious Faith Questionnaire
RCI-10	Religious Commitment Inventory-10
STS	Spiritual Transcendence Scale
RB	Religious Behaviour
NTS	Non-Theistic Spirituality
TS	Theistic Spirituality
PER	Personal Extrinsic Religiosity
PIR	Personal Extrinsic Instrumental Religiosity
SFER	Social-Family Extrinsic Religiosity
RF	Religious Fundamentalism
AUROS	Age Universal Religious Orientation Scale
OCI-SV	Obsessive-Compulsive Inventory- Revised
DASS-21	Depression Anxiety Stress Scale

STAF-Q	Student Thought-Action Fusion Questionnaire
VIA-R	Vancouver Index of Acculturation Revised
STI	Spiritual Transcendence Index
RF-RS	Religious Fundamentalism Scale Revised Scale
R/S	Religiosity/Spirituality
ICC	Intraclass Correlation Coefficients
EFA	Exploratory Factor Analysis
CFA	Confirmatory factor analysis
KMO	Kaiser-Meyer-Olkin
SPSS	Statistical Package for the Social Sciences
α	Cronbach's alpha
CI	Confidence interval
df	Degrees of freedom
M	Mean
SD	Standard deviation
AVE	Average Variance Extracted
RMSEA	Root Mean Square Error of Approximation
CFI	Comparative Fit Index
TLI	Tucker-Lewis Index (TLI)
CMIN	Chi-square value
SRMR	Standardised Root Mean Square Residual (SRMR)

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Chapter 1

Introduction

1.1 Background to the study

Obsessive-compulsive disorder (OCD) is a chronic, disabling anxiety disorder that is characterized by recurrent thoughts, images, or impulses (obsessions) and/or repetitive behaviours or mental acts (compulsions) (DSM-IV, American Psychiatric Association [APA], 2000). Previously, OCD was characterized as an anxiety disorder in DSM-IV (APA, 1994) and in DSM-IV-TR (APA, 2000).

However, in the new DSM-5 (APA, 2013), OCD is categorized in its section, titled “Obsessive-Compulsive and Related Disorders.” Moreover, other disorders that previously were classified in other sections have been included in the section together with OCD, such as body dysmorphic disorder, hoarding disorder, trichotillomania (hair-pulling disorder), excoriation (skin-picking) disorder, substance/medication-induced obsessive-compulsive and related disorder, and obsessive-compulsive and related disorder due to another medical condition. Compulsions are categorized as repetitive behaviors (such as hand washing, ordering, or checking) or mental acts (such as praying, counting, or repeating words silently) in order to neutralize anxiety and/or to prevent distress that may affect various aspects of daily functioning (DSM-IV, American Psychiatric Association [APA], 2000; Geddes & Andreasen, 2020).

According to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; American Psychiatric Association [APA], 2013), 1.1–1.8% of the world population experience a 12-month prevalence of OCD. OCD is a universal disorder that occurs in all countries throughout the world, exhibiting significant similarities across various cultures in terms of symptom patterns, gender ratios, age of onset, and associated comorbid conditions (Lochner et al., 2014). For example, the prevalence of OCD ranges from 2–3% in the general population and has been assessed in different countries (e.g., Iran, the United States, Canada, Puerto Rico, Germany, Korea, and New Zealand; see Mohammadi et al., 2004; Weissmann, Bland, Canino, Greenwald, Hwu & Lee, 1994; Kolada, Bland & Newman, 1994; Samuel & Nestadt, 1997; Kessler, Chiu, Demler & Walters, 2005). Considering this spectrum-based perspective of Obsessive-Compulsive Related Disorders (OCDs) (Zohar, 2007), it is estimated that their overall prevalence surpasses that of Obsessive-Compulsive Disorder (OCD), potentially reaching as high as 9.5% (Geddes & Andreasen, 2020; Carmi, Brakoulias, Arush, et al., 2020).

Despite being classified as one of the ten most challenging medical and mental health disorders in developed nations (Murray & Lopez, 1996), and recently identified as the fourth most common mental health issue (Kessler et al., 2005), the exact origins of Obsessive-Compulsive Disorder (OCD) are still not fully understood. Nonetheless, various studies indicate that religious beliefs may play a role in the onset of OCD.

The relationship between religion and OCD has long been a matter of discussion, and there is a growing body of evidence that suggests that religiosity is related to obsessions (e.g., Steketee et al., 1991; Tek & Ulug, 2001; Zohar et al., 2005; Siev & Cohen, 2007; Nicolini, Salin-Pascual, Cabrera & Lanzagorta, 2017; Rakesh, Arvind, Dutt, Mamta, Bhavneesh, 2021). It is important to note that religious themes are common in OCD (Okasha, 1994; Okasha, 2004); thus, it is possible that religious factors could influence the development of OCD in some people. Further research has identified a specific subtype of obsessive-compulsive disorder (OCD), often called *scrupulosity*, consisting of religious obsessions and compulsions (Rachman, 1997). Scrupulosity involves obsessive religious doubts and fear of sinning, unwanted blasphemous thoughts and images, compulsive religious rituals, reassurance seeking, and avoidance (Higgins, Pollard, & Merkel, 1992). Symptoms of religious OCD encompass pathological doubt, religious preoccupations, an exaggerated sense of morality, concerns about sin, and compulsive religious practices, collectively known as scrupulosity in psychological discourse.

Furthermore, one method to elucidate the connection between religion and obsessive-compulsive disorder (OCD) is to consider religion as a contributing risk factor for OCD (Shafran, Watkins, Charman, 1996; Witzig & Pollard, 2013; Yorulmaz, Gençöz, Woody, 2009; Rasmussen & Tsuang, 1986; Abramowitz et al., 2002; Shafran, Thordarson & Rachman, 1996; Steketee, Quay, White, 1991). For instance, heightened levels of religiosity may be viewed as a potential risk factor for the development of OCD. Additionally, research has indicated that increased religiosity correlates with heightened feelings of guilt among individuals with OCD (Steketee, Quay, White, 1991).

Furthermore, it has been observed that the anxiety stemming from guilt associated with irresponsible actions can also trigger symptoms of obsessive-compulsive disorder (OCD). The interplay between religiosity, feelings of guilt, and OCD has been a topic of significant interest over the years, and numerous studies have illustrated positive associations between religiosity and maladaptive beliefs pertinent to OCD, such as perfectionism, an exaggerated sense of responsibility, and the significance and regulation of thoughts (Obsessive-Compulsive Cognitions Working Group, 1997; Abramowitz, Deacon, B. J., Woods, & Tolin, 2004; Nelson, Abramowitz, Whiteside, & Deacon, 2006; Rassin & Koster, 2003; Sica, Novara, & Sanavio, 2002).

Interestingly, one link between religiosity and OCD in general could be explained through inflated responsibility, as explained by Salkovskis, Shafran, Rachman, and Freeston (1999). They suggested that religious institutions that impose explicit moral standards for thinking and behaving, which are inculcated by authority figures (clergy) and include the possibility of punishment (for example, damnation), might foster the development of rigid and maladaptive beliefs about thoughts and their influence. In other words, they suggested that rigid religious beliefs that include extreme codes of conduct and duty may lead to inflated responsibility and so to OCD.

Consistently, according to Wright (2006), the rigidity of religious practice may create some of the necessary setting conditions for the development of OCD. In support, religiosity, namely the engagement in religious practices and behaviors, is related to OCD symptoms according to some studies among non-clinical studies (e.g., Abramowitz, Huppert, Cohen, Tolin, & Cahill, 2002; Abramowitz, Deacon, Woods & Tolin, 2004) and among clinical samples (e.g., Steketee, Quay & White, 1991; Greenberg & Shefler, 2002).

While a variety of studies support the relationship between religiosity and OCD, there is also some evidence to the contrary (Assarian, Biqam & Asqarnejad, 2006; Hermesh, Masser- Kavitzky & Gross-Isseroff, 2003; Steketee et al., 1991; Siev et al., 2010), and the evidence to date is weak (e.g., Steketee, Quay, & White, 1991; Tek & Ulug, 2001; Sica, Novara & Sanavio, 2002; Zohar, Goldman, Calamary, & Mashiah, 2005). A recent study by Gonsalvez, Hains, and Stoyles (2010) on the relationship between religion and obsessive-compulsive symptoms found that although the Catholic group reported higher levels of obsessive-compulsive (OC) symptoms on the Padua Inventory (PI) than both the Protestant and non-religious groups, lending support that religious affiliation was associated with OC symptoms. However, this study did not show that the strength of faith (religious adherence) or religious application (religious behavior) was associated with OC symptoms. Thus, as evidence, this overall finding suggested that the relationship between religiosity and OC symptoms was weaker.

Interestingly, several studies have reported that religiosity seems to have important cultural influences in the manifestation of obsessive-compulsive symptoms, that is, in the form that they take. It is believed that some of the various symptoms that relate to religious thoughts are more prominent in countries in which religion is at the core of society, particularly in Muslim (Okasha, Saad, Khalil, Seif & Yehia, 1994; Pallanti, 2008) and Jewish Middle Eastern cultures (Zohar, Goldman, Calamari & Mashiah, 2003). Nonetheless, these diverse findings suggest that religiosity may relate to OCD in several ways; thus, it is crucial to investigate what other factors might contribute to the development of OCD. One other potential factor in understanding OCD is the appraisal of intrusive thoughts believed to be specific to OCD, as outlined in the cognitive model.

Cognitive models of OCD (Rachman, 1997, 1998; Salkovskis, 1985, 1999) underline the importance of interpretations of intrusive thoughts in terms of appraisals of personal significance. In other words, individuals who interpret their intrusive thoughts in a problematic way are viewed as being more vulnerable to obsessions (Rachman, 1997). This is in line with Janeck, Calamari, Riemann, and Heffelfinger (2003), who suggested that dysfunctional appraisals of intrusive thoughts and beliefs regarding the importance of thoughts are central to these theories and are thought to drive OCD symptoms. In an effort to explain how such interpretations arise, the Obsessive-Compulsive Cognitions Working Group [OCWG] (1997, 2001, 2003, 2005) identified six types of beliefs: over-importance of thoughts, control of thoughts, perfectionism, inflated responsibility, intolerance of uncertainty, and overestimation of threat. This model has been influential in furthering a more systematic investigation of dysfunctional beliefs and related appraisals and their relationship to OCD and the treatment of OCD (OCCWG, 2001, 2003, & 2005).

Within the overarching construct of the over-importance of thoughts in the OCCWG typology is found a more specific construct, namely, thought-action fusion (TAF). Shafran, Thordarson, and Rachman (1996) propose that TAF appraisals may escalate the intrusions into clinical obsessions. Thought-Action Fusion (TAF) is the tendency of individuals to assume that certain thoughts either increase the likelihood (Likelihood TAF), in which the intrusive thought increases the probability that a specific untoward event will occur, or imply immorality (Moral TAF), in which experiencing the intrusive thought is believed to be morally equivalent to undertaking the prohibited act (Rachman & Shafran, 1999). Therefore, TAF is thought to represent a tendency to over-evaluate the significance and consequences of intrusive thoughts. Moreover, correlational studies consistently demonstrate a relationship between TAF and OCD symptoms, ranging from a moderate to a strong association (e.g., Shafran, Thordarson & Rachman, 1996; Rassin, Muris, Schmidt & Merckelbach, 2000; Amir, Freshman, Ramsey, Neary & Brigidi, 2001; Abramowitz, Whiteside, Kalsy & Tolin, 2003).

In an attempt to link the cognitive model of OCD and religiosity, it is suggested that religion per se might not be enough for the development of OCD, but rather the development of beliefs, such as thought-action fusion (TAF), that could mediate the relationship between religiosity and OCD. Previous studies of individuals from different religious groups (e.g., Protestants, Catholics, Jews, and Muslims) have established positive associations between religiosity and TAF, particularly moral TAF (Sica, Novara & Sanavio, 2002; Rassin & Koster, 2003; Abramowitz, Decon, Woods & Tolin, 2004; Siev & Cohen, 2007; Yorulmaz, Gençöz & Woody, 2009). These studies suggest that highly religious people perceive the presence and meaning of negative, unwanted thoughts as more personally significant, influential, and immoral compared to non-religious or less devout individuals.

In other words, regardless of the type of religion, the level of religiosity has been related to at least one cognitive factor as well as symptoms. Further, highly religious people reported more concerns about the importance of their own thoughts and of controlling them, in addition to more fusion of thoughts and actions in the moral domain (Yorulmaz, Gençöz, & Woody, 2009; Williams et al., 2013).

Several studies have observed an association between TAF and religiosity that could lead to OCD. For instance, Ok & Gören (2018) carried out an investigation into the correlation between religiosity and OCS, as well as the influence of personality traits in a nonclinical Muslim sample of 298 individuals. The participants were divided into three different age groups: adolescents aged 16–19 ($n = 32$), young adults aged 20–35 ($n = 219$), and middle-aged participants aged 36–66 ($n = 47$), with a gender distribution of 113 men (38%) and 184 women (62%). It is worth noting that the majority of the participants in the study's sample were enrolled in various Turkish universities. The study utilized the Brief Obsessive-Compulsive Scale (BOCS), a widely used tool for diagnosing OCD based on the Yale-Brown Obsessive-Compulsive Scale (Bejerot et al., 2014).

Additionally, the study incorporated the Ok-Religious Attitude Scale (Ok, 2016), designed to assess the level of Islamic religiosity, which was suitable for the study's sample. The Big Five inventory, a 44-item scale developed by John and Srivastava (1999), was also employed in the study to obtain a measurement and subsequent analysis of the role of personality in the OCS-religiosity relationship among participants. More importantly, the analysis of the study concluded that there was a significant association between OCS and religiosity.

Most studies examining the connection between religiosity and OCS/OCD tend to focus on simple bivariate correlations, failing to provide an explanation for the phenomenon (Greenberg & Shefler, 2002). To gain a better understanding of the relationship between religiosity and OCS, it is essential to investigate the underlying mechanisms (mediators). This necessitates the assessment of potential mediating factors in the relationship, which would offer a more comprehensive understanding of religious individuals who may be susceptible to distressing OCS.

In an attempt to investigate this potentially mediating relationship between OCD and religiosity, Wright and Freeston (2006) conducted a study among university students, and they reported a weak but significant correlation between OC symptoms and religiosity, and that relationship was partially mediated by moral TAF. Interestingly, from post-hoc analyses, in addition to religiosity, they discovered that the relationship between spirituality, a related construct, and OC symptoms was partially mediated by Likelihood TAF. In a later study on a separate sample that specifically tested the relationship between spirituality and likelihood of TAF (Ward and Freeston, 2008) replicated the finding. They concluded that, in addition to moral TAF, the link between spirituality and likelihood TAF may have an additional role in maintaining OC symptoms. These studies have critically distinguished between religiosity and spirituality and the possibility that each may play an important but differential role in corresponding with distinct types of TAF and eventually may be associated with obsessive-compulsive symptoms.

In a recent experimental study by Williams, Lau, and Grishan (2013) on the mediating role of TAF in the religiosity-OCD relationship, they found that TAF mediated the relationship of religiosity-OCD in the Christian group only. This study was conducted among 33 Christian, 22 Jewish, and 30 Atheist/Agnostic groups, and the responses of the different religious groups were measured after inducing intrusive thoughts. Based on these findings, Williams et al. (2013) concluded that OC symptoms are not associated with religious convictions per se but with the likelihood TAF.

A recent investigation into religious scrupulosity among Jewish (n=73), Muslim (n=66), and Christian (n=68) populations revealed that moral TAF is a stronger predictor of scrupulosity symptoms for individuals identifying as Jewish, while it is a weaker predictor for those identifying as Christian. This suggests that moral TAF may only act as a risk factor when it is not aligned with cultural norms, indicating a potential need to revise the existing cognitive model of scrupulosity to incorporate a greater awareness of cultural contexts (Evey, 2024). While the primary focus of this study is on scrupulosity, the findings imply that Moral TAF is a crucial element in understanding the interplay between OCD and religious beliefs.

Despite consistent findings supporting the relationship between religiosity, both moral TAF and likelihood TAF, and OCD (e.g., Yorulmaz et al., 2009; Inozu et al., 2012; Berman et al., 2012; Williams et al., 2012), other studies reported contradictory findings that did support the relationship (e.g., Siev et al., 2007; Witzig & Pollard, 2013; Witzum & Witzum, 2005). These inconsistencies could be due to several limitations, one of which is how religiosity has been measured in previous studies.

Therefore, to address these limitations, a multidimensional religiosity measure may be required to investigate the relationship between religiosity, TAF, and OC symptoms. This multidimensional religiosity measure would include several possible important dimensions, including spirituality, in order to be used across a range of religions and countries, and moreover, it is applicable for individuals who are spiritual without formal religious affiliations.

1.2 Rationale of the study

Both the limitations in the existing literature concerning the relationship between religion and TAF and the apparent inconsistencies may be due to several factors. First, larger samples within different religious groups and across cultures may be required to address the issue of inconsistent findings; most studies to date have either used samples from one faith group or, if they have used several faith groups, one or more of these have been small. For example, Likelihood TAF has been shown to relate to OCD in Christian samples (Shafran, Thordarson & Rachman, 1996; Amir, Freshman, B. Ramsey, Neary, Brigidi, 2001; Rassin & Koster, 2003), whereas it has been revealed that Moral TAF is related to OCD among Muslim and Jewish samples (Okasha, Saad, Khalil, Seif & Yehia, 1994; Siev & Cohen, 2007; Yorulmaz, 2004, 2009).

Second, it is possible that the use of different measures of religiosity in the studies may account for the inconsistencies. Many of the measures used to measure religiosity were developed specifically for each study. For instance, Steketee et al. (1991) measured religiosity by means of a three-item questionnaire. However, Yorulmaz et al. (2009) measured religiosity using a different measure developed by the group, the Religiousness Screening Questionnaire.

Furthermore, most of the studies used a measure that only focused on certain dimensions of religiosity. For example, a few have focused on religious practices (Tek & Ulug, 2001; Sica, Novara & Sanavio, 2002; Rassin & Koster, 2003, Yorulmaz, Gençöz & Woody, 2009) and several on religious attitudes (e.g. Steketee, Quay & White, 1991; Abramowitz et al., 2004; Siev & Cohen, 2007), some of both religious attitudes and religious practices (Hermesh, Masser- Kavitzky & Gross-Isseroff, 2003) and only a few on other related constructs, such as spirituality (Wright & Freeston, 2006; Ward & Freeston, 2008; Witzig & Pollard, 2013), fundamentalism (Inozu, et al, 2012; Witzig & Pollard, 2013). Fundamentalism is of potential interest given the proposal by Salkovskis et al. (1999) that rigid religious beliefs that include extreme codes of conduct and duty may be of significance.

Finally, the lack of a uniform construct definition of religiosity and its subcomponents and related variables could account for the inconsistent results. It is crucial to have a universally agreed-upon definition of religiosity as it may present a threat to the validity of each of the studies and be a threat to the field as a whole. Although Wright & Freeston (2006) and Ward & Freeston (2008) attempted to address this issue and advanced the field by distinguishing between religiosity and spirituality, the field may be complete if a measure could capture additional dimensions of religiosity, such as fundamentalist approaches to religiosity and spirituality. This is particularly significant given that researchers have posited theories regarding the evolution of cognitive domains in individuals, indicating that childhood expectations and environmental influences, such as stringent behavioral guidelines, may play a role in the development of cognitive misappraisals (Salkovskis, Shafran, Rachman, & Freeston, 1999).

Further, despite increasing attention concerning the association between religiosity and OCD in different cultures and religions, there is little research on the relationship between religiosity, TAF, and OCD in non-Western samples. Although TAF and other cognitive factors are influential factors in cognitive models of obsessive-compulsive disorder (OCD), their impact on OCD has generally been demonstrated in samples from developed and Western countries (Thomas, Turkheimer & Oltmanns, 2000; Yorulmaz et al., 2009; Inozu et al., 2012). In other words, many studies in this area have predominantly focused on Western countries and Christianity; hence, the links between cognitive factors among other religions remain unknown. Thus, it is suggested that studying an extensive range of religions in diverse cultures, along with beliefs regarding TAF, could provide a greater understanding of OCD.

Therefore, this study sought to address the need for OCD research in more diverse religious contexts. Importantly, this study focuses on the development of a measure of Religiosity/Spirituality that captures a more comprehensive range of the various dimensions of religiosity and spirituality. More significantly, this measure is designed not only to be used across all major religions but can also be used for those not affiliated with formal religions but who may still have a religious and/or spiritual life.

In addition, research has suggested that culture and cultural identity could play a role in the manifestations of OCD and the content of obsessions (Yorulmaz, Gencoz & Woody, 2009). It would be interesting to investigate the relationship between religiosity and OCD in various cultures in Western and non-Western countries. As such, Religiosity/Spirituality, TAF, and their relationship with OC symptoms will be studied in samples made up of different cultures and across religions among non-clinical samples in the United Kingdom (UK) and Malaysia will be investigated.

1.2 Analogue study

It is important to note that these studies will be conducted among non-clinical samples (analogue samples) to examine the prediction of OC symptoms and their associations to religiosity/spirituality and Thought-Action Fusion (TAF). Previous studies have revealed that non-clinical samples are appropriate for studying various aspects of obsessive-compulsive disorder (Muris, Meesters, Rassin, Campbell & Merckelbach, 2001; Rassin & Koster, 2003; Marck & Woods, 2007; Abramowitz, Fabricant, Taylor, Deacon, McKay & Storch, 2014) because intrusive thoughts and compulsive behaviours are relatively common in the general population. For instance, it is reported that 80–99% of people in non-clinical samples, such as students and community members experience intrusive thoughts (Freeston, Ladouceur, Thibodeau & Gagnon, 1991; Clark, 1992; Freeston, Ladouceur, Thibodeau & Gagnon, 1992; Purdon & Clark, 1993, 1994; Purdon & Clark, 1993, 1994; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). Intrusive thoughts could be considered as a possible precursor to clinical obsessions (Purdon & Clark, 1993).

Cognitive models of OCD (Salkovskis, 1985, 1989; & Rachman, 1993, 1997) assume that obsessions have their origin in normal intrusive thoughts. Additionally, Salkovskis (1999), specifically proposed that normal intrusions escalate into persistent and distressing clinical obsessions if the intrusions are appraised as posing a threat for which the individual is personally responsible. There are other reasons why analogue studies are preferable.

First, it is understood from cognitive therapy models of mental health problems that OCD is one end of the continuum with regard to normal processes. At one end are normal intrusive thoughts experienced by most people, and clinical OCD is at the other end of the continuum. This suggests that those who would not consider the occurrence and content of cognitive intrusions to be of significance would be able to easily dismiss these thoughts (Rachman, 1998).

In contrast, those who do appraise the presence or content of their intrusive thoughts as significant and meaningful intrusions are more likely to develop OCD. Second, large non-clinical samples allow multivariate testing of models, where the relationships between several factors can be examined. Larger samples are required, which are difficult to achieve with clinical samples. This aligns with earlier research that proposed utilizing analogue samples to explore phenomena related to obsessive-compulsive disorder (OCD), based on the assumption that the results derived from these samples are relevant and can be generalized to understand these phenomena in individuals diagnosed with OCD (Abramowitz, Laura Fabricant, Taylor, Brett J. Deacon, McKay, Storch, 2014a; Abramowitz, Laura Fabricant, Taylor, Brett J. Deacon, McKay, Storch, 2014b)

Third, studies by Wright and Freeston (2006) and Ward and Freeston (2008), in addition to others provide a base to build on in terms of measurement and design; therefore, using such samples, meaningful relationships have been identified between the key variables, thus, indicating that the analogue approach may be fruitful here.

In conclusion, the findings from prior research, along with the belief that comprehending obsessive-compulsive symptoms in analogous samples can yield significant insights into the mechanisms and processes that underlie obsessive-compulsive disorder in diagnosed individuals, are noteworthy.

1.4 Research Aims

The aim of this study is to replicate and extend the findings that Thought-Action Fusion (TAF) mediates the relationship between aspects of religious belief and practice and OCD.

1.5 Specific Objectives

It is hypothesised that TAF mediates the relationship between aspects of religiosity and OCD. This general hypothesis will be examined in depth by considering a number of factors leading to the following objectives.

- a) The study will investigate the indirect effects of Religiosity/Spirituality on OC symptoms through TAF in multi-religious samples.
- b) Studies will be conducted among samples recruited in both the UK and Malaysia in order to consider both Western and non-Western cultures.
- c) The study will examine the relative contributions of the different types of TAF.
- d) The study will investigate different aspects of religious behaviour, spirituality, and religiosity.
- e) The influence of other variables on the indirect effects will be investigated, namely, religious fundamentalism and cultural identity.

Chapter 2

Literature review

2.1 Obsessive-Compulsive Disorder (OCD)

Obsessive-Compulsive Disorder (OCD) is defined by the presence of either obsessions or compulsions (DSM-IV, American Psychiatric Association [APA], 2000). According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013), obsessions are described as "repetitive and persistent thoughts, urges, or images that are intrusive and unwanted" and compulsions as "repetitive behaviors or mental acts that an individual feel compelled to perform in response to an obsession or according to rigidly applied rules" ("Obsessive-Compulsive and Related Disorders," para. 2). The persistence, frequency, and negative impact of specific obsessions and compulsions are the defining characteristics of obsessive-compulsive disorder (OCD) (APA, 2013). For instance, recurring thoughts about contamination (e.g., getting hands dirty) or recurring doubts that one has forgotten to perform necessary actions (e.g., locking the door or turning off the stove) (American Psychiatric Association, 2000; Durand & Barlow, 2013) and other common obsessions are fears of contamination (such as germs, chemicals, and bodily fluids), pathological doubts (for instance, the fear of having harmed others, having made inappropriate comments, or failing to secure doors and appliances), intrusive violent or sexual thoughts or impulses, a preoccupation with symmetry or order (i.e., a compulsion to arrange items in a specific manner), and religious scrupulosity (Waldman, Terzic, Egan, Elghozi, Jahangir, Kane, & Woosley, 2008). Individuals with OCD often acknowledge that their intrusive thoughts lack rationality (Waldman, Terzic, Egan, Elghozi, Jahangir, Kane, & Woosley, 2008) as these obsessions are considered inappropriate and unacceptable, causing significant distress and anxiety (Abramowitz, Deacon, Woods & Tolin, 2004).

Conversely, compulsions are physical or mental behaviors that are performed in response to obsessions in which the person attempts to neutralise, with the aim of decreasing distress and getting rid of their excessive concerns (DSM-IV, American Psychiatric Association [APA], 2000). In other words, the aims of compulsions are to get relief from discomfort and anxiety caused by obsession and, thus, to prevent a feared consequence from occurring (de Silva, 2003).

Compulsion may be overt repetitive behaviours such as washing hands, checking, ordering and arranging numerous materials (de Silva, 2003), or covert acts such as saying a series of words in a certain sequence silently, reviewing conversations, counting, seeking validation from a close individual or religious authority, and fixating on previous wrongdoings (Abramowitz et al., 2002; Siev et al., 2017). Since covert acts are purely cognitive actions and less tangible than overt performance, therefore, they may be difficult to recognise (Abramowitz, 2006). These compulsions frequently exhibit a compelling nature due to their function in alleviating the anxiety linked to obsessions. The prevalent forms of compulsions encompass checking, washing, counting, the urge to inquire or confess, symmetry and precision (such as ordering), and hoarding (Eisen and Rasmussen, 2002).

Previously, OCD was placed as one of the anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition: *DSM-IV* (American Psychiatric Association, 1994). However, in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition: *DSM-V* and the International Classification of Diseases (ICD), OCD was grouped with other related disorders, namely 1) body dysmorphic disorder, 2) hoarding disorder, 3) trichotillomania (hair pulling disorder), 4) excoriation (skin-picking) disorder, 5) substance/medication-induced obsessive-compulsive disorder, 6) obsessive-compulsive disorder due to another medical condition, and 7) other specified and unspecified obsessive-compulsive

disorders (e.g., body-focused repetitive behaviour disorder, obsessional jealousy) (APA, 2013; Phillips, et al. 2010; Stein et al. 2016).

To be diagnosed with OCD, there are several criteria, such as the obsession or compulsion should not be caused by the symptoms of another mental health disorder or due to the physiological effects of substance abuse, and more importantly, the obsession or compulsion should be time-consuming (American Psychiatric Association, 2013). Individual presentations of OCD may vary, but common themes have been identified. The most common obsessions are related to the contamination, doubt, aggression or harm (e.g., thoughts of harming other people), sexual (such as inappropriate sexual acts or gestures), blasphemous (e.g., inappropriate gestures in holy places, and the pollution of prayers by disgusting thoughts) (Rachman, 2006; American Psychiatric Association, 2013). To fulfill the diagnostic criteria for Obsessive-Compulsive Disorder (OCD), the obsessions and compulsions must be of such intensity or frequency that they lead to significant distress or hinder daily functioning. Numerous individuals suffering from OCD experience considerable impairment due to their symptoms, engaging in rituals that can last for several hours each day, and may even become confined to their homes as a result of avoidance behaviors. The majority of those with OCD possess an awareness of the irrationality or extremity of their thoughts and actions (indicating insight into their condition), often feeling embarrassed or ashamed about their disorder and fearful of the possibility of losing their sanity (Waldman, Terzic, Egan, Elghozi, Jahangir, Kane, & Woosley, 2008).

Common compulsions include washing, repeating, checking, symmetry, ordering, touching, hoarding, counting, praying and countering thoughts (Rasmussen & Eisen, 1991, 1992; Rasmussen & Tsuang, 1986, Parkin, 1997, Bloch, Landeros-Weisenberger, Rosario, Pittenger & Leckman, 2008; Matsunaga, Hayashida, Kiriike, Nagata & Stein, 2008).

OCD occurs across all countries and cultures. Prior research indicates that Obsessive-Compulsive Disorder (OCD) impacts between 1% and 3% of individuals over the course of their lives, highlighting its status as a common psychiatric condition affecting a similar percentage of the worldwide population (Zai, Barta, Cath, Eapen, Geller & Grünblatt, 2019; Strom, Soda, Mathews, Davis, 2021; Brock, Rizvi, Hany, 2024). For example, it is estimated that the prevalence of OCD in the community is 2- 3% in the USA (Karno, Golding, Sorenson & Burnam, 1988; Samuels & Nestadt, 1997). Recently, data from the National Institute of Mental Health (NIMH) covering the years 2001 to 2003 indicates that the lifetime prevalence of Obsessive-Compulsive Disorder (OCD) among adults in the United States is 2.3% (National Institute of Mental Health (NIMH)) while in Europe, varying between 0.1% and 2.3% (Ilenia Pampaloni et al, 2022). The frequency of OCD seems to be relatively uniform among ethnic groups in the United States, with African and Caribbean Americans exhibiting a lifetime prevalence of 1.6% (Himle et al., 2008). Other Western countries also reported the prevalence of OCD. For instance, epidemiological research conducted in various countries has found comparable rates internationally (Weismann et al., 1994), ranging from 0.3% in Brazil to 2.7% in Hungary and at 1.5% in the general UK population (Davies, 2007).

Furthermore, studies in other countries using DSM-III and DSM-IV criteria assessed the prevalence of OCD in seven countries (USA, Canada, Puerto Rico, Germany, Taiwan, Korea and New Zealand) and ascertained that the lifetime prevalence in adults ranged from 0.7 to 2.5% (Kolada, Bland & Newman, 1994; Weissmann, Bland, Canino, Greenwald, Hwu, Lee, Newman, Oakley-Browne, Rubio-Stipec & Wickramaratne, 1994; Fawcett, Power & Fawcett, 2020).

In other studies, a lifetime prevalence in OCD of 0.5% was observed in Germany (Grabe, Meyer, Hapke, Rumpf, Freyberger, Dilling & John, 2000), and a lifetime prevalence of OCD of 1.8% was noted in Iran (Mohammadi, Ghanizadeh & Rahgozar, 2004). The lifetime prevalence in all these countries reported in these studies suggests that the prevalence of OCD is not rare in the community and has a similar pattern in both Western and non-Western countries (Weissmann, Bland, Canino, Greenwald, Hwu, Lee, Newman, Oakley-Browne, Rubio-Stipec & Wickramaratne, 1994; Okasha, Saad, Khalil, El-Dawla & Yehia, 1994; Abramowitz, Taylor & McKay, 2009). Considering the current global population (US Census Bureau, 2014), it can be inferred that more than 114 million individuals worldwide are affected by OCD.

Obsessive-Compulsive Disorder (OCD) generally manifests in early life and tends to persist over an extended period, with an average onset age of 19.5 years (Ruscio, Stein, Chiu & Kessler, 2010)..Different ages have been reported for the onset of OCD in various studies, but most cases of OCD typically begin before the age of 20 or during late adolescence and early adulthood (Samuels and Nestadt, 1997; Rasmussen & Tsuang, 1986; Rasmussen & Eisen, 1992; Campos, Leckman, Mercadante, Shavitt, Silva Prado, Sada & Miguel, 2001). Furthermore, OCD is more prevalent in women (1.5%) compared to men (1%) (Fawcett, Power & Fawcett, 2020).

However, when it comes to prevalence in childhood and adulthood, it is more common for males to be affected during childhood, while females may have a slightly higher rate of OCD than males in adulthood (DSM-5; APA, 2013). To be specific, Obsessive-compulsive disorder (OCD) affects 2 to 4% of children and adolescents¹ and 2 to 3% of adults.

Interestingly, among the various themes of OCD, males tend to develop concerns related to symmetry, while females are more likely to develop cleaning concerns (American Psychiatric Association, 2013; Durand & Barlow, 2013). Similarly, a literature review has identified notable differences in the gender-specific phenotypic expression of Obsessive-Compulsive Disorder (OCD), indicating that male patients tend to exhibit a higher prevalence of sexual-religious and aggressive obsessions, along with increased comorbidity with tic disorders and substance use disorders, whereas female patients are more likely to experience obsessions related to contamination and cleaning, as well as greater comorbidity with eating disorders and impulse-control disorders (Mathis, Alvarenga, Funaro, Torresan, Moraes, I., Torres, & Hounie, 2011). Individuals with Obsessive-Compulsive Disorder (OCD) often display worries about cleanliness, symmetry, organization, and perfectionism. It is important to understand that OCD is a multifaceted condition with different aspects.

Among these aspects are intrusive thoughts and obsessions related to morality, which may differ depending on cultural beliefs and standards (e.g., Bloch, Landeros-Weisenberger, Rosário, Pittenge, & Leckman, 2008; Williams, Mugno, Franklin, & Faber, 2013). Hence, it is crucial to consider cultural diversity when dealing with the various presentations of OCD (Chapman, DeLapp, & Williams, 2014), as culture has a substantial impact on how psychopathology is manifested, particularly in a complex disorder like OCD. While cultural, economic, and social influences contribute to the manifestation of obsessive-compulsive

disorder (OCD), including the nature of obsessions and the form of compulsions, its occurrence is uniformly distributed worldwide (Carmi, Brakoulias, Arush, O.B. et al. 2020).

In term of comorbidity, a range of comorbid conditions associated with Axis I and Axis II disorders has been recognized (Hollander, Greenwald, Neville, Johnson, Hornig, & Weissman, 1996), including Depression, Simple Phobias (22%), Social Phobia (18%), Eating Disorders (17%), Alcohol Dependence (14%), Panic Disorder (12%), and Tourette's Syndrome (7%) (Pigott, L'Heureux, Dubbert, Bernstein, & Murphy, 1994), alongside elevated incidences of suicidality.

As for the impact of OCD, both obsessions and compulsions can cause significant distress and interfere with various aspects of daily functioning, often leading to debilitating effects (American Psychiatric Association [APA], 2000, 2013). OCD can result in a reduced quality of life (APA, 2013) and even lead to family dysfunction when patients impose rules and restrictions on family members, such as prohibiting visits by friends or relatives at home due to contamination fears (APA, 2013). Most individuals develop OCD during adolescence or early adulthood, and the disorder tends to be chronic if left untreated (Albert, et al., 2015; Anholt, et al., 2016; Pinto, Mancebo, Eisen, Pagano & Rasmussen, 2006).

The development of clinically significant distress and impairment is usually gradual, and individuals who experience obsessions or compulsions during childhood are more likely to meet the diagnostic criteria for OCD in adulthood (Fullana et al., 2009). Spontaneous recovery without treatment is rare (Skoog & Skoog, 1999), and the gradual progression of symptoms may result in delays of 10-15 years before individuals seek treatment (Pin Pinto, Mancebo, Eisen, Pagano & Rasmussen, 2006; Öst, Havnen, Hansen & Kvale, 2015).

2.2 Culture and OCD

2.2.1 *OCD across cultures*

As stated previously, OCD occurs across countries and cultures; thus, it appears relevant that culture might influence the manifestations and the presentations of OCD symptoms (Yorulmaz et al., 2009). For example, previous studies on cross-cultural epidemiology have indicated that there were both similarities and differences in OCD rates as well as OCD symptoms and the content of obsessions (e.g., Weissmann, Bland, Canino, Greenwald, Hwu, Lee, Newman, Oakley-Browne, Rubio-Stipec & Wickramaratne, 1994; Okasha, Saad, Khalil, El-Dawla & Yehia, 1994; Mohammadi, Ghanizadeh & Rahgozar, 2004).

Cultural factors can significantly influence various clinical outcomes, including how patients perceive and communicate their discomfort, as well as how clinicians interpret these symptoms within the framework of psychiatric diagnoses (Nicolini, Salin-Pascual, Cabrera, & Lanzagorta, 2017). To date, there has been limited research on the degree to which various elements of cultural identity—such as religious beliefs, sexual orientation, educational background, and socioeconomic status—affect the clinical presentation of obsessive-compulsive disorder (OCD) (Matsunaga, Maebayashi, Hayashida, et al. 2008; de Silva, 2006).

A recent investigation by Williams, Chapman, Simms, and Tellawi reveals that the phenomenology of obsessive-compulsive disorder (OCD) exhibits significant variations across different cultural groups. This research examined a diverse range of populations, including non-Hispanic Whites/European Americans and Western cultures, African Americans, Western Christian samples, Jewish communities, Middle Eastern Islamic cultures, as well as individuals from India, Indonesia, East Asia, Africa, and Hispanic and South American backgrounds. The results indicate that cultural context plays a crucial role in shaping the manifestations of OCD.

The researchers concluded that while there are commonalities in OCD symptoms, the specific content of obsessions is heavily influenced by cultural relevance, leading to notable differences in symptom expression. Factors such as cultural dimensions, religious beliefs, and traditional values have been proposed as potential explanations for these similarities and differences (Yorulmaz et al., 2009).

In an effort to better understand the cross-cultural variations in OCD, the study outlines several cultural factors that may significantly impact the expression and persistence of the disorder. First, previous research has indicated that the nature of obsessions and compulsions may reflect prevalent concerns within specific cultures and across various cultural contexts (e.g., Okasha, 2004; Pirutinsky et al., 2009). For instance, clinical studies have documented evidence from both Western and non-Western cultures, including India, Pakistan, Hong Kong, Taiwan, Egypt, Singapore, Saudi Arabia, and Turkey (e.g., Matsunaga et al., 2002; Silva & Rachman, 2004; Steketee, Quay & White, 1994; Karadag et al., Yorulmaz & Woody, 2009).

Additionally, individuals from specific cultural backgrounds or historical contexts may exhibit common concerns associated with OCD-related obsessions, which manifest in their compulsions and obsessions (de Silva, 2006). For example, numerous clinical studies have revealed that the fear of contamination is the predominant obsession among African Americans suffering from OCD (Thomas et al., 2002), while issues related to cleanliness and animals are also frequently observed within this demographic (Williams, Abramowitz & Olatuni, 2012; Williams & Turkheimer, 2007). Furthermore, contamination and aggression are prevalent among Hispanic and Latin American populations (Williams et al., 2010; Williams, Chapman, Simms, & Tellawi, 2017).

Moreover, research involving Indian participants has underscored themes of contamination and pathological doubt, revealing significant gender differences in symptomatology, whereas East Asian studies have identified contamination and symmetry as the most significant symptom dimensions, with cultural distinctions noted between Japan and China (e.g., a stronger focus on symmetry in China and on contamination and aggression in Japan) (Liu et al., 2008). These observations suggest that certain symptom dimensions are prevalent within specific geographical regions and religious communities globally. Interestingly, clinical investigations from various nations have documented the presence of aggressive themes in obsessions in Brazil (Fontenelle, Mendlowicz, Marques & Versiani, 2004); orderliness in the UK (Okasha, Saad, Khalil, El-Dawla, Yehia, 1994) and in India (Jaisoorya, Reddy, Srinath & Thennarasu, 2009). Furthermore, obsessions with religious themes have been reported in Egypt, Turkey, and Israel (e.g., Okasha et al., 2004; Karadag et al., 2006; Inozu et al., 2013; Greenberg & Shafler, 2002).

Since the identification of HIV/AIDS in the 1980s, there have been documented instances of obsessive themes associated with fears of contamination and compulsive washing behaviors among patients with Obsessive-Compulsive Disorder (OCD) in both Western and Eastern nations, including Japan (de Silva, 2006; Matsunaga et al., 2002).

In addition to the geographical factors that may affect the manifestation of Obsessive-Compulsive Disorder (OCD), religious influences may also be associated with its symptoms and presentations. Prior studies across various countries have suggested that certain obsessions or compulsions may be intertwined with religious beliefs and practices. For example, a number of studies have suggested that religious themes have been recognized as significant components of OCD symptoms in multiple nations, including Egypt (e.g., Okasha et al., 1994; Okasha et al., 2004), Israel (e.g., Greenberg, 1984; Zohar et al., 2005; Greenberg & Shefler, 2002), the United States (Witzig & Pollard, 2013), Saudi Arabia (Mahgoup & Abdel-Hafiz, 1991; Al-Solaim & Loewenthal, 2011), Bahrain (Shhoka et al., 1998), Turkey (e.g., Millet & Tezcan, 1997; Inozu et al., 2012; Yorulmaz et al., 2009; Üzeyir Ok & Ayşe Burcu Gören, 2018), Pakistan (Saleem & Mahmood, 2009), Lebanon (Ayoub, et al, 2024), and Indonesia (Lemelson, 2003).

Most studies suggest that in cultures where religious influence is prominent in everyday life, OCD symptoms may be affected (e.g., Okasha, 2004; Pallanti, 2008). The heightened presence of religious rituals within OCD symptomatology often indicates an excessive degree of faith that surpasses societal expectations. Previous investigations have shown that the focus on stringent religious beliefs within religious doctrines may influence the manifestation of OCD (e.g., Rassin & Koster, Yorulmaz et al., 2009; Williams et al., 2013).

Moreover, research suggests that in societies where religious influence is prominent in everyday life, symptoms of Obsessive-Compulsive Disorder (OCD) may be affected (e.g., Okasha, 2004; Pallanti, 2008). The prevalence of religious rituals within OCD symptomatology often indicates an excessive degree of faith that surpasses societal expectations. For instance, prior studies have shown that a strong emphasis on rigid religious doctrines may shape the manifestation of OCD (e.g., Rassin & Koster, Yorulmaz et al., 2009; Williams et al., 2013).

Furthermore, some scholars have posited that in nations characterized by conservative, traditional, and religious values, such as Israel and Saudi Arabia, early exposure to religious practices may lead to the emergence of religious obsessions associated with Islam and Judaism (e.g., Clark, 2004; Okasha, 2002). In Islam, it is customary for children to begin performing ablution (*wudu*) at the age of ten, ensuring they are cleansed prior to participating in the five daily prayers (Mahgoub & Abdel Hafeiz, 1991). The process of *wudu* involves specific obligatory rules, including the order of the cleansing actions and the quantity of each step.

Religious teachings in Islam also stress that children who neglect to pray may face punishment (El Azayem & Hedayat-Diba, 1994; Noh, Razak, & Kasim, 2015). The preoccupation with bodily cleanliness prevalent in devout societies seems to mirror the community's valuation of spiritual purity. Additionally, OCD in Near Eastern countries is shaped by religious convictions, as well as familial and societal norms (e.g., the act of kissing the feet of respected elders) (Williams, Chapman, Simms, & Tellawi, 2017). For example, a recent clinical investigation conducted on Muslim Lebanese individuals diagnosed with OCD revealed a significant prevalence of religious uncertainties, such as self-doubt regarding the correctness of their prayers, and particular rituals, including the repetition of partial ablutions, among patients with severe OCD. This finding indicates a potential correlation between specific religious practices and the severity of OCD (Ayoub, Dib El Jalbout, Maalouf, Ayache, Chalah, & Abdel Rassoul, 2024), highlighting the necessity for culturally informed strategies in the diagnosis and treatment of religious obsessions in OCD (Himle, Chatters, Taylor, & Nguyen, 2011).

Conversely, among Christian populations, the most frequently reported symptoms include obsessions related to contamination and thought control, with the Catholic subgroup particularly fixated on perfectionism. In contrast, the Jewish subgroup tends to experience obsessions centered on religious themes, including morality, divine retribution (Huppert et al., 2007), the repetition of prayers, ritual cleanliness, and adherence to daily dietary laws (e.g., Greenberg & Shafler, 2002; Rosmarin, Pirutinsky & Siev, 2010; Zohar, Goldman, Calamary & Mashiah, 2005).

In conclusion, it is clear that within Muslim culture, there is a profound emphasis on cleanliness and ritual purity, especially concerning religious observances. Notably, certain sexual topics are regarded as taboo, forbidden, sinful, and shameful, which may correlate with factors that predispose individuals to obsessive-compulsive disorder (OCD) (Okasha, Saad, Khalil, El-Dawla, Yehia, 1994; Pallanti, 2008).

Regarding the cultural and religious standards that enforce strict adherence and obedience in certain faiths, such as Islam and Judaism, this can be interpreted as significant and noteworthy. This may be associated with OCD-related cognitions, including beliefs regarding the excessive importance of thoughts, intolerance of uncertainty, thought control, perfectionism, and a sense of responsibility. Prior research has consistently demonstrated a positive correlation between high levels of religiosity and OCD cognitions, encompassing the excessive importance of thoughts, feelings of responsibility, and guilt. For example, previous researchers have proposed theories on the development of inflated responsibility in individuals, suggesting that childhood expectations and environmental factors (such as strict codes of conduct) may contribute to the emergence of cognitive misappraisals (Salkovskis, Shafran, Rachman, & Freeston, 1999).

Despite existing evidence regarding the connection between religious beliefs and practices, a recent investigation conducted by Abramowitz and Buchholz (2020) revealed that religiosity does not intrinsically lead to or forecast heightened levels of obsessive-compulsive disorder (OCD). Instead, when individuals who hold religious beliefs experience OCD, their symptoms frequently manifest religious motifs. Furthermore, research indicates that the occurrence of religious obsessions and compulsions correlates with less positive treatment outcomes for OCD.

While various studies have indicated that religion serves as a theme of obsession in highly religious nations, two clinical investigations have determined that religion was not a prevalent theme among British OCD patients (Stern & Cobb, 1978 cited in Greenberg & Shafner, 2002) and was less common among Hindu OCD patients (Akhtar, et al., 1978). The findings from research on individuals with OCD in British and Hindu contexts highlight the influence of cultural factors on the onset and persistence of OCD, particularly in relation to cultural characteristics. Williams (2015) notes that Eastern cultures, such as those in China and Japan, emphasize conformity, collectivism, and harmony, which may suggest a certain emphasis on symmetry (Li et al., 2009). This notion aligns with previous studies that demonstrate how cultural dimensions across various nations, especially between Western and non-Western cultures, can affect OCD symptoms (e.g., Sica et al., 2002; Yorulmaz et al., 2009; Yorulmaz et al., 2010). For example, the United States, the United Kingdom, and Australia are characterized by individualistic cultures, while countries like China, Pakistan, Nigeria, and Peru display collectivistic traits (Oyserman, Koon & Kimmelmier, 2002; Hofstede, 2001).

Notably, individualism emphasizes self-orientation and personal goals (Hoefstede, 2001), focusing on internal factors like individual attitudes, personality, thoughts, and emotions (Markus & Kitayama, 1994). In contrast, collectivism prioritizes group identity or the 'in-group' (Triandis, 2004), emphasizing external factors such as social norms, public roles, and values (Markus and Kitayama, 1994). Interestingly, in a cross-cultural study by Caldwell-Harris and Ayçiçeği (2006) using a standardized checklist item of individualism-collectivism (Triandis, Chen & Chan, 1998) among two samples in two different countries found interesting findings. In their study, samples in the United States of America (USA) were regarded as more individualist culture, while the Turkish sample was regarded as having a more collectivist culture. They found that participants who live in an individualistic society, such as in the USA, depression, social anxiety, obsessive-compulsive disorder, and dependent personality were positively correlated with collectivism scores but were negatively correlated with individualism scores.

In contrast, for participants who lived in a collectivist culture such as Turkey, individualism scores were positively correlated with the scales on paranoid, schizoid, narcissistic, borderline, and antisocial personality disorder, but collectivism was associated with low reports of symptoms on paranoid, schizoid, narcissistic, borderline, and antisocial personality disorder. From the results, the researchers concluded that a clash between personality and social values within individualism-collectivism cultures is related to mental health (Caldwell-Harris & Ayçiçeği, 2006). Although there is no clear evidence on how the pattern of the cultures may relate to OCD, we assume that individualist-collectivist may relate to how they interpret their thinking, whether it is significant or not, and may predispose to obsessive symptoms.

Additionally, a cross-cultural study by Lucas, Diener, and Grob (2000) examined samples from 39 countries, highlighting the differences between individualistic and collectivistic cultures. Individualistic cultures prioritize individual feelings and thoughts, influencing behavior, while collectivistic cultures emphasize norms, role expectations, and group harmony, which impact behavior. These cultural characteristics can have implications for mental health, with collectivist cultures, in particular, being associated with anxiety disorders like social anxiety. Conversely, as individualist cultures emphasize personal identity, such as 'Me' or 'I', previous studies have found that individualists are more prone to personality disorders such as narcissism (e.g., Foster, Campbell, & Twenge, 2003; Triandis & Suh, 2002).

Interestingly, researchers in the field of obsessive-compulsive disorder (OCD) have conceptualized obsessions through a disjoint (independent or individualism) model of agency (Guidano and Liotti, 1983; Rachman, 2003; Ferrier and Brewin, 2005; Bhar and Kyrios, 2007), characterizing them as manifestations of the various ways in which an individual's (imagined) actions can be perceived as harmful, irresponsible, and morally tainted, thereby labeling them as 'ego-dystonic' (Clark, 2004). In contrast, a conjoint (shared or collectivism) model of agency emphasizes that obsessions related to negative outcomes are concerned with the interplay between the individual and their surroundings, highlighting the implications of this interaction for both the individual and others, as well as its impact on social and spiritual frameworks.

For example, a recent study was conducted to examine obsessions across two cultures, specifically among Belgian and Turkish non-clinical samples (Ozcanli, Ceulemans, Hermans, Claes, and Mesquita, 2019). The findings revealed that, in alignment with existing literature on country-level religiosity (e.g., Gebauer et al., 2012), the Turkish sample exhibited a higher level of religiosity compared to the Belgian sample. Religiosity was evaluated using a five-point scale that measured various factors, including the frequency of attending places of worship, praying, reading religious texts (such as the Bible and Koran), making donations or volunteering time, and the significance of religion in influencing decisions and behaviors (Inozu et al., 2012). Additionally, obsessions were assessed using the Leuven Obsessional Intrusions Inventory (LOII), which incorporates elements from existing measures that combine obsessions and compulsions (e.g., OCI-R; Foa et al., 2002; PI-R; Van Oppen et al., 1995; ROII; Purdon and Clark, 1994), along with new items addressing doubts, 'just right' doubts, and religious obsessions, informed by detailed research and clinical accounts (e.g., Rachman, 1997, 2003; Summerfeldt, 2007).

The primary religious affiliations identified in the Turkish and Belgian samples were Islam and Christianity (Catholic), respectively. The results indicated that the Belgian sample reported a greater number of obsessions, which can be interpreted through a disjoint (independent or individualism) model of agency commonly observed in Western cultures. In contrast, the Turkish sample reported a higher prevalence of obsessions associated with a conjoint (shared or collectivism) model of agency, frequently found in non-Western cultural contexts, highlighting the differences between the two samples.

This research indicated that there are cross-cultural variations in the prevalence of obsessions related to self-perception and outcomes. Specifically, bad-self obsessions were found to be more common among the Belgian participants than those from Turkey, while bad-outcome obsessions were more prevalent in the Turkish group compared to the Belgian group. The Belgian context's greater focus on disjoint agency likely explains why Belgian individuals reported more frequent intrusive thoughts regarding actions for which they felt solely accountable, particularly when these actions were tied to their fundamental preferences or desires. Conversely, the Turkish context's emphasis on conjoint agency may account for the Turkish participants' heightened concern with the adverse consequences of actions or events in comparison to their Belgian peers' samples (Ozcanli, Ceulemans, Hermans, Claes, and Mesquita, 2019).

To note, autogenous obsessions often emerge suddenly into consciousness without clear triggering stimuli, manifesting as ego-dystonic and unpleasant, prompting a desire to reject them. These obsessions may encompass sexual, aggressive, aversive, or immoral thoughts, images, or impulses. Although it is possible to identify the triggering stimuli or contexts, they are typically linked to the content of the resulting thoughts in an associative, symbolic, or less logical manner. Conversely, reactive obsessions are generally triggered by identifiable external stimuli, perceived as more realistic and rational, leading to thoughts, concerns, or doubts regarding contamination, errors, accidents, asymmetry, loss, and similar issues.

Importantly, they also found that the two-dimensional framework of obsessions identified across both cultures aligns with various models of agency, as indicated by the findings of Lee and Kwon (2003). Their research similarly categorized obsessions into two types: bad-self obsessions, termed 'autogenous obsessions,' and bad-outcome obsessions, referred to as 'reactive obsessions.' Furthermore, they investigated the related appraisals and control responses associated with each type of obsession (Lee and Kwon, 2003; Seo and Kwon, 2013). In line with a disjoint model of agency, their findings revealed that bad-self obsessions correlated with an appraisal of 'importance of thought' (e.g., the belief that having a certain thought implies a desire for it to occur), 'negative self-inferences' (e.g., the notion that having such thoughts indicates moral failing), and a perception of 'control over thought' (e.g., the idea that such thoughts signify a loss of control). This is somewhat similar with one of the cognitive domains in cognitive model of OCD, known as Thought Action Fusion. These correlations lend credence to the interpretation of bad-self obsessions as reflective of the individual's intentions, desires, and character.

Conversely, in accordance with a conjoint model of agency, Lee and Kwon (2003) established a link between bad-outcome obsessions and a sense of responsibility for averting feared outcomes (e.g., the belief that contemplating negative possibilities necessitates action to prevent them). This further implies that the outcomes may not solely stem from individual agency, despite the individual's involvement; rather, it is the interplay between the individual and their environment that seems to account for these outcomes. While the current research does not concentrate on bad self and bad outcomes, it is important to note that the studies cited (Lee and Kwon, 2003; Seo and Kwon, 2013; Ozcanli, Ceulemans, Hermans, Claes, and Mesquita, 2019) have demonstrated a connection between various forms of obsession and cultural influences, warranting further exploration.

Furthermore, recent research indicates that various cultures may emphasize superstitious beliefs and magical thinking, which could influence individuals within those cultures and potentially correlate with obsessive-compulsive disorder (OCD) (Lee, Coughle & Telch, 2005; de Silva, 2007; Nicolini, Salin-Pascual, Cabrera, & Lanzagorta, 2017). For instance, several studies have found that individuals diagnosed with OCD often display superstitious traits (Sica, Novara, & Sanavio, 2002; Frost et al., 1993; Zebb & Moore, 2003; Dakota, Spradlin, Cuttler, 2016). To prevent negative outcomes, a person might feel compelled to touch a door handle multiple times. Such superstitious actions may indicate schizotypal characteristics, including magical thinking, where one believes that their thoughts can directly influence events, such as an airplane arriving early due to prior thoughts about its schedule (Lee, Coughle & Telch, 2005), potentially fostering a predisposition to OCD (Lee, Coughle & Telch, 2005; Sobin, Blundell, Weiller, Gavigan, Haiman & Karayiorgou, 2000).

Moreover, some studies propose a connection between magical ideation and the cognitive appraisal known as Thought Action Fusion, which is frequently associated with OCD (e.g., Einstein & Menzies, 2004; Amir et al., 2001). Consequently, it is plausible that cultural elements such as superstitions and magical ideation are widespread in certain societies and may contribute to obsessive-compulsive symptoms. In summary, while it appears that various cultural influences may be linked to the distinct expressions of OCD, the underlying mechanisms remain unclear. Additionally, these cultural factors may not directly cause obsessive-compulsive symptoms but could interact with cognitive appraisals and other elements that indirectly lead to OCD.

2.2.2 Issues in the study of culture and OCD

The relationship between culture factors and OCD has been suggested to explain the variations in the presentation of OCD, including prevalence rates, themes, and contents of obsessions and compulsions. However, the specific factors contributing to this heterogeneity remain unclear (Yorulmaz, et al., 2010). On the contrary, numerous studies by various authors have established that OCD exhibits a certain level of transcultural homogeneity, with socio-demographic features and core symptoms largely unaffected by cultural, ethnic, religious, and geographic differences (e.g. Sasson, Zohar, Chopra, Lustig, Iancu & Hendler, 1997; Matsunaga & Seedat, 2007).

There are multiple reasons for the differences in prevalence, content, and themes of OCD. Firstly, variations in prevalence rates have been observed in certain countries, particularly non-Western countries. While the lifetime prevalence rates for OCD are generally consistent worldwide, some countries have notably lower rates. For instance, Taiwan has reported the lowest prevalence rate at 0.4% (Weisman et al., 1994). The reasons behind these differences are not fully understood, but it is suggested that various factors may contribute, including differences in methodology, diagnostic practices (Nelson & Rice, 1997), availability and utilization of psychiatric care, cultural influences on symptom presentation (Mohammadi, Ghanizadeh & Rahgozar, 2004), and help-seeking behaviors among OCD patients (Greenberg et al., 2002; Wetterneck et al., 2012).

Moreover, there have been two reports indicating that the discrepancies in OCD data across various studies could be attributed to a confusion between clinical and community studies (Murray et al., 1996; Hollander, 1997). Additionally, while there has been an increasing focus on OCD in Western countries like the USA and other European nations, research on OCD in non-Western countries is limited (Thomas, Turkheimer & Oltmanns, 2000). Furthermore, although it has been suggested that cultural factors, such as religion and culturally-related cognitive factors, are associated with OCD, these associations have primarily been observed in samples from developed and Western countries (Thomas et al., 2000). Therefore, the findings cannot be universally applied to other countries, ethnicities, and cultures (Thomas et al., 2000). Furthermore, the scarcity of studies on OCD in non-Western countries may be due to the lack of measurement tools that can be used across different cultures. For example, some assessment tools for OCD may lack cultural sensitivity and can only be utilized in specific samples (Sica, Novara & Sanavio, 2002). It is essential to have measures that assess cultural influences, religion, or other factors related to OCD that are suitable for different cultures as well.

It is proposed that various cultural elements in OCD are present in certain societies but absent in others. For instance, research has shown a link between religiosity and OCD, with conflicting results. Studies indicating religiosity as a risk factor for OCD have mainly been carried out in Western countries (e.g., Yorulmaz et al., 2009; Inozu et al., 2012; Rassion & Koster, 2003). However, other studies have suggested that religiosity can protect against OC symptoms in places like Saudi Arabia (Al-Solaim & Loewenthal, 2011) and among Jewish populations (Witzig & Pollard, 2013). This indicates that the inconsistent findings in OCD may be attributed to socio-cultural factors that are not yet fully understood (e.g., Clark, 2004; Fontenelle, Mendlowicz, Marques & Versiani, 2004; Sica, Novara & Sanavio, 2002).

In summary, while OCD is present worldwide and shares common OC symptoms, there are cultural variations. Cultural aspects such as religious beliefs and practices may indirectly influence OCD through cognitive processes (e.g., TAF, inflated responsibility, overestimation of threat, and thought control), which can contribute to the development of OCD (Greenberg & Witztum, 1991; Greenberg & Shefler, 2002; Greenberg, 1984; Lewis, 1995; Miguel & Hounie, 2002; Okasha, 2002; Williams, Lau & Grisham, 2013; Inozu et al., 2012; Berman et al., 2010).

2.3 Religiosity

2.2.2 Religiosity as a multidimensional construct in OCD studies

Cultural factors frequently linked to OCD include religiosity. Religiosity, often described as involvement in religious practices and behaviors by some researchers, has been connected to OCD symptoms in various studies involving both non-clinical (e.g. Abramowitz, Huppert, Cohen, Tolin, & Cahill, 2002; Abramowitz, Deacon, Woods & Tolin, 2004) and clinical samples (e.g. Steketee, Quay & White, 1991; Greenberg & Shefler, 2002). Previous research has shown that high levels of religiosity can serve as a precursor to OCD and OCS, with positive correlations between the two variables being identified (e.g. Abramowitz, Huppert, Cohen, Tolin, & Cahill, 2002; Abramowitz, Deacon, Woods, & Tolin, 2004). The hypothesis that strict adherence to high religiosity would be linked to increased OCS was proposed. However, some studies have not found religiosity to be a causative factor, and the current evidence remains weak in both clinical samples (Steketee, Quay, & White, 1991; Tek & Ulug, 2001) and non-clinical samples (Sica, Novara & Sanavio, 2002; Zohar, Goldman, Calamary, & Mashiah, 2005; Wright, unpublished thesis 2006; Ward and Freeston, unpublished thesis, 2008).

The inconsistent findings regarding the relationship between religiosity and OCD may be attributed to variations in the definition and interpretation of religiosity as a concept.

Previous studies on this topic commonly focused on aspects such as religious denomination or specific indicators of religiosity like the strength of affiliation, faith, adherence to religious values and practices, and so on (Abramowitz et al., 2004; Hermesh et al., 2003; Seive & Cohen, 2007; Sica et al., 2002; Tek & Ulug, 2001; Yorulmaz et al., 2009; Zohar et al., 2005).

For instance, Sica et al. (2002) categorized their Italian Catholic sample into three groups based on their occupations, which were related to religion. Nuns were selected to represent a high level of religiosity, individuals involved in well-known Catholic associations represented a medium level of religiosity, and college students who were assumed to have little interest in religious practices represented a low level of religiosity.

Furthermore, in a clinical study conducted by Steketee and colleagues (1991), religiosity was assessed using factors such as religion of origin, current religion, and self-reported religiosity on a scale from 0 to 4, rather than focusing on religious behaviors or practices.

However, in recent years, some authors have proposed that religiosity should be conceptualized as a multidimensional construct that incorporates cognitive, emotional, motivational, and behavioral aspects (e.g., Fontaine et al., 2005; Ford & Kadushin, 2002; Johnstone et al., 2009).

In various investigations concerning religiosity and OCD, Abramowitz and colleagues (2004) initially categorized participants into Agnostics/Atheists and Protestants using a religious affiliation scale. Subsequently, they further classified their Protestant participants into highly religious Protestants and moderately religious Protestants based on three aspects of religiosity, namely the strength of religious affiliation, the strength of religious beliefs, and the strength of agreement with the teachings of their religion. Additionally, Siev et al. (2010) segmented their Catholic, Protestant, and Jewish samples into different levels of religiosity based on their responses to six items, including the level of spirituality, extent of practicing religious requirements, level of belief in the teachings of religion, importance of religion for their identity, and importance of religion for others to understand them.

Other studies utilized religiosity scales specifically developed for their research purposes, such as the Religious Practices Index (RPI) addressing the strength of religious affiliation and level of religious activity (Tek & Ulug, 2001), and the Religiousness Screening Questionnaire (RSQ) consisting of seven items on the degree of personal religiousness and religious commitment, such as involvement in religion, religious activities, impact of religious principles on life, and so forth (Yorulmaz et al., 2009). Furthermore, other studies (Williams et al., 2013; Gonsalvez et al., 2010) employed religiosity scales developed within the field of psychology of religion, such as the Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ; Plante & Boccaccini, 1997).

Given the broad nature of religion, which may encompass more than just religious behavior or attendance, the author of this thesis has conceptualized religiosity as a multidimensional construct and has delineated it into various dimensions (refer to Chapter 3 for detailed information).

2.2.3 *Religiosity and OCD*

The relationship between religiosity and obsessive-compulsive (OC) symptomatology has been extensively explored in the literature. Numerous authors have posited a close association between religiosity and OCD, with studies conducted by Salkovskis et al. (2005), Rassin and Koster, and Yorulmaz et al. (2009) supporting this claim. This connection has been of interest since the time of Freud, who argued that religious rituals are essentially manifestations of obsessive-compulsive symptoms (Freud, 1961, as cited in Tek and Ulug, 2001).

In addition to this general relationship, researchers have also focused on a specific theme within OCD known as "scrupulosity." Scrupulosity involves religious and moral obsessions and compulsions. Individuals with scrupulosity symptoms often experience excessive doubt regarding sinning, concerns about minor aspects of their religion, and a fear of divine punishment. These obsessions can manifest as persistent fears of committing a sin, doubts about religious practices, intrusive blasphemous images, doubts about religious devotion, and a fear of divine retribution. Consequently, individuals with scrupulosity engage in compulsions such as excessive prayer, repetitive religious rituals, frequent confession, and seeking reassurance from religious authorities.

Previous studies have found a positive association between scrupulosity and the strength of religious faith among both Christians (Abramowitz et al., 2002; Nelson et al., 2006; Gonsalvez et al., 2010) and Muslims (Shams & Milosevic, 2013).

Psychological theories have long suggested that strict religious codes and moral principles play a significant role in transforming intrusive thoughts into clinically distressing obsessions. This is often due to the deeply personal nature of the intrusive thoughts, as well as the overvaluation of these thoughts by religious individuals. The involvement of blasphemous thoughts, images, or impulses can quickly draw attention and cause distress for devout individuals, highlighting the potential risk factor of strong religiosity for OC symptoms or OCD. However, the specific factors contributing to this relationship between OCS-religiosity remain largely unknown and require further research (Inozu et al., 2014; Rachman, 1998; Rasmussen & Tsuang, 1986).

The empirical validation of the relationship between religiosity and OCD symptoms is crucial, despite the seemingly intuitive nature of these findings. Various non-clinical studies have consistently demonstrated a connection between religiosity and OCD symptoms. For instance, individuals scoring high on religiosity scales, encompassing religious practices, beliefs, and commitment, have reported higher levels of OC beliefs and symptoms compared to those scoring low on such scales. This is in line with studies by Abramowitz et al. (2004), Sica et al. (2002), Yorulmaz et al. (2009), Ok & Gören (2018), and Asghar et al. (2020) have all supported this relationship. In an effort to investigate such relationship, Ok and Gören (2018) specifically investigated this association in a non-clinical Muslim sample of 298 participants, utilizing the Brief Obsessive-Compulsive Scale (BOCS) and the Ok-Religious Attitude Scale (Ok, 2016), resulting a significant link between OCS and religiosity.

Furthermore, research by Rassin and Koster (2003) found a notable correlation between religiosity and OC symptoms among Catholics and Protestants. Similarly, studies involving Muslims, Protestants, Christians, and Jewish individuals have consistently shown that higher religiosity is linked to increased obsessional symptoms (Abramowitz et al., 2004; Inozu et al., 2012; Inozu et al., 2014; Zohar et al., 2005).

In an attempt to investigate the relationship between religiosity and obsessive-compulsive behavior in Israeli Jews, Zohar and colleagues (2005) conducted two studies. The samples for both studies were gathered using a snowball method, starting with individuals known to the authors and expanding from there. The first study included 256 volunteers, all of whom were Jewish undergraduate students, with 154 women (60.1%) and 99 men (38.7%). Study 1 employed the Student Religiosity Questionnaire (SRQ), the Obsessive Thought Checklist, and the Maudsley Obsessive-Compulsive Inventory (MOCI) with its four scales: checking, cleaning, doubt, and slowness. The MOCI was translated into Hebrew, revised, and previously normed for reliability and validity (Zohar et al., 1995). Study 1 also incorporated the Child-Adolescent Perfectionism Scale, as well as questions on upbringing and background. The studies utilized different assessment tools. uniquely utilized the Parental Bonding Instrument, consisting of 25 items rated on a five-category Likert scale, translated into Hebrew (Canetti et al., 1997), to assess maternal warmth and control.

On the other hand, the second 2 study involved 61 participants, with 30 transitioning from being more religious to less religious, and 31 transitioning from being less religious to more religious. In terms of self-identification, 14.8% described themselves as ultraorthodox, 34.4% as orthodox, 9.8% as traditional, and 41.1% as secular. Study 2 also included the MOCI and SRQ. This study revealed that individuals who transitioned from lower to higher religiosity levels exhibited elevated scores on measures of obsessive-compulsive behavior.

In a separate investigation conducted by Sica and his team (2002) involving three distinct groups of Italian Catholics, it was revealed that the highly religious group, consisting of 54 nuns, and the moderately religious group, comprised of church attendees, exhibited higher levels of obsessions and OC cognitive beliefs compared to the low religious group, which consisted of individuals who scored low on a religious beliefs questionnaire. The study utilized the Obsessive Beliefs Questionnaire (OBQ) developed by the Obsessive-Compulsive Cognitions Working Group (1997, 2001) to draw these conclusions. The findings suggest a potential association between high religious involvement, particularly religious practices, and OC beliefs as identified by the OCCWG, which may predispose individuals to OCD (Sica et al., 2002). While the results of Sica and his colleagues' study (2002) support the hypothesis linking religiosity to OCD, further research is needed to provide a more comprehensive understanding of this relationship, as causality was not established in this study. Additionally, the study's focus on Italian Catholics raises the possibility that specific aspects of Catholic religious teachings may be more closely associated with OCD than other religions.

In relation to studies on OCD and religiosity and OCD among a clinical sample, Steketee, Quay, and White (1991) examined whether the type and severity of OC symptoms were related to religiosity and guilt. They examined types of Christian religious practice, degree of religiosity, and guilt among 33 OCD patients with 24 patients with other anxiety disorders. As a result, they found that OCD patients did not significantly differ in religiosity or guilt from the other patients with other anxiety disorders; nevertheless, they did find an association between religiosity among OCD patients and the severity of their OC symptoms. Furthermore, the OCD patients who suffered from religious obsessions were more religious than the ones who did not report religious obsessions. Contrary to their hypotheses, they found guilt was related to religiosity in OCD patients. Despite the evidence for no relationship

between religiosity and OCD as a diagnostic category, this study was limited by small numbers of patients and possibly low statistical power of the study.

Furthermore, the diagnoses of OCD and other anxiety disorders were not validated using a standard interview schedule for DSM-III-R, and this could possibly influence the findings. In a study assessing OC symptoms in 34 Israeli patients, symptoms linked to religious practices were found in 13 of the 19 ultraorthodox subjects and in only one of the 15 non-ultraorthodox subjects (Greenberg & Witzum, 1994). The authors reported four main topics of religious symptomatology: prayer, dietary practices, menstrual practices, and cleanliness before prayer.

Despite the aforementioned studies supporting the correlation between religiosity and OCD, several other studies have found no evidence to suggest that religiosity is a potential causative factor. The current body of evidence is deemed inadequate (e.g., Tek & Ulug, 2001; Sica, Novara & Sanavio, 2002; Zohar, Goldman, Calamary, & Mashiah, 2005; Wright, 2006; Ward, 2008). For instance, a correlational study conducted in Iran using non-clinical samples found no association between religiosity and OCD (Assarian, Biqam & Asqarnejad, 2006).

This finding was supported by two clinical studies that also failed to establish a link between religiosity and OCD (Steketee, Quay & White, 1991; Tek and Ulug, 2001). In their investigation, Tek and Ulug (2001) examined religiosity and religious obsessions among 45 OCD patients in Turkey who exhibited different forms of OC symptoms, such as cleaning, checking, and counting compulsions. Despite having 19 OCD patients with religious obsessions and 26 OCD patients without religious obsessions, the study's results indicated no correlation between religiosity, as measured by religious practices, and OCD patients with or without religious obsessions. The researchers further concluded that they did not find any conclusive relationship between religiosity and other clinical features of OCD, including the presence of

religious obsessions. Therefore, there is insufficient statistical evidence to support a definitive relationship between religiosity and OCD (Tek & Ulug, 2001).

A clinical investigation conducted by Hermesh and colleagues (2003) explored the association between religiosity and obsessive-compulsive disorder (OCD). This study assessed the levels of religiosity and obsessive-compulsive (OC) symptoms among Jewish patients categorized into three distinct groups: those diagnosed with OCD, individuals suffering from panic disorder, and a control group comprising general surgical inpatients. The primary objective of the researchers was to ascertain whether a correlation existed between religiosity and the intensity of OC symptoms. Contrary to expectations, the findings revealed that the degree of religiosity did not correlate with the severity of OC symptoms within the OCD patient cohort.

Consequently, the researchers concluded that there is insufficient evidence to substantiate a link between religious beliefs and OCD. It is noteworthy that the evaluation of religiosity was conducted using The Relscale (Ben-Meir & Kedem, 1979), which included 23 forced-choice items addressing various dimensions such as reference group, educational background, ritualistic practices, faith, religious upbringing, and the dynamics of religious engagement. Although the Relscale was specifically tailored for the Jewish context, the study may have faced limitations due to its failure to account for other dimensions of religiosity, including religious motivation and intrinsic religiosity.

Furthermore, it is interesting to observe that studies failing to demonstrate a connection between religiosity and OCD predominantly comprised clinical research with a limited participant pool (e.g., Steketee et al., 1991; Tek & Ulug, 2001; Hermesh et al., 2003). It is also important to consider that some participants may have encountered religious obsessions, complicating the differentiation between OCD symptoms and religious rituals pertinent to their faith (e.g., Hermesh et al., 2003). A significant limitation of many studies investigating the relationship between religiosity and obsessive-compulsive symptoms (OCS) or OCD is their inclination to concentrate solely on straightforward correlations, neglecting to explore the underlying mechanisms (Greenberg & Shefler, 2002).

In order to achieve a thorough comprehension of the interplay between religiosity and obsessive-compulsive symptoms (OCS), it is essential to explore the possible mediating variables at play. Such an analysis would enhance our understanding of religious individuals who might be vulnerable to experiencing distressing OCS.

Moreover, facilitating the implementation of complementary preventive measures could prove beneficial; early interventions, in particular, have demonstrated an enhancement in the quality of life (García-Grau et al., 2019). Furthermore, more efficient interventions can be developed to address this intricate relationship, which is of significant concern, given that research suggests that religious-themed OCD may pose greater challenges for current treatments compared to other forms (e.g., Williams et al., 2014).

In conclusion, while the association between religiosity and OC symptoms has been proposed and investigated, it is apparent that the link between religiosity and OCD is complex, and the exact mechanism by which religiosity influences OCD remains elusive (e.g., Inozu et al., 2012; Williams et al., 2013). To date, findings regarding the connection between religiosity and OC phenomena have been inconclusive across Muslim, Jewish, and Christian samples in both mono-religious and inter-religious studies.

One approach to explore the potential link between religiosity and OCD involves delving into psychological theories or the cognitive model of OCD. Psychological theories consistently suggest that strict religious beliefs and moral standards play a crucial role in transforming intrusive thoughts into distressing obsessions. This is often attributed to the deeply personal nature of these intrusive thoughts, combined with the excessive significance attached to them by religious followers (Inozu et al., 2014; Rachman, 1998). The presence of blasphemous thoughts, images, or impulses can quickly capture attention and provoke distress among devout individuals, highlighting the potential risk factor of high religiosity for OC symptoms or OCD. However, the specific components contributing to this connection between OCS-religiosity remain largely unexplored and require further investigation (Inozu et al., 2014; Rachman, 1998; Rasmussen & Tsuang, 1986). Hence, it is essential to explore whether other cognitive factors may also play a role in the relationship of OCD, where religiosity alone may not fully account for such a connection.

2.4 The Cognitive Model of OCD

To understand the aetiology of OCD, various models have been suggested, one of which is the cognitive model. Cognitive models of OCD have been influential in the understanding of OCD and as a basis for offering psychological treatment. In 1985, Salkovskis 1985 was one of the first to develop a comprehensive cognitive-behavioural understanding of OCD. He proposed that each individual encounter potentially triggering stimuli in but those individuals who struggle with obsessional thinking, however, will actively avoid encountering potentially triggering stimuli. He defines these intrusive thoughts as inherently ego dystonic (“the content is inconsistent with the individual's belief system, and is perceived as objectively irrational”, p. 578).

Therefore, the individual's reaction is determined by how the intrusive thought affects the individual. For example, normal intrusions may escalate into persistent and distressing clinical obsessions when the intrusive thought is viewed as being important and the individual places meaning on it. Therefore, according to these accounts, while most people interpret their intrusive thoughts as harmless, in contrast, individuals with OCD make dysfunctional or unhelpful appraisals (Rachman, 1993, 1997).

Consequently, in order to attenuate the sense of threat resulting from these appraisals (e.g., catastrophic misinterpretations of one's thoughts, images, or impulses), neutralisation is performed. It is thought that both the dysfunctional appraisals and neutralization are involved in the development and maintenance of OCD symptoms (Salkovskis, 1985; Rachman, 1993, 1997, 1998, 2002). In fact, most normal people experience intrusive thoughts (Clark & Purdon, 1995; Julien, O'Connor, & Aardema, 2007), and some of the intrusive thoughts are adaptive and functional (Salkovskis & McGuire, 2003).

However, when they are interpreted as a sign of harm and responsibility, the problematic chain is activated (Salkovskis, 1999). This means when a person views and believes his/her own thoughts have pervasive implications in real life, normal intrusions may turn into abnormal intrusions/obsessions (Rachman, 1997; Salkovskis, 1999). This indicates that the perceived implications of the thoughts lead to a negative affect and urges to neutralise the intrusive thought through avoidance or compulsive behaviour, with the intention of preventing a feared consequence (Tolin, Woods, and Abramowitz, 2003).

From the cognitive theory of obsessions from Salkovskis (1985), in 1997, Rachman proposed “obsessions are caused by catastrophic misinterpretations of the significance of one's intrusive thoughts” (p. 793). As most individuals may experience intrusive thoughts, he identified the important aspect that differentiates typical obsessions from problematic obsessions is meaning. The meaning that some individuals place on an intrusive thought, whether it be interpreting these thoughts as being “very important, personally significant, revealing, threatening, or catastrophic” (Rachman, 1997, p. 794).

Additionally, Rachman (1997) suggests that obsessions are more likely to occur when an individual is exposed to stressful situations and that external cues often trigger obsessional thoughts. Further, Rachman (2002) suggested that the more stressful the external cues → the greater the frequency of intrusive/obsessional thoughts → the greater the distress the individual will likely feel.

An international group of investigators reviewed and summarised the most important beliefs associated with OCD (Obsessive–Compulsive Cognitions Working Group [OCCWG], 1997, 2001, 2003, 2005). The OCCWG was established in 1995 to rectify the confusion existing in the OCD literature and to provide consensus on the use of terms and to develop assessment tools, given that there were several independent teams that were simultaneously developing separate measures assessing cognitions in OCD (OCCWG, 1997).

Initially, the OCCWG (1997) first identified 19 cognitive beliefs that are influential in assumptions, appraisals, cognitive distortions, and beliefs in OCD (see OCCWG, 1997).

Subsequently, all these beliefs were evaluated on the basis of theory, available evidence, and the clinical experiences of group members. After review, a number of beliefs were omitted, such as rigidity, beliefs about coping, and overgeneralization, seeing as they were insufficiently specific to OCD. Finally, after review and consensus among group members, the OCCWG eventually identified six belief domains hypothesized to underlie the negative appraisal of intrusive thoughts and the development of obsessions (OCCWG, 1997, 2001, 2003, 2005). These beliefs were 1) over-importance of thoughts, 2) control of thoughts, 3) overestimation of threat, 3) Intolerance of Uncertainty, 4) inflated responsibility, 5) perfectionism, and 6) over-estimation of threat. Details concerning all these cognitive beliefs, as well as Thought Action Fusion (TAF), are explained in the following sections.

2.4.1 Over-importance of thoughts

Over-importance of thoughts has been defined as the belief that “the mere presence of a thought indicates it is important” (OCCWG, 2001, p. 1003). In other words, it means beliefs pertaining to the significance of thoughts and believing that thoughts can be harmful (e.g., Rachman, 1997, 1998; Tolin, Woods & Abramowitz, 2003). In a study by Thodarson and Shafran (2002), the over-importance of thoughts can be explained in three ways. First, it refers to negative intrusive thoughts that show something important about oneself (i.e., one is abnormal, weird, mad, and bad, etc.). Second, the over-importance of thoughts refers to by having negative thoughts increases the risk of the occurrence of bad things (i.e., having thoughts means that they are likely to happen in real life). Lastly, it refers to negative intrusive thoughts that must be significant, since they occurred; otherwise, they would not be experienced.

Several studies have revealed that people with OCD as well as people with anxiety disorder in general tend to interpret intrusive cognitions as signifying that negative events are likely and will be catastrophic (e.g. Rachman, 1997; Salkovskis, 1989, 1996 & van Oppen & Arntz, 1993; Tolin, Woods and Abramowitz, 2003).

The concept of over-importance of thoughts encompasses a wide range of behaviors, such as Thought Action Fusion (TAF), which will be further explored in a separate section.

2.4.2 *Importance of controlling one's thoughts*

This belief is defined as the “overvaluation of the importance of exerting complete control over intrusive thoughts, images, and impulses, and the belief that this is both possible and desirable” (OCCWG, 2001, p. 1003). Examples of beliefs in this domain are “having intrusive thoughts means I am out of control” and “if I don’t control my unwanted thoughts, something bad is bound to happen” (OCCWG, 2001, p. 1003). It has been proposed that these beliefs lead to an intense focus on intrusive thoughts and proactive efforts to manage them (Purdon & Clark, 2002). Inadequate control over thoughts exacerbates the occurrence and prominence of these thoughts, prompting further attempts to regain control, which ultimately contribute to worry, self-punishment, reappraisal, obsessional anxiety, and compulsive behaviors that manifest as symptoms of OCD (Amir, Cashman & Foa, 1997; Calamari & Janeck, 1998; Ladouceur et al., 2000; Purdon & Clark, 2001; Purdon & Clark, 2002).

Moreover, both clinical and non-clinical studies have established a notable correlation ($\alpha = .4$ to $.8$) between the belief in the necessity of thought control and the symptoms associated with obsessive-compulsive disorder (OCD) (Clark, Purdon, & Wang, 2003; OCCWG, 2001, 2003, and 2005). This relationship appears particularly significant for OCD, as individuals diagnosed with this condition are more inclined to endorse such beliefs compared to control groups with anxiety disorders (OCCWG, 2001, 2003, 2005).

In order to alleviate discomfort and anxiety, individuals utilize a range of strategies, including self-reassurance, seeking reassurance from others, analyzing thoughts, engaging in physical distractions, replacing thoughts, employing thought-stopping techniques, and avoiding certain actions. For example, a clinical study among adult patient by Abramowitz, Whiteside, Kalsy, and Tolin (2003) found that patients with OCD frequently resort to maladaptive thought control strategies, such as excessive worrying and self-punishment, more than individuals without clinical disorders and those with other anxiety-related conditions. Presently, research continues to explore these dynamics. Similarly, a notable positive correlation is expected between childhood obsessive-compulsive symptoms (OCS)/OCD and the beliefs that (i) controlling thoughts is both feasible and desirable, and (ii) failing to control thoughts may lead to severe repercussions (Obsessive Compulsive Cognitions Working Group, 1997). Interestingly, in a study conducted in Iran, it was observed that scrupulosity, a religious variant of obsessive-compulsive disorder, is significantly associated with the concepts of 'importance of thoughts and controlling thoughts' as well as 'thought-action fusion' (Kaviani, Eskandari, Ebrahimi, Ghavam, 2015)

In conclusion, while research examining the link between obsessive-compulsive disorder (OCD) and the belief in thought control is presently scarce, it is evident that this belief is associated with OCD. Further investigations are necessary to provide additional evidence supporting this relationship.

2.4.3 *Intolerance of uncertainty, (IU)*

Intolerance of uncertainty, (IU) refers to beliefs about the necessity of being sure, difficulty functioning in ambiguous situations, and low capacity to cope with unpredictable change (OCCWG, 1997). A study by Freeston, Rheume, Letarte, Dugas, and Ladoceur (1994) described intolerance of uncertainty as behavioral attempts to control the future and to avoid uncertainty, emotional reactions (i.e., frustration and stress), and beliefs of adverse and bad effects on a person. This is regularly associated with avoidance, difficulty making decisions or excessive reassurance seeking in situations. In an attempt to control the future and to avoid uncertainty, emotional reactions, such as frustration and stress, possibly lead to distress and anxiety (Freeston, Rheume, Letarte, Dugas and Ladoceur, 1994; Langlois, Freeston and Ladouceur, 2000a; 2000b). Failure to arrive at feelings of certainty leads to repetitions observed in compulsions (Rachman, 2002). Consistently, people with OCD are intolerant of feelings of uncertainty – i.e., "not just quite right" experiences – and therefore, are more likely to engage in repetitive attempts to gain absolute certainty (Coles et al., 2003).

Numerous studies have established a link between intolerance of uncertainty and symptoms of obsessive-compulsive disorder (OCD) in both clinical samples (Steketee, Frost & Cohen, 1998; OCCWG, 2001; OCCWG, 2001; Pinciotti, Riemann, Abramowitz, 2021) and non-clinical populations (Sarawgi, Oglesby, Cogle, 201). For instance, research conducted by Tolin, Abramowitz, Brigidi, and Foa (2003) indicated that OCD patients exhibiting primarily checking behaviors show a higher level of intolerance of uncertainty compared to those with non-checking OCD symptoms and non-anxious individuals.

Moreover, earlier research has indicated that intolerance of uncertainty (IU) is a fundamental aspect of various anxiety disorders, particularly Generalized Anxiety Disorder (GAD) (e.g., Dugas, Gagnon, Ladouceur & Freeston, 1998; Holaway, Heimberg & Coles, 2006; Buhr & Dugas, 2009). A clinical investigation conducted by Holaway, Heimberg, and Coles (2006) revealed that while both patients with Obsessive-Compulsive Disorder (OCD) and those with GAD exhibited significant differences from control groups, they did not show a significant difference from one another regarding their levels of intolerance of uncertainty. These results imply that IU is not solely associated with OCD (OCCWG, 2003).

In an effort to further investigate the effects of intolerance of uncertainty, it is suggested that additional cognitive beliefs may influence the relationship between IU and OCD, or vice versa (Davis, Rudy, Jenkins, Whiting, May, 2013). In particular, both IU and perfectionism have been recognized as predictors of the severity of OCD symptoms in diagnosed individuals, as well as in analogous samples. For example, a study by Reuther, Davis, Rudy, Jenkins, Whiting, and May (2013) demonstrated that IU completely mediates the connection between perfectionism and the severity of OCD symptoms.

In conclusion, while the findings indicate that IU is not exclusively linked to OCD, there is indeed a correlation between IU and OCD, necessitating further research to elucidate how dysfunctional thoughts interact with one another.

2.4.4 Inflated Responsibility

In the context of OCD, inflated responsibility refers to the belief that one has “pivotal responsibility” for preventing “subjectively crucial negative outcomes in the real world or at a moral level” (OCCWG, 2001, p. 1003), which may result from actions and failures to act (OCCWG, 1997). Pivotal power is an important dimension in this factor (Ladouceur et al., 1997; Rheaume et al., 1995).

The concept of inflated responsibility for harm refers to a cognitive bias in which individuals perceive themselves as personally accountable for causing or failing to avert harm to themselves or others (Salkovskis, 1985). Salkovskis (1985) initially proposed that those suffering from Obsessive-Compulsive Disorder (OCD) possess inflated responsibility beliefs, which serve to distinguish them from individuals with other psychological disorders. The foundation of Salkovskis's (1985) argument is that inflated responsibility leads to a negative misinterpretation of typically occurring intrusive thoughts, which subsequently, an excessive sense of responsibility that would produce automatic negative thoughts. This misinterpretation generates distress and leads to an increased urge to suppress or neutralise the unwanted thought, image or impulse, which in turn can strengthen and maintain the dysfunctional responsibility appraisal, and causes a vicious cycle of variations between neutralising (e.g., checking repetitively) and intrusions (Salkovskis, 1985, 1989; Salkovskis, 1999).

Because of its importance in Salkovskis's (1985) original cognitive model, there has been a considerable amount of research done on the topic of inflated responsibility in the context of OCD. The research on inflated responsibility has primarily focused on its association with symptoms of OCD in both clinical populations and unselected samples (Salkovskis et al., 2000). For instance, Lopatka and Rachman (1995) conducted an experiment where individuals with OCD were assigned to either a low responsibility or high responsibility condition. In the low responsibility condition, the experimenter took accountability for the results of a series of behavioral approach tests, while in the high responsibility condition, the subjects were solely responsible. The study found that those in the low responsibility group experienced a decrease in distress and urges to engage in rituals. However, when placed in the high responsibility condition, these individuals experienced the opposite outcome, although the difference did not reach statistical significance.

Similarly, Ladouceur et al. (1995) discovered that individuals without clinical conditions experienced heightened anxiety levels and engaged in increased checking behaviors when placed in a situation with high responsibility. In another investigation, it was observed that four OCD patients exhibited a reduction in symptoms after undergoing 32 sessions of cognitive therapy that specifically targeted dysfunctional beliefs related to inflated responsibility, while disregarding other thoughts (Ladouceur, Leger, Rheaume, & Dube, 1996). These findings are in line with research by Pozza and Dèttore (2014), which suggested that inflated responsibility is a core component of OCD symptomatology.

The connection between responsibility and obsessive-compulsive disorder (OCD) has been corroborated by correlational studies involving non-clinical adult populations (Cisler, Brady, Olatunji, and Lohr, 2010) and younger individuals, including children and adolescents (Mather and Cartwright-Hatton, 2004). Nevertheless, alternative research has yielded contradictory results, indicating that the concept of responsibility is not exclusively associated with the cognitive framework of OCD (Tolin, Worhunsky, and Maltby, 2006).

In an attempt to further investigate the role of inflated responsibility in OCD and other anxiety disorders, a study by Salkovskis et al. (2000) demonstrated that adult individuals diagnosed with OCD exhibited elevated scores in responsibility beliefs compared to both anxious and non-clinical control groups. Similarly, Julien et al. (2008) reported that OCD participants expressed significantly stronger responsibility beliefs than those with panic disorder and non-clinical controls, even after accounting for general distress. A multitude of additional studies corroborate these findings, indicating that individuals with OCD possess markedly higher responsibility beliefs in comparison to anxious and non-clinical populations (e.g., Ghassemzadeh et al., 2005; Julien et al., 2008; Libby et al., 2004; O’Leary et al., 2009).

Numerous clinical and non-clinical studies have provided substantial evidence for the significance of responsibility beliefs in Obsessive-Compulsive Disorder (OCD). These studies include the works of Rachman, Thordarson, Shafran, and Woody (1995), Smari and Holmsteinsson (2001), Yorulmaz, Altin, and Karanci (2008), Bouchard, Rheaume, and Ladouceur (1999), Ladouceur et al. (1995), Lopatka and Rachman (1995), Freeston et al. (1992), Obsessive-Compulsive Cognitions Working Group (2001, 2003), Rheaume, Freeston, Dugas, Letarte, and Ladoucer (1995), Wilson and Chambless (1999), Salkovskis, Wroe, Gledhill, Morrison, Forrester, Richards, Reynolds, and Thorpe (2000), and Steketee, Frost, and Cohen (1998).

Moreover, the role of inflated responsibility is further supported by studies utilizing experimental manipulations, such as those conducted by Arntz, Voncken, and Goosen (2007), Ladouceur, Rheaume, Freeston, Aublet, Jean, Lachance, Langlois, and Pokomandy-Morin (1995), Lopatka and Rachman (1995), and Shafran (1997). Additionally, the effectiveness of treatment has also been demonstrated in studies conducted by Freeston, Rheaume, and Ladouceur (1996) and Ladouceur, Leger, Rheaume, and Dube (1996).

Interestingly, the concept of inflated responsibility may vary across different types of OCD symptoms. For example, Rachman (2002) suggested that personal responsibility plays a crucial role in both checking and cleaning behaviors, although the focus differs between the two. In checking, the focus of responsibility is mainly on protecting others from harm, while in cleaning, self-focused responsibility is more prominent. Several studies have also indicated that inflated responsibility is more influential in checking compared to cleaning (e.g., Foa, Sacks, Tolin, Preworski & Amir, 2002; Lopatka & Rachman, 1995; Rachman, 1998; Rheaume, Ladouceur, Freeston & Letarte, 1995; Yorulmaz Yorulmaz, Karancı & Tekok-Kýlýç 2006; Arntz, Voncken & Goosen, 2007). Despite the variations in how inflated responsibility functions in different types of OCD, it seems that appraisals related to personal responsibility for causing or preventing harm play a significant role in the maintenance of OCD.

Although some studies provide support for these developmental pathways (Careau, O'Connor, Turgeon, & Freeston, 2012; Coles, Schofield, & Nota, 2014; Smari, Martinsson, & Einarsson, 2010), others have only found limited evidence (Coles et al., 2014). Therefore, further research is necessary to gain a more comprehensive understanding of the development of this belief in individuals.

2.4.5 *Perfectionism*

Perfectionism has emerged as an element that could contribute to the aetiology and maintenance of OCD. Perfectionism is a tendency to maintain high standards of performance and employ extremely self-critical evaluation (Frost, Marten, & Lahart, & Rosenblate, 1990). In other words, perfectionism refers to the belief that there is a perfect solution to every problem in order to avoid mistakes, failures, and profound consequences (OCCWG, 1997, 2001). Tolin, Abramowitz, Kozak & Foa (2001) determined that about 40% of people with OCD report subjective discomfort or distress as the only consequence of not completing their compulsions. Subjective discomfort in this context related to perfectionism has been described as a feeling of “just not right” (Leckman, Walker, Goodman, Pauls & Cohen, 1994). For people with OCD, in order to achieve a “just right” feeling, they must perform compulsions (Leckman et al., 1994).

Some studies reported that perfectionism was correlated with OC symptoms (e.g., Rheume, Freeston, Dugas, Letarte, and Ladouceur, 1995; Wu & Cortesi, 2009; Coles, Frost, Heimberg & Rheume, 2003; Coles, Heimberg, Frost & Steketee, 2005). Notably, an experimental study observed that individual with high perfectionism reported more responsibility for negative outcomes than individual with low perfectionism (Bouchard, Rheume & Ladouceur, 1999). Theoretical and empirical studies indicate that perfectionism may play a role in the persistence of OCD symptoms. These include the notion of perfectionism as a transdiagnostic factor influencing multiple pathologies (Egan, Wade, & Shafran, 2011), the observed correlation between obsessive-compulsive symptoms and perfectionism in both clinical and non-clinical populations, and the beneficial effects of directly addressing perfectionism on comorbid conditions (Egan et al., 2011).

Whilst some studies support the relationship of perfectionism and OCD, Taylor, McKay, and Abramowitz (2005) established that, whilst the relationship was significant, perfectionism cognitions contributed only a small amount to the overall variance in OC symptoms.

Perfectionism is not solely associated with obsessive-compulsive disorder (OCD); rather, it has been recognized as a significant risk and maintenance factor across various psychological disorders (Egan et al., 2011). Research indicates that perfectionism manifests at comparably high levels in subgroups of anxiety disorders, similar to those observed in non-anxious controls, thus demonstrating that its relationship with OCD is not unique (e.g., OCCWG, 2001, 2003, 2005; Frost & Steketee, 1997; Antony, Purdon, Huta & Swinson, 1998). For instance, studies have shown a correlation between perfectionism and a variety of symptoms associated with both OCD and eating disorders (Callaghan et al., 2023; Limburg et al., 2017; Lunn et al., 2023; Stackpole et al., 2023). In addition, longitudinal research suggests that perfectionism may precede the onset of various psychopathological conditions (e.g., Kehayes et al., 2019). However, a recent investigation by Claus et al. (2025) found no significant interaction effects between perfectionism and disorder-specific processes. Instead, it was determined that body dissatisfaction independently influenced symptoms of both eating disorders and OCD, while inflated responsibility and threat overestimation were specifically predictive of OCD symptoms. This finding implies that perfectionism may intersect with other cognitive beliefs.

As previously noted, perfectionism can interact with cognitive constructs such as intolerance of uncertainty (IU) (Reuther et al., 2013) and inflated responsibility (Bouchard et al., 1999; Rheaume et al., 1995; Yorulmaz et al., 2006). Consequently, it has been proposed that the effect of perfectionism on obsessive-compulsive symptoms is mediated by additional variables. For example, one study indicated that responsibility served as a mediator in the relationship between perfectionism and obsessive-compulsive symptoms (Yorulmaz et al., 2006), suggesting that the contribution of perfectionism to OCD may operate in part through its influence on responsibility.

In conclusion, perfectionism contributes to the manifestation and persistence of obsessive-compulsive symptoms; however, it may also interact with various cognitive beliefs and cultural factors. Consequently, further research is necessary to elucidate this relationship.

2.4.6 Over-estimation of threat (OET)

Overestimation of threat in OCD refers to the beliefs of the exaggeration of the probability and/or severity of feared consequences and harm (Van Oppen & Arntz, 1994). For example, items on the OBQ-87 that reflect this belief domain are “I believe that the world is a dangerous place” and “Bad things are more likely to happen to me than to other people” (Obsessive-Compulsive Cognitions Working Group, 2001, p. 1004). The overestimation of threat (OET) is considered to play a pathogenic role in obsessive-compulsive disorder (OCD). The association of overestimation of threat and OCD has been discussed by several authors (e.g., Frost, Steketee, Cohn & Griess, 1994; Jones & Menzies, 1998). For example, Salkovskis (1985, 1989) suggested that faulty appraisals of intrusions are good examples of this belief domain, because they are interpreted as dangerous and signs of harm in OCD, despite being experienced by normal people.

Moreover, Rachman (1997, 1998) also emphasised the importance of threat appraisal in his cognitive model in the development and persistence of symptoms. He further suggested that the overestimation of threat increases the range and seriousness of perceptions of threat. With the catastrophic appraisals, neutral stimuli turn into threats by expanding the range of the stimuli around. These stimuli might be external or internal, like in ex-consequential reasoning (Van Oppen & Arntz, 1994). Similarly, OCD patients tend to perceive situations as dangerous, until proven safe (Sookman & Pinard, 2002), and they tend to overestimate the likelihood and severity of aversive events and to overvalue the risk of negative consequences (Rasmussen & Eisen, 1989; Van Oppen & Arnzt, 1994); but this dysfunction appears to be in relation to particular symptom concerns, rather than all negative events (Clark, 2004).

In a recent study by Ramezani, Rahimi, and Mohammadi (2017), among 208 university students in Iran found that regression analysis demonstrated that “responsibility/threat over estimation” was a significant predictor of obsessive and compulsive behaviors and predicted washing, checking, obsessing, hoarding, and neutralizing subtypes of OCD. Over-estimation of threat is also related to other anxiety disorders, such as social phobia (Clark & Wells, 1995), and therefore, indicates that threat estimation was not only specific to OCD (Steketee, Frost, & Cohen, 1998).

In addition, a study involving fifty-three individuals diagnosed with OCD, alongside forty healthy participants and twenty-three psychiatric controls, revealed no evidence that individuals with OCD overestimate the overall likelihood of negative or OCD-related occurrences. In contrast, healthy participants exhibited a bias of unrealistic optimism, while those with OCD perceived themselves as more susceptible to experiencing OCD-related events (Moritz & Jelinek, 2009). These findings suggest that OCD is linked to an exaggerated sense of personal vulnerability, which may not be fully accessible to the conscious awareness of individuals with OCD.

Nonetheless, these findings highlight the importance of responsibility and the overestimation of threat as key predictors of various OCD subtypes, providing support for Salkovskis' cognitive theory regarding the pivotal role of over-responsibility beliefs in OCD.

2.4.7 Issues in the study of the cognitive model of OCD

Current cognitive-behavioral approaches to Obsessive Compulsive Disorder (OCD) emphasize the role of various dysfunctional beliefs in the genesis and/or maintenance of the disorder (Clark, 2004; Rachman, 1997; Salkovskis, 1999). On this point, the work carried out by the Obsessive-Compulsive Cognitions Working Group (OCCWG; 1997, 2001, 2003, 2005) is noteworthy. This group has made an ongoing effort to determine the most important OCD relevant belief domains, providing operational definitions for every cognitive domain and developing multi-factorial instruments to adequately measure them.

Although cognitive appraisal models of OCD are suggested to be the most influential and promising theories in the manifestation and maintenance of OCD (Taylor et al., 2006), various issues have been outlined. First, it is possible that overlapping beliefs may account for the inconsistent finding. As discussed above, some beliefs overlap with other beliefs, such as perfectionism and inflated responsibility. For example, Thought Action Fusion is related to inflated responsibility (Rassin et al., 1999; Shafran et al., 1996). It is suggested that the beliefs are strongly correlated, which suggests that each belief may not be as distinct a cognitive construct as theorised (Clark, 2004).

Furthermore, despite the growing evidence supporting cognitive models of OCD, the findings appeared contradictory. This might be due to the overlap between cognitive perspectives that have emerged, showing more similarities than differences (Taylor, Abramowitz, McKay, & Cuttler, 2012). For example, while some studies indicate that individuals with OCD exhibit higher levels of dysfunctional beliefs as proposed by cognitive models (e.g., Coughle, Lee, & Salkovskis, 2007), other studies show that individuals with OCD do not score significantly higher on measures of OC-related beliefs and appraisals compared to control groups (e.g., Tolin, Worhunsky, & Maltby, 2006).

Cognitive models of obsessive-compulsive disorder (OCD) (e.g., Rachman, 1997; Salkovskis, 1985) have played a crucial role in research but have not notably enhanced OCD treatment outcomes. Significantly, cognitive interventions for OCD have not led to improved treatment effectiveness (Cottraux et al., 2001; Whittal et al., 2005). While these results do not directly contradict the cognitive model, they indicate a necessity for further clarification, expansion, or adjustment of current cognitive strategies (Coughle & Lee, 2014). Therefore, Coughle and Lee (2014) proposed that certain aspects of OCD identified as dysfunctional by cognitive models may not be pathological, such as distress caused by intrusive thoughts, which may be considered abnormal but could actually be normal.

Furthermore, there exists a critique positing that the cognitive framework of Obsessive-Compulsive Disorder (OCD) implies that various cognitive models may correlate with particular symptoms and subtypes of OCD. Abramowitz and colleagues (2009) delineated five fundamental dimensions of OCD, which encompass obsessions pertaining to harm, symmetry, contamination, themes of sex, violence, and religion, as well as hoarding behaviors. This observation prompts inquiries regarding the specificity of cognitive components suggested by the OCD Cognitive Working Group (OCCWG) in relation to OCD symptoms and their

respective subtypes. Contemporary research lends credence to the notion that cognitive factors may hold greater significance for certain manifestations of OCD (Taylor et al., 2006; Abramowitz et al., 2008), with distinct subtypes of OCD being characterized by unique belief domains (Lee & Kwon, 2003; Sookman & Pinard, 2002; Julien et al., 2006).

For instance, a study conducted by Coughle, Lee, and Salkovskis (2007) revealed that both checking and non-checking OCD cohorts displayed heightened beliefs of responsibility when compared to anxious and non-anxious control groups. Moreover, first-degree relatives of individuals with OCD demonstrated significantly elevated scores relative to controls in the areas of inflated responsibility and threat overestimation (Albert et al., 2015). Additional research has suggested that perfectionism serves as an independent predictor of specific OCD symptoms, including ordering, washing, and doubt (Myers, Fisher & Wells, 2008; Hood & Antony, 2016). Furthermore, studies consistently illustrate a correlation between ordering behaviors, precision, and perfectionism.

Significantly, the unique nature of cognitive beliefs and various subtypes of OCD may prompt an inquiry into whether cognitive beliefs function universally in the development and perpetuation of OCD. Furthermore, this may give rise to inquiries regarding whether cognitive models of OCD are unable to encompass all aspects, and whether cognitive beliefs cannot be applied broadly to the overall symptoms of OCD, but rather to the specific symptoms of OCD.

Apart from that, research on cognitive beliefs and obsessive-compulsive disorder (OCD) in non-Western nations remains limited. The majority of both clinical and non-clinical investigations that have explored the core components of the cognitive model of OCD have primarily been conducted in Western contexts. However, a handful of studies (e.g., Ghassemzadeh, Bolhari, Birashk & Salavati, 2005; Yorulmaz, Yilmaz & Gencozet, 2004; Yorulmaz, Karanci & Tekok-Kilic, 2006) have offered some degree of support for clinical and non-clinical populations in non-Western settings. Therefore, it is essential to conduct further research in various non-Western countries, particularly in Asian regions, to elucidate the true nature of the relationship between cognitive beliefs and OCD.

Additionally, non-cognitive vulnerability factors, such as religiosity, have been proposed to influence OCD-related beliefs (Yorulmaz et al., 2009), including feelings of guilt (Inozu et al., 2012; Parker, 2020; Zaccari et al., 2022), shame (Parker, 2020), and adherence to rigid rules (Berman et al., 2013). These relevant factors may either be conflated with or overlooked in existing studies. It is plausible that other non-cognitive vulnerability factors could account for the inconsistent results observed. For example, guilt is considered a significant driving force for individuals with OCD, prompting them to perform rituals aimed at alleviating discomfort, which may ultimately exacerbate OCD symptoms.

Finally, several researchers have suggested that there may be alternative beliefs and differences in cognitive processing that the OCCWG did not take into account. One such belief is cognitive self-consciousness (CSC), which denotes the inclination to concentrate on and recognize one's own thoughts. This has been identified as a potential independent predictor of obsessive-compulsive disorder (OCD) and may contribute to its persistence (Cohen & Calamari, 2004). Consequently, it is imperative to conduct further research to explore these factors and subsequently validate the connections among them and OCD.

In conclusion, while there is a growing agreement that cognitive elements are linked to OCD symptoms, and that obsessions and compulsions stem from particular dysfunctional beliefs (Lee & Kwon, 2003), it is clear that the cognitive model significantly influences the development and persistence of OCD. Therefore, it is crucial to delve deeper into the relationship between these cognitive beliefs and OCD. This study aims to examine the correlation between cognitive belief aspects, particularly those related to the over-importance of thought (e.g., Thought Action Fusion), and vulnerability factors for OCD, such as religious beliefs.

2.5 Thought Action Fusion (TAF)

2.5.1 Definition, forms, TAF Scale

As stated previously, within the grouping of beliefs about over-importance of thoughts is Thought Action Fusion (TAF) (Rachman, Shafran, Mitchell, Trant, & Teachman, 1996; Shafran, Thodarson, & Rachman, 1996). Specifically, Rachman and Shafran (1999) defined TAF as “the psychological phenomenon in which the patient appears to regard the obsessional thought and the forbidden action as being morally equivalent and/or feeling that the obsessional thought increases the probability of the feared event” (p. 72). It is believed that intrusive thoughts, which may be unacceptable and distressing, can influence events in the world (Rachman, 1993). Marino, Hunt and Negy (2008) suggested that TAF is a phenomenon whereby an individual has difficulty separating intrusive thoughts and behaviours (Marino, Lunt & Negy, 2008).

Thought-action fusion (TAF) was initially proposed by Rachman following Salkovskis' (1985) theories and clinical observations of OCD patients. Salkovskis' (1985) theory focused on the idea that individuals feel responsible for causing harm to themselves or others. In contrast, Rachman (1993) noted that individuals with OCD tend to merge thoughts and actions, especially those involving blasphemous, sexual, or aggressive thoughts, images, or obsessional impulses. To explore this connection further, Rachman and his team (1995) created the 36-item Responsibility Appraisal Questionnaire (RAQ), which includes five subscales related to responsibility: property damage, harm to others, social situations, perspective on responsibility, and TAF.

Next, after reducing the questionnaire to 18 items and four subscales (Harm, Social, Perspective, and TAF), Rachman and his team (1995) conducted a second study where participants completed the revised RAQ, the Maudsley Obsessional Compulsive Inventory (MOCI), the Beck Depression Inventory (BDI), the Guilt Inventory, and the Inventory of Beliefs Related to Obsessionality (IBRO). The results showed that the TAF subscale of the RAQ had significant correlations with three out of four MOCI subscales (all $r = .26$, $p < .001$), the total MOCI score ($r = .45$, $p < .001$), the BDI ($r = .38$, $p < .001$), the IBRO ($r = .50$, $p < .001$), and two out of three Guilt Inventory subscales (both $r = .34$, $p < .001$).

Therefore, in an attempt to further explore the correlation between TAF and OCD, Shafran, Thordarson, and Rachman (1996) formally introduced the concept of TAF by creating a measurement tool called the Thought-Action Fusion Scale (TAFS). This questionnaire was designed to assess TAF. In their initial study, Shafran and colleagues (1996) conducted a pilot test using a 34-item TAF scale with different subscales. These subscales included morality, the likelihood of a friend or relative experiencing a negative event, the likelihood of oneself experiencing a negative event, the likelihood of something positive happening to a friend, and the likelihood of something positive happening to oneself. Both individuals with elevated OCD symptoms and a sample of students completed the preliminary TAFS, along with the MOCI and the BDI.

Interestingly, through factor analysis, the researchers discovered a three-factor structure in the student sample (Moral, Likelihood-Self, Likelihood-Other), but only two factors in the clinical sample, with the two likelihood factors from the student sample combined into one. The clinical sample scored higher on two out of the three TAFS factors (Moral, Likelihood-Other), as well as the MOCI and the BDI.

In a subsequent investigation, Shafran and colleagues (1996) conducted a modified version of the TAFS, in conjunction with the MOCI and the BDI, on various groups, including students, community members, and individuals displaying heightened OCD symptoms. The findings revealed significant group effects across all three subscales of the TAFS. Additionally, the group with elevated OCD symptoms scored notably higher than the community sample on all three subscales, and this pattern remained consistent across all groups (all $\alpha > .85$).

Furthermore, the researchers identified Likelihood TAF as the inclination to believe that thoughts can heighten the likelihood of negative events occurring (Shafran et al., 1996). On the other hand, Moral TAF refers to the belief that thoughts, even involuntary ones, hold the same moral weight as actions (Shafran et al., 1996; Abramowitz, Whiteside, Lynam & Kalsy, 2003). For instance, Rachman and Shafran (1999) presented a case study involving a religious woman who encountered intrusive sexual images of Jesus during prayer. Consequently, the woman believed that having such intrusive thoughts made her sinful and immoral (Shafran et al., 1996).

Within the grouping of Likelihood TAF, two domains have been proposed, specifically, “likelihood self”, which refers to events occurring to oneself (e.g. If I think about falling ill, it makes it more likely that I will become ill), and “likelihood others”, which refers to events occurring to others as a consequence of one’s thoughts (e.g. If I think about someone else falling ill, it more likely that they will become ill) (Bailey, Wu, Valentiner, & McGrath, 2014). Notably, research investigated the specificity of TAF in relation to OCD symptoms as opposed to symptoms associated with other disorders. As such, the TAFS Moral and TAFS Likelihood-others exhibited a stronger correlation with OCD symptoms

than with symptoms of other conditions; in contrast, TAFS Likelihood-self did not show a similar level of specificity (Bailey, Wu, Valentiner, & McGrath, 2014).

Research utilizing the TAF Scale indicates that both the overall score and the three subscales are correlated with the presence and severity of OCD symptoms, as measured by various assessments. The strongest association between OCD symptoms and TAF appears to be with the likelihood component (Berle & Starcevic, 2005; Shafran & Rachman, 2004). Additionally, the development of TAF scale by Shafran and colleagues (1996) was later incorporated into most subsequent studies on the role of TAF in studies of OCD and other anxiety disorders (Amir, Freshman, Ramsey, Neary & Brigidi, 2001; Shafran & Rachman, 2004; Thodarson & Shafran, 2002; Rassin, Merckelbach, Muris, & Spaan, 1999; Rassin, Muris, Schmidt & Merckelbach, 2000; Hazlett-Stevens, Zucker & Craske, 2002).

Furthermore, an experimental approach to induce TAF is the 'sentence paradigm' established by Rachman, Shafran, Mitchell, Trant, and Teachman in 1996. This technique involves participants completing the sentence 'I hope _____ is in a car accident' by inserting the name of a friend or family member in the blank. This research has demonstrated that this method effectively induces significant levels of TAF and can elicit OCD symptoms even among non-clinical populations (Rachman et al., 1996; van den Hout, van Pol, & Peters, 2001).

In an attempt to further explore the relationship between TAF and OCD, various variations of this sentence have been employed in subsequent research (Berman, Abramowitz, Pardue, & Wheaton, 2010), revealing that they can also elicit additional moral emotions such as guilt (Zucker, Craske, Barrios, & Holguin, 2002). Consequently, a TAF induction sentence that incorporates violent themes is likely to most effectively elicit

symptom-related shame. Notably, several experimental studies utilizing TAF induction have indicated a connection between TAF and OCD. However, in the setting of a TAF induction experiment that includes violent themes, both trait-level TAF beliefs and attitudes towards violence may act as significant contributing factors.

In addition to experimental induction, therapeutic interventions may also play a role in shaping TAF beliefs, potentially mitigating symptom-related shame. For example, by conceptualizing TAF beliefs as metacognitions, the metacognitive therapy (MCT) established by Wells (2009) has shown promise in treating OCD and reducing TAF beliefs in preliminary investigations (e.g., Glombiewski, Hansmeier, Haberkamp, Rief, & Exner, 2021; Hansmeier, Haberkamp, Glombiewski, & Exner, 2021).

Given the moderate correlation between TAF and OCD (see Berle & Starcevic, 2005 for an extensive review), it is reasonable to consider that other variables may influence the effects of TAF induction on OCD symptoms or feelings of shame. For example, one such variable, religiosity, has been recognized as a moderator of the impact of TAF induction on moral judgments (Berman et al., 2010). Thus, it is proposed that TAF itself does not directly cause OCD; rather, other cognitive or socio-cultural factors may interact and subsequently lead to the development of OCD.

2.5.2 *Thought Action Fusion in OCD*

Since the 1990s, Thought Action Fusion (TAF) has been extensively researched in relation to obsessive-compulsive disorder (OCD) and other anxiety disorders. For example, in a study by Amir, Freshman, Ramsey, Neary, and Brigidi (2001), they found that individuals with obsessive-compulsive symptoms gave higher ratings to the likelihood of negative events occurring as a result of their negative thoughts. In addition, a number of studies using the Thought–Action Fusion Scale (TAF Scale; Shafran et al., 1996), a self-report measure, have found that both TAF Morality and TAF Likelihood were positively correlated with the presence and severity of OCD symptoms, as measured by various assessments, with a moderate to strong association (e.g., Shafran, Thordarson & Rachman, 1996; Amir, Freshman, Ramsey, Neary, & Brigidi, 2001; Coles, Mennin, & Heimberg, 2001; Rassin, Merckelbach, Muris, & Schmidt, 2001; Berle & Starcevic, 2005). The strongest association between OCD symptoms and TAF appears to be with the likelihood component (Berle & Starcevic, 2005; Shafran & Rachman, 2004). Interestingly, individuals with elevated OCD symptoms also tend to believe that their thoughts can prevent harm from occurring to others, suggesting that TAF extends to positive outcomes (Amir et al., 2001).

Despite consistent findings from the previous studies, a limitation of these studies is that they have all been based on self-report measures and are cross-sectional in nature, preventing conclusions about causality. For instance, prior research heavily relied on a self-administered questionnaire, the Thought-Action Fusion Scale (TAFS) (Shafran, Thordarson & Rachman, 1996), and its correlation with other measures, leading to potential constraints where only the theoretical significance of TAF may be captured (Berle & Starcevic, 2005).

Additionally, there are validity concerns due to the subjective nature of self-reports, given that the abstract cognitive process of TAF can be more challenging to assess compared to concrete thinking, as TAF falls under metacognition (Fleming & Lau, 2014). It is believed that these issues can be addressed through experimental approaches.

In order to gain a better understanding of this concept, researchers have conducted various experimental manipulations of TAF in both non-clinical and clinical samples. These efforts have led to significant advancements in our comprehension of the subject (Myers & Wells, 2013; Berman et al., 2011; Rassin, 2001; Lee et al., 2023). For instance, in 1996, Rachman, Shafran, Mitchell, Trant, and Teachman devised a task where participants were instructed to write a sentence expressing a desire for harm to come to a loved one (e.g., "I wish my sister gets into a car accident today"). Following this, participants rated their levels of anxiety, the urge to neutralize the thought, their perception of the sentence's immorality, and the likelihood of the event occurring. Subsequent studies consistently demonstrated that this task elicited heightened anxiety and a strong urge to neutralize the distressing thought (Berman, Abramowitz, Wheaton, Pardue, & Fabricant, 2011; Marcks & Woods, 2007; Rassin, 2001; van den Hout, van Pol, & Peters, 2001).

Subsequently, Berman and colleagues (2011) further established a correlation between performance on this task and scores on the TAF Scale, suggesting its potential as a behavioral assessment tool for TAF. Indeed, researchers have utilized the sentence paradigm TAF induction to explore the relationship between various responses (e.g., neutralizing, thought suppression, acceptance) to distressing thoughts and obsessive-compulsive experiences, including anxiety, urge to neutralize, and negative thoughts (Marcks & Woods, 2007; van den Hout et al., 2001).

Additional evidence supporting the involvement of TAF in the pathology of OCD is provided by a study conducted by Rassin, Diepstraten, Merckelbach, and Muris (2001). In this study, it was observed that patients' scores on the TAF Scale decreased as their OCD symptoms improved from pre- to post-treatment. Interestingly, the authors also discovered that individuals with anxiety disorders, including panic disorder, social anxiety disorder, and PTSD, exhibited similarly elevated scores on the TAF Scale both before and after treatment. This suggests that the bias associated with TAF is not specific to OCD alone. Several other studies have also indicated the presence of heightened TAF in various other disorders, such as generalized anxiety disorder, eating disorders, and depression (Berle & Starcevic, 2005; Shafran & Rachman, 2004; Thompson-Hollands, Farchione, & Barlow, 2013).

Following the success of this TAF induction method, several other studies have used this in different settings (Rassin, 2001; van den Hout, Kindt, Weiland & Peters, 2002; van den Hout, van Pol & Peters, 2001; Zucker, Craske, Barrios & Holguin, 2002). Results from these studies showed that the induction method results in distress, feelings of responsibility, guilt, and a strong urge to neutralize (Rassin et al, 1999; Rachman et al., 1996; Rassin, Merckelbach, Muris & Spaan, 1999).

While several studies found that TAF is related to OCD and several authors suggested that TAF may be considered as an antecedent to OCD (e.g., Rassin et al., 2000; Rassin et al, 1999; Rachman et al., 1996; Rassin, Merckelbach, Muris & Spaan, 1999). In addition, following from the experimental studies of OCD and TAF, several other studies have also indicated the presence of heightened TAF in various other disorders, such as generalized anxiety disorder, eating disorders, and depression (Rassin, Diepstraten, Merckelbach, and Muris, 2001; Berle & Starcevic, 2005; Shafran & Rachman, 2004; Thompson-Hollands, Farchione, & Barlow, 2013).

In an attempt to further investigate that TAF is not only associated to OCD but other anxiety disorders, Abramowitz and colleagues (2003) recruited individuals diagnosed with either OCD, generalized anxiety disorder (GAD), panic disorder (PD), social phobia (SP), or major depressive disorder (MDD) and also a no-diagnosis control sample. All participants completed the TAFS, and each group's subscales were compared against those of the OCD group. This study suggests that individuals with other diagnoses exhibit elevated levels of TAF compared to a control group of nonclinical participants. This study also supports the notion that individuals with OCD typically score significantly higher on TAF subscale scores than do other diagnostic groups, though there is some evidence negative affect plays a mediating role (Abramowitz et al., 2003). Their findings suggested that elevated TAF may be more strongly associated with negative affect, including anxiety and depression, rather than specific OCD symptoms.

In 2005, a literature review confirmed that elevated levels of TAF are prevalent in disorders beyond OCD (Berle & Starcevic, 2005). Nevertheless, two additional discoveries from that review are noteworthy. Initially, Berle and Starcevic recognized that the connection between TAF and non-OCD disorders remains ambiguous. According to Berle and Starcevic's review (2005), studies have offered moderate backing for the notion that TAF plays a more significant role in OCD compared to other disorders.

However, a recent literature review on TAF suggested that from the beginning of the 1900s, numerous authors have expanded upon concepts related to Thought Action Fusion (TAF), including primitive mentality, the omnipotence of thought, and magical thinking. Originating from literature on Obsessive-Compulsive Disorder (OCD), TAF has also been identified in various conditions such as anxiety disorders, depression, schizophrenia, and eating disorders. The implications of these findings were examined concerning TAF's specificity to OCD, the potential influence of mental imagery on TAF development, and recommendations for future research were provided.

Interestingly, Hezel (2017) conducted a recent investigation into cognitive beliefs, including intolerance of uncertainty, thought-action fusion (TAF), and the evaluation of thoughts. The findings indicated that individuals with obsessive-compulsive disorder (OCD) scored significantly higher on the TAF-likelihood-other subscale when compared to those with social anxiety. This research employed both self-report and behavioral assessments to evaluate dysfunctional thoughts across three distinct groups: 1) patients with OCD, 2) individuals with social anxiety disorder (SAD), and 3) participants with no history of anxiety disorders or OCD. The results implied that strong convictions regarding the potential harm of one's thoughts to others could serve as a distinguishing factor between OCD and other anxiety disorders.

Additionally, Cares (2020) explored the relationship between TAF, OCD, and eating disorders among seventy university students in the United States. The outcomes from self-report questionnaires revealed no significant association between TAF and eating disorder symptoms; however, notable correlations were found between TAF and symptoms of OCD and depression.

In an attempt to examine the relationship between the types of TAF (TAF Morality and TAF Likelihood) and OCD, a study by Rassin and Koster (2003) has also posited that the link between TAF Likelihood and obsessive-compulsive symptoms is particularly strong, while TAF Morality is more closely related to religiosity. They further suggested that the relationship between Likelihood TAF and obsessive-compulsive symptoms is more pronounced, whereas Moral TAF is predominantly associated with religious beliefs. Consequently, based on the relatively consistent findings from prior studies, many researchers contend that Likelihood TAF is more closely related to OCD than Moral TAF. Nevertheless, the relevance of Moral TAF tends to surface primarily when moderated by other factors such as depression or religiosity (Coles, Mennin & Heimberg, 2001). For example, research involving Jewish populations has identified a correlation between Moral TAF and religiosity (Siev et al., 2007; Siev et al., 2010). The subsequent section will provide a detailed explanation of this concept.

Importantly, previous research found that there is a mediational relationship between the TAF, other vulnerability factors, and OCD. For instance, Abramowitz and colleagues (2003) ascertained that a negative affect partially mediated the relationship between TAF Likelihood and OCD. In line with Abramowitz's study (2003), negative affect was again found to have partially mediated the relationship between both TAF and magical thinking and obsessive-compulsive symptoms (Rees, Draper & Davis, 2010). Moreover, a recent study reported that the relationship between TAF Morality and OCD was mediated by inflated responsibility in a Turkish sample (Altın & Gencoz, 2011). In relation to magical thinking, Einstein and Menzies (2004) found that a general magical thinking tendency mediated the associations between TAF, superstition, and OCD.

Thus, based on relatively consistent findings from previous research, many have come to believe that TAF Likelihood is more closely linked to OCD than TAF Morality, which tends to only show significance when influenced by other variables such as depression or religiosity (Coles, Mennin & Heimberg, 2001). For instance, studies have found a connection between TAF Morality and religiosity in Jewish populations (Siev et al., 2007; Siev et al., 2010). Due to the conflicting results regarding the association of both TAF Likelihood and TAF Morality with OCD, some scholars have proposed that the link between TAF and OCD may not be straightforward and could be rather complex (Williams, Lau, & Grisham, 2013; Berle & Starcevic, 2005). There is ongoing discussion about whether TAF is a form of responsibility that is related but distinct from responsibility, or if responsibility acts as a mediator between TAF and distress (Berle and Starcevic, 2005). Therefore, various mediating factors have been suggested and explored to better comprehend the connection between TAF and OCD.

Ultimately, it appears that TAF is linked to the severity of symptoms in OCD, yet the exact nature of this connection is not fully understood. With various mediators suggested for the link between TAF and OCD, along with an independent variable, the precise relationship between TAF and OCD remains ambiguous. As a result, several alternative explanations need to be eliminated to solidify the idea of an association between TAF and symptoms of OCD.

2.5.3 *Religiosity and Thought Action Fusion (TAF)*

Religiosity can play a role in the interaction with TAF, especially since TAF Morality is closely linked to OC symptoms (Nelson, Abramowitz, Whiteside & Deacon, 2006; Rassin & Koster, 2003). For example, Rassin and Koster (2003) proposed that there are indications suggesting that religion could be involved in the formation of TAF, as certain religious beliefs echo the idea of the moral equivalence of thoughts and actions (such as one of the Ten Commandments in Christianity stating that it is morally wrong to covet another person's spouse). Moreover, in the development of the TAF Scale, Shafran and his team (1996) created the TAFS after observing a religious patient who, while praying, experienced intrusive images of engaging in sexual activities with Jesus, leading her to believe that she had sinned against God. Additionally, within the TAF Scale, three items explicitly mention religion (e.g. 'Having a blasphemous thought is almost as sinful to me as a blasphemous action', 'When I think about making an obscene remark or gesture in church, it is almost as sinful as actually doing it', and 'Having obscene thoughts in a church is unacceptable to me' (Shafran et al, 1996).

Furthermore, studies that examine the correlation between religiosity and moral values have consistently shown that individuals who are highly religious tend to have significantly higher scores on the moral subscale of the TAF-S compared to those who identify as atheist, agnostic, or less devout (Rassin & Koster, 2003; Siev & Cohen, 2007; Sica, Novara, & Sanavio, 2002).

For instance, Abramowitz, Deacon, Woods, and Tolin (2004) conducted a study to explore the relationship between religiosity and obsessive-compulsive symptoms among three different groups of Protestant Christians categorized based on their level of religiosity (high, moderate, and low). The findings of this study revealed a connection between religiosity and cognitive biases that are believed to contribute to the development of obsessive-compulsive disorder (OCD), as well as the presence of obsessional symptoms and compulsive rituals like excessive washing. Despite the fact that the measurement of religiosity in this study was based on a three-item scale assessing religious beliefs, the results supported previous research findings (Abramowitz, Deacon, Woods & Tolin, 2004).

In line with previous research, studies examining various religions and beliefs about immoral thoughts (TAF Morality) have consistently shown that Protestants tend to place greater importance on these thoughts compared to Jewish individuals (Cohen, 2003; Cohen & Rankin, 2004; Cohen & Rozin, 2001; Siev, Chambless & Huppert, 2010). These findings suggest that religiosity is linked to TAF beliefs, particularly within specific religious affiliations. A study conducted by Siev and Cohen (2007) involving 218 participants from four religious' groups - Orthodox Jewish, Conservative Jewish, Reform Jewish, and Christian - found that Christians scored higher in TAF Morality, while Jewish participants scored lower. Religiosity was assessed using six questions (Cohen, Malka, Rozin, & Cherfas, 2006), such as "How religious are you?" and "To what extent do you practice the requirements of your religion or faith?" The researchers proposed that Christianity's emphasis on belief contributed to higher scores in TAF Morality, whereas Judaism's focus on adherence to laws and religious rituals led to lower scores. Therefore, they concluded that the prevalence of obsessive beliefs among religious groups is influenced by the core principles of their respective religions, rather than the level of religiosity.

In addition to the correlational studies, four experimental studies related to the concept of TAF have also been conducted on religious samples. For example, Cohen and Rozin (2001) conducted a non-clinical study where Protestant and Jewish participants were presented with a hypothetical scenario involving thoughts of committing adultery. The study aimed to investigate potential differences between Jewish and Protestant participants in their beliefs about the morality of simply thinking about engaging in an immoral act. The participants were given a scenario about a married man contemplating an affair with a female co-worker.

The results of the study showed that, Protestant participants rated thoughts about immoral actions as significantly more controllable and likely to be acted upon compared to Jewish participants. Additionally, Protestant participants were more inclined to consider the moral significance of having such thoughts as much higher than Jewish participants. These four experimental studies, along with correlational studies, provide evidence supporting the notion that Protestant individuals may exhibit a higher tendency towards TAF Morality compared to individuals of other religious backgrounds (Cohen, 2003; Cohen & Rankin, 2004; Cohen & Rozin, 2001; Siev, Chambless & Huppert, 2010).

It appears clear that the connection between TAF and religiosity is rather complex, necessitating additional research to understand how they are related, if at all.

2.5.4 *Religiosity, Thought Action Fusion, and OCD*

As previously mentioned, despite claims from various authors regarding the connection between religiosity and OCD, the actual link between religiosity and a predisposition to OCD remains unproven. Several studies have indicated a correlation between religiosity and OCD. For instance, multiple studies have shown that higher levels of religiosity are linked to higher levels of OC cognitions/beliefs (Sica et al., 2002; Rassin & Koster, 2003).

Regarding the association between religiosity and OC cognitive beliefs, it appears that the relationship between religiosity and OCD symptoms might be influenced by other factors such as OC beliefs. For example, increased religiosity has been associated with inflated responsibility, perfectionism, and intolerance of uncertainty among Protestants, Catholics, and highly religious Muslims (Abramowitz, Deaconi Woods & Tolin, 2004; Nelson, Abramowitz, Whiteside & Deacon, 2005; Yorulmaz, Gencoz, Woody, 2009).

Consistently, devout Catholics have been shown to hold stronger OC-relevant beliefs, such as the need to control thoughts and take responsibility for thoughts, compared to less religious Catholics (Sica, Novara, & Sanavio, 2002). In more direct examinations, two studies have demonstrated that OC cognitive beliefs play a mediating role in the relationship between religiosity and both OC symptoms (Inozu, Clark & Karanci, 2012a) and scrupulosity (Inozu, Karanci & Clark, 2012b).

There is substantial evidence for the relationship between religiosity and TAF-moral within different religious groups. Berman et al. (2014) surveyed Christian undergraduates and found that TAF-moral and religiosity correlated $r = 0.48$. Inozu, Ulukut, Ergun, and Alcolado (2014) found that scores on the Thought-Action Fusion Scale (TAFS; Shafran et al., 1996) mediated the relationship between OC symptoms and religiosity in a sample of Turkish Muslims.

Additionally, the correlation between TAF Morality and religiosity in OCD highlights the extent to which individuals attribute significance to their thoughts. This correlation is also observed across various religious groups, encompassing different teachings and doctrines. Previous research has found positive connections between religiosity and TAF Morality among individuals from diverse religious backgrounds, such as Protestants, Catholics, and Jews (Cohen & Rozin, 2001; Sica, Novara & Sanavio, 2002; Rassin & Koster, 2003; Abromowitz, Decon, Woods & Tolin, 2004). For instance, Cohen and Rozin (2001) discovered that Protestants tend to exhibit higher levels of TAF Morality.

In contrast, the Jewish doctrine places less importance on mental states when evaluating a person's moral standing, resulting in individuals of Jewish faith perceiving immoral acts as less negative. Consequently, it can be inferred that TAF Morality may be culturally normative within Christian communities but not among Jews, suggesting that Christian doctrines may contribute to the promotion of TAF Morality (Cohen & Rozin, 2001).

Similarly, Siev and Cohen (2007) discovered that religious Christians had higher scores on TAF Morality compared to Jews. Despite the large effect observed in the study, it could not be attributed to the level of religiosity. Subsequently, Siev, Chambless, and Huppert (2010) delved into the connection between TAF Morality, religiosity, and OC symptoms among 96 Catholic, 92 Protestant, and 153 Jewish undergraduate students. They also explored the potential moderating role of religious affiliation in the relationship between TAF Morality and OC symptoms. Their findings revealed that TAF Morality was only linked to OC symptoms in Catholic and Protestant samples, not in Jewish samples, indicating that Christian religious adherence is associated with the belief that thoughts are morally equivalent to actions.

In accordance with earlier research on TAF Morality, a study conducted by Yorulmaz and colleagues (2009) revealed that devout Christians placed greater emphasis on their thoughts, showing higher levels of TAF Morality, and exerted more effort to control their thoughts, leading to the development of more obsessions and compulsions compared to less religious Christians. Interestingly, the study found that the correlation among Muslims was less than half of that among Christians ($r = .19$ versus $r = .53$).

In line with previous investigations, a research study conducted by Marino, Lunt, and Nergy (2008) examined a group of first-year psychology students from a university in New South Wales, Australia. The study included 46 Catholic, 58 Protestant, 10 Christians, and 51 non-religious individuals. The results of the study revealed a significant correlation between religiosity and TAF Morality in a predominantly Christian sample. Notably, Rassin and Koster (2003) observed a stronger correlation among Protestants ($r = .71$) compared to Catholics ($r = .42$), despite the smaller size of the Protestant group ($n = 15$). These findings highlight the existence of notable variations within the Christian community, indicating that beliefs regarding the significance of thoughts differ across different religions and denominations.

Despite several studies establishing the relationship between religiosity and TAF Morality, the relationship between OCD and TAF is complicated. According to a review conducted by Shafran and Rachman (2004), TAF Likelihood consistently correlates with OCD symptoms across various religious groups.

On the other hand, studies have yielded inconsistent results regarding the association between TAF Morality and OCD. For example, in a recent investigation by Johanna & Kevin (2020) on the correlation between religion and thought-action fusion in a group of Protestant participants, 99 Protestant undergraduates were examined. These individuals were randomly allocated to one of two priming conditions: either reading and writing about a forgiving God or a punishing God. Subsequently, the participants engaged in a behavioral TAF task designed to induce obsessive-like thoughts, followed by the measurement of in vivo responses. The results of the study offered conflicting evidence regarding the significance of a punishing God concept in influencing heightened TAF among Protestant individuals.

Additionally, the researchers concluded that TAF Morality exhibits a stronger association with certain religions compared to others. However, the study was constrained by a sample population that predominantly held a pre-existing belief in a forgiving God, which may have limited the impact of the God concept prime. Various limitations and observations were identified and discussed to guide the methodology of future investigations. In sum, although the relationship between religiosity, TAF and OC symptom is complex and has yielded inconsistent findings, nevertheless, previous studies are consistent with the idea that TAF relates to religiosity and possibly predisposes to OCD.

While it has been determined that TAF Likelihood is linked to religiosity, particularly among Christian samples, these findings cannot be generalized to other religious groups. For instance, a study by Siev and Cohen (2007) examined the relationship between different aspects of TAF and religiosity in Christians and Jews (Orthodox, Conservative, and Reformed). The findings revealed that although Christians scored higher on the TAF Morality subscale compared to non-Orthodox Jews, the Orthodox group scored significantly higher on the TAF Likelihood-others subscale than the Christian group.

Based on these findings, it is evident that the level of religiosity is associated with one or more cognitive factors, regardless of one's religious affiliation. Highly religious individuals tend to attribute greater personal significance, influence, and immorality to negative unwanted thoughts compared to those who are less religious or non-religious. However, due to the inconsistent results obtained, the precise nature of the relationship between religiosity, Thought Action Fusion (TAF), and Obsessive-Compulsive Disorder (OCD) symptoms remains unknown.

Furthermore, since a causal relationship cannot be established, several researchers have proposed that religiosity itself may not directly contribute to the development of OCD (e.g., Rassin & Koster, 2003; Inozu, et.al., 2012a; Williams, et.al., 2013; Berman, et.al., 2010; Wright, 2006, unpublished thesis; Ward & Freeston, 2008, unpublished thesis). Instead, it may indirectly influence OCD through cognitive beliefs, particularly TAF. Therefore, to comprehend the connection between the cognitive model of OCD and religiosity, it is suggested that religiosity alone may not be sufficient for the onset of OCD. Rather, the development of specific beliefs, such as TAF, could potentially mediate the association between religiosity and OC symptoms. (Version 1)

Interestingly, Berman and colleagues (2014) conducted a study that explored the predictors and role of prayer in response to negative intrusive thoughts. The research revealed that religiosity, intrinsic religious motivation, and TAF Morality were significant predictors of prayer usage. Interestingly, TAF Morality emerged as a unique predictor and acted as a complete mediator between religiosity and the utilization of prayer. The study focused on Christians and utilized in vivo negative thought induction along with self-report measures. Additionally, the researchers discovered that maladaptive use of prayer, characterized by a negative coping style, was linked to higher religious and moral TAF scores, increased prayer frequency, and a more significant reduction in anxiety following prayer. Surprisingly, likelihood TAF did not show any association with the use or purpose of prayer.

In an attempt to investigate the role of TAF as a mediator of the relationship between religiosity and OC symptoms, Wright (2006) conducted a study to explore the potential role of TAF as a mediator in the relationship between religiosity and OC symptoms. The study revealed a significant but weak correlation between OC symptoms and religiosity, with TAF Morality partially mediating this relationship. Interestingly, post-hoc analyses indicated that the relationship between spirituality and OC symptoms was also partially mediated by TAF Likelihood, rather than religiosity. The study further suggested that TAF Morality may contribute to the maintenance of OC symptoms.

In an effort to replicate and expand upon these findings, Ward and Freeston (2008) specifically examined the relationship between spirituality and TAF Likelihood. The results of their study replicated the previous finding, indicating that TAF Likelihood may have an additional role in the perpetuation of OC symptoms. These two unpublished theses provided supplementary evidence and made a critical distinction between religiosity and spirituality, highlighting the possibility that each may have a distinct and significant impact on different forms of TAF, ultimately contributing to the development of obsessive-compulsive symptoms.

It is important to note that while these mediational studies demonstrate statistical causality, they do not establish actual causality due to their non-experimental design. To overcome this limitation, Berman, Abramowitz, Pardue, and Wheaton (2010) conducted an experimental study involving 43 highly religious Protestant Christians and 30 Atheists/Agnostics. The researchers employed an idiographic approach, wherein both groups were initially asked to rate their level of anxiety using a computerized visual analogue scale (VAS). Specifically, participants were instructed to generate negative thoughts about a beloved family member, including thoughts of hoping for a car accident and hoping to engage in sexual activity with the family member. They were then asked to rate their associated anxiety, perceived moral acceptability, and perceived likelihood of the thoughts becoming reality.

Consistent with previous correlational findings (Rassin & Koster, 2003), the Protestant group exhibited higher levels of TAF Morality and engaged in more neutralizing behaviors compared to the Atheist/Agnostic group. However, despite the significant findings, the study had several limitations. For instance, it did not include a measure of OCD to rule out the possibility of differential responses due to obsessive-compulsive symptoms. Additionally, Berman and colleagues (2010) did not include a comparison group consisting of individuals from other religious backgrounds.

Hence, to overcome this limitation, Williams, Lau, and Grisham (2013) conducted an additional experimental study involving 33 Christian, 22 Jewish, and 30 Atheist/Agnostic first-year psychology students. The aim was to explore the mediating role of TAF Morality in the relationship between religiosity and OCD phenomena. The researchers utilized the Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ; Plante & Boccaccini, 1997) along with three supplementary questions to assess religiosity. These questions included inquiries about religious background, the amount of time spent in religious activities on average, and examples of such involvement. The religiosity of the participants was evaluated following the induction of intrusive thoughts.

The study's results indicated that TAF Morality played a crucial role as a mediator in the connection between religiosity and OCD, particularly among individuals belonging to the Christian group. Through a bootstrapped analysis conducted on the complete sample of 85 participants, it was observed that the mediating impact of TAF Morality on the relationship between religiosity and OC symptoms was influenced by Christianity. As a result, the researchers concluded that religious beliefs were not directly associated with OCD symptoms, but rather it was TAF that played a significant role. However, it is important to note that there was no comparison made between different religious denominations within the Christian faith (Williams et al., 2013).

In a subsequent experimental investigation inspired by Beerman's research (2010), a recent study examining religious scrupulosity among Jewish, Muslim, and Christian groups revealed a notable variance in the correlation between moral TAF and scrupulosity across these faiths (Evey, 2024). The findings from the moderated moderation analysis, which assessed the influence of purity/sanctity on the connection between moral TAF and scrupulosity within the Abrahamic religions, indicated no significant interactions, implying that purity did not serve as a moderating factor in the relationship among moral TAF, scrupulosity, and religious affiliation. Nevertheless, a significant effect was observed within the Muslim population, indicating that self-identification as Muslim correlated with higher scrupulosity scores in comparison to those identifying as Christian. This observation may be attributed to the demographic characteristics of the Muslim participants, who were notably more religious than their Jewish and Christian counterparts, potentially leading to elevated scrupulosity scores. These findings tentatively suggest that moral TAF may only manifest as pathological when it deviates from the cultural norms of one's religious context (Evey, 2024). Although this study primarily concentrates on scrupulosity, the results provide valuable insights into the interplay between Moral TAF, obsessive-compulsive disorder (OCD), and religiosity.

In other tests of mediational models, although two studies did not specifically investigate the role of TAF as a mediator, Inozu and colleagues (2012a; 2012b) found that the relationship between OC symptoms and scrupulosity were mediated by OC cognitive beliefs (e.g., over-importance of thoughts, thought control, estimation of threat). The authors further suggested that the observed relationship between religiosity and obsessionality was attenuated when accounting for related beliefs about mental control efforts and responsibility/threat estimation.

The researchers also conducted a mediational study on the relationship between TAF and OCD, examining other factors. For instance, they investigated the mediational relationship between TAF, paranormal beliefs, and OCD to determine whether TAF-M and/or TAF-L mediate the relationship between paranormal beliefs and OCD. The results revealed unique relationships between religiosity, paranormal beliefs, and OCD features. Furthermore, TAF-M and TAF-L were found to mediate most of the connections between the belief systems and OCD. Additionally, TAF-M was found to have a stronger relationship with religious beliefs and OCD, while TAF-L had a stronger relationship with paranormal beliefs and OCD. This study contributes to our understanding of the relationship between OCD and different belief systems, suggesting that targeting TAF therapeutically may help sever the connection between these belief systems and OCD (Mauzay, Spradlin, & Cuttler, 2016). Although the study did not fully explore religiosity, it is possible that paranormal beliefs are related to certain aspects of spirituality and religiosity expression, providing further support for the indirect relationship between TAF and OCD.

In addition, Parker (2020) conducted a study on the mediational relationship between guilt proneness, shame proneness, religiosity, and OCD in a nonclinical religious sample of 92 individuals. The results indicated a significant relationship between religiosity and OCD symptoms, but guilt- and shame-proneness did not mediate this relationship as hypothesized. This suggests that the association between religiosity and OCD symptoms in a nonclinical religious population cannot be attributed to guilt- and shame-proneness. The study also proposed that the relationship may be explained by a moderating effect and recommended further investigation into the potential mediating role of TAF.

Interestingly, the literature review highlights the connection between Thought-Action Fusion (TAF) and Obsessive-Compulsive Disorder (OCD), as well as the association between TAF-likelihood and magical thinking. Eremsoy and Inozu (2016) conducted a study in Turkey with a non-clinical sample of 179 individuals, exploring the relationship between magical thinking, religiosity, and OCD symptoms. The study revealed that magical thinking, worry, and punishment acted as mediators in the link between religiosity and OCD symptoms. Furthermore, the findings suggested that magical thinking, through punishment and worry, played a mediating role in the relationship between religiosity and OCD symptoms.

Although the study did not utilize the TAF scale, the results hinted at the potential mediating role of TAF in the connection between OCD and religiosity, aligning with the conclusions drawn by Rees, Draper, and Davis (2010). Their study, involving 137 non-clinical participants, demonstrated a significant relationship between TAF, magical ideation, and obsessive-compulsive symptomatology, with magical ideation showing a stronger association. Additionally, negative affect was identified as a partial mediator in the relationship between magical ideation, TAF, and OCD symptomatology. The studies discussed in this section shed light on the importance of exploring the interplay between TAF, magical thinking, religiosity, and OCD. The research detailed in this section regarding the connection between TAF, magical thinking as a mediator in religiosity, and OCD is significant. It appears evident that the association between TAF and OCD, as well as religiosity and OCD, is not straightforward.

In sum, although the relationship between religiosity, TAF and OC symptom is complex and has yielded inconsistent findings, nevertheless, previous studies are consistent with the idea that TAF relates to religiosity and possibly predisposes to OCD.

2.6 The Culture of Malaysia

Culture is a broad concept that refers to the norms, beliefs, and values in a specific group, which is shared by individuals in the group known as members (Hofstede, 1980, 1984, 1991). In other words, beliefs, norms, and value systems can influence members of the community to behave and act in a certain way which is considered acceptable by other members in the group (Hofstede, 1991; Rashid & Ibrahim, 2008). Several influential studies by Hofstede (1984, 1991, and 2001) which investigated 53 countries have identified four dimensions of culture: (1) power distance, (2) collectivism versus individualism (3) femininity versus masculinity and (4) uncertainty avoidance (Hofstede, 1991, 2001).

In relation to Malaysia, Hofstede in his study involving 53 countries (Hofstede 2001) classified Malaysia as having a high-power distance and low in individualism and uncertainty avoidance dimension. In addition, some authors have suggested that Malaysia represents a collectivist culture (Bochner, 1994; Burns & Brady, 1992). According to Hofstede and McCrae (2004, p 63) “In collectivist societies, people are integrated from birth onward into strong, cohesive in-groups, often extended families (with uncles, aunts, and grandparents), protecting them in exchange for unquestioning loyalty”.

Similarly, based on a recent survey NatCens by Hofstede (2013), Malaysia is considered as a collectivist society comprised of power distance organizations. NatCens is a British social research agency which helps government and charities on important social issues (“NatCen Social Research, 2013”). This can be seen in Malay culture which highlights manners, such as not speaking to an elderly person or superior in a high tone or impolite. Therefore, those who talk in a high tone are considered rude and ill-mannered (McLaren & Rashid, 2002).

Malaysia is one of the more multi-ethnic and multi-religious countries in South East Asia. Therefore, it provides multi-cultural traditions with a unique contrast of symbols, rituals, values, and ways of life of the people in the country (Razak, Darmawan, & Keeves, 2010). Similarly, Sendut, Madsen, and Thong, (1990) note that Malaysia is a country with three main and distinct racial groups (namely Malay, Chinese and Indian). They further said that all three different racial groups had maintained separate identities and preserved separate cultures which can be seen in their language spoken, codes of dress, customs, and value systems.

With a strategic geographical position in which Malaysia lies between the sea routes of India and China, different cultures particularly Indian and Chinese cultures have been meeting and mixing in Malaysia (Muhamat, Don, Hamjah, Sham, Nasir, Ashaari, & Ghani, 2006). Traders who came to Malaya to trade also brought their religious and cultural influences (Morrison 1951, cited in Aziz & Shamsul, 2004). Historically, Chinese and originated from Southern China or India, were brought in by their ancestors during British colonization (Idris, 2008) due to economic opportunities such as tin mining (Suet Kay, Edo & Hussain, 2016). Eventually, Malaysia was greatly influenced by traders, and after many decades, some claim that the country has become unique because of its diversity of races, religions, and cultures (e.g. Muhamat et al., 2006).

Malaysia, a country known for its multicultural and multireligious society, has Islam as its predominant religion. However, it also recognizes Buddhism, Christianity, and Hinduism among its religious practices. With a population of over 32.4 million, Malaysia showcases a diverse religious landscape. Islam is the official religion and is practiced by 63.5% of the population (Department of Statistics Malaysia, 2022). The second largest religion practiced in Malaysia, Buddhism (18.7%), is typically endorsed by the second largest ethnic group in Malaysia, the Chinese, who make up 23.3% of the overall population (Department of Statistics Malaysia, 2022). The third largest religion is Christianity (9.1%), followed by Hinduism (6.1%). Hinduism is largely practiced by Indians, who make up 6.7% of the Malaysian population. The remaining population adheres to other religions such as Animism, Sikhism, and various belief systems (Department of Statistics Malaysia 2022). These percentages reflect a high intersection between religion and ethnicity in Malaysia (Department of Information, Ministry of Communications and Multimedia, Malaysia, 2015), which provides a unique cultural backdrop for studying the impact of ethno-religions on the psychological well-being of a variety of believers.

All the different ethnic groups to a certain extent have assimilated into each other's cultures and live by a social contract of "tolerance", which helps society to function in harmony for the most part (Sheng, 2007). The Federal Constitution of Malaysia, however, stated that Islam is the national official religion (Malaysian Constitution Federation, 1963, cited in Suffian, 1978). In addition, the Malay Language is the national language of the country although people are free to use their mother tongue and other languages. English is the second language and is widely used in business and education (Muhamat et al., 2006).

2.6.1 Religion in Malaysia

Religion in Malaysia encompasses the beliefs, doctrines, practices, and religious rituals followed by individuals or community groups within the country. Malaysia is home to a variety of religions, with Islam being the predominant faith, alongside Buddhism, Christianity, Hinduism, and the traditional religions of the indigenous communities. The concept of religion in Malaysia typically denotes a set of beliefs and practices that regulate the connection between individuals and God or divine power, as well as the moral values, ethics, and social norms associated with those beliefs.

Religion plays a crucial role in shaping the cultural and social identity of Malaysian society, influencing various aspects of life such as education, law, and daily practices. It is worth noting that Malaysia recognizes these religions through its constitution and has specific laws for each faith, ensuring their right to practice freely and protecting them under the law. However, religion remains a sensitive issue in Malaysia, necessitating ongoing monitoring and attention to maintain harmony among the diverse religious communities in the country. Therefore, the concept of religion in Malaysia can also encompass legislation and policies aimed at regulating religious practices and fostering peace and security among different religious groups (Mohd Haidhar, et al., 2024).

The Malaysian Constitution designates Islam as the official religion of the country, with the provision that other religions can be practiced "in peace and harmony" throughout the nation. This constitutional provision, as outlined in Article 3(1), establishes Islam as the religion of the Federation, while also allowing for the practice of other faiths without hindrance. This constitutional principle dates back to the time of the drafting of the Federal Constitution in 1956-57 when Malaysia was known as the Federation of Malaya. Despite Islam's status as the official religion, the Constitution ensures that followers of other religions, particularly non-Muslims, are free to practice their faith without fear of discrimination. It is a principle that grants freedom to individuals or communities to adhere to and practice their respective religions, considered as one of the fundamental human rights globally. Freedom of religion in Malaysia is subject to the Malaysian Constitution.

As mentioned previously in the previous paragraph, the distribution of religions in Malaysia is closely tied to ethnicity, with Malays predominantly identifying as Muslims, Chinese as Buddhists or followers of Taoism and folk religions, and Indians as Hindus, Muslims, or Sikhs. Notably, individuals of various ethnic backgrounds also practice Christianity in Malaysia.

According to the 1963 Federal Constitution, custom or *adat* are the key determinants that constitute the definition of Malay identity. Malay refers to a person who satisfies two sets of criteria, specifically 1) a person must be one who professes to be a Muslim and 2) a person who speaks the Malay language and conforms to Malay customs (Abdullah et al., 2010; Kahn, 2006; Vickers, 2004; Nagata, 1974). Given that, being a Muslim is one of the components used to define Malay, an individual who rejects Islam, no longer considered Malay under the Constitution (Malaysian Constitution Federation, 1963, cited in Nagat, 1974).

In addition, of the Indian and Pakistani urban population in Malaysia, approximately 18% are Muslim (Nagata, 1974). Basically, Indians and Pakistanis who are Muslim share two ethnic worlds, which are Malay and Indian/Pakistani. Moreover, the majority of them speaks the Malay language and wears Malay clothing (Nagata, 1974; Muhamat et al., 2006). In Malacca and Penang State, there is a minority of Malaysian-Chinese also known as Peranakan or Baba Chinese who have adopted a substantial degree of Malay culture, including language, dress and cuisine (Clammer, 1980; Kim, 2008).

The acceptance of Islam and the adoption of Malay language and customs are key factors in being recognized as Malay, regardless of one's ancestry (Nagata, 1987). While the majority of Malaysian Chinese are followers of Buddhism, they are also known to practice other religions such as Confucianism, Taoism, and spiritualism concurrently (Lee, 2004; Tan, 1983). Moreover, Christianity was introduced to Malaysia through the colonization by the Portuguese in 1511 and the Dutch in 1641 (Muhamat et al., 2006). The impact of Christianity is more pronounced in Eastern Malaysia compared to the Malaysian Peninsular.

Numerous academics posit that Malaysia boasts a rich tradition of religious tolerance and mutual respect for various faiths, a sentiment embraced by both Muslims and non-Muslims (Kasmo, Usman, Taha, Salleh & Alias, 2015; Abdul Rahman, 2013; Muhamat et al., 2006). The government actively promotes the observance of religious festivals from different faiths as a means to cultivate a sense of national unity (Mahathir, 2013). This is exemplified by the official acknowledgment of major religious holidays, which are commemorated and celebrated by all communities (such as *Wesak Day* for Buddhists, *Deepavali* for Indian-Hindus, *Hari Raya Puasa* and *Hari Raya Qurban* for Muslims, the Birth of the Prophet Muhammad for Muslims, Christmas for Christians, *Gawai Day* for indigenous religions, and Good Friday in East Malaysia for Christians)

Nonetheless, the US Department of State's (2007) International Religious Freedom Report points out certain constraints on religious tolerance and freedom. The report outlines various limitations, including the lack of tolerance and occasional prosecution of non-Sunni "deviationist" branches of Islam, restrictions on proselytizing Muslims by individuals of other faiths, and challenges in acknowledging conversions from Islam to other religions.

While the report suggests instances of low religious tolerance in Malaysia, there is no concrete evidence to support this claim, as there have been no significant religious tensions in the country thus far. It is important to recognize that perceptions of religious tolerance may differ, offering unique perspectives (Rahman and Khambali, 2013).

2.6.2 OCD in Malaysia

Based on a study conducted by the Malaysian Mental Health Association (MMHA, 2013), depression, stress, and anxiety are the most frequently identified mental disorders in Malaysia. This is further corroborated by the National Health and Morbidity Surveys, which are carried out once every decade. The results of these surveys reveal a surge in mental health issues, escalating from 10.7% in 1996 (Institute of Public Health (IPH), 1999) to 11.2% in 2006 (Institute for Public Health (IPH), 2011). These outcomes suggest a growing prevalence of psychiatric illnesses within the Malaysian populace.

According to a report published in a newspaper *Kosmo* in 2018, Malaysia is witnessing a concerning increase in mental health issues, which are projected to become the country's second most pressing health concern by 2020, following heart problems. The National Health and Morbidity Survey conducted by the Ministry of Health Malaysia reveals that 3 out of 10 adults aged 16 and above suffer from mental health problems. Regrettably, Malaysian society still lacks understanding regarding the causes and symptoms of early-stage mental health conditions. Malaysia recognizes various types of mental illnesses, including anxiety disorders, mood disorders, post-traumatic stress disorder (PTSD), eating disorders, obsessive-compulsive disorder (OCD), and others.

Moreover, the 2006 survey indicated that 1.7% (equivalent to 0.3 million) of individuals aged 16 years and above suffer from Generalized Anxiety Disorders (GAD). However, there is a scarcity of data regarding the prevalence of obsessive-compulsive disorder (OCD) in these surveys. In Malaysia, there is also a lack of local studies investigating the prevalence of OCD, as well as research on the factors and cognitive models associated with OCD.

According to the website of Relate Malaysia, a mental health center, approximately 3.0% of the population, equating to around 900,000 individuals, are estimated to be affected by Obsessive-Compulsive Disorder (OCD). While this statistic lacks robust scientific validation, it nonetheless suggests a notable prevalence of OCD within the Malaysian population.

Importantly, a recent study conducted by Che Din et al. (2019) revealed that OCD affects approximately 1% to 2% of the population across all ethnic groups and is prevalent in both males and females (Andrew Mohanraj, 2018). It is worth noting that this percentage has sparked a debate due to the unknown source of the data. Thus, in an attempt to determine the prevalence of OCD in Malaysia, Manoharlal (2019) conducted a study at the University Tunku Abdul Rahman (UTAR) involving 428 students. The study utilized an online survey to assess the prevalence of OCD among these students. The findings of the research indicated that approximately 25.7% of the participants were suspected to have OCD. Moreover, the odds ratio of males to females was calculated to be 1:1006, suggesting a higher likelihood of OCD among females. However, upon conducting statistical analysis, the p-value for gender differences was determined to be 0.980, indicating that there were no significant variations in the prevalence of OCD between genders.

Despite the lack of a prevalence study on obsessive-compulsive disorder (OCD) in Malaysia, previous research conducted in the country has primarily focused on investigating the coexistence of OCD among individuals already diagnosed with OCD, particularly OCD-Schizophrenia (OCD-S). Several studies, including those by Jaafar et al. (2009), Ahmad Nabil & Wan Ismail (2015), Khadijah et al. (2014), Abdul Hamid & Abdul Razak (2010), and Ng (2016), have revealed that individuals with schizophrenia also exhibit symptoms of OCD. Additionally, it has been observed that OCD may manifest during the prodromal phase of schizophrenia, as highlighted by Ridzwan & Saifuddin (2017).

In a separate study, Razak (2014) examined OCD from an Islamic perspective. However, this study did not delve into the specific details regarding the prevalence of OCD in Malaysia. Furthermore, the perspectives presented in this study were solely based on Islamic beliefs and lacked supporting empirical data, such as case studies or surveys. Similarly, an examination of OCD from an Islamic standpoint revealed that OCD was characterized as *was was* such, and various classifications of the disorder were identified by Islamic scholars (Rahman et al. 2021). For example, within the context of Islam, Obsessive-Compulsive Disorder (OCD) has been denoted as '*was was*' (Okasha, 2004; Razak & Latif, 2014; Rajab et al., 2014, 2015).

The term '*was-was*' originates from Arabic and encompasses a range of concealed thoughts, predominantly of an evil nature, including doubt, devilish insinuation, temptation, and suspicion (Wehr, 1980; as cited in Razak & Latif, 2014, p. 7). Although no empirical studies have yet explored the potential correlation between Quest and OCD, it would be intriguing to investigate this relationship further, given the potential association between religious quest and obsessional doubt.

Two additional research studies conducted in Malaysia have explored the topic of OCD from different perspectives. Zaman and colleagues (2022) focused on examining OCD from an Islamic standpoint based on *was was* verse in the Quran. They introduce an alternative approach to OCD recovery informed by the Quranic perspective. It also outlines various rehabilitation guidelines for OCD derived from an analysis of relevant Quranic verses. The findings indicate that integrating the OCD recovery process with *the maqāṣid al-Sharī'ah* is crucial and can facilitate a holistic recovery experience. Within this framework, the preservation of life and health are two of the five fundamental objectives of Islam. Consequently, Muslims are obligated to avert any harm that may impact mental well-being (Zaman, Rashid, Nawī, & Muhammad, 2022).

On the other hand, Muharam and colleagues (2020) investigated the level of awareness regarding OCD through a Public Service Announcement (PSA). These studies contribute to the growing body of knowledge on OCD in Malaysia and provide valuable insights into the understanding and awareness of this mental health condition. A recent review into online interventions for OCD highlighted the necessity of creating a localized online intervention tailored specifically for Malaysia. This adaptation should be mindful of the cultural and linguistic aspects of the Malaysian context (Che Din et al., 2020).

A recent study on Obsessive-Compulsive Disorder (OCD) in Malaysia examined the efficacy of online interventions and highlighted that, despite their numerous advantages, most of these resources are primarily developed by Western countries, which may not be suitable for the Malaysian context. Furthermore, existing literature reveals a significant gap in the public's understanding of mental health issues within Malaysia (Yeap & Low, 2009). Consequently, it is crucial to create a culturally and linguistically tailored online intervention for OCD. This initiative aims to improve mental health literacy through psychoeducational materials on OCD and to offer support for individuals dealing with mild to moderate OCD in Malaysia (Lee, Amit, Che Din, Ghazali, & Subramaniam, 2020).

Furthermore, the prevalent lack of awareness regarding mental illnesses, coupled with societal stigma, poses significant obstacles for individuals with mental health conditions in accessing necessary help and care. It has been observed that Malaysians tend to be particularly sensitive and conservative when it comes to mental health matters, often perceiving the potential for social embarrassment as outweighing the benefits of seeking medical and psychological assistance (Hassan et al., 2018).

Therefore, it is crucial to engage in psychoeducation by informing the public about OCD, including its signs and symptoms, the significance of early screening and assessment, and available interventions. This initiative aims to empower individuals to recognize OCD-related issues, thereby fostering a better understanding of the disorder and encouraging proactive engagement in early screening and assessment (Lee, Amit, Che Din, Ghazali, & Subramaniam, 2020).

Interestingly, the importance of screening for mental health disorders, including obsessive-compulsive disorder (OCD), is widely acknowledged as a critical step in raising awareness and understanding of these conditions, as well as enhancing treatment outcomes (Batterham et al., 2016). While screening tools have been extensively utilized in clinical settings, particularly in primary care, their utilization in general population settings is not as prevalent. In Malaysia, OCD affects approximately 1% to 2% of the population across all ethnic groups and is prevalent in both males and females (Che Din et al., 2019). However, there is a scarcity of published data in Malaysia regarding the prevalence of OCD, with existing studies primarily focusing on comorbidity (Lee et al., 2015). Currently, mental health screening in Malaysia relies on Western criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) (APA, 2013) or the International Classification of Diseases, 10th Edition (ICD-10) (ICD-10, 1992).

At present, there are no locally developed and standardized mental health screening assessment tools in Malaysia, except for the *Saringan Status Kesihatan Mental 2013*. This lack of locally generated tools leads to inadequate assessment of mental health disorders within the Malaysian context. The deficiencies in assessment can be attributed to various factors, such as the absence of content, construct, and criterion validity, as well as semantic inaccuracies in translations into colloquial languages. Furthermore, cultural variations in personal stereotypical beliefs regarding threats when discussing mental health issues should also be considered, as these differences have been shown to compromise the accuracy of assessments.

Surprisingly, despite the lack of research on OCD, a recent study by Che Din and colleagues (2019) was conducted to develop the Obsessive-Compulsive Screening Tool-Malaysia (OCST-M) for use in the Malaysian context. This tool was created by combining items from the Obsessive-Compulsive Inventory-Short Version (OCI-SV, Foa et al., 2002) and the gold standard OCD screening tool, the Yale-Brown Obsessive-Compulsive Scale (YBOCS, Goodman et al., 1989). The exploratory factor analysis of the study identified a three-factor model: Severity of Compulsions, Severity of Obsessions, and Symptoms of Depression and Anxiety. These findings align with the definitions of obsessions and compulsions in the DSM-5, as well as existing research on the comorbidity of OCD with depression and anxiety. Additional research is required before the scale can be effectively utilized in the Malaysian context, especially to thoroughly validate its robustness.

In an effort to validate an OCD study among children and adolescents, a psychometric study on OCI-CV was conducted by Sarnin et al. (2021) using a sample of 102 individuals aged 10 to 18 years from a private school in Klang Valley, Malaysia. The Malay version of OCI-CV demonstrated strong internal consistency, with a Cronbach's Alpha value of 0.90 for the entire scale. Contrary to the original six-factor model, the results of the CFA indicated that the five-factor model had acceptable fit indices ($\chi^2/df = 1.51$, RMSEA = .071, GFI = .824, AGFI = .769, NFI = .724, CFI = .880). The researchers suggested that this discrepancy may be attributed to cultural differences in the interpretation of OCD symptoms within the Malaysian population. It is possible that individuals in Malaysia perceive and respond to the OCI-CV questions differently compared to individuals in Western cultures (Kelley, Clark, Brown & Sitzia, 2003; Cho et al., 2006).

In contrast to the limited number of studies on OCD, there is a greater body of research on anxiety. Several studies conducted in Malaysia have specifically examined anxiety in relation to various health conditions, including haematological cancer (Priscilla et al., 2011), thyroid problems (Zainal et al., 2010), breast cancer (Baqutayan, 2012), prostate cancer (Mohamad Rodi et al., 2013), diabetes (Ganasegeran, 2014), and among pregnant women (Ariff et al., 2013).

Additionally, a few studies have investigated anxiety disorder and depression among undergraduate students (e.g., Salina et al., 2008; Muhamad Saiful et al., 2013; Noor Harun & Mohamed Ismail, 2012; Shamsuddin, Fadzil & Ismail, 2013). For instance, Sherina, Rampal, and Kanesan (2005) found that 38.4% of 396 medical students experienced anxiety. For instance, a study conducted among four public and private Malaysian universities found that the prevalence of depression was 29.3%, while stress and anxiety were 21.6% and 55.0% respectively (Gan, Nasir, Mohd Shariff & Abu Saad, 2011). The authors concluded that

although these figures may not fully represent the extent of psychological problems among all university students, they do indicate that anxiety disorders are relatively common among undergraduate students. Another study among medical students reported a high prevalence of anxiety at 54.5% (Yusoff et al., 2013).

Furthermore, a study conducted among university students demonstrated a positive association between the severity of OCD and depression (Lee, Tam, Song & Neik, 2015; Sherina et al., 2005). Likewise, another research among university students by Lee, Tam, Song, & Neik (2014) identified a positive correlation between OCD and depression, while also noting a negative correlation between OCD and various aspects of quality of life such as physical functioning, emotional well-being, social functioning, and general health. Despite the inability to establish a causal link between OCD and depression, these studies indicate that individuals with OCD may have a higher likelihood of experiencing symptoms of depression.

In conclusion, while the precise prevalence of Obsessive-Compulsive Disorder (OCD) in Malaysia remains uncertain, it is clear that OCD is present within the country. Furthermore, although the disorder is interpreted through distinct lenses of Islamic and cultural perspectives, there are notable similarities and differences regarding the themes associated with OCD, the cultural influences at play, and its prevalence.

2.6.3 *OCD in neighboring countries*

Limited research has been conducted on OCD in Malaysia, however, studies on OCD patients in neighboring countries and South Asia, including Singapore (Chia, 1996), Indonesia (Lemelson, 2003), Japan (Matsunaga et al., 2002), Korea (Lee, 1996; Kim & Kim, 2006), Taiwan (Juang & Liu, 2001), China (Li, Marques, Hinton, Wang, & Xiao, 2009; Siu, Lam, & Chan, 2011), and India (Girishchandra & Sumant, 2001; Jaisooria et al., 2009) have been conducted. These studies have examined various characteristics of OCD patients, including epidemiology, dimensions (e.g., cleaning, repeating), and causes of OCD. Importantly, these studies have demonstrated that OCD is a universal phenomenon that is present in Asian countries (Chia, 1996; Lemelson, 2003; Matsunaga et al., 2002; Lee, 1996; Kim & Kim, 2006; Juang, 2001; Jaisooria et al., 2009).

Given the similarities in culture between Malaysia, Singapore, and Indonesia, it is valuable to examine the findings from studies conducted in these neighboring countries. For instance, in Bali, a predominantly Hindu province, Lemelson (2003) conducted a study involving 19 patients with OCD to explore the extent to which Balinese culture influenced their experience of the illness. The most commonly reported obsession was the need to know, which manifested as a compulsion to identify individuals passing by. Lemelson also discovered obsessions related to magic, witchcraft, and spirits, all of which are intertwined with religious themes in Balinese culture. However, it is important to note that while Bali emphasizes magic, witchcraft, and ancestor worship within Hinduism, the primary religious affiliation in Indonesia is Islam. Therefore, it is crucial to consider the religious context of different regions, as religious affiliations may impact the phenomenology of OCD (Lemelson, 2003). Further research is necessary to validate these observations. Consequently,

additional studies are required to confirm whether the phenomenology of OCD in other parts of Indonesia aligns more closely with findings from other Islamic cultures.

Another example is the study in Singapore which also includes same ethnicities such as Malays, Chinese and Indian like Malaysia. A study conducted by Subramaniam, Abdin, Vaingankar, and Chong (2012), they examined the prevalence and impact of OCD in Singapore, making it one of the pioneering investigations in this area. The study utilized a large national sample that included individuals from the Chinese, Malay, and Indian ethnic groups in equal proportions. The findings revealed a lifetime prevalence rate of OCD at 3.0%, with age being the most significant demographic factor. The highest occurrence of OCD was observed among individuals aged 35-49. Interestingly, there were no gender or ethnic disparities associated with OCD, but marital status showed a significant correlation, with separated or divorced participants exhibiting a higher rate of onset.

Moreover, individuals with lifetime OCD were more likely to experience comorbid conditions such as GAD, bipolar disorder, dysthymia, and MDD, as well as physical ailments like chronic pain and hypertension. It was also noted that only 10.2% of individuals with lifetime OCD sought treatment, and on average, there was a nine-year delay between the onset of symptoms and seeking professional help (Subramaniam, Abdin, Vaingankar, and Chong, 2012).

Surprisingly, the study observed an imbalanced ratio of males to females, with males being more prevalent (almost 2:1) (Subramaniam, Abdin, Vaingankar, and Chong, 2012).

The authors hypothesized that this gender disproportion could potentially be influenced by cultural norms, similar to previous research conducted in India (Girishchandra & Sumant, 2001; Jaisoorya et al., 2009), where women may be less likely to seek help.

In contrast, a study carried out in Singapore with a diverse community sample, predominantly consisting of Chinese (76.9%), Malay (12.3%), and Indian (8.3%) participants, showed a slight majority of females (Subramaniam, Abdin, Vaingankar, and Chong, 2012). They further emphasized that women with anxiety and related disorders reported higher levels of cognitive and social impairment compared to their male counterparts (Subramaniam, Abdin, Vaingankar, & Chong, 2013). To address this issue, they recommended that mental health care providers take into consideration cultural factors, such as offering evening and weekend clinic hours, and placing a stronger emphasis on treating the cognitive and social symptoms.

In conclusion, it is clear that Obsessive-Compulsive Disorder (OCD) is present in Malaysia as well as in other nations. While the interpretation and potential treatment of OCD may be influenced by cultural and social factors, such as spiritual beliefs and religious practices, it appears that OCD is widespread and exhibits both commonalities and distinctions regarding its themes, cultural influences, and prevalence across different contexts.

2.6.4 Mental health in Malaysia; traditional and modern understandings

In Malaysia, mental health is defined by the Ministry of Health (1997: page 2) as the ability of individuals, groups, and the environment to interact in a way that promotes subjective well-being and optimal functioning. It also involves the use of cognitive, affective, and relational abilities to achieve individual and collective goals in a just manner. This definition reflects the collectivistic culture prevalent in Malaysia. On the other hand, the World Health Organisation (WHO) (2001, page 5) defines mental health as a state of well-being where individuals are aware of their abilities, can effectively cope with life's normal stresses, can work productively, and can contribute to their community. This definition emphasizes the individual first and the community second.

Concerning the connection between cultural elements and OCD, notably, Eastern societies emphasize conformity, collectivism, and harmony, which are usually instilled from early childhood (Li et al., 2009). Hence, it is feasible that cultural factors may be associated with OCD, as the emphasis on symmetry in OCD could reflect these values to a certain degree (Williams, Chapman, Simms, & Tellawi, 2017).

Generally, depression, stress, and anxiety are the most frequently diagnosed mental illnesses and neuropsychiatric disorders in Malaysia (MMHA, 2013). The National Health and Morbidity Surveys carried out in 1996, 2006, and 2011 have offered valuable insights into the mental health landscape of the country. The 2011 survey highlighted that individual residing in rural areas, influenced by traditional beliefs, often attribute mental illnesses to supernatural forces and personal moral frailty (MMHA, 2013). Nonetheless, it is important to note that these beliefs are not reflective of the broader Malaysian population and are confined to specific community settings (MMHA, 2013).

With the rise in mental health incidents within the community, there has been a growing public awareness of mental health concerns in recent times (Deva, 2004). For instance, in December 2015, a mother reportedly took the lives of her two sons, aged 5 and 3, in Sungai Petani, Kedah. It was believed that the mother was grappling with depression and mental instability (The Star, 2015, December 2nd). Additionally, in a more recent case, a mother tragically ended the life of her two-month-old baby girl (Bernama, 2017, February 5th) due to postpartum depression.

The ongoing stigma surrounding mental health in Malaysian society has been attributed to various factors, including the lack of awareness, negative attitudes, and poor management of mental health (Crabtree & Chong, 2000; Mas & Hatim, 2002; Yeap & Low, 2009). However, it is important to note that not all individuals with mental health disorders face negative stigma from the Malaysian population (Ismail & Abdul Wahab, 2015). The perception of illness and understanding of mental health in Malaysia are influenced by traditional culture, beliefs, ethnicities, and religious beliefs (Edman & Koon, 2000; Haque 2005). These cultural mental health beliefs also shape the way individuals seek treatment for psychiatric illness among Malaysians (Razali & Najib, 2000; Rhi, Ha & Kim, 1995). For instance, it has been suggested that 60% of Malaysians with psychiatric illness first seek magico-religious therapy before turning to formal psychiatric care (Sheng, 2007).

It is worth noting that in Malaysia, where three main ethnicities coexist, there exists a diversity of beliefs regarding mental health illnesses. In the Malay culture, mental illness is attributed to various factors. Firstly, it is believed that an excess or unexpressed '*angin*' (wind) in the body can lead to pathological conditions (Haque 2005; Ng, 2003). Secondly, the loss of '*semangat*', which is understood as the essence of the soul or the spirit of life, is also considered a cause of mental illness (Haque 2005; Laderman, 2001). Additionally, some Malays hold beliefs in supernatural causes, such as being possessed by 'Jinn' (Genie), which can result from '*Santau*' (black magic) or be seen as a form of social punishment (Deva, 2004). These Malays believe that such afflictions are typically sent by enemies as a form of retribution (Haque 2005; Deva, 2004).

Interestingly, Haque and Masuan (2002) conducted a study focusing on the psychology of religion in Malaysia. They proposed that the Malay cultural belief system places significant importance on supernatural causes of mental illness, such as the use of charms and the perpetration of evil deeds by envious individuals. They also highlighted transgressions on religious-spiritual realms by the afflicted person and the vulnerability of the soul spirit, which is linked to insufficient religious spirituality. Consequently, due to the various causes attributed to cultural beliefs among Malays, they typically turn to traditional healers known as '*bomoh*' or '*pawang*' for assistance. These healers are believed to possess the knowledge and capability to eliminate spiritual possessions as well as physical or psychological ailments (Sheng, 2007). While some '*bomoh*' may employ the Qur'an in their healing practices, others may rely on herbs and Malay Magic, which have roots in early animistic and Hindu traditions (Haque, 2005). Furthermore, certain indigenous shamanic healing methods may involve a communal presence, as it is believed to have a therapeutic impact on the patient (Harris, 2001; Laderman, 2001).

Chinese beliefs regarding mental health disorders are predominantly pluralistic, drawing influence from traditional Chinese medical beliefs, as well as Confucianism and Taoism (Yip, 2005). According to Haque (2005), the Chinese culture attributes illnesses, both mental and physical, to a lack of spirit or the imbalance of 'yin' and 'yang'. Ancient Chinese philosophy suggests that good health is achieved through a harmonious balance of physical, mental, and spiritual functioning, regulated by the circulation of 'ch'i' or breath. To restore this balance, individuals may seek assistance from a Chinese physician (*sin-se*) who may employ methods such as herbal remedies, acupuncture, or *ch'i-gong* (a form of martial art). Additionally, the perception of mental health among Chinese individuals in Malaysia, who are predominantly Buddhist, is influenced by Buddhist teachings. Mental illness is often seen as a consequence of Karma (the fruit of past actions) and the cultivation of a righteous mind and actions (Haque, 2005).

Furthermore, adhering to the expectations of one's family and society is also deemed crucial for the overall well-being of an individual (Haque, 2005). In situations where it is believed that a patient is being spiritually tormented by unwelcome spirits, families may seek the assistance of mediums in temples and engage in religious folk rituals to either eliminate or appease these spirits (Ng, 2003). To illustrate, a case study conducted on the treatment of a 13-year-old girl with obsessive-compulsive disorder within the context of Malaysian Chinese culture revealed that Chinese traditional beliefs play a significant role in the behavioral treatment of OCD (Ong & Leng, 1979).

Consistent with this case study, traditional healing is acknowledged as a form of complementary and alternative medicine (CAM) and is increasingly gaining recognition in Malaysia as a means to explore and manage mental health disorders (Ong & Leng, 1979; Tahaa et al., 2005). In an article discussing psychotherapy in Malaysia, Sheng (2017) noted that some Malaysian Chinese individuals, both in rural and urban areas, still rely on the guidance of shamans or seek advice through mediums in Chinese temples.

In his article on mental health in Malaysia, Haque (2005) discussed the influence of Hinduism on the Indian community. He argued that the Vedas, a Hindu textbook known as the Book of Knowledge, plays a significant role in shaping their perception of mental health disorders and treatment. According to Haque, Ayurveda, a traditional Hindu system of medicine, is believed to be effective in treating mental illnesses. Ayurveda emphasizes the importance of maintaining a balance among the body, mind, and soul for overall health.

Additionally, Haque suggested that diet, relationships with deities, teachers, and Brahmins also contribute to mental well-being. It is worth noting that like other ethnic groups in Malaysia, such as the Malays and Chinese, Hindu families often seek assistance from "holy men" in Hindu temples when facing mental health challenges (Ng, 2003).

Importantly, religious beliefs and traditional medicine have diverse manifestations across different ethnicities, impacting an individual's perception of mental health. However, the advent of modernization, globalization, and the dissemination of Western knowledge have potentially brought about changes in how mental health disorders are perceived, particularly in terms of treatment approaches (Razali & Najib 2000; Rhi, Ha & Kim 1995). Interestingly, Western psychiatry has also played a significant role in contributing to the understanding of mental health disorders (Sheng, 2007). In certain cases, a combination of traditional and Western approaches is suggested for managing mental health disorders (Razali, Hasanah, Khan & Subramaniam 2000; Azhar, Varma & Dharap, 1995b).

To conclude, the concepts of mental illness and mental health in Malaysia are influenced by a pluralistic understanding, rooted in mythology, and shaped by social and cultural factors. Given the cultural sensitivity surrounding religious and cultural beliefs in Malaysia, it is crucial to comprehend the role of these cultures in both identifying and treating mental illness.

2.6.5 Issues in the study of OCD in Malaysia

There are several issues in the study of OCD in Malaysia. First, despite the significant changes in Malaysia's mental health care systems (e.g., Jamaiah, 2000), the stigma of mental health among Malaysians remains prevalent (Khan et al., 2011; Hanafiah & Van Bortel, 2015). The general public in Malaysia has been reported to have a limited understanding of mental health issues, as indicated by Yeap and Low (2009). This lack of awareness serves as a significant obstacle for individuals seeking help and treatment. Malaysians are often described as being sensitive and conservative when it comes to mental health matters, with concerns about potential social repercussions outweighing the perceived benefits of seeking medical or psychological assistance (Hassan et al., 2018). Therefore, it is crucial to provide psychoeducation on OCD, including information on its symptoms, the importance of early detection, and available interventions, to enhance public awareness and encourage individuals to seek timely screening and assessment (Che Din, 2018).

Second, most Malaysians have a stigma on the understanding of mental health; thus, having a mental health disorder is a taboo for them (Ismail & Abdul Wahab, 2015). The stigma associated with mental illness may prevent a number of people from seeking help or referral to the hospital for their mental illness (Syed Yusof, 2006; Komiti, Judd & Jackson, 2000). However, the presence of stigma and discrimination associated with mental illness poses a significant barrier for Malaysians in seeking psychological treatment, as highlighted by Farhana (2018). Consequently, it can be inferred that a considerable number of individuals with OCD in Malaysia remain undetected or untreated.

Moreover, the negative perception surrounding mental illness has a significant impact on various aspects of the patient's life, including their social interactions, self-esteem, employment opportunities, and family dynamics, ultimately affecting their overall quality of life (Link et al., 1997). Additionally, individuals may continue to face stigmatization even when their behavior aligns with societal norms, such as those whose mental illness is in remission (Crisp et al., 2000).

A recent investigation conducted by Nik Murni, Hadina, Noor Aireen, and Hanita examined the levels of awareness regarding mental illness among 118 secondary school students in Johor. The findings of the study indicated a significant lack of understanding concerning mental health among the participants. By employing the Likert scale in their survey, the researchers gauged the extent of awareness regarding mental illness.

Additionally, they emphasized the existence of stigma and discrimination towards mental health issues in Malaysia, attributing it to the inadequate promotion of mental well-being (Nik Murni et al., 2015).

Furthermore, due to the limited seeking-help behavior among individuals with mental health concerns, there is a scarcity of local data available on the various mental health disorders. However, a report from 2000 revealed that approximately 10.7% of the population (equivalent to 23 million people from diverse ethnic, cultural, and religious backgrounds) had received a diagnosis of mental illness based on hospital records (Jamaiyah, 2000). In contrast, a study conducted by Crabtree and Chong (2000) in both urban and rural areas of Malaysia reported a prevalence of mental illness ranging from 9.6% to 35% respectively. Nevertheless, the accuracy of these figures in representing the actual prevalence of mental health disorders in Malaysia has been questioned due to the lack of community mental health facilities in rural areas (Chong, Mohamad, & Er, 2013).

Fourth, the promotion of mental health awareness in Malaysia has been deemed inadequate, despite the increasing number of people being diagnosed with mental illnesses (Nik Murni et al., 2015). Sheri (2015) suggested several factors contributing to the stigma surrounding mental health in the country, including limited public knowledge, language and cultural influences, misleading media portrayals, and negative attitudes of doctors towards psychiatry and psychiatrists. A study conducted on 587 Malaysians revealed a significant lack of understanding about mental illness among the public (Yeap & Low, 2009). Shockingly, a large majority of respondents (ranging from 70% to over 90%) were unable to provide accurate answers to questions about mental health and mental illness. The authors concluded that improving the public's knowledge and attitude towards mental health is crucial, and this can be achieved through the mass media and reliable sources of information. In addition to the media, the ignorance of mental illness among individuals is believed to contribute to the stigmatization and discrimination of mental health in Malaysia (Nik Murni et al., 2015).

Moreover, the lack of skills and training among mental health professionals, families, and communities can influence perceptions of mental health (Merican et al., 2004). Previous studies have proposed four approaches to addressing stigma: societal interventions, media initiatives, improvements in medical education, and advancements in the field of psychiatry, including public awareness campaigns (Deva, 2004; Sheri, 2015).

Fifth, in relation to the stigma, the lack of support from family members of individuals with mental illnesses remains a significant concern. Unlike physical health conditions, families of those with severe mental illnesses often prefer their loved ones to be placed in an institution rather than cared for at home (Deva, 2004). Research conducted by Tuti and colleagues (2009) revealed that family members of psychiatric patients can also contribute to the stigma experienced by these individuals, unlike families of those with physical health issues such as diabetes, who are subjected to fewer negative comments and criticisms.

As previously mentioned, Malaysians often attribute mental illness to possession by evil spirits, moral weakness, or divine punishment (e.g., Haque, 2005). Caregivers within these families have reported feelings of burden, anxiety, depression, and financial strain when caring for their mentally ill relatives (Chong, Mohammed & Er, 2013). For instance, individuals diagnosed with schizophrenia are often viewed as restless and in need of professional assistance (Malaysian Psychiatric Association, 2005). Consequently, this poses a challenge for caregivers in Malaysian families who are responsible for the well-being of a mentally ill family member (Chang & Horrocks, 2006), as well as for mental health service users and providers (Deva, 2004).

Sixth, the inadequate budget allocation by the government has been a persistent issue in Malaysia, particularly in the realm of mental health services, as highlighted by various scholars (Deva 1990; Haque, 2005; Chong, Mohamad, & Er, 2013). Chong et al. (2015) discussed the development of mental health services in Malaysia, emphasizing the detrimental impact of neglect on the availability of such services within the community. They also pointed out the scarcity of mental health professionals as a contributing factor to the limited resources. However, they acknowledged a positive shift in mental health care over the past few decades, attributing it to the implementation of the Mental Health Act 2001. This legislation provides comprehensive policy guidelines for the provision of mental health services in Malaysia, leading to significant changes for healthcare professionals, service users, and individuals affected by the mental health system in the country.

Lastly, as stated earlier, cultural and religious beliefs in Malaysia can have conflicting impacts on mental health disorders, complicating their identification and treatment. Some Malaysians, however, utilize religion or culture as a method to address mental health issues. Research has shown that patients undergoing religious psychotherapy among ethnic Malays experienced faster improvement in symptoms of anxiety and depression compared to those receiving only supportive psychotherapy and medication. The diverse cultural beliefs in Malaysia pose a challenge for mental health professionals in understanding and treating mental illnesses, leaving the multidimensional experiences of mental health service users largely unexplored in the country.

In conclusion, the challenges pertaining to psychological assessments or validated scales for OCD studies are worth considering. Despite efforts to create and validate an OCD scale suitable for the Malaysian context (Che Din, et al., 2019; Sarnin et al., 2022), it is apparent that the absence of such a scale could hinder the diagnosis of OCD in clinical settings and consequently impede the progress of OCD studies in Malaysia.

Chapter 3

Development of the Newcastle Religiosity and Spirituality Scale (NSRS)

3.1. Rationale for the Development of Religiosity and Spirituality Measure

Studies investigating the connection between religion and OCD have been extensively conducted. Both religiosity and OCD have been found to have a relationship, although the results have been inconsistent. These inconsistencies may be attributed to various factors. Firstly, the measurement of religiosity is often inadequate, which could be due to conceptual confusion, a poor definition of the construct, inadequate measurement tools, and studies that lack sufficient statistical power when examining the association with OCD.

The lack of consensus on the definition of religiosity poses a threat to the validity of religiosity measures. Additionally, existing measures often define religiosity too narrowly, only capturing a limited aspect, such as religious activities or practices. In other words, these measures may not fully encompass the key constructs of religiosity. Furthermore, these measures may not be suitable for all religions and may not adequately account for cultural variables.

Moreover, the existing measures may not be appropriate for use in a mixed religious sample, which includes individuals without religious affiliation or those who have non-theistic approaches to spirituality. Additionally, it may not account for individuals who do not adhere to traditional religious affiliations but incorporate aspects of religious practice into a more personalized form of spirituality. Therefore, to address these limitations, the present study aimed to first examine the important theoretical constructs related to religiosity/spirituality and subsequently develop a comprehensive and multidimensional measure of religiosity and spirituality. This new measure was intended to be applicable to

both religious and non-religious groups and suitable for multi-religious samples in the United Kingdom and Malaysia. The study was conducted in six stages, which are detailed below.

3.2 Overview of the development Spirituality and Religiosity Measure

First, a literature search was conducted. After the literature search, a conceptual framework for religiosity and spirituality was developed. Subsequently, several rounds of discussion, drafting, and reviews led to the development of construct definitions. Next, the items were generated, and the process was continued by presenting the items to separate groups for item review. Several groups were invited to review the items for different purposes, specifically 1) to establish content validity and inter-rater reliability on the content of the items 2) to check face validity informally against the definition and seek comments from academics, 3) to review it with regards to the acceptability and appropriateness of the items across a range of religions from religious leaders from different religions, 4) to check for the length, wording and the readability of instructions, and the measure in general.

After the feedback was received, it was compiled and all the feedback and comments were addressed, considered, revised, and only changes that were necessary were made. Then, after the final measure was ready, a rigorous translation procedure was implemented to develop the version to be used among the Malaysian sample.

3.2.1 Stage 1: Understanding of key concepts: Religiosity and Spirituality

A robust conceptual framework for religiosity and spirituality was deemed necessary to establish reliable constructs. To achieve this, an initial review of the literature was carried out to pinpoint the primary existing metrics pertaining to religiosity and spirituality. Only studies concentrating on the development of scales or the psychometric characteristics of measures related to religiosity/spirituality were considered. Subsequently, a secondary literature review was conducted using the keywords "Obsessive Compulsive Disorder (OCD)" and "religiosity" (or similar terms) to determine which metrics had been utilized in investigating this issue. The second search yielded numerous studies on religiosity and mental health conditions, although not specifically on OCD; these studies were also incorporated. The identified articles were then acquired and assessed.

3.2.2 A Brief Literature Review: Defining Dimensions of Religiosity

In recent decades, there has been a significant increase in research on the psychology of religion, resulting in numerous advancements in theory and empirical investigations.

Religiosity refers to the acceptance of a transcendent or divine power. The majority of religious beliefs are based on specific doctrines. Despite the significant rise in secular beliefs in recent years, approximately 84% of the global population still associates themselves with an organized religion (Hackett & McClendon, 2017). Religiosity influences an individual's adherence to a specific religion, shaped by the beliefs and rituals associated with it (Dias & Pais-Ribeiro, 2017; Panzini et al., 2017).

On the other hand, spirituality involves a personal quest to comprehend profound existential inquiries, including life's purpose, significance, and ultimate destiny, as well as the connection to the divine or transcendent, which may or may not be rooted in religious convictions (Kimura et al., 2012; Koenig et al., 2001; Panzini et al., 2011). One of the earliest and most influential concepts introduced in this field was the recognition that individuals can manifest their religious beliefs in various ways. Expanding upon Allport's initial ideas on religious sentiment and prejudice (Allport, 1950), Allport (1966) proposed two distinct religious orientations: intrinsic and extrinsic. Those with an intrinsic orientation exhibit a deep commitment to their religious beliefs, considering religion as the central aspect of their lives that influences all other dimensions.

Conversely, individuals with an extrinsic orientation perceive religion as a means to attain social status, protection, and comfort within a specific group. Essentially, those with an extrinsic orientation view religion as a practical resource that provides security, social recognition, emotional support, and validation for their chosen lifestyle (Allport, 1966). To assess these orientations, researchers developed the Religious Orientation Scale (ROS) as a self-report questionnaire (Allport & Ross, 1967). Despite its extensive utilization in various studies on religiosity (e.g., Allen & Spilka, 1967; Batson, 1976; Genia, 1993), the scale has undergone multiple revisions and improvements. Despite its widespread use in many studies on religiosity (e.g., Allen & Spilka, 1967; Batson, 1976; Genia, 1993), this scale has undergone several modifications and enhancements.

The Religious Orientation Scale (ROS) has undergone significant modifications to address its limitations. Firstly, Gorsuch and Venable (1983) introduced the 'Age Universal I/E' scale, derived from Allport's original scale, to ensure its applicability across all age groups. This revised scale simplified the language while retaining its ability to measure the same content. Secondly, Kirkpatrick (1989) proposed that the extrinsic scale consists of two distinct and mostly independent factors. To test this, Kirkpatrick and Hood (1990) conducted tests on the revised scale using various samples, confirming the existence of three factors: intrinsic religiosity, extrinsic-personal religiosity, and extrinsic-social religiosity (Gorsuch & McPherson, 1989; Leong & Zachar, 1990; Maltby, 1999).

Despite its widespread use and support for Allport's concept of religiosity, the original ROS has faced criticism for its operationalization and measurement of variables. Batson and Ventis (1982) argue that the ROS fails to adequately capture certain aspects of intrinsic religiosity as intended by Allport. These include the ability to address complex problems without oversimplification, readiness to doubt and engage in self-criticism, and openness to change religious beliefs. In response to these criticisms, the Quest Scale was developed, introducing a fourth religious orientation (Batson & Schoenrade, 1991a; Batson & Schoenrade, 1991b).

Individuals with a quest-oriented religious orientation perceive religion as an ongoing and open-ended process, prioritizing the pursuit of truth over definitive answers (Batson, Schoenrade & Ventis, 1993; Maltby & Day, 1998). Therefore, the inclusion of the Quest orientation expands the understanding of religiosity to encompass four dimensions, addressing some of the limitations identified in Allport's original scale and subsequent revisions.

Religious Fundamentalism is another aspect of religiosity that has been extensively examined. Scholars have defined Religious Fundamentalism in various ways, such as an individual's attitude towards their endorsed beliefs or a closed belief system. However, the most influential definition of Religious Fundamentalism was proposed by Altemeyer and Hunsberger, (1992). They defined religious fundamentalism as “the belief that there is one set of religious teachings that clearly contains the fundamental, basic, intrinsic, essential, inerrant truth about humanity and deity” (p. 379). This definition laid the foundation for the creation of the Religious Fundamentalism (RF) Scale, which primarily assesses attitudes towards one's religious beliefs rather than adherence to a specific set of beliefs.

One notable advantage of this conceptualization and measurement of religious fundamentalism is its applicability to various religious groups, including Christians, Muslims, Jews, and Hindus. Consequently, these dimensions of religiosity, including intrinsic, extrinsic personal, extrinsic social, quest, and Religious Fundamentalism, are crucial considerations for the development of a comprehensive religiosity and spirituality measure (Altemeyer & Hunsberger, 1992; Hunsberger, 1996; Hunsberger & Jackson, 2005; Altemeyer & Hunsberger, 2005).

Consequently, given all above-mentioned religiosity dimensions that have been studied in the study of religiosity, it becomes clear that these dimensions (e.g., intrinsic, extrinsic personal, extrinsic social, quest and Religious Fundamentalism) are crucial considerations for the development of a comprehensive religiosity and spirituality measure.

3.2.3 *A Brief Literature Review: Defining Dimensions of Spirituality*

Another construct that is important in the study of the psychology of religion is spirituality. Generally, the concept of spirituality appears to be growing worldwide (Grim & Finke, 2010) such as in the United States (Gallup & Jones, 2000; Gallup & Lindsay, 1999), in the United Kingdom (Bruce, 1996) and other Western countries (e.g., Greeley, 2004; Stausberg, 2007; Houtman & Aupers, 2007; Dy-Liacco, Piedmont, Murray-Swank, Rodgerson, & Sherman, 2009). This new trend of interest in spirituality has apparently been emerging with the rise of secularism (Roof, 1993, 2003). Further, Roof (1993; 2003) suggested that from the mid-1990s, there has been increasing interest in spiritual expression, which is considered distinct from the fixed religious beliefs and practices of mainstream religion in the United States. Moreover, a subsequent study indicated that most North American adults who identified themselves as religious also saw themselves as spiritual (see Zinnbauer, Pargament & Scott, 1997).

The concept of spirituality was initially connected solely to religion and was used to describe intense religious devotion or practice, particularly that of ascetics (Koenig, 2008). According to Koenig (2008), spirituality is a characteristic that is inherent in every individual. In other words, there exist diverse approaches to comprehending and delineating religiosity and spirituality. From a traditional-historical standpoint, spirituality is intertwined within a religious framework, where being religious is deemed necessary but insufficient for being spiritual. Those identified as spiritual are individuals who commit themselves to religion, actively engage in religious practices, or earnestly strive to cultivate a religious perspective and lifestyle.

In the past, spirituality and religiosity were often considered to be synonymous, especially among older generations. A study focusing on the religiosity and spirituality of older individuals revealed that spirituality encompasses not only religiosity and belief in God, but also a sense of connectedness to others and a conviction about a spiritual reality. The elderly participants expressed a desire to share their personal beliefs and experiences of spirituality, but they faced difficulties due to a fear of not being taken seriously (Norberg, 2018).

The contemporary perception of spirituality is a comprehensive, all-encompassing concept and a widely used term to describe a wide array of individuals and experiences, typically connoting positivity. While religion falls under the umbrella of spirituality, spirituality transcends beyond religion. It applies to individuals from various religious backgrounds as well as those with no religious affiliation. The tautological view of spirituality resembles the modern perspective but expands further to encompass positive mental well-being and human values within its definition (Koenig, 2008).

Recent research by Cohen et al. (2012) suggests that there is a distinction between the two. In recent years, the concept of spirituality has evolved and is now commonly associated with an individual's personal and subjective experiences related to their belief in a higher power. This transformation has made defining and studying spirituality more challenging, as it encompasses less formal or organized rituals. Additionally, spirituality can be applicable to a diverse range of individuals, including those with a superficial religious affiliation, those who are completely secular, or those who are simply seeking inner peace or a sense of purpose and meaning in life (Cohen et al., 2012).

The concept of spirituality has undergone changes over time, becoming more detached from organized religion and gaining recognition as a separate entity. In 2017, 27% of the American population identified themselves as spiritual but not religious, marking an increase from 19% in 2012. Although a significant portion of individuals in this category still maintain ties to religious institutions, their level of religious commitment tends to be low (Hackett & McClendon, 2017).

Moreover, it was observed that some Americans blend spirituality with traditional religious beliefs and practices, forming a group that can be described as "religious and spiritual." This trend can be attributed to the growing acknowledgment of a personal need for spirituality, leading to an overall rise in the popularity of spirituality (Gallup & Lindsay, 1999; Gallup & Jones, 2000). Numerous studies have attempted to define spirituality in different ways, despite its widespread popularity.

Some of these studies have characterized spirituality as a personal quest for sacredness and purpose, encompassing whatever individuals deem significant for themselves (e.g. Pargament, 1999; Zinnbauer, Pargament & Scott, 1999; Idler, Musick, Ellison, George, Krause, et al., 2003; Zinnbauer, et al., 1997). This pursuit of purpose may or may not be confined to formal religious practices (e.g., Zinnbauer, Pargament & Scott, 1999; Hill, Pargament, Hood, McCullough, Swyers, Larson & Zinnbauer, 2000; Pargament, & Mahoney, 2005).

It extends to attitudes, practices, and the exploration of meaning and purpose beyond oneself (e.g., Elkins, Hedstrom, Hughes, Leaf, & Saunders, 1988; Kiesling, Sorell, Montgomery, & Colwell, 2008; Piedmont, 1999, 2001; Sinnott, 2002; Wink & Dillon, 2002). For instance, many studies suggest that the pursuit of the sacred is linked to the relational aspects of spirituality, often described as transcendent (e.g., Canda & Furman, 2010; Gallup & Jones, 2000; Gilbert, 2000; Hodge, 2005; Wuthnow, 2007; Piedmont, 2001).

The term "spiritual" has its etymological roots in the Latin language, specifically from the term "-spiritus-". In Latin, "spiritual" refers to the presence of a spirit or soul that exists beyond the physical form of an entity. This spiritual essence is what brings life and meaning to the manifestation of the entity (Lings, 2005). Several of the previous studies defined spirituality as a personal search for sacred, purpose, and whatever means that individuals consider significant for themselves (e.g., Pargament, 1999; Zinnbauer, Pargament & Scott, 1999; Idler, Musick, Ellison, George, Krause, et al., 2003; Zinnbauer, et al., 1997).

Furthermore, the quest for purpose may or may not be limited to any established religious institution (e.g., Zinnbauer, Pargament & Scott, 1999; Hill, Pargament, Hood, McCullough, Swyers, Larson & Zinnbauer, 2000; Pargament & Mahoney, 2005). This search extends to attitudes, practices, and the exploration of meaning and purpose beyond oneself, encompassing connections with external elements (e.g., Elkins, Hedstrom, Hughes, Leaf, & Saunders, 1988; Kiesling, Sorell, Montgomery, & Colwell, 2008; Piedmont, 1999, 2001; Sinnott, 2002; Wink & Dillon, 2002).

Numerous studies suggest that the pursuit of the sacred is often linked to the relational aspects of spirituality, which can be described as transcendent (e.g., Canda & Furman, 2010; Gallup & Jones, 2000; Gilbert, 2000; Hodge, 2005; Wuthnow, 2007; Piedmont, 2001).

Despite the varying definitions of spirituality in these studies, the notions of searching for the sacred and transcendence appear to be universally relevant. Therefore, the development of a new measure for religiosity and spirituality will incorporate the concepts of 'sacred' and 'transcendence' as integral components of the spiritual construct.

3.2.4 The relationship between religiosity and spirituality

The terms religiosity and spirituality are commonly used interchangeably in literature (Pellebon & Anderson, 1999; Halford, 1999), although some scholars have made efforts to differentiate between these two related concepts (Carroll, 1998; Sinnott, 2001). Sinnott (2001) proposed that spirituality is centered around one's connection to the sacred, distinct from religion, which involves adherence to specific beliefs, practices, membership requirements, and social structures.

Furthermore, some researchers have argued that religiosity and spirituality have distinct characteristics, with religiosity focusing on group activities that include behavioral, social, doctrinal, and denominational aspects (Fetzer Institute, 1999), as well as the promotion of adherence to particular religious practices (Hill, Pargament, Hood, McCullough, Swyers, Larson, & Zinnbauer, 2000). Conversely, Pargament (1999) suggested that spirituality entails a personal transformation in the pursuit of objects that hold significance, such as the sacred. In essence, spirituality is more individually defined (Miller & Thoresen, 2003). Therefore, since spirituality is viewed as a personal experience, it appears that the definitions of spirituality vary based on individual encounters (Meagher, 2010).

Several studies have explored the relationship between religion and spirituality, with some suggesting that they are distinct but interconnected concepts, while others propose that they are essentially the same (Halford, 1999; Lewin, 2001). Conversely, a different perspective presented in a few studies posits that spirituality is an essential component of religiosity (Benson, 1997; Hill & Smith, 2003).

For instance, Zinnbauer and colleagues (1997) argued that spirituality and religiosity may be linked due to the common association of spirituality with closeness to God, religious

beliefs, and practices. Moreover, religious practices can foster spiritual development, while spiritual practices are often integral to religious observance.

Furthermore, a recent study by Asih and colleagues (2020) in Indonesia on frugality (a form of self-control), religiosity, and spirituality found distinct disparities between religiosity and spirituality. Through exploratory factor analysis of the scale, the Daily Spiritual Experiences Scale (DSES), the research revealed that religiosity and spirituality are separate constructs.

While there exists, some evidence supporting the notion that religion and spirituality are distinct yet interconnected concepts, several studies have also proposed that spirituality and religiosity are synonymous (Halford, 1999; Lewin, 2001). Conversely, a few studies have posited that spirituality is an integral component of religiosity (Benson, 1997; Hill & Smith, 2003). For instance, Zinnbauer and colleagues (1997) have suggested that the association between spirituality and religiosity may stem from the belief that spirituality is primarily linked to one's proximity to God, institutional beliefs, and religious practices.

Moreover, in terms of spirituality, religious practices may foster spiritual development, while spiritual practices often constitute a prominent aspect of religious engagement. These propositions may elucidate why several studies have found that individuals who exhibit the highest levels of spirituality, as measured by various indicators, also tend to be the most religious (Zinnbauer et al., 1997; Scott, 2001; Zinnbauer, Pargament & Scott, 1999; Marler & Hadaway, 2002). However, Pargament (1999) has suggested that due to the growing trend of spirituality, many individuals now place greater value on spirituality than religiosity, leading to an increasing number of people identifying as spiritual but not religious (Roof, 1993; 2000; Zinnbauer, Pargament & Scott, 1997; 1999; Gallup, 1999; 2000).

Interestingly, Huitt and Robbins (2003) conducted a study on spiritual development and proposed that individuals can possess spirituality without adhering to any specific religious practices. This means that one can seek a connection with a higher power without being affiliated with a particular religious group. On the other hand, other studies have suggested that individuals can be religious without having a spiritual inclination. This refers to engaging in religious rituals or attending worship services without establishing a connection with the non-material aspects of the universe (Zinnbauer, Pargament & Scott, 1997; Pargament, 1999; Huitt and Robbins, 2003).

Furthermore, Koenig (2009) conducted a recent study that identified a growing group of individuals who categorize themselves as spiritual-but-not-religious. These individuals completely reject any association with organized religion and view spirituality as a purely individualistic concept.

In summary, spirituality and religiosity can be seen as overlapping constructs, sharing some similarities but also possessing distinct characteristics (Miller & Thoresen, 2003). Pargament (1999) suggests that the concept of religiosity tends to become narrower over time, while spirituality tends to broaden and remains challenging to define (Koenig, 2009). Due to the complex relationship between religiosity and spirituality, it is evident that they are overlapping constructs but still separate from each other. Therefore, in the development of new perspectives on religiosity and spirituality, spirituality will be expanded to include both theistic and non-theistic dimensions. Non-theistic spirituality will be defined as distinct in that it does not refer to specific behaviors or a named God or Supreme Being.

3.2.5 Measures of Religiosity and Spirituality

In previous research, attempts were made to assess religiosity at the individual level using a single-question scale that primarily focused on the frequency of attending religious rituals. The most commonly used question pertained to the frequency of attending Sunday worship services at a church. However, it is now recognized that relying solely on such a question is insufficient for accurately measuring religiosity at the individual level. Previous studies have highlighted the need for a multi-item measurement tool that can more comprehensively capture the complexity of religiosity.

To address this, a multidimensional scale is required to effectively study this intricate construct. The Centrality Religiosity Scale (CRS), was developed by Huber and Huber (2012), is the measurement tool utilized in this study. The CRS has been widely used in over 100 studies across 25 countries with more than 100,000 participants. It is believed that the dimensions of the CRS can adequately represent various aspects of religious life. This centrality scale is based on the multidimensional religiosity model proposed by Glock (1973), which examines religion from both sociological and psychological perspectives. The five main dimensions derived from this model encompass religiosity from cognitive, behavioral, and affective aspects, providing a comprehensive understanding of religiosity from multiple viewpoints.

Moreover, the Santa Clara Strength of Religious Faith Questionnaire (SCSORF; Plante & Boccaccini, 1997) is another measure of religiosity/spirituality that has been widely used in studies on mental health. This 10-item self-report measure was specifically designed to assess the strength of religious faith, regardless of religious denomination or affiliation, and can be utilized in both research and clinical settings. The SCSORF has been shown to possess good reliability and has been utilized with both clinical and non-clinical samples.

In addition to the SCSORF, the Religious Involvement Scale (RIS) was developed by Piedmont in 2004 to measure religious involvement. The RIS consists of four items that are considered the standard for assessing religious involvement, including activities such as reading religious texts, praying, and attending religious services. However, it is worth noting that there is some debate regarding the generalizability of the RIS across diverse samples (Piedmont, Ciarrochi, Dy-Liacco & Williams, 2009).

In light of the increasing interest in evaluating spirituality in psychological research, numerous measures have been developed to assess various aspects of spirituality (Pargament, 1999). Hill and Hood (1999) conducted a comprehensive review of 125 measures of religiosity and spirituality, revealing a wide range of measures available for studying these variables. One prominent measure is the Spiritual Well-Being Scale, which was created by Paloutzian and Ellison in 1982 based on the conceptualization of spiritual well-being (SWB) as an individual's perception of their spiritual well-being in both religious and existential contexts. This scale has undergone validation, standardization, and utilization in multiple studies (Bufford, Paloutzian & Ellison, 1991; Szaflarski, et al., 2006; Ellison, 2006; Gomez & Fisher, 2003; McClain, Rosenfeld & Breitbart, 2003; Genia, 2001; Paloutzian, Bufford, & Wildman, A. 2012).

Another measure that focuses on a distinct aspect of spirituality and has been widely employed in research is the Spiritual Assessment Inventory (SAI). Developed by Hall and Edwards (1996), this scale assesses both theological aspects (e.g., awareness of God) and psychological perspectives of human nature (e.g., instability and grandiosity). The SAI has demonstrated good internal reliability and has been utilized in various studies (Hall, Reise & Haviland, 2007; Fee & Ingram, 2004; Hall & Edwards, 2002).

Furthermore, several other measures have been developed, each highlighting a different facet of spirituality. These include the Spiritual Gifts Inventory (Kehe, 2000), the Spiritual Transcendence Scale (Piedmont, 1999), the Expressions of Spirituality Inventory (MacDonald, 2000), the NIA/Fetzer Multidimensional Measure of Religiousness/Spirituality (Fetzer Institute, 1999), the revised Spiritual Experience Index (Csarny, Piedmont, Sneek & Cheston, 2000), and the Spiritual Transcendence Index (Seidlitz, Abernethy, Duberstein, Evinger, Chang & Lewis, 2002), and the Intrinsic Spirituality Scale (Hodge, 2003).

Researchers must realize that there is ambiguity in the definitions of both constructs and must explicitly describe the operationalization of religiosity and spirituality in their respective studies. As of now, many studies have developed measurements of spirituality. One of the measurements of spirituality that has been frequently used in various studies is the spirituality daily experience measurement scale, which consists of three dimensions, which are the values, or beliefs dimension, the forgiveness dimension, and the positive religious coping dimension. This Daily Spiritual Experiences Scale (DSES) was developed through extensive and qualitative studies so that this scale can be used in various settings, and is not just limited to the health and nursing fields. This scale has been used in more than 70 publications and has proven its usefulness (Asih, et al., 2020).

In response to the growing interest in assessing spirituality in psychological studies, numerous spirituality measures have been developed measuring various aspects of spirituality (Pargament, 1999). Accordingly, a study by Hill and Hood (1999) on a compendium that reviewed 125 measures of religiosity and spirituality, have shown that there is a large array of measures is available for studying religiosity and spirituality variables. For example, one of the most extensively used measures is the Spiritual Well-Being Scale. The scale was developed by Paloutzian and Ellison in 1982 based on the conceptualisation of spiritual well-being (SWB) that is an individual's perception of their spiritual well-being in a religious and existential sense. This scale has been validated, standardised and used in several studies (e.g. Bufford, Paloutzian & Ellison, 1991; Szaflarski, et al., 2006; Ellison, 2006; Gomez & Fisher, 2003; McClain, Rosenfeld & Breitbart, 2003; Genia, 2001; Paloutzian, Bufford, & Wildman, A. 2012).

Another measure emphasizing a different aspect of spirituality that has also been used in many studies is The Spiritual Assessment Inventory (SAI). The scale was developed by Hall and Edwards (1996) to measure both the theological (e.g., awareness of God) and psychological perspectives of human nature (e.g. instability and grandiosity). This measure has been used in several studies and has shown good internal reliability (e.g., Hall, Reise & Haviland, 2007; Fee & Ingram, 2004; Hall & Edwards, 2002).

Other measures, each highlighting a different facet of spirituality, have been developed, such as the Spiritual Gifts Inventory (Kehe, 2000), the Spiritual Transcendence Scale (Piedmont, 1999), the Expressions of Spirituality Inventory (MacDonald, 2000), the NIA/Fetzer Multidimensional Measure of Religiousness/Spirituality (Fetzer Institute, 1999), the revised Spiritual Experience Index (Csarny, Piedmont, Sneck & Cheston, 2000), the Spiritual Transcendence Index (Seidlitz, Abernethy, Duberstein, Evinger, Chang & Lewis, 2002), and the Intrinsic Spirituality Scale (Hodge, 2003).

Previous research has consistently highlighted the interconnectedness of religiosity and spirituality, with both concepts being recognized as multidimensional (Clayton & Gladden, 1974; Neff, 2006; Fontaine, JDuriez, Luyten, Corveleyn & Hutsebaut, 2005; De Jong, Faulkner & Warland, 1976; Frazier, Mintz, & Mobley, 2005; Cohen, Holley, Wengel, & Katzman, 2012). For example, a study examining the relationship between religiosity and mental health utilized a multidimensional approach, incorporating dimensions such as intrinsic and extrinsic religiosity, spirituality or paranormal belief, and religious fundamentalism. This comprehensive religiosity scale was developed by combining different subscales, including intrinsic and extrinsic religiosity (Gorsuch & Venable, 1983), spirituality/paranormal belief (Farmer, Trapnell & Meston, 2008), and religious fundamentalism (Altameyer & Hunsberger, 1992).

This scale has an advantage as it could be applied across culture among various types of religious groups. However, some of the items of spirituality items refer to skepticism which does not cover other aspects of spiritual beliefs such as transcendental (Farmer, Trapnell & Meston, 2008).

Ultimately, notwithstanding the widespread consensus on the operational definitions of religiosity and spirituality, the increasing focus on the exploration of religiosity and spirituality in various domains like mental health is evident through the advancement of measurement tools.

3.2.6 Issues in the studies of religiosity and spirituality

Despite the growing number of measures of religiosity and spirituality, the absence of universal agreements on both constructs has presented numerous challenges in the field of religiosity and spirituality (Pargament, 1999). Put differently, many of the measures of religiosity and spirituality have employed varying definitions and conceptualizations. This can give rise to several challenges in the study of religiosity and spirituality.

First, one key challenge is that certain existing measures of spirituality fail to differentiate between religiosity and spirituality. According to a review conducted by Hill and his colleagues (2000), the difficulty in defining religiosity and spirituality has resulted in intricate definitions where either both are defined too narrowly or too broadly, leading to the loss of the distinct characteristics of religiosity and spirituality.

Currently, there is a lack of agreement on a singular definition of spirituality, which presents a theoretical challenge in terms of operationalizing the concept (Cohen, Hall, Koenig & Meador, 2005). For instance, Zinnbauer, Pargament, and Scott (1999) conducted a content analysis of 31 definitions of religiosity and 40 definitions of spirituality, leading to the conclusion that no single definition was suitable to serve as a normative definition for either construct. Consequently, there is no universally accepted definition for religiosity and spirituality that can be considered standard. Several studies have indicated that spirituality is connected to, yet distinct from, religiosity (e.g., Hill, et al., 1991; King & Crowther, 2004; Saucier & Skrzypińska, 2006; Slater, Hall & Edwards, 2001). For example, certain aspects of spirituality, such as spiritual experiences and practices, may or may not be associated with religious traditions (Tuck, McCain & Elswick 2001). Therefore, it is crucial to differentiate between religiosity and spirituality both independently from formal religion and in conjunction with formal religion (see Hill, et al., 1991).

Second, it is important to acknowledge that the majority of scales used to measure religiosity and spirituality have been developed from a Western standpoint. This can potentially create a disconnect when studying individuals from non-Western countries who practice different religions (Dasti & Sitwat, 2014; Abu Raiya, Pargament, Mahoney, & Stein, 2008). Additionally, certain Western studies have distinguished between religiosity and spirituality, portraying religiosity as institutionalized, inflexible, narrow, rigid, and dogmatic, while spirituality is seen as a subjective, beneficial, and enriching experience (Hill et al., 2000; Koeing, McCullough, & Larson, 2001). These distinctions may be influenced by the perspectives of specific religions, such as Christianity (Dasti & Sitwat, 2014). For instance, in Islam, religiosity and spirituality are defined and measured differently compared to other religions, with spirituality being considered a subset of religiosity (Krauss et al., 2005; Rassool, 2000).

Furthermore, the conceptualization of religiosity and spirituality measures in Western samples, primarily focused on Christianity, may not be applicable to other religions such as Islam and Buddhism. Scholars have argued that these measures developed in Western contexts may not accurately capture the beliefs and practices of non-Christian religious groups (Dasti & Sitwat, 2014; Abu Raiya, Pargament, Mahoney & Stein, 2008). For instance, the Spiritual Wellbeing Belief Questionnaire (Gomez & Fisher, 2003) designed for Western Christian populations may not be suitable for use among other religious traditions, especially the 10-item Religious Well-Being subscale that specifically references a singular God. This could potentially marginalize individuals from religions like Buddhism (Moberg, 2002).

The third concern pertains to the utilization of religiosity and spirituality measures in previous studies. It has been observed that some of these measures were originally developed in Western contexts and then translated for use in Christian-based populations (Abu Raiya & Pargament, 2010). Consequently, it is argued that employing these measures in samples from different religious backgrounds, such as Muslims, may not yield accurate results (Abu Raiya & Pargament, 2010).

Several studies have made efforts to tackle this issue by creating religion-specific measures for various faiths, including Islam. Examples of these measures include The Psychological Measure of Islamic Religiousness (Abu-Raiya, Pargament, Mahoney, and Stein, 2008), The Muslim Experiential Religiousness (Ghorbani Watson, Geranmayepour, and Chen, 2014), The Five Dimensions of Muslim Religiosity Scale (El-Menouar, 2014), The Muslim Daily Religiosity Assessment Scale (Olufadi, 2016), and the 10-item IIUM Religiosity Scale (IIUMRelS) (Mohd Mahudin, et al., 2016). However, despite these efforts, there are limitations to these measures (Dasti & Sitwat, 2014). For example, the MRPI focuses solely on aspects related to Islamic religiosity, such as beliefs and worship, without including essential elements of spirituality like the pursuit of the divine (Krauss et al., 2005; Krauss et al., 2006). Consequently, using measures that are specific to a particular religion may not be suitable for samples with individuals from diverse religious backgrounds or may impede studies involving mixed samples (Dasti & Sitwat, 2014).

The last concern pertains to the limitations of some religiosity and spirituality scales that focus solely on one dimension, such as religious attendance. Scholars have pointed out that relying solely on religious attendance as a measure of religiosity may not be sufficient and could potentially lead to erroneous conclusions (Bergan & McConatha, 2001). For instance, various other measures of religiosity used in the field of psychology of religion highlight engagement in religious practices or involvement, such as church attendance (e.g. Ellison & George, 1994; Francis & Wilcox, 1994; Sherkat & Reed, 1992; George, Ellison & Larson, 2002) and prayer (e.g. Francis & Wilcox, 1994; Francis, 1997; Bänziger, Uden, & Janssen, 2008) as indicators of an individual's religious beliefs.

Interestingly, two studies have indicated that different religious groups have varying expectations regarding religious participation (Farmer, Trapnell & Meston, 2009; Ahrold & Meston, 2010). They have also suggested that religious attendance alone does not capture the specific religious attitudes and motivations associated with religiosity. For example, in Islam, adherents are required to follow certain rules, including performing five formal daily prayers. In contrast, Buddhism does not mandate followers to attend specific services on a regular basis; instead, their traditions focus more on personal reflection and spiritual enlightenment (see Farmer, Trapnell & Meston, 2009).

To summarize, considering the intricate nature of religiosity and spirituality, which share certain traits while also possessing distinct features, it becomes crucial to devise a metric that can encompass the various dimensions of these concepts. Hence, in this novel approach to measuring religiosity and spirituality, we have chosen to employ a concise yet comprehensive multidimensional tool that can be applied universally across different cultures, religious groups, and even non-religious groups.

3.2.7 *Religiosity and Spirituality Measure in OCD studies*

In previous discussions, the inconsistent findings in studies on the relationship between religiosity and OCD may be attributed to the varying methods used to measure religiosity in these studies (refer to Chapter 2 for more information). Additionally, several issues have been brought to attention. Firstly, some studies have focused on a single aspect of religiosity, such as religious activities or practices (Tek & Ulug, 2001; Sica, Novara & Sanavio, 2002; Rassin & Koster, 2003; Abramowitz, Deacon, Woods & Tolin, 2004; Yorulmaz, Gençöz & Woody, 2009), while others have examined religious attitudes (e.g. Steketee, Quay, White, 1991; Siev & Cohen, 2007) in order to assess the level of religiosity. Furthermore, certain studies have measured religious commitment (e.g. Higgins, Pollard & Merkel, 1992, Siev & Cohen, 2007; Siev, Chambles & Huppert, 2010), while others have solely considered religious affiliation (e.g. Rassin & Koster, 2003; Himle, Taylor & Chatters, 2012). Interestingly, a few studies have specifically focused on religious fundamentalism (e.g. Inozu, Karanci & Clark. 2012a; Inozu, Karanci & Clark. 2012b; Witzig & Pollard, 2013).

However, despite the prevalence of one-dimensional measures of religiosity and spirituality in many studies (e.g., Tek & Ulug, 2001; Sica, Novara & Sanavio, 2002; Rassin & Koster), a recent study conducted by Witzig and Pollard (2013) utilized three distinct scales to measure religiosity: 1) the Religious Commitment Inventory (Worthington, Wade, Hight, Ripley & McCullough, 2003), 2) the Religious Fundamentalism Scale, RFS (Altemeyer & Hunsberger, 1992), and 3) Spiritual Well-Being, SWB (Paloutzian & Ellison, 1982). Although this study examined different dimensions of religiosity and spirituality, it is worth considering the generalizability of the findings, as the study solely focused on Protestant Christians.

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Furthermore, it is worth noting that some measures utilized in studies on obsessive - compulsive disorder (OCD) have been limited to specific religious groups, rendering them unsuitable for application across all religious or non-religious populations (Siev & Cohen, 2007; Cohen, Malka, Rozin, and Cherfas, 2006). For instance, certain studies have exclusively employed religious measures tailored for Christians (e.g. Higgins, Pollard and Merkel, 1992; Steketee, Quay & White, 1991; Abramowitz, Deacon, Woods & Tolin, 2004), while others have focused on measures applicable to Jews (e.g. Greenberg & Shefler, 2002; Zohar, Goldman, Calamari & Mashiah, 2005; Rosmarin, Pirutinsky & Siev, 2010).

Additionally, a number of studies have solely utilized samples from Turkish Muslim populations (e.g. Tek & Ulug, 2001; Karadag[^], Oguzhanoglu, Ozdel, Atesci & Amuk, 2006; Inozu, Ulukut, Ergun & Alcolado, 2014) and Iranian Muslims (Assarian, Biqam & Asqarnejad, 2006; Shams & Milosevic, 2013; Mahintorabi, Jones, Harris & Zahiroddin, 2015).

While most studies have focused on a single religious group (e.g. Yossifova & Loewenthal, 1999; Rassin & Koster, 2003; Al-Solaim & Loewenthal, 2011; Greenberg & Shefler, 2002), several studies have examined multiple religions, such as Christianity and Judaism (e.g. Siev & Cohen, 2007; Siev, Chambles and Huppert, 2010). Moreover, some studies have explored multiple religions within the same country, while others have compared religious samples from different countries with contrasting religious and cultural backgrounds (e.g. Turkish Muslims and Canadian Christians) (e.g. Yorulmaz, Gençöz & Woody, 2009; 2010).

Interestingly, in these studies, Yorulmaz and colleagues (2009; 2010) employed a Religiousness Screening Questionnaire (RSQ) that could be applied to all religions. The RSQ displayed robust internal consistency and was deemed suitable for use across different religious affiliations. Nevertheless, doubts persist about its applicability in religions not included in the initial study, as the instrument was exclusively tested among Turkish Muslims and Canadian Christians. Consequently, despite advancements, the question remains whether the RSQ can be effectively employed in a mixed religious environment characterized by diverse cultural backgrounds.

The third concern pertains to the religiosity measures utilized in studies on OCD, which are often only relevant to religious individuals and not to those who are non-religious. However, certain studies on the relationship between religiosity and OCD have utilized a measure that is applicable to both religious groups with a specific affiliation and non-religious groups, such as Christians versus Atheists/Agnostics (Williams, Lau & Grisham, 2013; Berman, Abramowitz, Pardue & Wheaton, 2010). These studies made use of the Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ; Plante & Boccaccini, 1997), a self-reporting tool that assesses an individual's religious beliefs and attitudes, which has been employed in numerous OCD studies. Despite the inclusion of Christianity, Judaism, and Atheists/Agnostics in the aforementioned studies, other religions like Islam, Hinduism, and Buddhism were not considered.

The fourth concern pertains to the exclusion of certain religious dimensions in the religiosity scales utilized in studies on OCD. This omission may be significant in investigations on religiosity, spirituality, and OCD. For instance, only a limited number of studies have examined spirituality in relation to OCD. One such study conducted by Witzig and Pollard in 2013 employed the Spiritual Well-Being scale. However, a separate study by Wright and Freeston in 2006, which remains unpublished, discovered a correlation between spirituality and symptoms of obsessive-compulsive disorder (OC). In this study, the Student Measures of Spirituality, Religious Beliefs and Practices (SRBP) was developed to evaluate various aspects of religiosity and spirituality, including levels of religiosity, religious behavior, attitudes, spirituality, and the role of religious phenomena within the family unit. Subsequently, in an effort to further explore the connection between religiosity/spirituality and OC symptoms, a replication study was conducted by Ward and Freeston in 2006, also unpublished, using the SRBP. This study confirmed the relationship between spirituality and OC symptoms through Likelihood.

Additionally, the SRBP was expanded with additional items and demonstrated strong internal reliabilities for both the religiosity and spirituality subscales (α .92 and .93 respectively) in a study by Ward and Freeston in 2008, also unpublished. Furthermore, Ward and Freeston in 2008 proposed that certain characteristics of spirituality warrant further investigation to support the evidence on the relationship between spirituality and OC symptoms. Therefore, considering the findings on spirituality from the two previous studies (Wright & Freeston; Ward & Freeston in 2008, unpublished) and the recent study by Witzig and Pollard in 2013, it is plausible that spirituality plays a crucial role in the development or maintenance of OCD. Consequently, further research that explicitly measures spirituality

individually is necessary to explore the potential association between religiosity and spirituality.

Moreover, there is a lack of research on the correlation between Religious Fundamentalism and OCD. The proposal put forth by Salkovskis et al. (1999) suggests that rigid religious beliefs, which encompass strict codes of conduct and duty, may contribute to the development of responsibility and thus predispose individuals to OCD. This proposal has been supported by three studies that have examined religious fundamentalism in various groups with different levels of religiosity, exploring its association with OC symptoms and scrupulosity (Witzig & Pollard, 2013; Inozu, Karanci, & Clark, 2012a; Inozu, Karanci, & Clark, 2012b). Considering the suggestion made by Salkovskis et al. (1999) and the existing body of research on religious fundamentalism, it is crucial to comprehend the role of one's religious beliefs and their potential relationship with cognitive appraisals of OCD.

Furthermore, similar to religious fundamentalism, there has been no investigation into the connection between Quest and OCD. Given that both constructs involve doubt, with Quest characterized as legitimate doubt and questioning one's approach to religion and spirituality, and OCD characterized by doubting in a specific religion, it would be valuable to examine the relationship between Quest and religiosity.

Fourth, many of the religiosity measures used were developed specifically for the study in question and have not been used in later studies (e.g. Tek & Ulug, 1992; Abramowitz, Deacon, Woods & Tolin, 2004). For example, Steketee, Quay, and White (1991) measured religiosity by means of a three items questionnaire.

Finally, the various dimensions or aspects of religiosity may tend to overlap or be confused with one another, which caused mixed findings. Therefore, an alternative is to attempt to develop measures that are not religion-specific and tap into potential constructs that are considered important in a study of religiosity as well as in studies of OCD. Therefore, it is important to first define the key constructs to provide a framework for the measurement of religiosity and spirituality. Subsequently, while developing the scales, it will be important to minimize overlap and to avoid content that is either specific to one religion, or content that may not be relevant to or even not acceptable to other religions.

3.3 Stage 2: Developing the definitions constructs of spirituality and religiosity

After reviewing the literature and discussion between the researcher and supervisors, an agreement on the religiosity dimension was decided. We agree that the assessment of religiosity in the Newcastle Religiosity and Spirituality Scale (NSRS) starts with and/or acknowledges the existence of a God or Supreme Being (Theistic Spirituality (TS) and Non-Theistic Spirituality (NTS)). However, the Non-Theistic Spirituality (NTS) differs in that it refers neither to behaviour nor to a named God or Supreme Being. Then, it follows with the engagement of religious practices or behavior (Religious Behaviour). The NSRS follows to Intrinsic Religiosity (IR) subscale, and the definition underlying the intrinsic scale of the NSRS is consistent with many earlier scales. Further, the NSRS goes by looking at the reasons why people pray, worship, etc., but the notion of extrinsic religiosity has been further subcategorised into personal versus social and family components (Personal Extrinsic Religiosity, (PER) and Social-Family Extrinsic Religiosity, (SFER). Finally, the NSRS goes to look on the way individuals get oriented by their religiosity, whether to Religious Fundamentalism or Quest.

Therefore, we decided at the end of the first stage to measure the following constructs: 1) Non-Theistic Spirituality, 2) Theistic Spirituality, 3) Religious Behaviour, 4) Intrinsic Religiosity, 5) Personal Extrinsic Religiosity, 6) Social-Family Extrinsic Religiosity, 7) Religious Fundamentalism, and 8) Quest. More importantly, the final constructs cover significant aspects of both religiosity, maintaining the intrinsic and extrinsic distinction from Allport and others (e.g., Allport & Ross, 1967; Kirkpatrick, 1989), religious behaviour and spirituality, allowing for both theistic and non-theistic expressions, and the important dimensions of religious fundamentalism and quest.

3.4 Stage 3: Generating items

Next, after the constructs were finalized, the process of generating items was conducted. The finalised definitions were used to generate an initial set of 114 items. Based on items from existing questionnaires, additional items were generated for each definition, in a consistent format and without referring to specific religions. Throughout the process of generating the items, the items were reviewed, clarified through discussion, and subsequently, the process was repeated several times. Further, the process was followed by a comparison across subscales (for overlap and/or parallel content), discussions and modifications were performed iteratively to achieve a final pool of items.

3.5 Stage 4: Reviewing the items

3.5.1 Building in face validity

The aim of this stage was to retain only face-valid items. In order to do this, the items were reviewed against the definitions by the investigator and both supervisors. From the revision of pooled items, several of the items were identified as ambiguous and were refined, whilst others were excluded because they did not map onto the definition or were redundant.

3.5.2 *Formal study of face validity by establishing inter-rater reliability*

Despite the care in building the item pool, there was still the potential for some items to map onto more than one construct. A group of eight post-graduate students from the Doctorate of Clinical Psychology was asked to rate and map the items onto the eight construct definitions provided. They were asked to rate the extent of agreement of each item with the definition on a rating scale with four options ranging from 0 = “Not at all”, 1 = “Somewhat”, 2 = “A great deal”, and 3 = “Completely”. The mean rating for each item against each definition for each item rated by raters was calculated. Only those items that mapped well onto the nominated construct (mean > 3) and mapped weakly, or not at all on onto other constructs were retained (mean < 1).

The data were compiled, reviewed, and subsequently discussed by the team of researchers and both supervisors. At this stage, 80 out of 82 items were mapped onto the expected constructs. However, there were two items that mapped more strongly onto another construct in contrast to the target construct. Thus, these two items were examined and reworded.

3.5.2.1 Independent verification of face validity

The aim of this stage was to verify the face validity of all the items. In this review, eleven academics (five academics from Malaysia and six academics from the United Kingdom) were invited to provide their opinion on every item against the definition, in conjunction with any suggestions for improvement. The academics were invited based on their expertise in the study of the psychology of religion. Of the eleven invited, responses were obtained from nine academics (five academics from Malaysia and four academics from the United Kingdom). Their feedback was compiled (a compilation of responses from the academics in the field of religiosity and spirituality is given in Appendix A). Then, the compiled responses for each item were analysed and discussed by the team of researchers and both supervisors. Based on the responses, all the items appeared to map onto the right dimension, and furthermore, all are acceptable and usable for a number of different groups. However, a cross-item issue was identified, and a preface was added that explained that items that involved the word of God refer to the God, the supreme being, deity, etc. However, the question remained whether it is appropriate for religions such as Buddhism and polytheism.

Feedback from academics was helpful in ensuring the scale contained face valid items in the sense that they were a) suitable for the study of religiosity and spirituality, and b) that they mapped onto the proposed construct definitions. In addition, the feedback from academics was also important in identifying any item redundancy or ambiguous formulations.

3.5.2.2 Accessibility and appropriateness

In addition, in order to ensure the suitability of the questionnaire in different settings, opinions were sought from religious leaders or religious scholars representing the major world religions. In this stage, six religious' leaders from the United Kingdom and five religious' leaders from Malaysia were invited to provide their opinions on every item. The purpose of this stage was to confirm the acceptability and appropriateness of each item. This is important as it helps to ensure that all the items are a) applicable/suitable to be used for all religions, and b) avoid items that would be offensive to particular religious communities or cultures. The item pool was distributed to six religious' leaders from the United Kingdom, who were, respectively, practitioners of Christianity, Judaism, Islam, Hinduism, Buddhism, and Sikhism. The five religious' experts from Malaysia were practitioners of Islam, Christianity, Hinduism, Buddhism, and Sikhism. The religious experts were chosen based on their status and expertise within a religious group.

After the feedback was obtained, it was compiled for discussion and revision by the investigator and supervisors. Subsequently, any inappropriate and unacceptable worded items were only adapted after a review of all the feedback, and a joint decision was made by the investigator and supervisors.

For example, a Buddhist expert predominantly focused on the use of the word ‘God’. Buddhism does not mention or discuss a creator, God, in its tenets, and thus, the word of ‘God’ is not easily applicable among Buddhists. Therefore, examining the context of Buddhism, some additional instructions were included so as to address the issue of the word of God. For example:

“This questionnaire is addressed to people of different faiths. For the purposes of this questionnaire, by God we mean the One God, the Gods, or the Being that you believe in.”

This additional instruction ensures that the word selected is applicable and suitable to be used not only among Buddhists but also among all religions, including Christianity, Islam, Hinduism, and Sikhism. Comprehensive responses from the religious experts are given in Table 29 (Please see Appendix F and G).

3.6 Stage 5: Final Review of the Measure

After the measure had been thoroughly reviewed at all stages, final discussions ensured that all the different issues that arose during the feedback from the reviewers and raters had been considered, reviewed and discussed and any changes were made. This stage also involved checking the measure with regards to its length, wording, and the readability of instructions (using the measure of Flesch Reading Ease) and the measure in general. The readability index indicated the standard/average reading level that is suitable for use among English-speaking participants over the age of 15 years. Next, as the response format for the Religious Behaviour is different based on the frequency of the religious behaviours (e.g., daily, weekly, monthly), the NSRS starts with the Religious Behaviour, followed by Non-Theistic Spirituality and Theistic Spirituality, Intrinsic Religiosity, Personal Extrinsic Religiosity, Social-Family Extrinsic Religiosity. Subsequently, the NSRS follows with Religious Fundamentalism and Quest. Finally, the instructions and the 82 items were ready for the next stage (please refer to Table 1 for the complete NSRS measure).

Table 1: Finalised construct definitions and items for the Newcastle Religiosity and Spirituality Scale (NSRS)

Construct	Construct definitions	Items
Non-Theistic Spirituality	Non-Theistic Spirituality is a personal belief in an ultimate truth and reality beyond the material realm that is meaningful and significant to personal existence. This is frequently associated with transcendence and connectedness.	1. I believe that there is a purpose to the universe. 2. When I am in nature, I feel in touch with something greater than myself. 3. I believe that some kind of force underlies the universe. 4. I believe that something exists beyond our natural perception or senses. 5. I believe that the ultimate truth cannot be expressed by words or concepts. 6. I believe an ultimate truth to the universe can be found. 7. I believe that everything is connected. 8. I have a strong sense of meaning in my life 9. I feel connected to something greater than myself. 10. I believe in a spiritual realm beyond the material universe.
Theistic Spirituality	Theistic Spirituality is a personal belief in an ultimate truth and reality beyond the material realm that is meaningful and significant to personal existence. This ultimate truth and reality is manifested in a deity or deities.	1. I believe in God. 2. I believe God gives purpose to my life. 3. I feel connected to God every time I spend time in nature. 4. I desire to be in union with God. 5. I believe I can connect with God in many ways.

		6. I believe God is everywhere. 7. I believe God watches over me. 8. I believe that God gives meaning to my life. 9. I believe that God is the only truth. 10. I have a personal relationship with God.
Religious behaviour	Religious behaviour is behaviour shared by at least two people based on a code of organised practices and teachings that are derived from a traditional interpretation of spirituality.	1. I pray or meditate. 2. I take part in worship or religious rituals. 3. I spend time thinking about religious matters. 4. I give money, time or goods to my religious community or to causes that it supports. 5. I read religious texts or writings. 6. I make a special effort to visit sacred places (pilgrimage). 7. I go to religious places. 8. I take part in religious study. 9. I follow the rules of my religion when I practice my religion. 10. I apply the rules of my religion in many aspects of my everyday life. 11. I observe and participate in the festivals of my religion.

Intrinsic religiosity	Intrinsic religiosity is engagement in religious behaviours as an expression of one's spirituality and so is an end unto itself.	1. I pray or meditate to feel connected with God. 2. I take part in worship to feel connected with God. 3. I go to religious places to feel closer to God. 4. I spend time thinking about religious matters to be closer to God. 5. I give money, time or goods to my religious community to do God's work. 6. I follow the rules of my religion because that is God's will. 7. I read religious texts to be closer to God. 8. I take part in religious study to feel connected with God. 9. Everything I do in my everyday life is to be in union with God. 10. I make a special effort to visit sacred places (pilgrimage) to be closer to God. 11. I observe and participate in the festivals of my religion to be closer to God.
Personal Extrinsic Religiosity	Personal Extrinsic religiosity is the engagement in religious behaviour in the pursuit of positive or avoidance of negative outcomes. This outcome may	1. I pray because I feel God answers my prayer. 2. I pray to avoid God's disapproval. 3. I read sacred writings to find comfort. 4. I follow the rules of my religion to avoid God's punishment.

	be internal or external in nature. This motivation operating in personal.	5. When I am in difficulty, I pray to God for aid. 6. I make special efforts to visit sacred places (pilgrimage), so God will reward me. 7. I give money, time or goods to my religious community because God will approve of me. 8. I take part in religious study as I know God will approve of me. 9. I observe and participate in the festivals of my religion, so God will look favourably on me. 10. I seek comfort in following rules of my religion. 11. I take part in worship or religious rituals to avoid God's displeasure. 12. I go to religious place to please God.
Social-Family Extrinsic Religiosity	This motivation operating in family and social contexts.	1. I practice my religion to be accepted by my family. 2. I practice my religion because if I do not, my family will disapprove me. 3. I practice my religion to feel closer to my family. 4. I practice my religion to show respect to my family. 5. I practice my religion to get rewards or favours from my family.

		6. I practice my religion to be accepted by my community. 7. I practice my religion because if I do not, my community will disapprove me. 8. I practice my religion to feel closer to my community. 9. I practice my religion to show respect to my community. 10. I practice my religion to get rewards or favours from my community.
Religious Fundamentalism	Religious Fundamentalism is a conviction that the truth of one's own religion contains the exclusive truth that leads to prescribed behaviour that must be rigidly followed by oneself and others without exception.	1. There is only one truth, and that is my religion. 2. I believe that the rules in the sacred writings of my religion must be followed exactly. 3. The teachings of my religion should not be questioned. 4. I believe the sacred writings of my religion are the word of God. 5. A true believer never doubts the word of God. 6. Defending my religion at all costs is my sacred duty. 7. I must always follow the guidance of my religious leader exactly. 8. Other religious points of view cannot be tolerated. 9. Those who offend my religion should be punished.

		10. There is only one truth and there is no room for interpretation.
Quest	Quest is the commitment to the exploration of the very foundation of one's conviction or belief.	1. I often question my beliefs. 2. I believe that one should never stop searching for the truth about existence. 3. Understanding existence is a whole life's journey. 4. Doubt is part of my spiritual journey. 5. There may be many ways to find the truth about existence. 6. I question my understanding of spiritual realms. 7. I constantly try to find the purpose to this universe. 8. I seek new ways to be connected to something greater than myself.

3.7 Stage 6: Translation procedure

The English version was then subject to translation into *Bahasa Melayu*, the official language of Malaysia, which is used in all Malaysian universities along with English.

3.7.1 Forward and Backward translation (Translation process by the Agency of the National Institute of Translation of Malaysia)

In order to ensure professional standards of translation, this process was given to the National Institute of Translation of Malaysia, which is the most reliable agency in Malaysia. The forward and back translation procedure is a process of validity checking to make sure that the translated version reflects the same item content as the original versions (e.g. Beaton, Bombardier, Guillemin & Ferraz, 2000; Eremenco, Cella & Arnold, 2005; Sperber, 2004; Herdman, Fox-Rushby & Badia, 1997).

3.7.2 Screening by Professionals and Lay Persons

In order to ensure the high validity of the translation process, the translated versions were reviewed by a group of four reviewers (two professionals and two lay persons) who gave comments and feedback on the understandability and comprehensibility of the translated version. Subsequently, any changes suggested were reviewed by the investigator, and the final form of the *Bahasa Melayu* version was determined as ready to use.

For socio-demographic information on culture and religion, the categories from the Malaysian Census in 2010 have been used. This is a parallel procedure to the UK, where the 2011 Census categories have been used (please refer to the appendix K and M, the final measure in both *Bahasa Melayu* and English).

Chapter 4

Methodology

4.1 Participants

In the UK study, non-clinical volunteers were recruited from the general population from various sources, such as members of organisations or groups (e.g. religious group), the Islamic society, Krishna Temple, Buddhist Temple, Mind, and psychology students at the University of Newcastle, members of colleges and university communities. In addition, students from local secondary schools/HE colleges (e.g., St Cuthbert's Catholic High School, St Mary's Catholic Comprehensive School and Sacred Heart Catholic High School).

Additionally, other universities (e.g., Durham University and Northumbria University) and colleges (e.g., Newcastle College, New College Durham, North Tyneside College and Northumberland College) in the UK were invited to participate in the study. These organisations/colleges/universities were invited as it increases the range of religious groups and non-religious groups, level of religiosity and ethnic groups.

The Malaysian study was similar to the UK study and non-clinical volunteers were recruited from the general population from various sources, such as members of organisations or groups (e.g. religious groups), for instance Christian non-profit organisations, Malaysian Sikh organisation, the Mamandram organisation (Hindu), the Buddhist Missionary Society, the Christian Federation of Malaysia (CFM), the Malaysian Indian Muslim Congress, the Muslim Reverted organisation and the *Help Hidayah* organisation (Islamic organisation). In addition, samples of university students in several main universities located in the Klang Valley area of Kuala Lumpur were recruited in the Malaysian study.

The selections of several universities in Malaysia were based on different religiosity ranges across different religions as well as ethnicities. For example, MARA University of Malaysia (UITM) was selected as it offers a wide range of cultures and religions. Kolej Damansara Utama (KDU) University College was chosen as it provides education to a diverse range of participants; the majority are Chinese and Indian. The University Science Islamic of Malaysia (USIM) was selected as the university emphasises the importance of religion and most of the students come from strong religious backgrounds.

4.2 Measures

4.2.1 Obsessive-Compulsive Inventory-Short Revised (OCI-SV)

The Obsessive-Compulsive Inventory-Short Version (OCI-SV; Foa et al. 2002) was used to assess the severity of OC symptoms among the participants. This measure contains 18 items to assess both obsessions and compulsions. Based on Wright (Wright & Freeston, 2006) and Ward (Ward & Freeston, 2008), the five extra obsession items from the longer form of the OCI (Ward & Freeston, 2008) that specifically measure obsessions were added to the three obsession items from the condensed version to provide the full OCI obsession measure (referred to as the Obsessing subscale for the analysis in this study). The participants were asked to rate the distress caused by specific activities on a 5-point Likert scale (from 0 = not at all to 4 = extremely). The OCI-SV demonstrated good internal consistency (Cronbach's alpha of 0.84 for the Obsessing subscale and .97 for the total score) (Wright & Freeston, 2006). Similarly, Ward and Freeston (2008) also reported that OCI-SV demonstrated good internal consistency for the Obsessing subscale (8 items) and the 18-item total score ($\alpha = 0.91$ and 0.93, respectively).

4.2.2 *Student Thought-Action Fusion Questionnaire (STAF-Q)*

The Student Thought-Action Fusion Questionnaire (STAF-Q) was developed by Wright and Freeston (2005). The STAF-Q was used to assess Thought Action Fusion (TAF). This measure consists of 20 items that assess TAF Morality (8 items), TAF Likelihood (8 items), and TAF Impulsivity (4 items). This scale uses the 5-point Likert scale (from 0=Strongly Disagree to 4=Strongly Agree). The STAF-Q was developed based on selected items from the Revised TAF Scale (RTS; Shafran, Thodarson & Rachman, 1996), the Adolescent Thought-Action Fusion Questionnaire (Muris, Meesters, Rassin, Merckelbach & Campbell, 2001), the Magical Thought Questionnaire (MTQ; Bolton et al., 2002), and the Penn Inventory of Scrupulosity (PIOS; Abramowitz et al., 2002) (Wright & Freeston, 2006). Only those items that mapped onto one of the three constructs were retained, which proved good delineation regarding the three constructs. Wright & Freeston (2006) reported that there were moderate correlations between each of the scales, demonstrating that they are distinct but related constructs. The correlation between TAF Likelihood and TAF Impulsivity ($r = .492, p < .01$) was greater than correlations with TAF Morality ($r = .338, p < .01$; $r = .316, p < .01$), suggesting that TAF Morality is relatively distinct from Likelihood and TAF Impulsivity.

The STAF-Q showed good internal consistency for all three subscales: TAF Likelihood, TAF Morality, and TAF Impulsivity ($\alpha = 0.92, 0.85$, and 0.80 , respectively) (Wright & Freeston, 2006). Similarly, Ward and Freeston (2008) also reported that the STAF-Q demonstrated good internal consistency for all three subscales: TAF Likelihood, TAF Morality, and TAF Impulsivity ($\alpha = 0.90, 0.84$, and 0.77 , respectively). In addition, a recent study employing Confirmatory Factor Analysis (CFA) showed that three subscales are distinct but related and therefore, a suitable measure to assess TAF (Nogueira Arjona, Bottesi, Wright, Ward, Laing, Alias, & Freeston, 2013).

4.2.3 *Depression Anxiety Stress Scale 21 (DASS-21)*

The Depression Anxiety Stress Scale 21 (DASS-21, Lovibond & Lovibond, 1995) is a 21-item self-reporting measure with three subscales, namely, Depression, Anxiety, and Stress. Participants were asked to rate the frequency and severity of experiencing negative emotions, over the previous week, on a 4-point scale (from 0=did not apply to me at all to 3=applied to me very much, or most of the time). The DASS-21 has been extensively used across different countries and has demonstrated good reliability for all three subscales in many studies (e.g., Antony, Bieling, Cox, Enns, & Swinson, 1998; Henry and Crawford, 2005; Norton 2007; Osman, Wong, Bagge, Freedenthal, Gutierrez, & Lozano, 2012; Sinclair, Siefert, Slavin-Mulford, Stein, Renna, & Blais, 2012).

The DASS-21 has been translated into many languages including Chinese, French, Japanese, Spanish, and others, such as Bahasa Melayu, and has demonstrated good reliability (e.g., Daza, Novy, Stanley and Averill, 2002; Taouk, Lovibond & Laube, 2001a; Taouk, Lovibond, & Laube, 2001b; Musa, Fadzil, & Zain, 2007). The DASS-21 has been used in both health and mental health studies in Malaysia (e.g., Kaur et al., 2013; Hadi, Naing, Daud, Nordin, & Sulong, 2009; Musa et al., 2011). Moreover, the translated version of the DASS - 21 in Bahasa Melayu has confirmed good reliability for the three subscales in several clinical studies (Musa, Ramli, Abdullah, & Sarkarsi, 2011; Musa, Fadzil & Zain, 2007; Ramli & Salmiah, 2009; Kaur, Tee, Ariaratnam, Krishnapillai, & China, 2013).

4.2.4 *The Newcastle Scale of Religion and Spirituality (NSRS)*

The Newcastle Scale of Religion and Spirituality (NSRS) was developed by Alias, Rosenkranz and Freeston (2011). The NSRS was developed as a comprehensive measure that contains narrow, specific measures regarding aspects of religiosity and spirituality and is suitable to be used in all religious groups and those who do not participate in organised religion. (See details in Chapter 3 for the NSRS development). The measure consists of 82-items that assess eight dimensions of religiosity and spirituality. They are: 1) Religious Behaviour, 2) Non-Theistic Spirituality, 3) Theistic Spirituality, 4) Intrinsic Religiosity, 5) Personal Extrinsic Religiosity, 6) Social-Family Extrinsic Religiosity, 7) Religious Fundamentalism and 8) Quest. This scale uses the 5-point Likert scale.

Each subscale reflects a different construct of religiosity/spirituality, so subscale scores rather than the total were used for the analyses. The NSRS has demonstrated good reliability and validity. From the current study, NSRS revealed very good internal consistency for the eight subscales with Cronbach's alpha ranging from .85 to 0.97. The correlations between subscales were greater between three subscales (Theistic Spirituality, Intrinsic Religiosity and Personal Extrinsic Religiosity). Overall, an Exploratory Factor Analysis (EFA) showed that the NSRS demonstrated eight distinct but related factors (see details in Chapter 5). Additional studies using the NSRS in other samples have demonstrated good internal reliability with regards to the subscales (e.g. Marram & Freeston 2015, unpublished thesis).

4.2.5 *The Vancouver Index of Acculturation- Revised (VIA-R)*

The Vancouver Index of Acculturation (VIA, Ryder, Alden & Paulhus, 2000) was used to measure people's self-identification of acculturation. The VIA-R has 20 questions and participants were asked to indicate, on a scale of 1-9 (1= “Strongly Disagree, and 9 = “Strongly agree”). The VIA was chosen for this study as it utilises a bi-dimensional as opposed to a unidimensional model of acculturation. The bi-dimensional model of acculturation provides two advantages related to dimensions. The first is the extent to which an individual identifies with their heritage culture of origin (Heritage subscale) and the second, is the extent of identification with mainstream culture (Mainstream subscale) (e.g., North American culture) (Ryder et al., 2000).

In addition, the bi-dimensional model acknowledges that individuals can have multiple identities, and that the strength of each of these identities may be unrelated (Ryder et al., 2000). According to the scale's authors, the VIA also correlates with other indices of acculturation and shows a good validity (Ryder et al., 2000).

The VIA-R has been extensively used across cultures and has demonstrated good internal consistency for both the heritage and mainstream scales (Cronbach's $\alpha = .90-.92$ and $.80-.89$ respectively) among Canadian Aboriginal and European Canadians (Cheah & Nelson, 2004), Indo-Asian and European Canadians (Kennedy, Parhar, Samra & Gorzalka, 2005; Brotto, Chik, Ryder, Gorzalka & Seal, 2005), Arab and Middle Eastern immigrants and mainstream American culture (Britto & Amer, 2007; Alarian, 2011), Chinese Immigrants in in Canada and Canadian mainstream culture (Jia, Gottardo, Koh, Chen, & Pasquarella, 2014; Ahrold & Meston, 2010). In the original version, the mainstream culture of North America was used; however, in this study, British culture was used as the mainstream culture. For example, item no. 2 from the original version ‘I often participate in mainstream North

American cultural traditions were adapted to ‘I often participate in mainstream British cultural traditions. This adapted version of VIA was used in the study (see Appendix L).

4.3 Clinical and ethical considerations

4.3.1 Registration

The UK study was registered with Newcastle University. Additionally, in addition to approval and cover from Newcastle University, as this study involves Malaysian sample, the study in Malaysia was registered with the National Medical Research Registration of the Ministry of Health in Malaysia.

4.3.2 Ethical approval in the United Kingdom

A requirement of good research practice is that all studies need to be subject to ethical review and approval before they commence. Ethical approval is important to ensure the safety, rights, dignity and well-being of both the participant and the researcher. As this study involved non-clinical volunteers, university approval (rather than from the NHS National Research Ethics Service) was sought. The study received ethical support from the Newcastle University Research Ethics Committee (see Appendix A).

4.3.3 *Ethical approval in Malaysia*

In addition to ethical support obtained from the Newcastle University Research Ethics Committee, an ethical opinion was sought from the Malaysian Medical Research Ethical Committee (MREC). It is important to note, although this study involves non-clinical sample but given the collaborator in this study is from Ministry of Health Malaysia, MREC was the appropriate organisations for obtaining ethical approval by sought an advice from the collaborator, Dr. Salina Abdul Aziz. The Medical Research & Ethics Committee (MREC), Ministry of Health Malaysia was established purposely to ensure the protection of the welfare and rights of human participants. Apart from being an organization which provide independent guidance, advice and decision on health research/specific protocol involving human subjects conducted by staff members of Ministry of Health (MOH) or involving MOH facilities and is responsible for approval of involvement of human subjects in research., MREC may also act as an Independent Ethics Committee for non–MOH institutions such as study involving human subjects among universities or public (see Appendix B).

4.3.4 *Insurance and Indemnity*

The Newcastle University Insurance Office provided insurance and indemnity for non-negligent harm (see Appendix).

4.3.5 *Possible adverse effects on participants*

In this study, it was predicted that there would be a low likelihood of adverse consequences for participants, particularly concerning their psychological condition and any adverse consequences were likely to be mild. However, in the unlikely event participants may recognise from the questionnaires that they may be suffering from OCD or related problems, participants were provided with a telephone contact and email address. They may contact the researcher in the unlikely instance that they experience distress, or if participation highlights difficulties that they would like to discuss further. Furthermore, the participants were offered an information sheet on OCD at the end of the session (included the web address for the patient information booklet from the NICE Guidelines). If participants contacted the investigator, they were directed toward appropriate sources of assistance in the local area (see Appendix M on debriefing sheet for details).

4.4 Confidentiality and anonymity

Participants were assured that no individual data would be released and that any reports were in a summary form in which individual participants would not be identifiable. The participants' data were allocated a code; lists of codes with the corresponding participant were kept separate from the study data to ensure anonymity. Further, all data collected was entered anonymously. The consent information entered was contained in a separate file from the data collected from the questionnaire. The raw data and the consent forms were stored separately in locked cabinets. All the information was stored securely on a computer that could only be accessed by the research team.

4.5 Data collection

Data collection was undertaken among non-clinical participants in the UK and Malaysia.

4.5.1 Recruitment strategies

Before the data collection was conducted, the recruitment strategy was planned, depending on both suitability and feasibility considerations to recruit a range of targeted participants. This study used several types of recruitment strategies as it allows specific populations to be targeted and so increases the range of religions, level of religiosity and ethnic groups to be included in this study. Therefore, two primary complementary recruitment strategies were used in order to achieve a sample that fits the purpose of the study. The recruitment strategy was divided into two principal procedures (Please refer to the Appendix C for recruitment strategy).

4.5.1.1 *Paper and pencil procedure*

The first recruitment strategy was a paper and pencil procedure. The paper and pencil procedure were used in classes or group administration in different settings, specifically in a) Secondary school (e.g., in the UK study), b) University and college (e.g., both in the UK and Malaysia, and c) Members of religious groups (e.g., both in the UK and Malaysia). Given that these potential participants were accessed through organisations that have both confidentiality responsibilities and a duty of care toward the potential participants, the approach was made through the gatekeeper. College and university students were contacted through gatekeepers and following consent, questionnaires were completed in a group setting. Please see details in relation to Summary of arrangements for providing information about the study and obtaining consent in the Appendix C.

For the paper and pencil procedure, consent forms and any participant identifying information were separated from the completed questionnaires and were stored in a locked cabinet in the supervisor's private office, whereas the completed questionnaires without participant identifying information were kept by the primary researcher in a locked drawer in the main researcher's office.

For the paper and pencil procedure, there was a cooling off period between informing people about the study and their consent and participation. The cooling off-period for the paper and pencil procedure was at least 1 week. This was achieved by presenting information on the study both verbally and in writing in the same class/time slot the week before the data collection was planned. In addition, this cooling off period also respects the "courtesy to parents" aspect for high school students.

4.5.1.2 *Internet-based procedure*

The second type of recruitment strategy was an internet procedure. The procedure was used in several ways according to the way the potential participants were approached. In this procedure, there were two types of participants were recruited, specifically 1) Members of college or university communities (e.g., both in the UK and Malaysia) and 2) Members of targeted groups or organisations (e.g., religious organisations) in both samples. Therefore, different routes were used in order to obtain access to the participants.

There are three ways in which participants were contacted to invite them to participate in the study. First, members of college or university communities were invited to participate through the gatekeepers of departments. Second, members of college or university communities were invited to participate through invitations from the institutions' news services (web-based or paper, forum). Third, participants were invited to participate through gatekeepers of targeted groups or organisations (e.g., email from gatekeepers). This method potentially offers access to a broader range of backgrounds, diversity of religious groups, and so to differing degrees of religiosity. For all three cases, the invitations, accompanied by identical information sheets and parallel consent procedures, directed participants to a protected website that contained the questionnaires.

Similar to the paper and pencil procedure, the consent, participant identifying information, and the responses to the questionnaires were held in separate files. All the digital information, from the web, was stored electronically on a specific secure university server that was protected with a password and only accessible to the principal researcher, her supervisors, and any collaborators working under the supervision of the primary academic supervisor.

Equally, there was an equivalent cooling off procedure between reading about the study on the web-page and choosing to follow a link to a separate page which comprised the consent form. Similarly, the information sheets/web pages were identical in all respects other than the specific detail about the mechanism of obtaining consent and collecting data (see Appendix E for details).

4.5.2 *Recruitment of participants*

As mentioned previously, a non-clinical sample was recruited among populations aged 16 and above. The sample was recruited in numerous ways from 1) the student populations at local secondary schools (in the UK study only), 2) university and college students and 3) members of universities and colleges 4) members of targeted groups or organisations. The recruitment strategies that were used in the study were dependent on the targeted participants.

4.5.2.1 *Young adults over the age of 16 (Secondary school students specifically year 12 and 13, or College students)*

Recruitment of participants among secondary students was conducted in the United Kingdom study. For this recruitment strategy, secondary students (over the age of 16) were recruited, given that secondary schools may offer a broader range of religious groups and different degrees of religiosity. For example, in a Catholic school such as St Cuthbert's Catholic High School, most of the students may be baptised Catholics (of whom only a proportion may be church attendees or practicing Catholics); however, there are also a significant number of Muslims and other religious groups that are not broadly represented in the North East but whose families choose the Catholic school because of its values (and often single sex education), although they practice other religions.

In this study, young adults were recruited from Years 12 and 13 via paper and pencil procedures. Given that these potential participants were accessed through an organisation that has a duty of care toward them, the approach was made first through a gatekeeper at a school, and then arrangement for the data collection was made with the presence of a specific teacher. Please see details for the arrangement of the recruitment in Appendix E.

4.5.2.2 University and college students (aged 18 and above)

This recruitment strategy was used in both the UK and Malaysian studies. For this recruitment strategy, university and colleges students aged 18 and above were recruited by way of both paper and pencil and internet procedures. For internet procedures, potential participants who were interested in knowing more about the study were guided to a website link that contained the same detailed information about the study (as on the paper and pencil information sheets). If they wished to participate, they clicked on an additional link that led them to the consent web page. Once they have consented, they were guided to follow a link to the actual questionnaires. The consent information entered was held in a separate file from the data that was collected from the questionnaire itself.

For the paper and pencil procedure, a gatekeeper was contacted to invite the students to participate in the study. An arrangement for the data collection was made with the presence of a specific lecturer. Please see details for the arrangement regarding the recruitment in Appendix D.

4.5.2.3 Members of university communities or departments

This recruitment strategy was used in both the UK and Malaysia. Members of university communities and departments were recruited by means of an internet procedure. They were recruited by advertising on websites and via e-mail invitations to gatekeepers of groups. In this case, the use of a gatekeeper was necessary as the principal researcher did not have legitimate access to the personal data (names and contact details) of potential participants. It was the gatekeeper who had legitimate access and had the authority to use it, who made the first contact on behalf of the researcher.

Gatekeepers within universities were emailed to inform them about the study, and then, an institutional agreement was obtained, including, if required, any additional review. Subsequently, an e-mail concerning the study (information sheet) was distributed to potential participants on behalf of the investigator by a staff member (lecturer or administrator).

Potential participants, who were interested in participating in this study, were guided to an additional link that led them to the consent web page. Once they consented, they were guided to follow a link to the actual questionnaires. Please see details in relation to the Summary of arrangements for providing information about the study and obtaining consent in Appendix D.

4.5.2.4 Members of targeted groups or organisations

This recruitment strategy was used in both the UK and Malaysian studies. Members of targeted groups or organisations were invited to participate in this study, as this offers the possibility of a more diverse range of religions and levels of religiosity. Although there are no specific hypotheses pertaining to the type of religion or denomination, it is the degree of identification with different dimensions of religiosity that is of interest. Thus, broadening the number of religions and denominations enables the focus to be on dimensions of religiosity that transcend specific religions. Therefore, members of known groups or organisations were invited to participate in this study, such as the following university-based religious groups in the UK (e.g., Newcastle Islamic Society, Buddhist Groups, the Christian Union, and the Hindu Society).

Other national groups, for example, the UK Spirituality group and Cambridge Inter-Faith Group UK, were also invited to distribute information about the study. Similarly, several known groups or organisations were invited in Malaysia, such as non-profit Christian organisations, the Sikhism Malaysian organisations, the Mamandram organisations (Hindu), Buddhist Missionary Society, the Christian Federation of Malaysia (CFM), the Malaysian Indian Muslim Congress, the Muslim Reverted Organisation and the Help Hidayah organisation (Islamic organisation).

Members of targeted groups or organisations were recruited by means of gatekeepers, such as the President or the person responsible for the content of a website. An institutional agreement was obtained according to the procedures that each group or organisation uses for external requests. Subsequently, an e-mail related to the study (information sheet) was distributed to potential participants on behalf of the investigator by either the president or secretary/committee of the groups or organisations. Participants, who were interested in participating in this study, were guided to an additional link that led them to a separate page which contained the consent questions. Once they consented, they were guided to follow a link to the actual questionnaires. Please see details for the arrangement of the recruitment in Appendix D.

4.6 Consent

Two types of consent were used in this study. These consents were based on both rationale and suitability for a range of target participants. Please see details in relation to Summary of arrangements for providing information about the study and obtaining consent in the Appendix D.

4.6.1 *Student opt-in*

In the UK study, secondary students aged 16 and above were recruited; thus, a student opt-in strategy was used. At the age of 16, without parental consent, young people aged 16 would be considered legally independent in a range of situations, such as competent to consent to medical treatment (Department of Health, 2009); drive or ride a 50cc scooter, (Government of the United Kingdom, 2013), or consume (but not buy) alcohol, (wine, beer or cider) with a meal in restaurant accompanied by an adult (Alcohol and young people, 2017).

This strategy required participants to sign a consent form agreeing to participate and treated as voluntary participant able to consent on their own. Therefore, this approach did not require a consent form from the parents.

However, information in relation to the study was provided to the students for themselves and their parents, suggesting that they may wish to discuss the invitation with their parents. Informing the parents and giving them the opportunity to discuss the study covers the “courtesy to parents” consideration.

Additionally, the Student opt-in is chosen with support from the British Psychological Society *Code of Human Research Ethics* (2010) that states:

The consent of participants in research, whatever their age or competence, should always be sought by means appropriate to their age and competence level. For children under 16 years of age and for other persons where capacity to consent may be impaired the additional consent of parents or those with legal responsibility for the individual should normally also be sought (page 16).

This indicates that children aged 16 and over can provide consent.

4.6.2 *Individual opt-in*

An individual opt-in strategy was also used in both samples for all non-clinical volunteers aged 18 years and above when recruited through educational settings. At this age, they are considered adults and have the legal right to consent for themselves without considering “courtesy to parents”.

Chapter 5

Psychometric Analysis of Newcastle Religiosity and Spirituality Scale

5.1 Introduction

As mentioned in the previous chapter (see Chapter 3 for details), the purpose of the development of the Newcastle Religiosity and Spirituality Scale (NSRS) was to develop a multidimensional measure of religiosity and spirituality that is suitable to be used among both religious and non-religious groups or individuals who are spiritual but do not have any formal religious affiliations. In addition, the new measure was designed to be appropriate for use with multi-religious samples in the United Kingdom and in Malaysia. In the previous chapter, specific validation processes were used to build in content and face validity by reviewing the construct definition and items in various ways (please refer to Chapter 3 for details). Thus, in this chapter, exploratory factor analysis was used in order to investigate the factor structure of the resulting measure as a test of construct validity.

5.2 Sample

The following factor analysis was undertaken among samples from the United Kingdom (n=493) and Malaysia (n=581). The participants from both countries were recruited either through paper-and-pencil or internet procedures. The study was approved by the Ethics Committee of the Faculty of Medical Sciences at Newcastle University for the UK sample. For the Malaysian sample, the study was approved by the Ethics Committee of the Faculty of Medical Sciences at Newcastle University and by the Malaysian Medical Research Ethical Committee (MREC).

5.3 Sample Characteristic

5.3.1 The United Kingdom Sample

In the UK sample, data were missing for three of the 493 participants: specifically, data about education level and ethnicity were missing for three different people. Therefore, the missing data was replaced using a random number generator proportional to the sample distribution. The final sample consisted of 493 participants, with more females (66.9%) than males (33.1%). The average age of participants was 26.95 years ($SD = 11.34$). Although many of the participants had completed high school (43.4%), participants had also been recruited by high schools (years 12 and 13). The demographic data for the United Kingdom sample is shown in Table 2. Overall, as can be seen in Table 3, the sample ethnicity was predominantly White British and included people from England, Wales, Scotland, and Northern Ireland (51.9%). The second largest group was Asian/Asian British (21.4%) and the smallest group was Black/African/Caribbean/Black British (3.2%).

In the first part of the recruitment (the first 134 participants), there was an error in data collection as the researcher did not include the question on religious affiliation in the socio-demographic section, which led to missing data. However, it was possible to identify the religion from responses on the religiosity questions in a later part of the survey for 41 cases; nevertheless, for 93 cases, religion remained unknown (see Appendix N for the data management on the identification of the religion). Therefore, with regards to the UK sample, data about religious affiliation was missing for 18.9% of the participants.

Among those for whom the religion was known (81.1%), the largest group of participants was Christian, with 45.0%, and the second largest group of participants defined themselves as having ‘no religion’, comprising 27.0%. These figures are reasonably consistent with the latest 2011 Census on religion in the UK and Wales, which reported that Christianity was the largest religion (59.3% of the population), whereas the proportion of the population who reported they had no religion comprised 25.1% (Religion in England and Wales 2011, released 11 December 2012). Thus, as can be seen in Table 4, the proportion reporting no religion in the current study was comparable, although the proportion of Christians was lower. In contrast, it appears that the percentage of minority religions among the UK sample in the current study was relatively higher than the census figures, probably as a result of the sampling strategy that sought to recruit people of different religious backgrounds.

Table 2

Demographic data for the UK Sample (N = 493)

Demographic Variables	Frequency	Percentages (%)
Gender		
Male	163	33.1
Female	330	66.9
Age group		
16-20	187	37.9
21-25	88	17.8
26-30	77	15.6
31-35	58	11.8
36-40	22	4.5
41-45	11	2.2
46-50	9	1.8
51-55	6	1.2
>56	10	2.4
Education		
Less than high school	6	1.2
High school	178	36.1
Bachelor's degree	106	21.5
Master's degree	108	21.9
Doctorate	63	12.8
Professional qualifications (for example: teaching, nursing, accountancy)	21	4.3
Other vocational/work-related qualifications	8	1.6
Foreign qualifications	3	0.6

Table 3

Ethnicity data among the United Kingdom Sample (N=493)

Ethnicity	Frequency	Percentage %
White British		
English/Welsh/Scottish/Northern Irish/British	256	51.9
Irish	23	4.7
Gypsy or Irish Traveller	7	1.4
Any other White background	18	3.7
Mixed / Multiple Ethnic Groups		
White and Black Caribbean	9	1.8
White and Black African	4	0.8
White and Asian	5	1.0
Any other Mixed/multiple ethnic backgrounds	5	0.4
Asian/Asian British		
Indian	8	1.6
Pakistani	5	1.0
Bangladeshi	20	4.1
Chinese	53	10.8
Any other Asian background	24	4.9
Black/African/Caribbean/Black British		
African	11	2.2
Caribbean	4	0.8
Any other Black/African/Caribbean background	1	0.2
<u>Other ethnic group</u>		
Arab	14	2.8
Any other ethnic group	29	5.9

Table 4

Religious Denominations among the United Kingdom Sample (N=493)

Religious Affiliation	Frequency	Frequency	% of the total sample	% of those with known religion	2011 Census (%)
Religion missing	93		18.9	-	-
Religion known	400		81.1	-	-
No religion		108		27.0	25.1
Christianity, including the Church of England, Catholic, Protestant, and all other Christian denominations		180		45.0	59.3
Buddhism		25		6.25	0.4
Hinduism		17		4.25	1.5
Islam		44		11.0	4.8
Judaism		6		1.5	0.5
Sikhism		12		3.0	0.8
Other religion		8		2.0	0.4
Not stated		-		-	7.2
Total	493	93	400	100*	100

Note: * Percentage of those with known religion based on either declared religious affiliation or responses to NSRS

5.3.2 *The Malaysian Sample*

For the Malaysian sample, there were two cases with missing data. As for the UK sample, the missing data were replaced with random values proportional to the sample distribution. Thus, the sample consisted of 581 participants, with more females (60.8%) than males (39.2%). On average, the sample was 25.03 years old ($SD=6.12$), and the majority held a master's degree (59.0%). In contrast to the UK sample and as a result of the different sampling strategies, all participants in Malaysia had completed high school.

Overall, the sample ethnicity was predominantly Malay (61.3%), the second largest group was Chinese (17.2%), and others made up 21.6% (see Table 5).

The religious affiliation of almost two-thirds of the sample was Muslim (65.1%) whereas 33.6% were non-Muslim with important subgroups of Christians (11.5%), 8.6% Buddhist, 9.5% Hindu, 4.0% Sikh and other Chinese religions, while only 1.4% stated 'No Religion' (please see Table 6 for details). In comparison with the 2010 Census Data (Malaysian Census, 2010), the percentage of Muslims was comparable, the Christians and Hindus were relatively higher; however, the proportion of Buddhists was much smaller. Interestingly, although small, the percentage of those who claimed 'No religion' was still higher than the census figure.

Table 5

Demographic data for the Malaysian Sample (N = 581)

Demographic Variables	Frequency	Percentages (%)
Gender		
Male	228	39.2
Female	353	60.8
Age group		
16-20	82	14.1
21-25	355	61.1
26-30	57	9.8
31-35	53	9.1
36-40	10	1.7
41-45	15	2.6
46-50	2	0.3
51-55	5	0.9
>56	2	0.4
Education		
High school	47	8.1
Bachelor's degree	146	25.1
Master's degree	343	59.0
Doctorate	22	3.8
Professional qualifications (for example: teaching, nursing, accountancy)	8	1.4
Other vocational/work-related qualifications	13	2.2
Foreign qualifications	2	0.3

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Demographic Variables	Frequency	Percentages (%)
Ethnicity		
Malay	356	61.3
Orang Asli	2	0.3
*Bumiputera Sabah	24	4.1
*Bumiputera Sarawak	12	2.1
Chinese	100	17.2
Indian	73	12.6
Other Asian	8	1.4
European	1	0.2
Other nationality	5	0.9

Note: *Bumiputera Sabah = "If one of the parents is a Muslim Malay or indigenous native of Sabah as stated in Article 160A (6) (a) Federal Constitution of Malaysia, his child is considered a Bumiputera"(p 2, Article 160(2), Federal Constitution of Malaysia, 1963) *Bumiputera Sarawak = "If both of the parents are indigenous natives of Sarawak.

Table 6

Religious Denominations among the Malaysian Sample (N = 581)

Religion	Frequency	Frequency	Percentage %	Census 2010 (%)
Islam	378		65.1	61.3
Christian	67		11.5	9.2
Buddhism	50		8.6	19.8
Hinduism	55		9.5	6.3
Chinese religion	-		2.6	1.3**
○ Taoism	9	1.5	-	-
○ Confucianism	5	0.9	-	-
○ Other traditional Chinese religions	1	0.2	-	-
No religion	8		1.4	0.7
Sikhism	8		1.4	-
Other religion	-		-	0.4*
Not stated	-		-	1.0
Total	581		100	100

Note:

*The percentage of Sikhs in the Malaysian Census 2010 was included in the other religion group.

**The percentage regarding Taoism, Confucianism, and Other Traditional Chinese Religions was 1.3%

5.4 Exploratory Factor Analysis (EFA)

The Newcastle Scale of Religion and Spirituality (NSRS) consisted of 82 items and was designed conceptually to have 8 subscales. All the items were measured by using the Likert scale of 1 to 5 (*Strongly disagree* to *Strongly agree*) with the exception of Religious behaviour, which also uses a scale of 1 to 5 (*Never* to *Daily or more*) (see Appendix). In order to study the factor structure of the scale, an Exploratory Factor Analysis (EFA) is more appropriate (Fabrigar, Wegener, MacCallum & Strahan, 1999; Floyd & Widaman, 1995; Ford, MacCallum & Tait, 1986; Henson & Roberts, 2006). The exploratory factor analyses were conducted using FACTOR version 9.2, which is not only a dedicated EAF program but is user-friendly and includes several recent developments in exploratory factor analytic approaches (Lorenzo-Seva & Ferrando, 2006). The analyses were conducted separately for the UK and Malaysia samples.

5.4.1 Exploratory Factor Analysis, EFA for the UK sample

For the UK sample, no missing data were discovered and the item ratio was 493:82 (i.e., > 6:1). A visual inspection of the histograms for each item showed that three items from the Social-Family Extrinsic Religiosity, three items from Quest and one item from the Religious Behaviour subscale demonstrated high skewness (all more than ± 1). The highest skewed was item 6 (*'I make a special effort to visit sacred places (pilgrimages)'*) with a skew which = 1.69, indicating most people had not made a special effort. All the other items showed skewness and kurtosis (all less than ± 1), which indicated the items were within acceptable bounds for an approximately normal distribution. The type of correlation matrix to be analysed was polychoric correlations. Skewness affects statistical estimations and subsequently model fitting (Muthén & Kaplan, 1985 & 1992). Thus, in this situation, Lorenzo-Seva and Ferrando (2006) recommend the use of polychoric correlations when either the skewness or kurtosis statistics are higher than an absolute value of one (Lorenzo-Seva & Ferrando, 2006). Moreover, given that the Likert scale of the NSRS, polychoric correlation was recommended instead of Pearson's correlation because polychoric correlation assumes an underlying continuous distribution unlike Pearson's correlation, which assumes an underlying normal distribution (see Holgado-Tello, Moscoso, Barbero-Garcia & Vila-Abad, 2010),

Inspection of the correlation matrix showed that for most of the pairs from the 82 items, the correlation coefficients indicated consistently high correlations all above .5 and most above .7. Additionally, some of the pairs showed possible multicollinearity or redundancy with correlations above .9. For example, items from the Theistic Spirituality *'I read religious texts to be closer to God'* and *'I take part in religious study to feel connected with God.'* were correlated at .96.

Both items are from the same subscale and although separate activities, one way of studying is to read religious texts; therefore, the high degree of overlap is unsurprising. In contrast, several pairs were not correlated. For instance, items *'I often question my beliefs'* from the Quest subscale were not correlated with any of the items from the Religious Behaviour subscale, Theistic Spirituality subscale or Intrinsic Religiosity subscale.

The Quest subscale was originally developed from a refinement of the Religious Orientation Scale, ROS (Batson & Schoenrade, 1991a; Batson & Schoenrade, 1991b). It was developed based on the criticism that the ROS does not adequately operationalise several aspects of what Allport originally meant with intrinsic religiosity (see Chapter 2 for details). In the Quest form of the ROS scale, it was operationalised as an open-ended process in which people question basic religious tenets and are more interested in the on-going quest for truth (see Batson, Schoenrade & Ventis, 1993; Maltby & Day, 1998). However, Quest in the present study was operationalised as an exploration of the very foundation of one's conviction or belief; thus, it appears that questioning one's belief might be perceived differently in a religious context. For example, the degree of questioning of one's belief might be understood differently in non-religious groups or even in religious groups. All the items were retained and were used for the factor analysis.

The Keiser-Meyer-Olkin (KMO) measure of sampling adequacy test for the Newcastle Scale of Religion and Spirituality was very good at 0.98 (Kaiser Meiyer Olkin test, $\geq .9$ = very good, see table for details). A KMO statistic $> .80$ and a significant Bartlett's test indicated that the matrix was suitable for factor extraction (Beavers et al., 2013). Therefore, all 82 items were retained for all subsequent analyses.

The subsequent step was deciding the number of factors to retain. Several criteria were considered to identify the number of factors to retain for rotation. First, the examination of Eigenvalues indicated 44.37, 7.83, 5.64, 2.20, 2.00, 1.79, and 1.39, so the first seven factors met Kaiser's criterion (Kaiser, 1960) that all components with eigenvalues > 1.00 should be retained and those less than one should be excluded. Second, inspection of the scree plot of eigenvalues for each factor appears to indicate that the eigenvalues drop off substantially after the fourth factor.

However, there was a slight 'elbow' at the seventh factor before a stable plateau was reached, which may indicate seven factors (see Figure 1). Third, the parallel analysis was also using was based on Minimum Rank Factor Analysis (MRFA).

MRFA is based on the comparison between the proportions of the explained common variance (ECV) from the observed data with the EVC from randomly generated data, which shares the same distribution (Timmerman & Lorenzo-Seva, 2011). This MRFA has been empirically demonstrated to be more powerful than two alternative methods, specifically Horn's Parallel Analysis and Principal Axes Factor Analysis (see Timmerman & Lorenzo-Seva, 2011). This parallel analysis indicated five factors, contradicting the Kaiser eigenvalue criteria.

Subsequently, factors were extracted, fitting the common factor model to the data, followed by rotation and finding a solution with the simplest structure. Given that the data was kurtotic and appeared slightly not normally distributed, the Unweighted Least Squares (ULS) approach was used for extraction. ULS is considered more robust if the assumption of multivariate normality is severely violated (Osborne, 2014). Several authors argue that most factor extraction methods cannot compute the percentage of common variance explained, including ULS (Lorenzo-Seva & Ferrando, 2006; Lorenzo-Seva, 2013). They argued that only Minimum Rank Factor Analysis (MRFA), under multivariate normality assumptions, enables the proportion of variance explained by each factor to be computed accurately (Lorenzo-Seva, 2013; Lorenzo-Seva & Ferrando, 2006; Shapiro & Ten Berge, 2002). Therefore, in following these recommendations, the variance explained by each factor will be reported, but not as a percentage of the total.

Further, indices of fit (more commonly used in Confirmatory Factor Analysis) can also be employed to guide decisions concerning the adequacy of a solution in EFA. Since each of the fit indices has different strengths and weaknesses, the present study relied on several criteria: The Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Adjusted Goodness of Fit Index (AGFI) and the Root Mean Square of Residuals (RMSR) (see table for 10 for details).

Then, the rotation method utilised was Direct Oblimin with $\phi = 0$ (Clarkson & Jennrich, 1988) to achieve factor simplicity. A direct oblimin rotation was chosen because it can examine the correlated factors in the factor structure (Osbourne & Costello, 2004). In other words, a direct oblimin rotation is appropriate to use in a multidimensional scale that shares some degree of relationship (Baglin, 2014). There is no single rule of thumb defining the minimum magnitude of variable loading that is considered significant and meaningful. A number of authors have proposed $> .50$ (Norusis, 1985) $> .40$ (Ford, MacCallum, & Tait, 1986) or $.30$ (Floyd & Widaman, 1995). Therefore, given the exploratory nature of the study, this analysis considered items with loadings greater than $.30$ and emphasised items having larger loadings ($> .50$) when interpreting and naming factors. All 82 items were loaded from 0.308 to 0.934 on the factors. The internal consistencies of the factors were strong ($\alpha = 0.93$ to 0.98).

In the seven-factor solution, there were five strong, distinct factors, each with high loadings, that matched the hypothesized scales, whereas items from two conceptually distinct subscales loaded on a single shared factor (Theistic Spirituality and Intrinsic Religiosity). Given that the intercorrelations for all the items from these two subscales (Theistic Spirituality and Intrinsic Religiosity) were consistently and strongly correlated from $.74$ to $.96$, the fact that they loaded on the same factor is unsurprising.

In terms of factor structure, it is important to highlight several findings. First, in the seven-factor solutions, five strong, distinct factor loadings were determined to be consistent with the conceptual factors based on the questionnaire design around construct definitions. there were: a) eleven items of conceptualized under Religious Behaviour were moderately to strongly to one factor (factor 3), b) ten items of conceptualized under Non-Theistic Spirituality were loaded onto one factor (factor 7), c) ten items of conceptualized under Social-Family Extrinsic Religiosity were loaded strongly above .8 onto one factor (factor 2), d) ten items of conceptualized under Religious Fundamentalism were loaded on one factor (factor 6), and e) eight items of conceptualized under Quest were loaded onto one factor (factor 5). Notable, nine items of conceptualized under Personal Extrinsic Religiosity (PER) were one factor (factor 4) with three items were loaded onto different factors.

Secondly, as previously noted, despite the distinct separation of the five factors and the combination of two scales, a few intricate items emerged. For instance, regarding Personal Extrinsic Religiosity (as illustrated in the light blue shaded table, refer to Table 7 for further details), it was evident that nine items specifically designed for PER were moderately associated with the Personal Extrinsic Religiosity (PER) factor (factor 4). However, three items were associated with different factors.

Consequently, these three items exhibited weak to moderate loading on factors other than their anticipated conceptual factors. Specifically, these included: a) an item from the Intrinsic Religiosity conceptual scale (.442 '**I make a special effort to visit sacred places (pilgrimage) to be closer to God**') which was loaded with the Personal Extrinsic Religiosity (PER) factor (factor 4), b) an item from the Intrinsic Religiosity conceptual scale (.320 '**I read sacred writings to find comfort**') which was loaded with the Religious Behaviour factor (Factor 3), and c) an item from the Personal Extrinsic Religiosity conceptual scale ('**When I am in difficulty, I pray to God for aid**') which was moderately (.563) loaded with the combined factor of Theistic Spirituality and Intrinsic Religiosity (factor 1) (refer to Table 7 for details; these items are highlighted in bold font). The items that were loaded with different factors than originally conceptualized, as well as those that loaded onto two distinct factors, will be further examined in the subsequent section.

Third, two of the conceptually distinct factors were loaded on one factor (Theistic Spirituality and Intrinsic Religiosity) (in the yellow shaded table, please see Table 7 for details). The correlation matrix for all the items in these two subscales (Theistic Spirituality and Intrinsic Religiosity) was consistently strongly correlated from .74 to .96.

Finally, five items were weakly to moderately loaded on two distinct factors. They were: 1) two items of the combined factor of Theistic Spirituality and Intrinsic Religiosity (Factor 1) (*'I give money, time or goods to my religious community to do God's work'* and *'I read religious texts to be closer to God'*) were also loaded on the Religious Behaviour factor (Factor 3) and 2) three items of the Intrinsic Religiosity (factor 1) (*'I go to religious places to feel closer to God'*, *'I follow the rules of my religion because that is God's will'* and *'I observe and participate in the festivals of my religion to be closer to God'*) were loaded on the Personal Extrinsic Religiosity (Factor 4) (see Table 7 for details, double loading items are in red font).

Although the NSRS was conceptually designed to measure eight distinct dimensions, statistically, the solution with seven factors was better, with two initial scales combined into one factor. This structure accounted for 70.18% of the variance (see Table 9 for details). Ignoring the small number of complex items (double loadings and/or not loaded on the expected factor), five distinct factors were produced. They are interpreted as follows. The second factor named Social-Family Extrinsic Religiosity consisted of 10 items (Eigenvalue = 7.83), the third factor, Religious Behaviour, consisted of 11 items (Eigenvalue = 5.64), the fifth factor named the Quest comprised 8 items (Eigenvalue = 2.00), the sixth factor termed Religious Fundamentalism included 10 items (Eigenvalue = 1.79) and the seventh factor named Non-Theistic Spirituality was composed of 10 items (Eigenvalue = 1.70). All 82 items loaded from 0.308 to 0.934 on the factors.

However, there were two factors that were not distinct, namely 1) the first factor, which is the combined factors of Theistic Spirituality and Intrinsic Religiosity, comprised 20 items of Religiosity (Eigenvalue = 44.37), and 2) the fourth factor named Personal Extrinsic Religiosity (Eigenvalue = 2.20). These three factors were considered not distinct factors as two factors are combined in one factor with one item loaded in fourth factor ('*I make a special effort to visit sacred places (pilgrimage) to be closer to God*') while in another factor (fourth factor named Personal Extrinsic Religiosity), two items of fourth factor were not loaded in the conceptual factor. They were '*I read sacred writings to find comfort*' loaded on factor 3 named Religious Behaviour, and '*When I am in difficulty, I pray to God for aid*' loaded on factor 1, which is combined factors of Theistic Spirituality and Intrinsic Religiosity. These three items were in bold (see Table 7 for details).

Overall, the factor structure of NSRS among the UK sample was interesting and most importantly, five interpretable factors emerged clearly as conceptually designed, and the remaining two factors are interpretable.

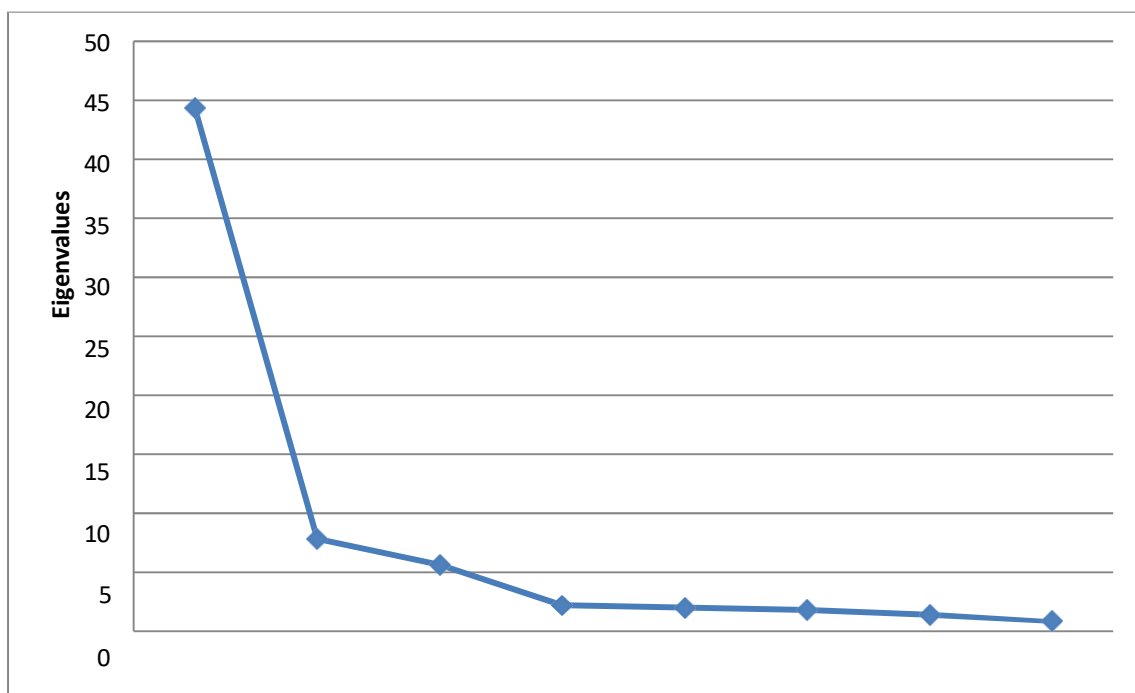


Figure 1:
Scree plot of factor eigenvalues for EFA of NSRS items among the UK sample (N=493)

Table 7

Results of factor analysis with Direct Oblimin rotation of the Newcastle Scale of Religion and Spirituality among the UK sample (N=493)

Item	Factor						
	1	2	3	4	5	6	7
I pray or meditate.			.602				
I take part in worship or religious rituals.			.801				
I spend time reflecting on aspects of my religion			.728				
I give money, time or goods to my religious community or to causes that it supports.			.754				
I read religious texts or writings.			.781				
I make a special effort to visit sacred places (pilgrimage)			.522				
I go to religious places.			.688				
I take part in religious study.			.777				
I practice my religion according to its rule.			.718				
I am guided by my religion in many aspects of my everyday life.			.692				
I observe and participate in the festivals of my religion.			.573				

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I believe that there is a purpose to the universe.							.721
When I am in nature, I feel in touch with something greater than myself.							.598
I believe that some kind of force underlies the universe.							.763
I believe that something exists beyond our natural perception or senses.							.644
I believe that ultimate truth cannot be fully expressed by words or concepts.							.577
I believe an ultimate truth to the universe can be found.							.632
I believe that everything is connected.							.834
I have a strong sense of meaning in my life.							.683
I feel connected to something greater than myself.							.632
I believe in a spiritual realm beyond the material universe.							.576

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I believe in God.	.806						
I believe God gives purpose to my life.	.806						
I feel connected to God every time I spend time in nature.	.688						
I desire to be in union with God.	.769						
I believe I can connect with God in many ways.	.698						
I believe God is everywhere.	.837						
I believe God watches over me.	.808						
I believe that God gives meaning to my life.	.748						
I believe that God is the ultimate truth.	.766						
I have a personal relationship with God.	.679						

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I pray or meditate to feel connected with God.	.645						
I take part in worship to feel connected with God.	.523						
I go to religious places to feel closer to God.	.454			.454			
I spend time reflecting on aspects of my religion to be closer to God.	.493						
I give money, time or goods to my religious community to do God's work.	.426		.328				
I follow the rules of my religion because that is God's will.	.450			.321			
I read religious texts to be closer to God.	.388		.308				
I take part in religious study to feel connected with God.	.382						
Everything I do in my everyday life is to seek union with God.	.350						
I make a special effort to visit sacred places (pilgrimage) to be closer to God.				.442			
I observe and participate in the festivals of my religion to be closer to God.	.412			.319			

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I pray because I feel God answers my prayer.	.652						
I pray to avoid God's disapproval.				.646			
I read sacred writings to find comfort.			.320				
I follow the rules of my religion to avoid God's punishment/bad Karma.				.658			
When I am in difficulty, I pray to God for aid.	.563						
I make special efforts to visit sacred places (pilgrimage), so God will reward me.				.729			
I give money, time or goods to my religious community because God will approve of me.				.772			
I take part in religious study as I know God will approve of me.				.732			
I observe and participate in the festivals of my religion, so God will look favourably on me				.734			
I seek comfort in following rules of my religion.				.460			
I take part in worship or religious rituals to avoid God's displeasure/bad Karma.				.756			
I go to religious places to please God.				.714			

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I practice my religion to be accepted by my family.		.759					
I practice my religion because if I do not, my family will disapprove me.		.841					
I practice my religion to feel closer to my family.		.773					
I practice my religion to show respect to my family.		.815					
I practice my religion to get rewards or favours from my family.		.852					
I practice my religion to be accepted by my community.		.907					
I practice my religion because if I do not, my community will disapprove me.		.934					
I practice my religion to feel closer to my community.		.870					
I practice my religion to show respect to my community.		.889					
I practice my religion to get rewards or favours from my community		.899					

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
There is only one truth, and that is my religion.						.540	
I believe that the rules in the sacred writings of my religion must be followed exactly.						.622	
The teachings of my religion should never be questioned.						.864	
I believe sacred writings of my religion are the only true word of God.						.649	
A true believer never doubts the word of God.						.664	
Defending my religion at all costs is my sacred duty.						.672	
I must always follow the guidance of my religious leaders without question.						.806	
Other religious points of view cannot be tolerated.						.814	
Those who offend my religion should be punished.						.706	
My religion holds the ultimate truth and there is no room for interpretation.						.790	
<i>Note.</i> Factor loadings lower than an absolute 0.30 are suppressed							

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I often question my beliefs.					.655		
I believe that one should never stop searching for the truth about existence.					.735		
Understanding existence is a whole life's journey.					.792		
Doubt is part of my spiritual journey.					.838		
There may be many ways to find the truth about existence.					.794		
I question my understanding of the spiritual realms.					.860		
I constantly try to find the purpose to this universe					.688		
Doubt is part of my search for truth.					.863		

Note. Factor loadings lower than an absolute 0.30 are suppressed

5.4.2 *Exploratory Factor Analysis, EFA for the Malaysian Sample*

From the Malaysian sample, eight participants did not complete all 82 items: five participants did not complete 82 items. Therefore, for the Exploratory Factor Analysis (EFA), only data from 573 participants were used with the item ratio 573:82 (6.98:1; almost 7:1).

Visual inspections of the histogram showed that 48 of the 82 items reported high skewness (all more than ± 1). Conversely, the remaining items displayed skewness and kurtosis (all less than ± 1) which indicated the items were all approximately normally distributed.

For most of the pairs from the 82 items, the correlation matrix showed consistent correlations with most of the items above .6. All 82 items were retained for the factor analysis.

The Exploratory Factor Analysis was conducted on data from 573 participants from Malaysia using similar analytic procedures to those used for the UK sample. The KMO test of the Newcastle Scale of Religion and Spirituality was very good at 0.97. As stated before, A KMO statistic $> .80$ and a significant Bartlett's test indicated that the matrix was suitable for factor extraction (Beavers et al., 2013). Therefore, all 82 items were retained for all subsequent analyses.

Similar to the UK study, the subsequent step was deciding the number of factors to retain. As stated earlier, several criteria were considered to identify the number of factors to retain for rotation. First, the examination of Eigenvalues, indicated 31.18, 9.51, 3.42, 3.19, 2.48, 2.27, 1.6, 1.08, 1.02, and 0.85 for the first ten respectively (Kaiser's criterion (Kaiser, 1960), all components with eigenvalues < 1.00 should be excluded), therefore indicating up to nine. Second, the scree plot indicated a comparatively ambiguous plot with more than one break, with the first inflection point at two factors. Nevertheless, it is also arguable that there was a second inflection point at the seventh factor, indicating 7 factors (see Figure 2 for details). Additionally, based on parallel analysis, seven factors were indicated.

Further, indices of fit (more commonly used in Confirmatory Factor Analysis) can also be employed to guide decisions concerning the adequacy of a solution in EFA. Since each of the fit indices has different strengths and weaknesses, the present study relied on several criteria: The Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Adjusted Goodness of Fit Index (AGFI) and the Root Mean Square of Residuals (RMSR) (see Table 10 for details).

All 82 items loaded with moderate to strong loadings from 0.40 to 0.93 on the factors. The internal consistency of the factors was strong ($\alpha = 0.88$ to 0.98). Each item loaded over 0.3 on only one factor, except for two items that had a primary loading on the conceptualised factor (approximately 0.60) and secondary moderate loadings on a second factor.

Regarding the factor structure, several significant findings warrant attention. First, in the seven-factor solution, there were five robust and distinct factor loadings were identified, aligning with the conceptual factors derived from the questionnaire's construct definitions. Specifically, a) eleven items conceptualized under Religious Behaviour exhibited moderate to strong loading on one factor (factor 3), b) ten items conceptualized under with Non-Theistic Spirituality were loaded onto one factor (factor 4), c) ten items conceptualized under Social-Family Extrinsic Religiosity demonstrated strong loadings exceeding .8 on one factor (factor 2), d) ten items conceptualized under Religious Fundamentalism were loaded onto one factor (factor 6), e) ten items conceptualized under Theistic Spirituality were loaded to one factor (factor 7), and f) eight items conceptualized under Quest were loaded onto one factor (factor 5).

However, all items from two conceptually distinct subscales loaded on a single shared factor (Intrinsic Religiosity (IR) and Personal Extrinsic Religiosity (PER)). see the shaded yellow table (see Table 8 for details). Given that the intercorrelations for all the items from these two subscales (IR and PER) were consistently and strongly correlated from .60 to .90, the fact that they loaded on the same factor is unsurprising.

Third, it is noteworthy that two items designed under Intrinsic Religiosity were also exhibited moderate loading of .40 on the Theistic Spirituality (factor 7) with factor loadings of 0.43 and 0.41 respectively (see Table 8 for details, double loaded items in red font). A detailed discussion of these items will be provided in the. Specifically, two items of the conceptualised combined factor of Intrinsic Religiosity and Personal Extrinsic Religiosity (Factor 1) see the shaded (**'I pray or meditate to feel connected with God'** and **'I take part in worship to feel connected with God'**). A detailed discussion of these items will be provided in the subsequent section. Lastly, it is crucial to note that there were no ambiguous items that loaded onto different factors.

The factor loadings for the Malaysian sample are shown in Table 8. Interestingly, in the seven-factor solutions, six distinct factors and one combined factor were produced. They are interpreted as follows. The first factor was the combined factors of Intrinsic Religiosity and Personal Extrinsic Religiosity consisted of 23 items (Eigenvalue = 31.18), the second factor named Social-Family Extrinsic Religiosity consisted of 10 items (Eigenvalue = 9.51), the third factor Religious Behaviour consisted of 11 items (Eigenvalue = 3.42), the fourth called the Non-Theistic Spirituality factor was composed of 10 items (Eigenvalue = 3.19), the fifth factor named the Quest factor comprised 8 items (Eigenvalue = 2.48), the sixth factor termed Religious Fundamentalism included 10 items (Eigenvalue = 2.27) and the seventh factor named Theistic Spirituality was composed of 12 items (Eigenvalue = 1.6).

Overall, the factor structure of NSRS among the Malaysian sample showed that six interpretable factors emerged clearly as conceptually designed, and the remaining two factors are combined factors but interpretable. There were no complex items that did not load on conceptual factors.

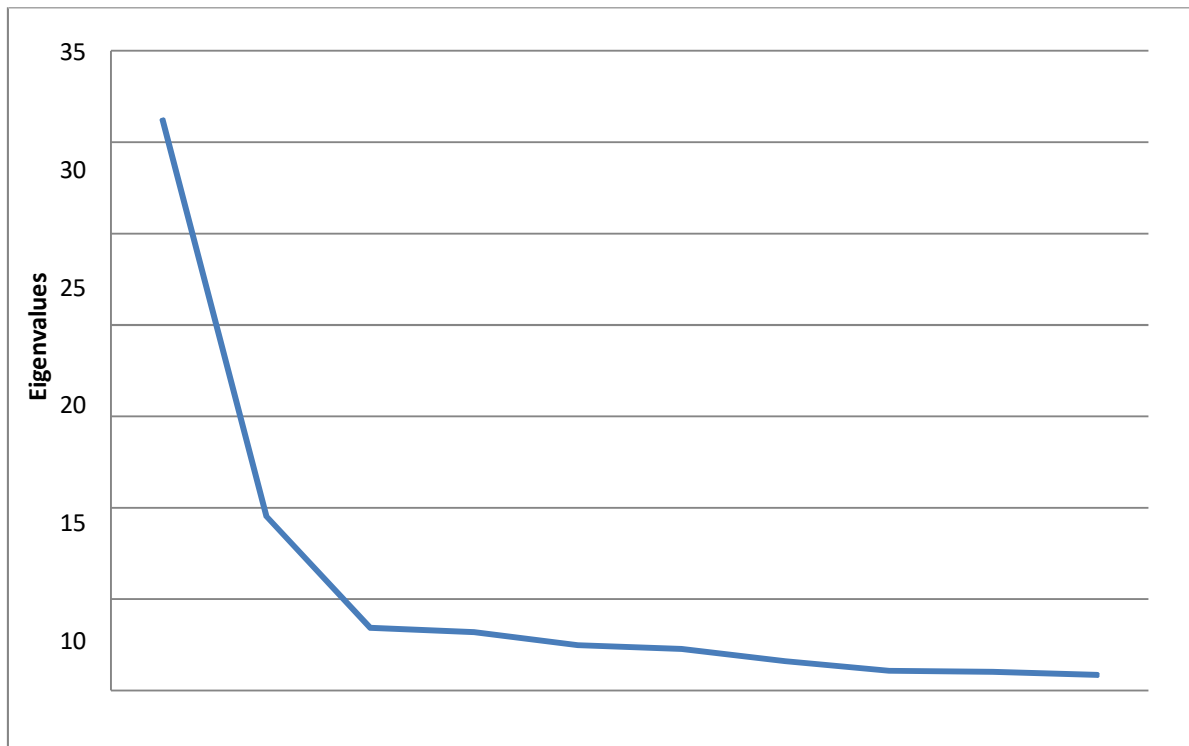


Figure 2:
Scree plot of factor eigenvalues for EFA of NSRS items among the Malaysian sample (N=573)

Table 8

Results of factor analysis with Direct Oblimin rotation of the Newcastle Scale of Religion and Spirituality among the Malaysian sample (N=581)

Item	Factor						
	1	2	3	4	5	6	7
I pray or meditate.			0.542				
I take part in worship or religious rituals.			.745				
I spend time reflecting on aspects of my religion			.715				
I give money, time or goods to my religious community or to causes that it supports.			.690				
I read religious texts or writings.			.753				
I make a special effort to visit sacred places (pilgrimage)			.574				
I go to religious places.			.816				
I take part in religious study.			.789				
I practice my religion according to its rule.			.578				
I am guided by my religion in many aspects of my everyday life.			.503				
I observe and participate in the festivals of my religion.			.457				

Note. Factor loadings lower than an absolute 0.30 are suppressed

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Item	Factor						
	1	2	3	4	5	6	7
I believe that there is a purpose to the universe.				.556			
When I am in nature, I feel in touch with something greater than myself.				.770			
I believe that some kind of force underlies the universe.				.841			
I believe that something exists beyond our natural perception or senses.				.834			
I believe that ultimate truth cannot be fully expressed by words or concepts.				.768			
I believe an ultimate truth to the universe can be found.				.695			
I believe that everything is connected.				.841			
I have a strong sense of meaning in my life.				.726			
I feel connected to something greater than myself.				.805			
I believe in a spiritual realm beyond the material universe.				.834			

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I believe in God.							.690
I believe God gives purpose to my life.							.692
I feel connected to God every time I spend time in nature.							.507
I desire to be in union with God.							.541
I believe I can connect with God in many ways.							.557
I believe God is everywhere.							.713
I believe God watches over me.							.735
I believe that God gives meaning to my life.							.744
I believe that God is the ultimate truth.							.688
I have a personal relationship with God.							.512

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I pray or meditate to feel connected with God.	.594						.428
I take part in worship to feel connected with God.	.598						.405
I go to religious places to feel closer to God.	.661						
I spend time reflecting on aspects of my religion to be closer to God.	.662						
I give money, time or goods to my religious community to do God's work.	.715						
I follow the rules of my religion because that is God's will.	.632						
I read religious texts to be closer to God.	.681						
I take part in religious study to feel connected with God.	.683						
Everything I do in my everyday life is to seek union with God.	.586						
I make a special effort to visit sacred places (pilgrimage) to be closer to God.	.700						
I observe and participate in the festivals of my religion to be closer to God.	.755						

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I pray because I feel God answers my prayer.	.696						
I pray to avoid God's disapproval.	.722						
I read sacred writings to find comfort.	.715						
I follow the rules of my religion to avoid God's punishment/bad Karma.	.743						
When I am in difficulty, I pray to God for aid.	.613						
I make special efforts to visit sacred places (pilgrimage), so God will reward me.	.757						
I give money, time or goods to my religious community because God will approve of me.	.848						
I take part in religious study as I know God will approve of me.	.867						
I observe and participate in the festivals of my religion, so God will look favourably on me	.824						
I seek comfort in following rules of my religion.	.812						
I take part in worship or religious rituals to avoid God's displeasure/bad Karma.	.786						
I go to religious places to please God.	.805						

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I practice my religion to be accepted by my family.		.821					
I practice my religion because if I do not, my family will disapprove me.		.851					
I practice my religion to feel closer to my family.		.849					
I practice my religion to show respect to my family.		.907					
I practice my religion to get rewards or favours from my family.		.869					
I practice my religion to be accepted by my community.		.903					
I practice my religion because if I do not, my community will disapprove me.		.893					
I practice my religion to feel closer to my community.		.907					
I practice my religion to show respect to my community.		.932					
I practice my religion to get rewards or favours from my community		.824					

Note. Factor loadings lower than an absolute 0.30 are suppressed

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
There is only one truth, and that is my religion.						.588	
I believe that the rules in the sacred writings of my religion must be followed exactly.						.632	
The teachings of my religion should never be questioned.						.655	
I believe sacred writings of my religion are the only true word of God.						.609	
A true believer never doubts the word of God.						.524	
Defending my religion at all costs is my sacred duty.						.590	
I must always follow the guidance of my religious leaders without question.						.687	
Other religious points of view cannot be tolerated.						.640	
Those who offend my religion should be punished.						.601	
My religion holds the ultimate truth and there is no room for interpretation.						.648	
<i>Note.</i> Factor loadings lower than an absolute 0.30 are suppressed							

Continued from the previous page

Item	Factor						
	1	2	3	4	5	6	7
I often question my beliefs.					.528		
I believe that one should never stop searching for the truth about existence.					.535		
Understanding existence is a whole life's journey.					.548		
Doubt is part of my spiritual journey.					.705		
There may be many ways to find the truth about existence.					.657		
I question my understanding of the spiritual realms.					.673		
I constantly try to find the purpose to this universe					.715		
Doubt is part of my search for truth.					.763		

Note. Factor loadings lower than an absolute 0.30 are suppressed

5.5 Discussion of the exploratory factor analyses for the UK and Malaysian samples

In summary, in both samples, the Kaiser-Meyer-Olkin test yielded a value above 0.95. This indicates that factor analysis could be applied to these data and indicates strong partial correlations between the variables after controlling for all other variables. There were seven eigenvalues (>1 in the UK sample and ten eigenvalues > 1 in the Malaysian sample. In addition, the scree plot revealed that there were ambiguous breaks for both samples and more than one ‘elbow’. In the UK sample, there was the first break at two factors and a second break at five factors, whereas in the Malaysian sample, there was a first break at two factors and a second break at seven factors. Consistent with the scree plots, parallel analysis advised five factors for the UK sample and seven factors for the Malaysian sample. Therefore, there were differences in the potential number of factors.

Despite these indications, after considering three different solutions in both cases, seven interpretable factors were identified for both samples. The goodness of fit statistics (the Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), Adjusted Goodness of Fit Index (AGFI)) also showed that the data from to the UK and the Malaysian samples fitted relatively well to the seven factors, while the root mean square error of approximation (RMSEA) was in the acceptable range in both cases (see Table 10 for details).

Although there were seven interpretable factors in each sample, there were important differences in the factors identified. First, five factors were identical in both the UK and the Malaysian samples, with clear factors with high loadings, specifically Religious Behaviour, Non-Theistic Spirituality, Social-Family Extrinsic Religiosity, Quest, and Religious Fundamentalism. Second, two conceptually distinct factors were combined into one factor in both samples; however, the combination differed. In the UK sample, Theistic Spirituality and Intrinsic Religiosity were combined in one factor with Personal Extrinsic Religiosity as a separate factor.

On the other hand, in the Malaysian sample, Intrinsic Religiosity and Personal Extrinsic Religiosity were combined with Theistic Spirituality as a separate factor. The inter-correlation matrix of the original subscales (Theistic Spirituality, Intrinsic Religiosity, and Personal Extrinsic Religiosity) shows that these three conceptually distinct but related subscales were highly correlated in both subsamples (see Tables 25 and 26 in Appendix P).

It is important to note that the items from these three subscales all describe aspects of a personal relationship with God. In the factor analyses, the expression of this relationship appears to have a different “flavour” in the UK compared to Malaysia, although the factors in both samples reflect the deeply personal nature of religious expression. In the UK sample, the emphasis appears to be on the interpersonal, where the transcendent is sought through the behaviour, and where the motivation is to be close to God. In the UK, God’s approval or displeasure appears separate from this transcendental relationship.

Alternatively, the combined intrinsic/extrinsic factor in the Malaysian sample is consistent with the view that when one is close to God, things are ultimately left for God, but also that one's relationship with God is built through motivation of the religious behaviour. This observation is not unexpected, given that a significant majority (98.7%) of the participants in this research identified themselves with religion, with 65.1% being Muslim. For adherents of Islam, their faith serves as a comprehensive framework for living. As noted by Abu Raiya (2009) and Abu Raiya and Pargament (2010), Islam is intricately woven into the daily lives of many Muslims. They engage in prayer during both favorable and challenging circumstances, often seeking solace and assistance from Allah in times of difficulty. Consequently, it can be inferred that the Islamic framework, along with the Malaysian perspective on religious affiliations, may elucidate why items of both Intrinsic Religiosity (IR) and Personal Extrinsic Religiosity (PER) were combined in one factor.

Furthermore, the combination of the IR and PER may enhance the comprehension of religious practices and behaviors among the Malaysian population. For instance, the majority of the items within the IR emphasizes religious practices rather than the significance of the motivations behind these engagements (i.e., to feel connected to God). This suggests that whether the engagement is aimed at fostering a personal relationship with God or at obtaining rewards or evading punishments, it yields benefits. It is believed that the motivation to gain rewards or avoid penalties will lead to a reinforcement of the personal relationship with God through the repeated engagement in religious behaviors or practices (Ab Aziz, 2003).

Unlike the UK, in Malaysia, the transcendent nature of God is a separate dimension. Theistic Spirituality, Intrinsic Religiosity, and Personal Extrinsic Religiosity are highly correlated and could constitute a single-dimensional subscale that captures the notion of a personal relationship with God (Please refer to the section factor structure of NSRS in Chapter 8 for details). However, conceptually, they are defined as separate but related constructs, and the differences in the factor structures between the UK and Malaysia support both their separateness and the potential importance of religious affiliation (predominantly Christian vs predominantly Muslim) and culture (more individualist vs more collectivist) in determining the dimensions of religious expression.

This is supported by the previous studies on the cultural and religious values in Malaysia in which indicate that Malaysians, particularly Malays, are religious (Lim, 2001), prioritize relationships, and have a collectivistic orientation (Abd Majid, 2008; Merriam & Mohamad, 2000; Abdullah, 1996). Abdullah also posited that happiness can be attained through prayer and meditation “happiness could be discovered from within oneself through prayers and meditation” (Abdullah, 1996, p. 106). It is important to note that spirituality is often linked to religious beliefs and practices (Abd Majid, 2008). This suggests that Theistic Spirituality, Intrinsic Religiosity, and Personal Extrinsic Religiosity may be associated with being religious, and may explain the strong correlation between the subscales and the combination of items related to Intrinsic Religiosity and Personal Extrinsic Religiosity.

Moreover, the factor structure of NSRS in Malaysia may be attributed to the results of a prior study on the validation of ROS (Religious Orientation Scale-Revised), where it was discovered that certain items of Extrinsic Personal were loaded alongside Intrinsic Religiosity. The researchers posited that this combination of items reflected a religious orientation among Malaysians, and that understanding the significance of extrinsic and intrinsic religious orientations in the Malaysian context could account for this outcome (Kamaluddin, Nasir, Sulaiman, Khairudin, & Zamani, 2017).

Interestingly, there were different patterns of complex or double-loading items between the samples. There were three items that did not load on the conceptualised factor, and five had double loadings in the UK sample. For example, one item of the conceptualized Personal Extrinsic Religiosity was moderately to strongly loaded (.50 to .60) on the combined Theistic Spirituality/Intrinsic Religiosity factor, specifically, *'When I am in difficulty, I pray to God for aid'*. It is interesting to note that this item was designed as an item where engagement in religious behaviour is motivated either to gain positive or to avoid negative outcomes. However, in the UK sample, it seems that the motivation to be assisted by God in the UK sample is an expression of one's transcendental relationship with a purpose to connect to God. This signifies that, regardless of the motivation, it is the way to be close to God. Therefore, it may explain why the item loaded on the combined factor of Theistic Spirituality and Intrinsic Religiosity, which emphasises the transcendental experience that can be sought through a personal relationship with God.

In addition, one item on the combined Theistic Spirituality/Intrinsic Religiosity factor was loaded on the Personal Extrinsic Religiosity, namely '*I make a special effort to visit sacred places (pilgrimage) to be closer to God*'. It is interesting to note that this item was designed as an item for an expression of one's transcendental relationship with a purpose of connecting to God. As the sample in UK is less religious (e.g., low religious behavior) (see the Appendix Q details), thus; item on the visit to scared places or pilgrimage is seldom practiced and may be perceived as an engagement in religious behaviour is motivated either to gain positive or to avoid negative outcomes rather than an engagement to religious behavior to have a personal relationship with God.

In contrast, there were no items that did not load on the conceptualised factor among the Malaysian sample although two had double loadings (please refer to previous sections for details on the items). Despite the presence of minimal double loading items in the factorial validation results, the determination to assign an item to a specific factor was predicated on the highest factor loading value associated with that item within the factor.

Finally, it is apparent that there are more similarities than differences between the samples, with the differences predominantly around the personal nature of the relationship with God. The factor structure for the UK sample, notably less religious than the Malaysian sample, did not as clearly achieve simple structure although the indices of fit were acceptable. At this stage, apart from the interesting and potentially interpretable way that the items of three scales combined to produce two factors, the factors were conceptually consistent with the original scale. Therefore, given all these considerations, the proposed solution is to keep the scales as they were originally designed and developed.

Table 9

The summary for indicators of the seven factors in the UK and Malaysian samples

Indicator	United Kingdom	Malaysia
Theory	8 subscales	8 subscales
KMO	0.98	0.97
Scree plot	Clear breaks at 5 th	Clear breaks at 7 th
Parallel analysis	5	7
Variance	70.18%	66.50%
Eigenvalue	7 eigenvalues > 1	10 eigenvalues > 1
Fit indices for final solution (7 factors)		
NNFI	0.86	0.82
CFI	0.89	0.85
GFI	1.00	1.00
AGFI	1.00	1.00
RMSR for final solution	0.0169	0.0262

Note:

KMO = Kaiser Meiyer Olkin test, $\geq .9$ = very good, $>.8$ = good, $>.7$ = acceptable, $<.5$ = unacceptable; NNFI = Non-Normed Fit Index (NNFI; Tucker & Lewis), $>.95$ = good model fit (Hu & Bentler, 1999), 0.80 = acceptable; CFI = Comparative Fit Index, close to 1 = a very good fit, > 0.9 or close to 0.95 = good fit, 0.80 = acceptable; GFI = Goodness of Fit Index, $>.90$ = good fit, GFI equal to 1 = perfect fit; AGFI = Adjusted Goodness of Fit Index, AGFI > 0.9 = good fit; RMSR = Root Mean Square of Residuals, .01, .05, and .08 = indicate excellent, good and mediocre fit (MacCallum, Browne & Sugawara, 1996), $>.10$ = poor fit.

5.6 Reliability

Reliability analysis was undertaken of the Newcastle Religiosity and Spirituality Scale to assess the internal consistency of the measure for both the Malaysian and United Kingdom samples. For the UK and Malaysian samples, results from 493 participants showed that each of the subscales demonstrated a very strong level of reliability (see details in the Table). Similarly, concerning the Malaysian sample, all of the NSRS subscales demonstrated very high internal consistency ($\alpha > .90$) except for the Quest subscale with Cronbach's alpha of .85 (see details in Tables 10 and 11).

Table 10

Reliability Analyses of the Newcastle Religiosity and Spirituality Scale in the UK sample (N=493)

Measure	Subscale	No. of items	Cronbach's alpha
NSRS	Religious Behaviour (RB)	11	.96
	Non-Theistic Spirituality (NTS)	10	.94
	Theistic Spirituality (TS)	10	.99
	Intrinsic Religiosity (IR)	11	.99
	Personal Extrinsic Religiosity (PER)	12	.98
	Social-Family Extrinsic Religiosity (SFER)	10	.97
	Religious Fundamentalism (F)	10	.97
	Quest (Q)	8	.93

Table 11

Reliability Analyses of the Newcastle Religiosity and Spirituality Scale in the Malaysian sample (N=581)

Measure	Subscale	No. of items	Cronbach's alpha
NSRS	Religious Behaviour (RB)	11	.91
	Non-Theistic Spirituality (NTS)	10	.94
	Theistic Spirituality (TS)	10	.96
	Intrinsic Religiosity (IR)	11	.97
	Personal Extrinsic Religiosity (PER)	12	.97
	Social-Family Extrinsic Religiosity (SFER)	10	.97
	Religious Fundamentalism (F)	10	.93
	Quest (Q)	8	.85

Chapter 6

The Convergent, Divergent Validity, Test-Retest Reliability and Confirmatory Factor Analysis (CFA) of Newcastle Spirituality and Religiosity Scale (NSRS) Among the UK and Malaysian samples

6.1 Convergent and divergent validity of the Newcastle Spirituality and Religiosity Scale (NSRS)

Upon completion of earlier stages, convergent and divergent validity were conducted on the short version of NSRS. The process of this stage will be explained in the subsequent section. As the content validity of the Newcastle Spirituality and Religiosity Scale (NSRS) was obtained through face validity (see details in Chapter 5), further validity tests were conducted in order to examine the construct validity. Construct validity can be determined by establishing 1) convergent validity and 2) divergent validity (Strauss & Smith, 2009). Therefore, upon completion of earlier stages, convergent and divergent validity were conducted on the short version of NSRS.

Convergent validity is established through the correlation between the instrument and another instrument that assesses a similar construct or a highly similar construct in which expecting a high correlation between them (Polit, 2015). In this study, we expect high correlation coefficients (e.g., .7 and above) between psychometric tests measuring the same constructs. As such, various constructs were considered, and scales were chosen based on conceptually related concepts. For example, for the Theistic Spirituality (TS) from the NSRS, we predicted the scale would be highly correlated to the Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ; Plante & Boccaccini, 1997) and Religious Commitment Inventory- 10 (Worthington et. al., 2003).

On the other hand, divergent validity is established when the measures successfully discriminate between other measures of unrelated constructs. In this study, we expect the lack of correlation (e.g., .3 and below, nearly zero) between scores of tests measuring independent psychological constructs. For divergent validity, various constructs were considered, and scales were chosen based on related but conceptually distinct constructs. For example, for the subscale Religious Fundamentalism from NSRS, we predicted the subscale would be low correlated with Quest Scale (Batson & Schoenrade, 1991) and The Spiritual Transcendence Scale (STS) (Piedmont, 1999). The process of this stage will be explained in the next section.

6.1.1 Methodology

Procedures

The study protocol was approved by the Newcastle University Research Ethics Committee (00516/2012). This study used a non-clinical sample and was recruited from a convenience sample. In these analyses, participants were recruited voluntarily through gatekeepers (i.e., lecturers) from the universities. The universities were targeted based on the opportunity to offer diverse religions and races (i.e., UCSI offers more Chinese and Indian students, whereas UMT offers more Malay and *Bumiputera* students). Additional permission to carry out the study was also sought from the dean and head of the department of both universities where data collection was conducted. It was intended that all participants complete the questionnaires through paper and pencil.

Before the data collection, recruitment was arranged between the researcher and the gatekeeper (i.e., lecturer) in the universities via e-mail. Before data collection, the participants (i.e., students) were given a briefing regarding their participation in the study by the lecturer. Then, the date for data collection was agreed between the researcher and lecturers at least two weeks before attending the university for data collection. Following confirmation before the agreed date, the data was collected within the designated lesson that had been negotiated with the lecturer, and about which the students had been informed.

During the data collection sessions, all participants received an information sheet with details about the study before the consent form was obtained (Appendix D). In addition, participants were informed that their participation was voluntary and that they were free to withdraw at any time before being invited to complete the consent form. An opportunity to ask questions was also provided, and any questions from the participants were addressed and answered accordingly. Next, the data collection was carried out in the presence of a lecturer. Participants completed the questionnaires in approximately 20 minutes. At the end of the first administration of data collection, participants were requested to provide their last four digits of their mobile phone number. Then, all the participants were debriefed and invited to ask further questions.

6.1.1.1 Participants

This sample consisted of 130 non-clinical samples obtained from undergraduates' students from two different universities, namely 1) the Terengganu Malaysian University (UMT), and 2) the University College of Sedaya International (UCSI). There were 1) 96 participants from UMT and 2) 34 participants from UCSI. There were five cases with missing data (two cases each for age and educational background. There was no missing data for the scales. The missing data were replaced with random values proportional to the sample distribution. Thus, the sample consisted of 130 participants, with more females (53.8%) than males (45.4%). On average, the sample was 20.58 years old ($SD=1.883$), and the majority held a high school diploma (93.8%). All participants in this sample had only completed high school, and only 6.2% had held a degree. As can be seen in Table 12, overall, the sample ethnicity was predominantly Malay (63.1%), the second largest group was Chinese (20.8%), and the third largest was Indian (9.2%). and others made up 8.4% (see Table 12). Interestingly, from %, there were 2 participants from other nationalities.

The religious affiliation of the sample was almost two-thirds Muslim (64.6%). This can be explained as all the Malay population is Muslim, but other races were divided into different religious affiliations. The remaining 35.4% were non-Muslim with important subgroups of Christians (12.3%), Buddhist (10.0%), Hindus (2.3%), Sikhs (2.3%), and other Chinese religions (2.3%), while only 6.2% stated 'No Religion' (please see Table 12 for details).

Table 12:

Demographic data for Sample in Malaysia (N = 130)

Demographic Variables	Frequency	Percentages (%)
Gender		
Male	59	45.4
Female	70	53.8
Prefer not to say	1	0.8
Age group		
18-22	123	94.6
23-27	5	3.8
28-32	1	0.8
33-37	1	0.8
Education		
Less than high school	122	93.8
High school	8	6.2
Bachelor's degree	0	0
Master's degree	0	0
Doctorate	0	0
Professional qualifications (for example: teaching, nursing, accountancy)	0	0
Other vocational/work-related qualifications	0	0
Foreign qualifications	0	0
Ethnicity		
Malay	82	63.1
Orang Asli	2	1.5
*Bumiputera Sabah	1	0.8
*Bumiputera Sarawak	4	3.1
Chinese	27	20.8
Indian	12	9.2
Other Asian	4	1.5
European	0	0
Other nationality	2	1.5

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Demographic Variables	Frequency	Percentages (%)
Religious affiliation		
Islam	84	64.6
Christian	16	12.3
Buddhism	13	10.0
Hinduism	3	2.3
Chinese religion	9	7.4
○ Taoism	1	0.8
○ Confucianism	2	1.5
○ Other traditional Chinese religion		
No religion	8	6.2
Sikhism	3	2.3
Other religion	-	-
Doctorate	0	0

Note: *Bumiputera Sabah = "If one of the parents is a Muslim Malay or indigenous native of Sabah as stated in Article 160A (6) (a) Federal Constitution of Malaysia, his child is considered a Bumiputera"(p 2, Article 160(2), Federal Constitution of Malaysia, 1963) *Bumiputera Sarawak = "If both of the parents are indigenous natives of Sarawak.

6.1.1.3 *Measures*

The validity assessment was carried out for the short version of NSRS against the following spirituality and religiosity measures.

6.1.1.3.1 Demographic Information

The survey begins with introductory information about the study, followed by a collection of demographic information from the participants (refer to Appendix 1). Demographic data collected are age, gender, race/ethnicity, religious background, and education level.

6.1.1.3.2 Newcastle Spirituality and Religiosity Scale (NSRS), (Alias, Freeston & Rosenkranz, 2012)

Newcastle Spirituality and Religiosity Scale (NSRS) was originally developed with 82 items, consisting of eight subscales, namely 1) Religious Behaviour, 2) Non-Theistic Spirituality, 3) Theistic Spirituality, 4) Intrinsic Religiosity, 5) Personal Extrinsic Religiosity, 6) Social- Family Extrinsic Religiosity, 7) Religious Fundamentalism, and 8) Quest. The NSRS was developed purposely to measure religiosity and beliefs from a range of groups among those who may not be formally non-religious, in addition to those who vary in their religious affiliation and practice.

However, there was a recognition after the initial work that some individuals engage in religious practices for instrumental purposes rather than to gain external purposes. In the original NSRS, the extrinsic religiosity personal scale was primarily developed to capture those who engage in religious behavior to gain external benefits, such as maintaining a good relationship with God or avoiding negative consequences like bad karma (e.g., “*I take part in worship or religious rituals to avoid God’s displeasure/bad Karma*” and “*I go to religious places to please God*”). However, it is hypothesized that people engage in religious behavior and believe in religion for various reasons, one of which is to receive blessings or protection from God. For instance, “*I practice my religion so that good things happen to me*” and “*I pray so that good things do not happen to me*”. This new subscale not only focuses on the individual but also includes the family unit, with items such as such as *I practice my religion so that good things happen to my family* and *I practice my religion so that bad things do not happen to my family*.

As a result, Marram, Rosenkranz, Morley, and Freeston (2015) developed a shortened version of the NSRS, which included an additional subscale called Personal Extrinsic Instrumental Religiosity. This subscale consisted of eight items and aimed to capture the instrumental aspect of religious behavior. Several noteworthy changes were made to the scale.

This new subscale is not only revolving around self but also family, such as *I practice my religion so that good things happen to my family*, and *I practice my religion so that bad things do not happen to my family*. As a result, Marram, Rosenkranz, Morley, and Freeston (2015) developed a shortened version of the NSRS, which included an additional subscale called Personal Extrinsic Instrumental Religiosity (PIR). This subscale consisted of eight items and aimed to capture the instrumental aspect of religious behavior. Several noteworthy changes were made to the scale.

First, the new revised NSRS contains 65 items with an additional subscale, with some items in other subscales being dropped. For example, eleven items of the Religious Behaviour subscale were shortened into eight items, and all eight items of the Quest subscale remained (For details, please refer to Table 2).

Second, the new additional subscale was added (Personal Instrument Extrinsic) in which consisted of eight items namely 1) *I practice my religion so that good things happen to me*, 2) *I practice my religion so that bad things do not happen to me*, 3) *I practice my religion so that good things happen to my family*, 4) *I practice my religion so that bad things do not happen to my family*, 5) *I pray so that good things do not happen to me*, 6) *I pray so that bad things do not happen to me*, 7) *I pray so that good things happen to my family* and 8) *I pray so that bad things do not happen to my family*.

Next, Personal Extrinsic Religiosity subscale was remained, but four items were removed namely 1) ***I pray because I feel God answers my prayer***, 2) ***I read sacred writings to find comfort***, 3) ***I make special efforts to visit sacred places (pilgrimage), so God will reward me*** and 4) ***I seek comfort in following rules of my religion***. In addition, two items from the long version of NSRS were reworded from *I observe and participate in the festivals of my religion, so God will look favourably on me* to *I observe and participate in the festivals of my religion, to please God* and *I follow the rules of my religion to avoid God's punishment/bad Karma* to *I follow the rules of my religion to avoid God's disapproval*.

Furthermore, the Religious Fundamentalism subscale was remained, but two items were omitted namely 1) *Other religious points of view cannot be tolerated* and 2) *Those who offend my religion should be punished*. There was one item from Religious Fundamentalism subscale was reworded from *Defending my religion at all costs is my sacred duty* to *Promoting my religion at all costs is my sacred duty*.

Moreover, the Social-Family Extrinsic Religiosity component was maintained, although the items were consolidated and reduced to a total of five (please refer to Table 13 for specific information). Originally, the scale focused on five items related to family and five items related to social and community aspects. It is crucial to note that all items from the Quest subscale were kept.

In summary, thirty items were removed from the original scale, while three items underwent rewording and modification (please see Table 13, highlighted in red font). Conversely, eight new items were introduced (highlighted in green font), and the ten items comprising the Social Family Extrinsic Religiosity subscale were condensed into five items by merging the concepts of social and family (highlighted in blue font). Additionally, the short version of the scale arranged all the items randomly, except for the initial eight items of the Religious Behaviour subscale. Ultimately, the abbreviated version of the NSRS consisted of 65 items.

Table 13:

The original Newcastle Spirituality and Religiosity Scale (NSRS) -Long Version and the Newcastle Spirituality and Religiosity Scale (NSRS)- Revised and Short Version

No.	The original NSRS	NSRS short version
1.	I pray or meditate.	/, REMAINED
2.	I take part in worship or religious rituals.	/, REMAINED
3.	I spend time reflecting on aspects of my religion	/, REMAINED
4.	I give money, time or goods to my religious community or to causes that it supports.	/, REMAINED
5.	I read religious texts or writings.	/, REMAINED
6.	I make a special effort to visit sacred places (pilgrimage)	omitted
7.	I go to religious places.	/, REMAINED
8.	I take part in religious study.	/, REMAINED
9.	I practice my religion according to its rule.	omitted
10.	I am guided by my religion in many aspects of my everyday life.	omitted
11.	I observe and participate in the festivals of my religion.	/, REMAINED
12.	I believe that there is a purpose to the universe.	/, REMAINED
13.	When I am in nature, I feel in touch with something greater than myself.	/, REMAINED
14.	I believe that some kind of force underlies the universe.	omitted
15.	I believe that something exists beyond our natural perception or senses.	/, REMAINED
16.	I believe that ultimate truth cannot be fully expressed by words or concepts.	omitted

17.	I believe an ultimate truth to the universe can be found.	/, REMAINED
18.	I believe that everything is connected.	/, REMAINED
19.	I have a strong sense of meaning in my life.	omitted
20.	I feel connected to something greater than myself.	/, REMAINED
21.	I believe in a spiritual realm beyond the material universe.	/, REMAINED
22.	I believe in God.	/, REMAINED
23.	I believe God gives purpose to my life.	omitted
24.	I feel connected to God every time I spend time in nature.	omitted
25.	I desire to be in union with God.	omitted
26.	I believe I can connect with God in many ways.	omitted
27.	I believe God is everywhere.	/, REMAINED
28.	I believe God watches over me.	/, REMAINED
29.	I believe that God gives meaning to my life.	/, REMAINED

30.	I believe that God is the ultimate truth.	/, REMAINED
31.	I have a personal relationship with God.	omitted
32.	I pray or meditate to feel connected with God.	/, REMAINED
33.	I take part in worship to feel connected with God.	/, REMAINED
34.	I go to religious places to feel closer to God.	/, REMAINED
35.	I spend time reflecting on aspects of my religion to be closer to God.	/, REMAINED
36.	I give money, time or goods to my religious community to do God's work.	/, REMAINED
37.	I follow the rules of my religion because that is God's will.	omitted
38.	I read religious texts to be closer to God.	/, REMAINED
39.	I take part in religious study to feel connected with God.	/, REMAINED
40.	Everything I do in my everyday life is to seek union with God.	omitted
41.	I make a special effort to visit sacred places (pilgrimage) to be closer to God.	omitted
42.	I observe and participate in the festivals of my religion to be closer to God.	/, REMAINED
43.	I pray because I feel God answers my prayer.	omitted
44.	I pray to avoid God's disapproval.	/, REMAINED
45.	I read sacred writings to find comfort.	omitted
46.	I follow the rules of my religion to avoid God's punishment/bad Karma.	/, reworded the item to "I follow the rules of my religion to avoid God's disapproval".
47.	When I am in difficulty, I pray to God for aid.	/, REMAINED
48.	I make special efforts to visit sacred places (pilgrimage), so God will reward me.	omitted
49.	I give money, time or goods to my religious community because God will approve of me.	/, REMAINED

50.	I take part in religious study as I know God will approve of me.	/, REMAINED
51.	I observe and participate in the festivals of my religion, so God will look favourably on me	/, reworded the items to “I observe and participate in the festivals of my religion, to please God”
52.	I seek comfort in following rules of my religion.	omitted
53.	I take part in worship or religious rituals to avoid God’s displeasure/bad Karma.	/, REMAINED
54.	I go to religious places to please God.	/, REMAINED
		I practice my religion so that good things happen to me
		I practice my religion so that bad things do not happen to me
		I practice my religion so that good things happen to my family
		I practice my religion so that bad things do not happen to my family
		I pray so that good things do not happen to me
		<u>I pray so that bad things do not happen to me</u>

	I pray so that good things happen to my family and
	I pray so that bad things do not happen to my family
55. I practice my religion to be accepted by my family.	I practice my religion to be accepted by my family or community.
56. I practice my religion because if I do not, my family will disapprove me.	I practice my religion because if I do not, my family or community will disapprove me
57. I practice my religion to feel closer to my family.	I practice my religion to feel closer to my family or community.
58. I practice my religion to show respect to my family.	I practice my religion to show respect to my family or community.
59. I practice my religion to get rewards or favours from my family.	I practice my religion to get rewards or favours from my family or community.
60. I practice my religion to be accepted by my community.	
61. I practice my religion because if I do not, my community will disapprove me.	
62. I practice my religion to feel closer to my community.	
63. I practice my religion to show respect to my community.	
64. I practice my religion to get rewards or favours from my family.	
65. There is only one truth, and that is my religion.	/, REMAINED
66. I believe that the rules in the sacred writings of my religion must be followed exactly.	/, REMAINED
67. The teachings of my religion should never be questioned.	/, REMAINED
68. I believe sacred writings of my religion are the only true word of God.	/, REMAINED
69. A true believer never doubts the word of God.	/, REMAINED
70. Defending my religion at all costs is my sacred duty.	/, reworded the item to “Promoting my religion at all costs is my

sacred duty”.

71.	I must always follow the guidance of my religious leaders without question.	/, REMAINED
72.	Other religious points of view cannot be tolerated.	Omitted
73.	Those who offend my religion should be punished.	Omitted
74.	My religion holds the ultimate truth and there is no room for interpretation.	/, REMAINED
75.	I often question my beliefs.	/, REMAINED
76.	I believe that one should never stop searching for the truth about existence.	/, REMAINED
77.	Understanding existence is a whole life’s journey.	/, REMAINED
78.	Doubt is part of my spiritual journey.	/, REMAINED
79.	There may be many ways to find the truth about existence.	/, REMAINED
80.	I question my understanding of the spiritual realms.	/, REMAINED
81.	I constantly try to find the purpose to this universe	/, REMAINED
82.	Doubt is part of my search for truth.	/, REMAINED
-

6.1.1.3.3 Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ; Plante & Boccaccini, 1997)

The 10-item SCSRFQ questionnaire is a unidimensional measure created to measure the strength of religious faith. Faith, as defined by the SCSRFQ, involves a dedication to various spiritual and religious beliefs and institutions, while the strength of faith pertains to the significance of religious beliefs and practices in individuals' lives. These broad definitions enable the SCSRFQ to gauge an individual's faith regardless of how it is interpreted in diverse religious traditions, making it suitable for use in various cultural settings without assuming the respondent's religious affiliation. This quality allows for the questionnaire's generalizability and adaptability. The 10-item instrument includes a variety of brief statements about religious faith (e.g., “*I pray daily*”, “*My religious faith is extremely important to me*”, “*I look to my faith as a source of inspiration*”) using a 4-point Likert-like scale ranging from strongly disagree to strongly agree.

Moreover, the SCSRFQ has been translated into multiple languages, such as English, Spanish, Portuguese, Italian, Czech, Polish, German, Chinese, Turkish, and Farsi (Plante, 2021; Akin, Turan, & Altundağ, 2015; Plante et al., 1997, 2002; Caycho-Rodríguez, et al., 2021). Studies have shown that the SCSRFQ exhibits high internal consistency, with Cronbach's alphas ranging from .80 to .96 (Plante & Boccaccini, 1997a; Plante & Boccaccini, 1997b; Plante, Vallaeys, Sherman & Wallston, 2002; Plante, Yancey, Sherman, Guertin & Pardini, 1999).

For instance, research on the psychometric properties of the SCSRFQ among Iranian Muslim populations revealed Cronbach's α for the single construct of the SCSORF was 0.89, with test-retest reliability of the SCSORF yielding acceptable over two weeks (Pakpour, Plante, Saffari & Fridlund, 2014). Previous studies have also indicated that Factor analyses support a single-factor model as the best fit for the SCSRFQ (Pakpour, Plante, Saffari & Fridlund, 2014; Cummings et al., 2015; Plante, 2002; Lewis, 2001; Storch, 2004). Therefore, existing evidence suggests that the SCSRFQ is a highly reliable tool.

6.1.1.3.4 The Spiritual Transcendence Scale (STS) (Piedmont, 1999)

The Spiritual Transcendence Scale (STS) is a self-report measure consisting of 24 items, each scored on a 5-point scale ranging from 1 "Strongly agree" to 5 "Strongly disagree" (Piedmont, 1999). The development of the STS involved collaboration with theological experts from various religious and spiritual traditions, including Catholic and Protestant branches of Christianity, as well as experts from Buddhism, Judaism, Hinduism, and other non-Christian traditions. This collaborative effort was in response to criticisms that existing spirituality measures were biased towards Western mainline Protestant Christians, raising concerns about their applicability to individuals with Orthodox, Catholic, and non-Christian spiritual beliefs (Piedmont & Leach, 2002).

Spiritual Transcendence is the ability of individuals to step outside of their immediate time and place to gain a broader, more objective perspective on life (Piedmont, 1999). The STS is composed of three sub scales: a) Prayer Fulfilment, which captures the feelings of joy and contentment experienced through prayer or meditation; b) Connectedness, which reflects a sense of personal responsibility and connection to others; and c) Universality, which relates to the belief in the unity and purpose of life. The reliabilities of these three sub-scales were reported as 0.87, 0.83, and 0.64, respectively (Piedmont, 1999). These sub-scales were

developed through factor analysis of items on the STS that were identified by experts as having a high level of universality in conceptualizing spirituality. Piedmont (1999) has noted that these subscales are associated with various positive psychological and health outcomes.

For this research, the Universality Subscale was chosen for inclusion in the sample. This subscale consists of nine items and aims to assess an individual's belief in the interconnectedness of all life and the inherent meaningfulness of life. Items on this subscale include: *“I feel that on a higher level we all share a common bond”*, *“There is a higher plane of consciousness or spirituality that binds all people”*, and *“I believe there is a larger meaning to life”*.

Previous research has shown that the Universality subscale exhibits satisfactory internal consistency, with alpha coefficients ranging from .60 to .83 in various studies. Moreover, exploratory factor analysis (EFA) consistently recognizes the Universality subscale as a distinct and cohesive factor in investigations conducted by Piedmont and colleagues.

The Spiritual Transcendence Scale (STS) has been assessed in India among participants from Christian, Hindu, and Muslim backgrounds. Findings from this study align with those from American samples, indicating that the scale effectively captures broad spiritual constructs relevant to both Christian and non-Christian populations (Piedmont & Leach, 2002). The inclusion of the STS was based on its suitability for use in cross-cultural and cross-religious contexts, which can be found in a pluralistic, multicultural society such as Australia.

6.1.1.3.5 The Spiritual Transcendence Index (STI) (Seidlitz, Abernethy, Duberstein, Evinger, Chang & Lewis, 2002)

The Spiritual Transcendence Index (STI), developed by Seidlitz and colleagues (2002), is a measurement tool consisting of eight items that assess an individual's subjective experience of the sacred and its impact on their self-perception, emotions, goals, and ability to overcome challenges. The STI includes two subscales: a) the Spiritual subscale, which focuses on experiences related to one's own spirituality, with four items (e.g. “*My spirituality gives me a feeling of fulfilment*” “*Maintaining my spirituality is a priority for me*”) and b) the God subscale, which examines experiences stemming from the individual's perceived relationship with God. The subscale consists of four items (e.g. “*I experience a deep communion with God*” “*God helps me to rise above my immediate circumstances*”). This scale best represents the research definition of spirituality as a focus on beliefs, thoughts, and actions (Spilka et al., 2003). This scale is a five-point scale, and the participants will be asked to rate the extent to which they agree or disagree with the eight statements concerning their spiritual tendencies.

Previous research has demonstrated that the STI exhibits high internal consistency, with Cronbach's alpha coefficients ranging from .89 to .96 (Seidlitz et al., 2002; Kim & Seidlitz, 2002; Jibeen, Mahfooz & Fatima, 2017). A validation study on the STI further confirmed the internal consistency of the subscales and the total scale, with alpha coefficients ranging from .8 to .89 (Piotrowski, Skrzypinska, Emojtel-Piotrowski, 2013). Additionally, the test-retest reliability of the subscale, assessed over a four-week interval in a previous study, was found to be 0.86 (Kim & Seidlitz, 2002; Seidlitz et al., 2000). Factor analysis studies have consistently identified two distinct factors within the STI (Seidlitz et al., 2002; Piotrowski, Skrzypinska, Emojtel-Piotrowski, 2013).

6.1.1.3.6 The Religious Fundamentalism Scale Revised Scale

(Altemeyer & Hunsberger, 1992; Altemeyer & Hunsberger, 2004).

The Religious Fundamentalism Scale Revised Scale (Altemeyer & Hunsberger, 2004) is an updated version of the original Religious Fundamentalism Scale, RFS (Altemeyer & Hunsberger, 1992). This scale aims to assess individuals' attitudes towards their religious beliefs rather than their adherence to any particular set of beliefs. A key strength of this revised scale is its applicability across various religions, as it is not limited to any particular faith. The RFS with 20 items has been utilized in various research studies, encompassing not only predominantly Christian participants (e.g., Altemeyer, 1996; Altemeyer & Hunsberger, 1992; 2003; Hunsberger, Alisat, & Pratt, 1996; Laythe, Finkel, & Kirkpatrick, 2001; Rowatt & Franklin, 2004; Saroglou, 2002a; Watson et al., 2003), but also in cross-cultural investigations (e.g., Hunsberger, 1996; Hunsberger, Owusu, & Duck, 1999; Rubinstein, 1996). The reliability coefficients, based on an earlier version of the scale consisting of 20 items, have been reported to range from 0.85 to 0.94 across samples of individuals identifying as Christian, Hindu, Jewish, and Muslim.

A brief version composed of 12 statements has been derived from the full-length scale (RFS-12) (Altemeyer & Hunsberger, 2004; Carlucci, Tommasi, Balsamo, Furnham & Saggino, 2015) with the same characteristics. Examples of items include “*No single book of religious teachings contains all the intrinsic, fundamental truths about life*”, and “*When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by God, and the rest, who will not*”. The Religious Fundamentalism Revised Scale employs a 9-point Likert scale format, ranging from 1 (strongly disagree) to 9 (strongly agree).

Previous studies showed that the Religious Fundamentalism Revised Scale has good reliability, ranging from Cronbach's alpha = .79 to .91 (Altemeyer & Hunsberger, 2004; Liht, et al., 2011; Ahrold, Farmer, Trapnell & Meston, 2011; Carlucci, et al., 2015; Chusniyah, et al., 2021).

Furthermore, multiple studies have confirmed through factor analysis that the revised scale, conceptualized as a one-dimensional construct, serves as a valid and dependable measure of religious fundamentalism (Altemeyer & Hunsberger, 2004; Blazek, Magdalena & Besta, Tomasz, 2010; Łowicki, et al., 2022; Carlucci, et al., 2015).

6.1.1.3.7 The Quest Scale (Batson & Schoenrade, 1991)

This scale contains 12 items to measure an individual's perception of religion as a quest. In this scale, Quest was viewed as distinct from the extrinsic and intrinsic orientations and was designed to measure an "open-ended, active approach to existential questions that resists clear-cut answers" (Batson and Schoenrade, 1991, p. 416). This measure is divided into 3 subscales namely (1) Readiness to Face Existential Questions without Reducing their Complexity and the example of the items are "*I was not very interested in religion until I began to ask questions about the meaning and purpose of my life*", "*I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world*", "*My life experiences have led me to rethink my religious convictions*" and "*God wasn't very important for me until I began to ask questions about the meaning of my own life*", (2) Self-Criticism and Perception of Religious Doubt as Positive and the items are "*It might be said that I value my religious doubts and uncertainties*", "*For me, doubting is an important part of what it means to be religious*", "*I find religious doubts upsetting*, and Questions are *far more central to my religious experience than are answers*". (3) Openness to Change and the items are "*As I grow and change*", "*I expect my religion also to grow and change, I am constantly questioning my religious beliefs*", "*I do not expect my religious convictions to change in the next few years*" and "*There are many religious issues on which my views are still changing*".

The participants were requested to evaluate their perception of religion as a quest using a 9-point Likert scale that ranged from 1 (strongly disagree) to 9 (strongly agree). Previous research studies have indicated favorable internal consistencies, with values ranging from ($.6 > \alpha > .9$) (Batson & Schoenrade, 1991; Flere et al., 2008; Simpson, Newman, & Fuqua, 2010; Cook, Kimball, Leonard & Boyatzis, 2014; García-Alandete et.al., 2019). For instance, Flere and colleagues (2008) examined the dimensionality of the Quest concept in three distinct samples of undergraduate university students. The findings revealed that the subscales Openness ($.67 < \alpha < .76$) and Readiness ($.62 < \alpha < .74$) exhibited acceptable Cronbach's alpha values, while the third subscale, Self-criticism, demonstrated inadequate internal consistency ($.43 < \alpha < .50$). Subsequently, Batson, Denton, and Vollmecke (2008) analyzed data from over 50 studies, which indicated that the correlations between Quest and E-I (Extrinsic-Intrinsic) were relatively low to medium, suggesting that they measure distinct constructs.

6.1.1.3.8 The Age Universal Religious Orientation Scale (AUROS;
Gorsuch & Venable, 1983)

The Age Universal Religious Orientation Scale (AUROS) is a self-report measure consisting of 20 items, divided into three subscales: a) Intrinsic (12 items) such as “*I enjoy reading about my religion*”, b) Extrinsic Personal (5 items), and c) Extrinsic Social (3 items) (Gorsuch & Venable, 1983). This scale is a modified version of the Religious Orientation Scale (Alport & Ross, 1967), with the wording of items adjusted to be more inclusive for different age groups.

The Extrinsic subscale is further divided into two subscales: i) Extrinsic Social, which includes items related to attending places of worship to see people known, spend time with friends, and make new friends; (e.g., *I go to my place of worship because it helps me to make friends*” and *I go to my to spend time with my friends*) and ii) Extrinsic Personal, which includes items related to seeking peace, happiness, comfort, relief, and protection through prayer (e.g., *I pray mainly to gain relief and protection, What religion offers me most is comfort in times of trouble and sorrow*) (Gorsuch & Venable, 1983).

All items in the AUROS were rated on a 5-point Likert scale, ranging from strongly disagree to strongly agree. According to Gorsuch and Venable (1983), the reliabilities of the AUROS are comparable to the original Religious Orientation Scale, with reliability coefficients of 0.66 for the extrinsic scale and 0.73 for the intrinsic scale. The Original scale had reliability coefficients of 0.70 for the Extrinsic and 0.73 for the Intrinsic scale (Alport & Ross, 1967; Gorsuch & Venable, 1983). Additionally, Yameen and Iftikhar (2019) found that the AUROS demonstrated high internal consistency, with Cronbach's alpha coefficients of .93 for intrinsic religious orientation and .69 for extrinsic religious orientation.

Factor analysis studies conducted by Kirkpatrick (1989) and Leong & Zachar (1990) confirmed the presence of three factors in the AUROS: Intrinsic, Extrinsic Personal, and Extrinsic Social. Furthermore, Hall, Tisdale, and Brokaw (1994) conducted a comprehensive review of religious measurement instruments and concluded that the AUROS is psychometrically sound and suitable for assessing religious orientation across different age groups. Overall, the I/E-R Scale provides a useful and reliable measure of religious orientation that has been used extensively in research on the psychology of religion. It is a useful tool for assessing individual differences in religious motivation and behavior, and is applicable to a wide range of religious groups and cultures.

6.1.1.3.9 The Religious Commitment Inventory-10 (Worthington, et. al., 2003)

The RCI-10 was based on earlier 62-item (see Sandage, 1999, for a review), 20-item (McCullough & Worthington, 1995; Morrow, Worthington, & McCullough, 1993), and 17-item (RCI-17; McCullough, Worthington, Maxie, & Rachal, 1997) versions. The Religious Commitment Inventory-10 (RCI-10) is a brief 10-item screening assessment of the level of one's religious commitment using a 5-point Likert rating scale from 1 ('Not at all true of me') to 5 ('Totally true of me').

It is a measure of the extent to which an individual adheres to his or her religious beliefs, values, and practices and whether he/she utilizes them in everyday living. RCI-10 examines 1) Intrapersonal religious commitment (6 items, i.e., *I often read books and magazines about my faith, I spend time trying to grow in understanding of my faith, Religion is especially important to me because it answers many questions about the meaning of life, My religious beliefs lie behind my whole approach to life, Religious beliefs influence all my dealings in life, It is important to me to spend periods of time in private religious thought and reflection.*) and 2) Interpersonal commitment (4 items, i.e., *I make financial contributions to my religious organization, I enjoy spending time with others of my religious affiliation, I enjoy working in the activities of my religious affiliation, and I keep well informed about my local religious group and have some influence in its decisions*).

In 2003, Worthington and colleagues refined the RCI-17 to a shorter version to evaluate the psychometric properties of the revised version. From their study, they found that the coefficient alphas for the RCI-10 and subscales were .93 for the full scale, .92 for

Intrapersonal Religious Commitment, and .87 for Interpersonal Religious Commitment, suggesting that RCI-10 had good internal consistency (Worthington et. al., 2003).

Exploratory and confirmatory factor analyses identified two highly correlated factors, suggesting a 1-factor structure as most parsimonious (Worthington et. al., 2003). A study by Alaedein-Zawawi (2015) found that coefficient alphas were .89 for the full scale, .76 for Intrapersonal Religious Commitment, and .87 for Interpersonal Religious Commitment. RCI-10 has been translated in other languages such as Farsi (Hafizi, Memari, Rahmani, & Arbabi, 2017), and Greek (Satsios, 2016) Arabic (Alaedein-Zawawi, 2015) and it showed that RCI-10 had high internal consistency and satisfactory convergent validity for full scale, and each of three subscales with coefficient alphas ranging from .7 to .87. Additionally, the factor analysis revealed a two-factor solution for the scale (Worthington et al., 2003; Hafizi, Tabatabaei, Memari, Rahmani, & Arbabi, 2017; Alaedein-Zawawi, 2015)

6.1.2 *Result*

6.1.2.1 The internal consistency

The measurement of internal consistency for the NSRS subscales was conducted using the data obtained. Cronbach's alpha was used to measure the internal consistency of the scale ($\alpha < 0.5$, unacceptable; $0.5 \leq \alpha < 0.6$, poor; $0.6 \leq \alpha < 0.7$, questionable; $0.7 \leq \alpha < 0.8$, acceptable; $0.8 \leq \alpha < 0.9$, good; $\alpha \geq 0.9$, excellent) (Taber, 2018). Table 14 illustrates that, with the exception of SFER = .74 and Quest = .82, the internal consistency for the NSRS subscales was consistently above .90. Table 14 presents the means and standard deviations for all variables of the NSRS-SV. For instance, the PER had a mean score of 31.46 (SD = 8.89), Fundamentalism had a mean score of 31.58 (SD = 8.93), and SFER had the lowest mean score of 15.81 (SD = 5.23). Furthermore, the internal consistency of the other eleven variables was also assessed.

As shown in Table 15, the internal consistency for these variables was consistently above .90, except for the Age Universal Religious Orientation Scale (AUROS) External Social subscale = .65, Age Universal Religious Orientation Scale (AUROS) External Personal subscale = .76, and Religious Fundamentalism Scale Revised Scale (RF-R) = .82. Table 15 also presents the means and standard deviations for all of these variables.

Table 14

Reliability Analyses of All the Subscales of NSRS-SV in the Malaysian sample (N=130)

Subscale	Mean $\pm$ Std. Dev	No. of items	Cronbach's alpha, α
Religious Behaviour (RB)	27.78 $\pm$ 9.60	8	.96
Non-Theistic Spirituality (NTS)	20.92 $\pm$ 8.00	7	.89
Theistic Spirituality (TS)	21.45 $\pm$ 5.87	5	.93
Intrinsic Religiosity (IR)	31.55 $\pm$ 9.68	8	.95
Personal Extrinsic Religiosity (PER)	31.46 $\pm$ 8.89	8	.92
Personal Instrument Religiosity (PIR)	30.79 $\pm$ 5.23	8	.89
Social-Family Extrinsic Religiosity (SFER)	15.81 $\pm$ 5.23	5	.74
Religious Fundamentalism (F)	31.58 $\pm$ 8.93	8	.92
Quest (Q)	20.13 $\pm$ 7.39	8	.82

Table 15

Reliability Analyses of All the Subscales of Religiosity Scales in the Malaysian sample (N=130)

No.	Measure	Mean $\pm$ Std. Dev	No. of items	Cronbach's alpha
1	Spiritual Transcendence Scale (STS) -Universality subscale	30.55 $\pm$ 10.25	9	.95
2	Spiritual Transcendence Index (STI)- Spirituality subscale	18.71 $\pm$ 6.40	4	.97
3	Spiritual Transcendence Index (STI)- God subscale	18.76 $\pm$ 5.94	4	.94
4	Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ)	33.10 $\pm$ 9.52	10	.97
5	Interpersonal-Religious Commitment Inventory-10	13.69 $\pm$ 4.84	4	.93
6	Intrapersonal-Religious Commitment Inventory-10	21.05 $\pm$ 7.19	6	.95
7	Age Universal Religious Orientation Scale- <i>Internal subscale</i> AUROS I	37.94 $\pm$ 10.70	12	.91
8	Age Universal Religious Orientation Scale - <i>External Personal subscale</i> AUROS Ep	17.99 $\pm$ 4.72	5	.76
9	Age Universal Religious Orientation Scale - <i>External Social subscale</i> (AUROS Es)	9.75 $\pm$ 2.91	3	.65
10	Religious Fundamentalism Scale Revised Scale (RF-R)	62.28 $\pm$ 19.27	12	.82
11	Quest Batson	49.55 $\pm$ 25.22	12	.95

6.1.2.2 Convergent and Divergent/Discriminant Validity

To evaluate the convergent and divergent/discriminant validity, we conducted an analysis to examine the connections between the subscales of NSRS-SV and other measures of religiosity and spirituality (R/S). The aim was to establish convergent validity by expecting moderate to high positive correlations among the NSRS-SV subscales. On the other hand, discriminant validity was established by observing very low or non-significant correlations, which could be either positive or negative, between a construct and variables that are not expected to have a strong relationship with that construct.

The Pearson product-moment correlations between the nine NSRS-SV subscales and the eleven measures of R/S used in this study can be found in Table 16.

Table 16: Pearson Correlations for All Variables in the Malaysian sample (N=130)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2	.267**																		
3	.754**	.431**																	
4	.784**	.409**	.935**																
5	.768**	.314**	.912**	.941**															
6	.690**	.301**	.830**	.851**	.869**														
7	.293**	0.126	.390**	.403**	.436**	.510**													
8	.754**	.256**	.873**	.826**	.850**	.729**	.417**												
9	-0.015	.699**	0.159	0.163	0.071	0.150	0.158	-0.012											
10	0.044	.576**	.222*	.204*	0.170	0.154	.196*	.213*	.488**										
11	.784**	.361**	.880**	.894**	.847**	.763**	.342**	.759**	0.077	0.109									
12	.767**	.308**	.834**	.871**	.828**	.778**	.409**	.709**	0.113	0.043	.878**								
13	.359**	-0.027	.407**	.417**	.398**	.366**	.175*	.419**	-0.086	0.004	.416**	.360**							
14	-.317**	.280**	-0.153	-0.156	-0.168	-0.120	0.148	-.258**	.510**	.417**	-0.164	-0.102	-.274**						
15	.589**	.218*	.598**	.678**	.664**	.628**	.297**	.494**	0.060	0.040	.675**	.695**	.383**	-0.119					
16	.682**	.342**	.804**	.822**	.793**	.765**	.438**	.648**	0.160	0.119	.837**	.812**	.487**	-0.121	.673**				
17	.677**	.222*	.764**	.808**	.780**	.728**	.352**	.668**	0.035	0.035	.844**	.848**	.312**	-.184*	.678**	.742**			
18	.662**	.204*	.744**	.777**	.753**	.691**	.290**	.647**	0.014	0.020	.841**	.819**	.303**	-.174*	.664**	.726**	.959**		
19	.672**	.376**	.909**	.896**	.858**	.779**	.389**	.833**	0.172	.243**	.827**	.802**	.368**	-0.143	.582**	.762**	.791**	.776**	
20	.721**	.321**	.909**	.888**	.867**	.788**	.385**	.846**	0.097	.197*	.872**	.812**	.428**	-.186*	.632**	.776**	.827**	.810**	.947**

Note. * $p < .05$ (two-tailed), ** $p < .01$ (two-tailed), *** $p < .001$ (two-tailed)

1= Religious Behaviour (RB); 2=Non-Theistic Spirituality (NTS); 3= Theistic Spirituality (TS); 4= Intrinsic Religiosity (IR); 5= Personal Extrinsic Religiosity (PER); 6= Personal Instrument Religiosity (PIR); 7= Social-Family Extrinsic Religiosity (SFER); 8= Fundamentalism (F); 9= Quest (Q); 10= Universality subscale- Transcendence Scale (STS); 11= Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ); 12= Age Universal Religious Orientation Scale (AUROS)-*Internal subscale*; 13=RF-R = Religious Fundamentalism Scale Revised Scale (Altemeyer & Hunsberger, 1992; Altemeyer & Hunsberger, 2004); 14= Quest Batson; 15= Age Universal Religious Orientation Scale (AUROS) *External Social subscale*; 16= Age Universal Religious Orientation Scale (AUROS) *External Personal subscale*; 17=Interpersonal Religious Commitment Inventory-10 (Worthington, et. al., 2003); 18=Intrapersonal Religious Commitment Inventory-10, RCI-10 (Worthington, et. al., 2003); 19= Spiritual Transcendence Index -Spirituality; 20= Spiritual Transcendence Index -God

Several important results need to be highlighted in the correlation results. Firstly, it is important to highlight the significant and strong correlation between religious behaviour/activities as measured by the Religious Behaviour subscale and other religiosity/spirituality (R/S) measures. As predicted, the Religious Behaviour subscale was positively and strongly correlated with SCSRFQ, both RCI subscales, and AUROS subscales. This indicates that the Religious Behaviour, (RB) subscale demonstrates convergent validity with other R/S measures. As can be seen in Table 17, all relationships of RB and other religiosity/spirituality (R/S) subscales were significant at $p < 0.01$.

Furthermore, it is particularly noteworthy that the Religious Behaviour subscale displayed a negative and weak correlation with Quest Batson ($r = -.317, p < 0.05$). The only non-significant correlations were between RB and Quest subscale ($r = -0.015, ns$) and RB and Universality subscale ($r = 0.044, ns$); all other relationships were between 0.27 and 0.78, which were significant at $p < 0.01$. This finding supports the expectation that the Religious Behaviour subscale exhibits divergent validity with other measures of religiosity and spirituality.

Table 17

Correlation Coefficients (Pearson's r) Between the Religious Behaviour and other religiosity measures (N = 130)

	RB
SCSRFQ	.784**
Interpersonal-RCI-10	.677**
Intrapersonal-RCI 10	.662**
<i>Internal subscale AUROS</i>	.767**
<i>External Personal subscale AUROS</i>	.682**
<i>External Social subscale AUROS</i>	.589**
Religious Fundamentalism Scale Revised Scale (RF-RS)	.359**
Quest Batson	-.317**

Note. * $p < .05$ (two-tailed), ** $p < .01$ (two-tailed), *** $p < .001$ (two-tailed)

Second, Table 18 displays the correlations between the Non-Theistic Spirituality (NTS) and Theistic Spirituality (TS) subscales of NSRS-SV with other R/S scales. The NTS subscale exhibited a positive and moderate to strong correlation with the Universality subscale ($r=.576$, $p < .01$) and with the Spirituality subscale of STI ($r = .376$, $p < .05$), suggesting convergent validity. As anticipated, NTS also showed a strong positive correlation with the Quest subscale ($r = .7$, $p < .05$).

As for divergent validity, the NTS subscale showed weak and positive correlations with the R/S subscales such as SCSRFQ, *Internal subscale AUROS*, *External Personal subscale AUROS* and God subscale STI ranging from $r = .308$ to $r = .342$, $p < .01$. In addition, the only non-significant correlations were between NTS and the Religious Fundamentalism Scale Revised Scale and NTS and Social-Family Extrinsic Religiosity (SFER).

Furthermore, it is evident from the data presented in Tables 16 and 18 that the TS subscale exhibits a robust positive correlation with the majority of the R/S subscales and scales. These include the God subscale STI, AUROS I, AUROS Ep, Interpersonal Religious Commitment Inventory-10, and SCSRFQ, with correlation coefficients ranging from .8 to .9. This indicates a strong convergent validity between the TS subscale and these measures of religiosity/spirituality (R/S).

As anticipated, the TS subscale demonstrates a very weak correlation with the Universality subscale of the Spiritual Transcendence Scale (STS) ($r=.22, p < .05$). Additionally, there is no significant correlation observed between the TS subscale and the Quest Batson Scale ($r=.15, ns$). These findings suggest a divergent validity between the TS subscale and these particular measures, as expected.

Table 18

Correlation Coefficients (Pearson's r) Between Non-Theistic Spirituality and Theistic Spirituality with other scales (N = 130)

	NTS	TS	Quest
Universality subscale Spiritual Transcendence Scale (STS)	.576**	.222*	.488**
Spirituality subscale STI	.376**	.909**	0.172
God subscale STI	.321**	.909**	0.097
AUROS I	.308**	.834**	0.113
AUROS Ep	.342**	.804**	0.160
SCSRFQ	.308**	.834**	0.077
Quest Batson	.280**	-0.153	.510**
Religious Fundamentalism Scale Revised Scale (RF-R)	-0.027	.407**	-0.086

Note. * $p < .05$ (two-tailed), ** $p < .01$ (two-tailed), *** $p < .001$ (two-tailed)

In addition, the religiosity/spirituality subscales of NSRS-SV yielded significant and robust associations. Specifically, the Intrapersonal RCI, SCSRQ, and AUROS I (Intrinsic subscale) displayed highly strong positive and positive correlations with the IR, all surpassing a coefficient of .80 (refer to Table 8). As expected, the PER demonstrated a strong and positive correlation with the Interpersonal-RCI-10 subscale ($r = .780, p < .01$), the Intrapersonal-RCI-10 subscale ($r = .753, p < .01$), and the AUROS Ep (External Personal subscale) ($r = .793, p < .01$). Similarly, Personal Instrument Religiosity (PIR) exhibited a strong correlation with the Interpersonal-RCI-10 subscale ($r = .728, p < .01$), the Intrapersonal-RCI-10 subscale ($r = .691, p < .01$), and the AUROS Ep (External Personal subscale) ($r = .765, p < .01$) (see Table 8 for details).

Notably, the SCSRQ, which measures the intensity of religious beliefs, demonstrated strong and positive correlations with the IR, PIR, PER, and SFER. The findings provide evidence for the convergent validity of the subscales IR, PER, and PIR. Interestingly, despite focusing on extrinsic religiosity in the family/social context, the SFER demonstrated a weak yet positive correlation with the AUROS Es (External Social subscale) at $r = .30, p < .01$ (see Table 19, red font).

On the other hand, Table 16 (presented in light green) consistently shows that the IR, PER, and PIR subscales were positively associated with various religiosity/spirituality subscales, except for the Universality subscale of the Spiritual Transcendence Scale (STS), Quest Batson, and Quest (NSRS-SV) (highlighted in red font). Notably, IR exhibited a low yet positive correlation with the Universality subscale of the Spiritual Transcendence Scale (STS), further confirming the divergent validity of these subscales.

Table 19

Correlation Coefficients (Pearson's r) Between the Subscales of NSRS-SV and Measures of Intrinsic and Extrinsic Religiosity (N = 130)

	IR	PER	PIR	SFER
SCSRFQ	.894**	.847**	.763**	.342**
Interpersonal-RCI-10	.808**	.780**	.728**	.352**
Intrapersonal-RCI 10	.777**	.753**	.691**	.290**
AUROS I	.871**	.828**	.778**	.409**
AUROS Ep	.822**	.793**	.765**	.438**
AUROS Es	.808**	.664**	.628**	.297**

Note. * $p < .05$ (two-tailed), ** $p < .01$ (two-tailed), *** $p < .001$ (two-tailed)

Table 20 displays the associations between different approaches to faith, as assessed by the Fundamentalism subscale of NSRS-SV and Quest scales in NSRS-SV, as well as other Religious Fundamentalism and Quest scales. The findings indicate that the Fundamentalism subscale of NSRS-SV exhibited a positive and moderate correlation with the Revised Scale of Religious Fundamentalism (RF-R) ($r = .419$, $p < .01$), indicating convergent validity. As expected, the Fundamentalism subscale demonstrated a negative and weak correlation with Quest Batson ($r = .258$, $p < .05$), suggesting divergent validity. Interestingly, the Fundamentalism subscale also displayed a weak correlation with the Universality subscale of the Spiritual Transcendence Scale (STS).

Similarly, the Quest subscale from NSRS-SV showed a positive and moderate correlation with Quest Batson, supporting convergent validity. It is worth noting that the Quest subscale did not exhibit significant correlations with all religiosity/spirituality subscales/scale, except for Quest Batson and the Universality subscale of the Spiritual Transcendence Scale (STS). However, the correlation between the Quest subscale from NSRS-SV and the Revised Scale of Religious Fundamentalism Revised Scale (RF-R) was not statistically significant, suggesting there is no evidence of divergent validity.

Table 20

Correlation Coefficients (Pearson's r) Between the Fundamentalism and Quest in NSRS-SV and other religious Fundamentalism and Quest scales (N = 130)

	Fundamentalism	Quest
Religious Fundamentalism Scale Revised Scale (RF-R)	.419**	-0.086
Quest Batson	-.258**	.510**
Universality subscale Spiritual Transcendence Scale (STS)	.213*	.488**

Note. * $p < .05$ (two-tailed), ** $p < .01$ (two-tailed), *** $p < .001$ (two-tailed)

In summary, the results yielded consistent findings supporting the convergent and divergent validity of the NSRS-SV. Although the results indicated that while there were a few surprising and noteworthy findings, most of the subscales demonstrated correlations that aligned with expectations.

6.1.3 Discussion

The Pearson r correlation coefficient was utilized in this study to assess the correlation between the scores of the NSRS-SV subscales and other measures of religiosity and spirituality (R/S) across various domains. In order to establish convergent validity, it was hypothesized that certain subscales would demonstrate positive correlations with specific measures of R/S. According to Cohen et al. (2013) and Gregory (2011), a correlation coefficient of 0.4 indicates convergence, while a coefficient of 0.50 or higher signifies a clear indication of convergence. Grobler and Joubert (2018) also suggested that any correlation greater than 0.50 indicates satisfactory convergent validity. Therefore, in this study, a correlation coefficient (r) falling within the range of .40 to .60 was deemed to demonstrate acceptable convergent validity, while a correlation coefficient exceeding .60 was suggestive of a strong correlation. Conversely, for divergent validity, a correlation coefficient below .39 and correlations below .15 were considered to indicate satisfactory discriminant validity (i.e., adequate conceptual separation) (Grobler & Joubert, 2018). Despite the absence of unanimous consensus, it is generally acknowledged that elevated correlations among scales or scale items pose challenges to discriminant validity.

The present study employed the Pearson r correlation coefficient to evaluate the relationship between the NSRS-SV subscale scores and other measures of religiosity and spirituality (R/S) across different domains. To establish convergent validity, it was hypothesized that certain subscales would exhibit positive correlations with specific R/S measures. According to Cohen et al. (2013) and Gregory (2011), a correlation coefficient of 0.4 indicates convergence, while a coefficient of 0.50 or higher signifies a clear indication of convergence.

Additionally, Grobler and Joubert (2018) suggested that any correlation exceeding 0.50 demonstrates satisfactory convergent validity. Therefore, in this study, a correlation coefficient (r) ranging from 0.40 to 0.60 was considered to demonstrate acceptable convergent validity, while a coefficient surpassing 0.60 indicated a strong correlation. Conversely, for divergent validity, a correlation coefficient below 0.39 and correlations below 0.15 were deemed to indicate satisfactory discriminant validity, implying adequate conceptual separation (Grobler & Joubert, 2018). Despite the lack of unanimous consensus, it is widely recognized that elevated correlations among scales or scale items present challenges to discriminant validity.

Several findings need to be emphasized in this study. First, the findings of this study revealed that the majority of the NSRS-SV subscales exhibited convergent validity with most of the R/S measures. For example, as presented in Table 5, it was anticipated that the Internal Religiousness (IR) subscale would display positive correlations with the SCSRFQ, the Age Universal Religious Orientation Scale (AUROS)-Internal subscale, and the Intrapersonal-RCI 10. Furthermore, as indicated in Table 6, when compared to an established standardized measure of religious practices or behavior (RB) such as SCSRFQ, both RCI subscales and AUROS subscales, the RB standard scores demonstrated favourable convergence, with correlation coefficients ranging from 0.60 to 0.80.

Apart from that, it was expected that the Internal Religiousness (IR) subscale would be positively correlated with the SCSRFAQ, the Age Universal Religious Orientation Scale (AUROS)-Internal subscale, and the Intrapersonal-RCI 10. While, most of the subscales from NSRS-SV showed a moderate to strong positive correlation with some of the R/S measures, surprisingly, NTS subscale exhibited a positive and weak correlation with the four items of Spirituality subscale of STI with $r = .38$. However, as in this study we used a cut off .40 and above to indicate convergent validity, the NTS has fulfilled the criteria.

Interestingly, as predicted Quest from NSRS-SV was hypothesized to positively correlate with Non-Theistic Spirituality, Universality subscale- Transcendence Scale (STS) and Quest Batson, ranging from .49 to .70. However, the correlation between Quest and Religious Fundamentalism Scale Revised (RF-R), Fundamentalism and Religious Behaviour, RB were all negative but not significant. This is interesting as we predicted that the Quest would be weakly or negatively correlated with RF-R, and other R/S measures such as AUROS I, AUROS Ep, and Intrapersonal-RCI 10. This is not surprising as the study was recruited in Malaysia among university students in which might be considered a religious sample with more than 95% with religious. Given that the Quest is defined as an approach one's faith through questioning/with curiosity, there is a possibility that Malaysian sample associates it with questioning and seeking for the knowledge because in Malaysia, especially in Islam, it emphasizes and encourages the people to always keep on questioning and seeking the truth about knowledge of God such as Islamic commitments to knowledge (*Ilm*) (Abu Raiya, 2009; Mustafa Tekke, Watson, İsmail, & Chen, 2023).

Importantly, the results indicated that Quest from NSRS-SV was found to have a positive correlation with Non-Theistic Spirituality, Universality subscale- Transcendence Scale (STS), and Quest Batson, with correlation coefficients ranging from .49 to .70. On the other hand, the correlation between Quest and Religious Fundamentalism Scale Revised (RF-R), Fundamentalism, and Religious Behaviour (RB) were all negative, although not statistically significant. This finding is intriguing as it was initially hypothesized that Quest would exhibit weak or negative correlations with RF-R, as well as other religious/spiritual measures such as AUROS I, AUROS Ep, and Intrapersonal-RCI 10. The study was conducted in Malaysia among university students, where over 95% of the population identifies with a religious affiliation.

Moreover, unlike the Quest Batson, all the items of Quest (NSRS-SV) do not contain the word of religion, unlike the Quest Batson scale. This is evident from the negative correlations observed between Quest Batson and RF (NSRS-SV) ($r = -.258, p < .01$) as well as the Religious Fundamentalism Scale Revised Scale ($r = -.274, p < .01$), as shown in Table 7. These findings suggest that the presence of the word 'God' in the Quest Batson items may have influenced the results, leading to contradictory constructs of Religious Fundamentalism and Quest. It is possible that the items in the Quest subscale (NSRS-SV) were interpreted as a search for spiritual experiences, which could explain the high correlation with NTS ($r = .699, p < .01$) compared to Quest Batson ($r = .510, p < .01$). Previous studies suggested that the nature of Muslim religious reflection on Quest in terms of levels of Islamic openness and questing (Dover, Miner, & Dowson, 2007) as well as *Ilm* (knowledge) (Mustafa Tekke, et.al, 2023).

It is worth mentioning that a prior investigation, which employed the Quest Batson scale, discovered that Quest might not be appropriate for assessing religious individuals, especially among Muslims. This is due to its focus on doubt, which contradicts the Muslim social imaginary (Dover et al., 2007). Consequently, the current data implies a potentially intricate conclusion for Quest NSRS-SV.

On the other hand, for divergent/discriminant validity, it was expected that certain subscales would display negative or weak correlations with certain R/S measures. Although some scholars argued that strong negative correlations between scores on measures do not necessarily indicate evidence for divergent validity (Kalfoss, Low, & Molzahn, 2008), it is still recommended that the interpretation of divergent validity coefficients be done in conjunction with convergent validity coefficients derived from the same sample in this study. As in this study, some of the subscales were conceptualized oppositely, such as RF and Quest as approaches to religion, a negative correlation would be considered as divergent/discriminant validity. Therefore, in this study, we used a weak correlation coefficient below 0.3 and a negative correlation to suggest divergent/discriminant validity.

For instance, NTS exhibited weak correlations with Interpersonal-RCI-10, Intrapersonal-RCI-10- RCI 10, AUROS Internal subscale, SCSRFQ, and God subscale STI, with correlation coefficients ranging from .20 to .30. This indicates that NTS demonstrated good divergent validity as it was conceptually distinct from measures involving God. Similarly, since SFER was conceptualized to involve engagement in religious behaviors related to family and social aspects, it was hypothesized to have weak correlations with the Universality subscale and the Religious Fundamentalism Scale Revised (RF-R), thus demonstrating divergent validity.

In addition, it was anticipated that SFER would exhibit a strong correlation with AUROS External Social (Es) subscale; however, the surprising finding revealed a weak correlation of .30. This inconsistency may be attributed to the differences in the items included in both scales. For instance, the AUROS Es scale comprises only three items that focus solely on religious activities shared within the community and the pleasure derived from social connections (e.g., “*I go to place of worship (mosque/temple/church) mainly because I enjoy seeing people I know there*”, “*I go to place of worship (mosque/temple/church) mostly to spend time with my friends*”, and “*I go to place of worship (mosque/temple/church) because it helps me to make friends*”).

Conversely, the SFER scale consists of five items that emphasize various purposes of practicing religious behaviour including respect, acceptance, approval, closeness and rewards through both family and community (e.g., “*I practice my religion to be accepted by my family or community*”, “*I practice my religion because if I do not, my family or community will disapprove me*”, “*I practice my religion to feel closer to my family or community*”, “*I practice my religion to show respect to my family or community*” and “*I practice my religion to get rewards or favours from my family or community*”).

It is possible that the subscales exhibited a weak association may be attributed to the disparities in the items. Moreover, it is worth noting that the majority of the sample population in this study is religious, with 93.8% identifying with a religion and 64.6% being Muslims. Malaysia is renowned for its cultural diversity, rich history, and the presence of various active religious practices (de Rooij, 2015). Religion plays a significant role in Malaysian society and is deeply integrated into the daily lives of individuals, not limited to Muslims (Azhar, 2001; Abu Raiya,

2009; Pargament, Kenneth & Abu-Raiya, Hisham, 2007). In this study, the participants were predominantly composed of the Malay population, accounting for 63% of the total sample.

Although there is currently no existing study on this matter, an observation of local traditions implies that a significant majority, estimated to be 90% or higher, of the Malay community actively embraces and abides by the core principles of Islam (Haque & Masuan, 2002). Muslims, particularly the Malays, prioritize religion over scientific scrutiny and uphold the Islamic principles outlined in the Qur'an without hesitation, and the engagement in religious activities is a communal experience driven by various factors beyond social connection. Hence, it can be inferred that the religious beliefs and Malaysian perspective on religiosity might contribute to the lack of correlation between AUROS Es and SFER low.

In summary, the findings of this study provide evidence for both the convergent and the divergent validity of the NSRS-SV in comparison to other R/S measures. This is particularly noteworthy given the lack of prior research on the convergent and divergent validity of the NSRS-SV. To further strengthen the evidence for convergent and divergent/discriminant validity, we will employ confirmatory factor analysis (CFA). By combining the evidence, rationale, justifications, and theoretical perspective derived from the results, we can establish a stronger case for construct validity. Nevertheless, it is important to note that the scales themselves demonstrate promising convergent and discriminant validity.

6.2 Test-retest Reliability of the Newcastle Spirituality and Religiosity Scale Short Version (NSRS-SV)

In spite of the fact that the Newcastle Spirituality and Religiosity Scale Short Version (NSRS-SV) demonstrated favorable inter-rater reliability in terms of item content against scale definition (face/content validity) and exhibited good internal consistency (Cronbach α) for each of the subscales, there was one aspect of reliability that still needed to be addressed, namely, test-retest reliability. This particular reliability coefficient is determined by administering the same measure on a second occasion and comparing the results (Graziano & Raulin, 2006;). Test-retest reliability involves presenting the same instrument to the same group of respondents on two separate occasions and examining the correlation between the two sets of results using either consistency or agreement definitions (Graziano & Raulin, 2006). It evaluates the external consistency of a test (Allen & Yen, 1979).

6.2.1 Participants

Similar to the convergent and divergent analyses, the participants were involved in the test-retest analyses. To recap, participants were recruited from two distinct universities, namely 1) the Terengganu Malaysian University (UMT) and 2) the University College of Sedaya International (UCSI). As mentioned earlier, a total of 130 participants took part (96 participants from UMT and 34 participants from UCSI), and all participants agreed to participate in the second phase of the study. However, during the second administration, four participants were absent. Despite their prior consent for the second phase, these four participants completed the study through an internet procedure. The details about the participants were explained in the previous section (see Table 12).

6.2.2 *Procedures*

Procedures were identical to those used for the convergent/divergent study. As mentioned earlier, the arrangement of data collection was informed to the lecturers (gatekeepers) two weeks before the data collection at the universities. To recap, the first phase of data collection was conducted, and at the end of the first phase, participants were informed about the second administration of data collection and invited to participate in the second phase of the study after a four-week interval. Fortunately, all participants agreed to give consent and participate in the second phase.

Subsequently, just like the initial administration, the researcher and the gatekeeper/lecturer also reached an agreement for the second arrangement. Following 4 weeks, the second phase of data collection took place in the presence of gatekeepers/lecturers. Conversely, four individuals opted for the internet procedure to complete the questionnaire. As the four participants had consented to participate in the second phase, thus, a link to the questionnaires was provided through their lecturer. The link was sent on the same date to the absent students. Additionally, the debriefing sheet was furnished, and the participants were provided with the researcher's email address. In appreciation of the gatekeepers/lecturers, following the completion of the questionnaires, a mental health talk was conducted for the participants.

6.2.3 *Analyses*

6.2.3.1 *Correlation between all the subscales at Time 1 and Time 2*

Participants completing consecutive assessments comprised a within-subjects sample, allowing for the comparison between Times 1 and 2. The subscales included Religious Behaviour, Non-Theistic Spirituality, Theistic Spirituality, Intrinsic Religiosity, Personal Extrinsic Religiosity, Personal Instrumental Extrinsic Religiosity, Social-Family Extrinsic Religiosity, Religious Fundamentalism, and Quest. Pearson correlation coefficients (r) were calculated as a general measure of the strength of linear association between variables at Times 1 and 2.

6.2.3.2 *Intraclass Correlation Coefficients (ICC) Reliability*

Due to the consistency definition on which Pearson correlation coefficients are based, there may be a mean difference between time points in either direction. This implies that Pearson's r is not a strong indicator of test-retest reliability in situations where coefficients are high and group means are similar, but there is significant variation in individual scores from Times 1 to 2 (Rodgers & Nicewander, 1998). Therefore, a more stringent test, namely intraclass coefficients (ICCs), was chosen. ICCs are considered a superior measure of association compared to Pearson's r (Bartko, 1966; Wilk, Gold, Bartko, Dickerson, Fenton, Knable, et.al., 2002). Additionally, ICCs can differentiate between sets of scores that are merely ranked in the same order from test to retest and those that not only have the same ranking but also exhibit low, moderate, or complete agreement (Chicchetti, 1994). Consequently, using both Pearson correlations and ICCs provides a comprehensive assessment of both consistency and agreement between measurements.

It is important to note that there are different forms of ICCs, which can yield different results when applied to the same dataset, and the reporting methods for ICCs may vary among researchers (Koo & Li, 2016). Several factors were taken into consideration when selecting the appropriate ICC for this study. Firstly, the two-way mixed model was chosen because each administration (Time 1 and Time 2) involved the same set of raters (i.e., the participants) who were not randomly selected from a population. Instead, they constituted a unique group of participants or a convenience sample, regardless of the presence of interaction effects. Interaction effects occur when the effect of one variable depends on the value of another variable. Subsequently, the ICC for a single measure/rater was considered to determine which indicator would best represent the agreement of the ratings provided by a single person.

Furthermore, the absolute agreement type was selected for repeatability based on the same total scores for each subscale at both administrations, indicating stability. This type of analysis takes into consideration the presence of systematic error among raters or administrations. As a result, it is considered useful and recommended when there is an expectation of relevant systematic error among raters or administrations occurring more frequently.

In this study, the ICC model used was the "Two-Way Mixed" type Absolute Agreement for Single Measures, as suggested by Weir (2005), Ko and Li (2016), Shrout and Fleiss (1979), and Qin et al. (2019). The analysis included reporting the mean score, standard deviation, and Cronbach's alpha for each subscale at both administrations. Additionally, the ICC and 95% confidence intervals (CI), as well as the t-value for the difference between administrations, were reported. The selection of the appropriate ICC was based on the process outlined in Figure 3, which was adapted from the flow chart developed by Koo and Li (2016).



Figure 3: A flowchart showing the process involved in the selection process of the ICC (N=130). (Li & Koo, 2016)

6.2.4 *Results*

6.2.4.1 *Correlation between all the subscales at Time 1 and Time 2*

In order to determine the test-retest reliability of the NSRS-SV, data from 130 participants were collected through two separate administrations spaced four weeks apart. The results presented in Table 21 reveal a strong and significant Pearson correlation between the NSRS-SV scores obtained from the two administrations. All nine subscales exhibited high test-retest reliability, with correlation coefficients (r) exceeding .9 and ranging from .946 to .998. These findings suggest that the NSRS-SV demonstrates exceptional consistency over time across all subscales.

Table 21: Pearson Correlations for the subscales of NSRS-SV between subscales at Time 1 and Time 2 (N=130)

Time 2	Time 1								
	1	2	3	4	5	6	7	8	9
1	.994**								
2	.266**	.997**							
3	.757**	.433**	.992**						
4	.768**	.316**	.905**	.998**					
5	.692**	.305**	.834**	.876**	.969**				
6	.782**	.409**	.927**	.936**	.839**	.998**			
7	.319**	.159	.391**	.435**	.493**	.413**	.982**		
8	.751**	.250**	.845**	.828**	.689**	.803**	.386**	.990**	
9	.008	.703**	.195*	.084	.137	.169	.124	.046	.946**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

1 = Religious Behaviour, RB, 2 = Non-Theistic Spirituality, NTS, 3 = Theistic Spirituality, TS, 4 = Intrinsic Religiosity, IR, 5 = Personal Extrinsic Religiosity, PER, 6 = Personal Instrumental Extrinsic Religiosity, PIR 7 = Social-Family Extrinsic Religiosity, SFER 8 = Religious Fundamentalism, RF, 9 = Quest.

6.2.4.2 Intraclass Coefficients (ICCs) for all the subscales

The interpretation of the ICC was as follows: less than 0.50 = poor, between 0.50 and 0.75 = fair, between 0.75 and 0.90 = good and above 0.90 = excellent (Koo & Li, 2016; Qin, Nelson, McLeod, Eremenco, Coons, 2019). As can be seen from Table 22, the four-week ICC for determining the test-retest reliability for NSRS-SV showed excellent agreements, which ranged from 0.90 and above for all the subscales. Among these, the ICC for Quest was the lowest, .943. As a sum, the ICCs reflected high agreement as well as high consistency as indicated by Pearson's r , across all subscales.

It is important to note that in this study, the paired samples t -test was conducted to determine whether the change in means between two paired observations is statistically significant or not. As mentioned in the analyses, the same participants were measured at two time points (Altman, 1990). As for the results, we found that the mean difference in NSRS-SV scores for all the subscales between time 1 and time 2 was less than 1.00. For example, as can be seen in Table 13, the mean differences between Time 1 and Time 2 for Religious Behavior (RB) were 0.354 (27.785, 27.431), which was significantly ($t = 3.696$, $p = 0.000$). This indicates that, on average, the RB produced the same scores at time 1 and time 2, thus indicating good agreement between RB scores at time 1 and time 2.

In addition, the mean differences between Time 1 and Time 2 for three subscales were higher than 0.400, namely 1) Quest = 0.631 (23.323, 22.692), 2) RF = 0.485 (35.654, 35.169) and 3) Personal Instrumental Extrinsic (PINST) = 0.715 (30.792, 30.077). However, the mean differences for all three subscales were significant (see details in Table 22).

In this study, the paired samples t-test was utilized to assess the statistical significance of the change in means between two paired observations. The analyses involved measuring the same participants at two different time points (Altman, 1990). The results revealed that the mean difference in NSRS-SV scores for all subscales between time 1 and time 2 was less than 1.00. For instance, the mean difference for Religious Behavior (RB) was 0.354 (27.785, 27.431), which was found to be statistically significant ($t = 3.696$, $p = 0.000$) as shown in Table 11. This suggests that, on average, RB scores remained consistent between time 1 and time 2, indicating a high level of agreement.

Furthermore, the mean differences for three subscales were greater than 0.400, specifically for Quest = 0.631 (23.323, 22.692), RF = 0.485 (35.654, 35.169), and Personal Instrumental Extrinsic (PIR) = 0.715 (30.792, 30.077). Despite this, the mean differences for all three subscales were deemed statistically significant (refer to Table 22 for more details).

On the other hand, the mean difference for Non-Theistic Spirituality (NTS) was 0.129 (20.915, 20.885) and was not significantly different ($t = 0.564$, $p = 0.574$).

Table 22: The table for the 4-week test-retest reliability, Intraclass Correlation Coefficient (ICC) (Total = 130)

Scale	Time 1			Time 2			t1-t2		ICC	95% CIs	
	M	SD	α	M	SD	α	t (Time 1-Time 2)	p		Lower	Upper
RB	27.785	±9.600	.955	27.431	±9.476	.954	3.700	.000	.993	.989	.995
NTS	20.915	±7.997	.899	20.885	±7.930	.896	0.564	.574	.997	.996	.998
TS	21.454	±5.871	.932	21.325	±5.956	.929	2.151	.033	.992	.989	.994
IR	31.554	±9.683	.952	31.392	±9.573	.950	2.912	.004	.998	.997	.999
PER	31.461	±8.894	.920	31.307	±8.815	.920	3.114	.002	.999	.997	.999
PIR	30.792	±8.565	.888	30.077	±8.218	.887	3.865	.000	.965	.946	.977
SFER	18.454	±6.469	.740	18.208	±6.215	.741	2.276	.024	.981	.972	.986
RF	35.654	±10.150	.921	35.169	±9.875	.917	3.788	.000	.988	.918	.960
Quest	23.323	±8.520	.823	22.692	±8.111	.823	2.604	.010	.943	.918	.960

RB=Religious Behaviour, NTS = Non-Theistic Spirituality, TS = Theistic Spirituality, I = Intrinsic Religiosity, PER = Personal Extrinsic Religiosity, PIR = Personal Instrumental Religiosity, SFER = Social Family Extrinsic Religiosity, RF = Religious Fundamentalism, Q = Quest

6.2.5 Discussion

The results of the NSRS-SV test-retest reliability study provided a very good support for NSRS-SV to be used in the future, as the data showed that test-retest reliability scores were excellent, and the 65 items had very good internal consistency. Although the results from Pearson correlation coefficients imply that these scores (i.e., Time 1 and Time 2) are related (i.e., high correlation with $r > .900$, this does not imply that the measures agree (Davis & Joseph, 2016; Koo & Li, 2016; Shoukri, Asyali, Donner, 2004). Furthermore, because the calculation is linear, there is a possibility that the interpretations are skewed and overestimation (Hazra & Gogtay, 2016; Manterola et al., 2018).

Therefore, ICC is considered a reliable agreement index in that measures the magnitude of variance components between and within groups (Davis & Joseph, 2016; Shoukri, 2004). Apart from that, it also refers to the percentage of overall variance that can be explained by differences in scores and measurements (Liljequist, Elfving, Skavberg & Roaldsen, 2019). In other words, the ICC is calculated using the genuine (between-subjects) variation and the measurement error variance generated during multiple measurements (Hazra & Gogtay, 2016; Bobak, Barr, & O'Malley, 2018).

Hence, the ICC was utilized in this investigation. Upon comparing the Pearson and ICC coefficients, it became evident that the Pearson correlations exhibited slightly higher values. There are various factors that could potentially account for this phenomenon, one of which is the conditions or situational events that influenced the raters. During Time 2, students from UMT and UCSI were preparing for examinations, and data collection took place during the study week. This period presented the opportunity for fluctuations in individuals' reliance on God. Intrinsically religious students may have intensified their religious practices, while extrinsically religious students could have reduced their engagement in such behaviors. Additionally, participants may have experienced heightened tension during the study week, potentially impacting the outcomes of the study.

Another factor that could potentially influence the results is the demographic composition of the sample. The majority of participants held religious beliefs, accounting for 93.80%, while only 6.2% did not believe in religion. Consequently, individuals who did not adhere to a religious faith may still possess a strong belief in spirituality and religiosity, which could affect the distribution of the data (resulting in a positively skewed distribution).

It is crucial to emphasize that over half of the sample was recruited from Terengganu, with 74% originating from the University Malaysia of Terengganu (UMT) (e.g., 96 students), a state in Malaysia known for its religious or rural characteristics. While students from other regions were also included, the religious environment in Terengganu may have influenced the study's findings. This aligns with a previous study that found higher levels of religiosity among rural populations, highlighting the growing disparity between urban and rural areas in Malaysia (Krauss et al., 2007). It is possible that the expression of religiosity and religious beliefs among the sample influenced the findings of the study, resulting in minimal differences. Despite temporal changes, religious engagement remained consistent.

Furthermore, it is crucial to acknowledge that the study is constrained by uneven sub-sample sizes (e.g., religious versus non-religious groups; various religious affiliations). This discrepancy in sample sizes may introduce bias and affect the outcomes of the study. Therefore, a larger sample size would be more desirable to ensure the reliability of the results. Despite this limitation, the effect sizes observed offer some confidence in the reported findings and the potential to detect effects in future studies.

Nevertheless, it is essential to recognize that the analytical approach employed in the study is rigorous. It is imperative to identify the sources of variance in the findings to determine whether discrepancies are due to the measurement scales themselves or differences among raters. To address this, potential adaptations include: 1) calculating item means and scores to assess the distribution of responses, 2) examining the data distribution, and 3) conducting a split-file analysis to re-evaluate the results within sub-samples with necessary adjustments.

In conclusion, the test-retest reliability showed that the NSRS-SV is reliable and can be used in the future.

6.3 Confirmatory factor analysis of the Newcastle Spirituality and Religiosity Scale (NSRS)

6.3.1 Summarization of the Exploratory Factor Analysis results

In Chapter 5, an Exploratory Factor Analysis (EFA) was conducted, which generally supported the fundamental theoretical framework underpinning the Newcastle Spirituality and Religiosity Scale (NSRS). The results revealed that seven clearly interpretable factors emerged in each sample (i.e., the UK and Malaysia), and these factors were conceptually consistent with the original scale. To summarize, five identical distinct factors (in red font) were identified in both samples, as depicted in Table 23. These factors comprise: 1) Religious Behavior, RB; 2) Non-Theistic Spirituality, NTS; 3) Social-Family Extrinsic Religiosity, SFER (i.e., people engage in certain behaviors to receive positive outcomes from their family and society or to avoid negative outcomes), 4) Religious Fundamentalism, RF and 5) Quest.

The remaining two factors were a combination of two factors and one separate factor in each sample. However, significant differences were observed in the factors identified, as the items of three scales (Theistic Spirituality, Intrinsic Religiosity, and Personal Extrinsic Religiosity) were combined to generate two factors, as illustrated in Table 12 below. In the UK sample, Theistic Spirituality and Intrinsic Religiosity (TS/IR) were combined into one factor (as can be seen in the blue colour box), while Personal Extrinsic Religiosity (PER) was identified as a separate factor. Conversely, in the Malaysian sample, Intrinsic Religiosity and Personal Extrinsic Religiosity (IR/PER) were combined (as can be seen in the purple colour box), with Theistic Spirituality being identified as a separate factor.

Table 23: 7 factors in both samples (in the UK and Malaysia) found in the EFA

Original Scale	Factor	Factors	
		UK	Malaysia
Religious Behaviour (RB)	Factor 1	RB	RB
Non-Theistic Spirituality (NTS)	Factor 2	NTS	NTS
Theistic Spirituality (TS)	Factor 3	Combined factor TS + IR	TS
Intrinsic Religiosity (IR)			Combined factor IR + PER
Personal Extrinsic Religiosity (PER)	Factor 4	PER	
Social-Family Extrinsic Religiosity (SFER)	Factor 5	SFER	SFER
Religious Fundamentalism (RF)	Factor 6	RF	RF
Quest (Q)	Factor 7	Q	Q

6.3.2 Comparative analysis of religious affiliation, cultural dimensions, ethnic identity, and sample characteristics in the UK and Malaysia. Introduction

Before conducting additional tests aimed at rigorously validating the NSRS, it is crucial to acknowledge the existing differences among the samples. It is important to note that earlier studies on Exploratory Factor Analysis (EFA) were performed in two separate countries, specifically the United Kingdom (UK) and Malaysia, which exhibit significant disparities in religious beliefs, cultural practices, and sample characteristics. These variations have influenced the current findings, highlighting the need to discuss the key factors that may have impacted the results of the study. Among these factors are:

6.3.2.1 Religious and Racial Differences

As stated in Chapter 2, it is noteworthy that Malaysia and the UK share a diverse population comprising individuals from various ethnicities, cultures, and religions. However, there exist certain disparities in terms of ethnicities, religions, and cultures between the two nations.

6.3.2.1.1 *Malaysia*

Malaysia, a country known for its multicultural and multireligious society, has Islam as its predominant religion. However, it also recognizes Buddhism, Christianity, and Hinduism among its religious practices. With a population of over 32.4 million, Malaysia showcases a diverse religious landscape. Islam is the official religion and is practiced by 63.5% of the population (Department of Statistics Malaysia, 2022). The second largest religion practiced in Malaysia, Buddhism (18.7%), is typically endorsed by the second largest ethnic group in Malaysia, the Chinese, who make up 23.3% of the overall population (Department of Statistics Malaysia, 2022). The third largest religion is Christianity (9.1%), followed by Hinduism (6.1%). Hinduism is largely practiced by Indians, who make up 6.7% of the Malaysian population.

The remaining population adheres to other religions such as Animism, Sikhism, and various belief systems (Department of Statistics Malaysia 2022). These percentages reflect a high intersection between religion and ethnicity in Malaysia (Department of Information, Ministry of Communications and Multimedia, Malaysia, 2015), which provides a unique cultural backdrop for studying the impact of ethno-religions on the psychological well-being of a variety of believers.

In Malaysia, being a Muslim is a prerequisite to be considered a Malay, as stated in the Malaysian Constitution of 1957. Religion holds a significant role in shaping the cultural and social identity of Malaysian society, exerting a profound influence on various aspects of life, including education, law, and daily routines. Religion occupies a fundamental position in Malaysian society, permeating every facet of life. It is worth noting that the diverse religions present in Malaysia have contributed to the country's culture in a comprehensive manner, with each religion having its own interpretations and schools of thought (Bustami, Nasruddin & Samat, 2006).

Table 24: Ethnicities and their religious affiliations in Malaysia

Ethnicity	Islam	Christianity	Buddhism	Hinduism	Traditional religion	Others	No religion	Unknown
Malay	100%	0%	0%	0%	0%	0%	0%	0%
Other Bumiputera	40%	46%	1%	1%	4%	2%	4%	3%
Chinese	1%	11%	84%	0%	3%	0%	1%	0%
Indian	4%	6%	2%	86%	0%	2%	0%	0%
Others	54%	12%	12%	2%	0%	0%	0%	3%

Note: Source: Adapted from Department of Statistics Malaysia (2011, p.82)

It is worth mentioning that in Malaysia, ethnic identity is closely associated with specific religions. This correlation is evident in Table 24, which demonstrates the connection between ethnic identity and religion. The government officially recognizes all Malays as Muslims, leading to a 100% Muslim population within this ethnic group. Islamic practices encompass various aspects, including the observance of daily prayers, fasting during Ramadan, and adherence to *Sharia law* (Mohd Haidhar, et al., 2024).

The indigenous peoples of Malaysia, known as 'bumiputeras', are divided between Muslims and Christians, with those from East Malaysia (Sarawak and Sabah) predominantly following Christianity (Fee, 2001). Christians attend churches and participate in religious rituals based on Christian teachings, such as reading the Bible and celebrating Christmas (Mohd Haidhar, et al., 2024).

While the majority of Chinese Malaysians are Buddhists, as can be seen in Table 24, 11% of them also identify as Christians. Buddhist religious practices are prevalent among the Chinese and Thai communities in Malaysia. These individuals follow the teachings of Buddhism by actively participating in temple activities, engaging in meditation, and embodying values such as kindness and simplicity (Mohd Haidhar, et al., 2024).

Furthermore, the majority of Indians in Malaysia are Hindus, with 86% adhering to this religion (see Table 24). They partake in religious ceremonies involving worship and offerings to various Hindu deities at temples. Festivals like Deepavali hold significant importance in their religious practices (Mohd Haidhar, et al., 2024). On the other hand, other ethnic groups, primarily originating from neighboring countries like Indonesia or South Thailand, are predominantly Muslim (e.g., 54% Muslim and 12% Buddhist).

Religious practices undoubtedly hold significant importance in the daily lives of individuals in Malaysian society. These practices are shaped by various key features that influence the expression of religious beliefs among Malaysians. Furthermore, the importance of religion in Malaysia is further supported by the religious principles practiced in the country.

Firstly, there is a strong commitment to religious well-being, as Malaysia has made considerable efforts to ensure the respect and protection of individuals from different religions. This is evident through the maintenance of places of worship, the celebration of religious festivals, and the implementation of laws that guarantee equal treatment for all religions. Secondly, Malaysian society actively engages in sharing religious culture, particularly during religious celebrations. This serves as a positive demonstration of how diverse religions can coexist peacefully and harmoniously. These aspects highlight the significance of religion in Malaysian society and its role in fostering social cohesion and understanding among its people (Mohd Haidhar et al., 2024).

6.3.2.1.2 *The United Kingdom*

Christianity is the officially recognized religion in the United Kingdom, as indicated by the national census figures from 2021. These figures reveal that 46.2% of the population in England and Wales identify as Christian. Among Christians, the most common denominations are Anglicans, followed by Roman Catholics, Presbyterians, Methodists, Unitarians, and Baptists. The remaining population consists of individuals who identify as Muslim (6.5%), Hindu (1.7%), Sikh (0.9%), Jewish (0.5%), and Buddhist (0.5%).

Moreover, a considerable proportion of the populace (37.2%) identified themselves as having "no religion," ranking it as the second most prevalent response following Christianity. It is of significance to highlight that the proportion of individuals who identify as Christians has decreased from 59.3% in 2011 to 46.2% in 2021, as reported by the Office for National Statistics (ONS). For example, in the Census of England and Wales in 2011, when asked the voluntary question "What is your religion?", 14.1 million individuals—approximately a quarter of the adult population—stated that they had 'no religion' (UK Census, 2011). This decline, in conjunction with the substantial number of individuals with nominal or no religious associations, has resulted in the depiction of the United Kingdom as a multi-faith and secularized society. Nevertheless, it is intriguing to note that even among those who identify as Christians, there persists a yearning for spiritual guidance, wisdom, and a code of ethics to abide by.

The census also revealed significant shifts in religious demographics. The number of people identifying as Christian has decreased by 5.5 million (17%), while the number of individuals following Islam has risen by 1.2 million (43%), bringing the Muslim population to 3.9 million. In terms of percentage points, the Christian population has declined by 13.1%, while the Muslim population has increased by 1.7%, according to the UK Census 2021. This marks the first time in a census of England and Wales that less than half of the population identifies as Christian.

The Muslim community in England and Wales is primarily composed of individuals of South Asian descent, originating from countries such as Pakistan, Bangladesh, and India. However, it also includes individuals from other regions such as the Arabian Peninsula, the Levant, Africa, and Southeast Asia. In addition to this, there is a growing number of converts to Islam who are of British and other European descent. On the other hand, Hindus, Sikhs, Jews, and Buddhists are concentrated mainly in London and other major urban areas throughout England (Curtice, et al., 2019).

According to findings from the British Social Attitudes Survey, a significant shift has occurred in the religious landscape, with 52% of adults now identifying as non-religious, compared to 31% in 1983 (Curtice et al., 2019). This trend is not limited to the UK alone, as evidence suggests a growing number of individuals, including young people, identifying as non-religious in Europe, the US, and the Middle East (BBC News and Afro Barometer, 2019; Brown, 2017; Bullivant, 2018; De Jong, 2018; Voas and Chaves, 2016).

Recent research conducted by Voas (2019) and Storm (2009) further supports this notion, highlighting not only the decline of traditional religious affiliations but also the emergence of more informal religious identities and connections, often characterized as 'fuzzy fidelity' rather than outright non-religiosity.

In terms of ethnic composition, the United Kingdom is a relatively homogeneous country with a White British majority. During the period analyzed from 2004 to 2008, approximately 85 percent of individuals identified themselves as White British. The largest minority group was the Indian community, comprising 2 percent of the population. Other minority groups included Pakistanis (1.6%), Black Africans (1.2%), Black Caribbeans (1%), Bangladeshis (0.6%), and Chinese (0.4%) (Platt, 2010).

However, according to the latest census conducted in 2021 by the Office for National Statistics (ONS) in England and Wales, the demographic landscape has undergone some changes. The white population, including non-British individuals, now accounts for 81.7 percent of the total population, a decrease from 86 percent in 2011. The Asian British population has increased to 9.3 percent from 7.5 percent, while the Black population has risen to 2.5 percent from 1.8 percent. Additionally, 1.6 percent of the population identifies with other ethnicities.

The demographic composition of religious groups displays a range of ethnic backgrounds. A significant majority of Christians and those who do not affiliate with any religion are identified as White, accounting for over 93 percent. In contrast, Muslims demonstrate a higher level of ethnic diversity, with around 68 percent originating from an Asian background, including individuals of Pakistani (38%) and Bangladeshi (15%) descent. The majority of Hindus and Sikhs also have an Asian background, with 96 percent and 87 percent, respectively, according to the ONS Census of England and Wales 2021. Nevertheless, there are also members from other regions such as the Arabian Peninsula, the Levant, Africa, and Southeast Asia (Curtice et al., 2019).

In addition to this, there is a growing number of converts to Islam who are of British and other European descent (ONS Census of England and Wales 2021). On the other hand, Hindus, Sikhs, Jews, and Buddhists are concentrated mainly in London and other major urban areas throughout England.

In an effort to analyze the trends in religious identity, behavior, and belief over a span of two decades (2001-2021), Curtice and his colleague (2019) conducted a study and their findings revealed a significant decline in the proportion of individuals in the British population who identify as Christian, particularly among those who identify as Anglican. This decline can be attributed to both individuals moving away from their family or childhood faith, and an increasing number of younger people who are not raised with any religious affiliation. However, the study also highlighted that individuals with non-Christian faiths, particularly Islam, tend to maintain their religious identity more strongly. It was observed that only one in ten individuals who were raised as Muslims no longer identify as Muslim, indicating a high level of religious continuity within this group.

Furthermore, the study concluded that the United Kingdom is one of the most secularized and irreligious countries in the world. Surveys determining religious beliefs of the population find that agnosticism, non-theism, secular humanism, and non-affiliation are views shared by a majority of the UK population (Curtice et al., 2019).

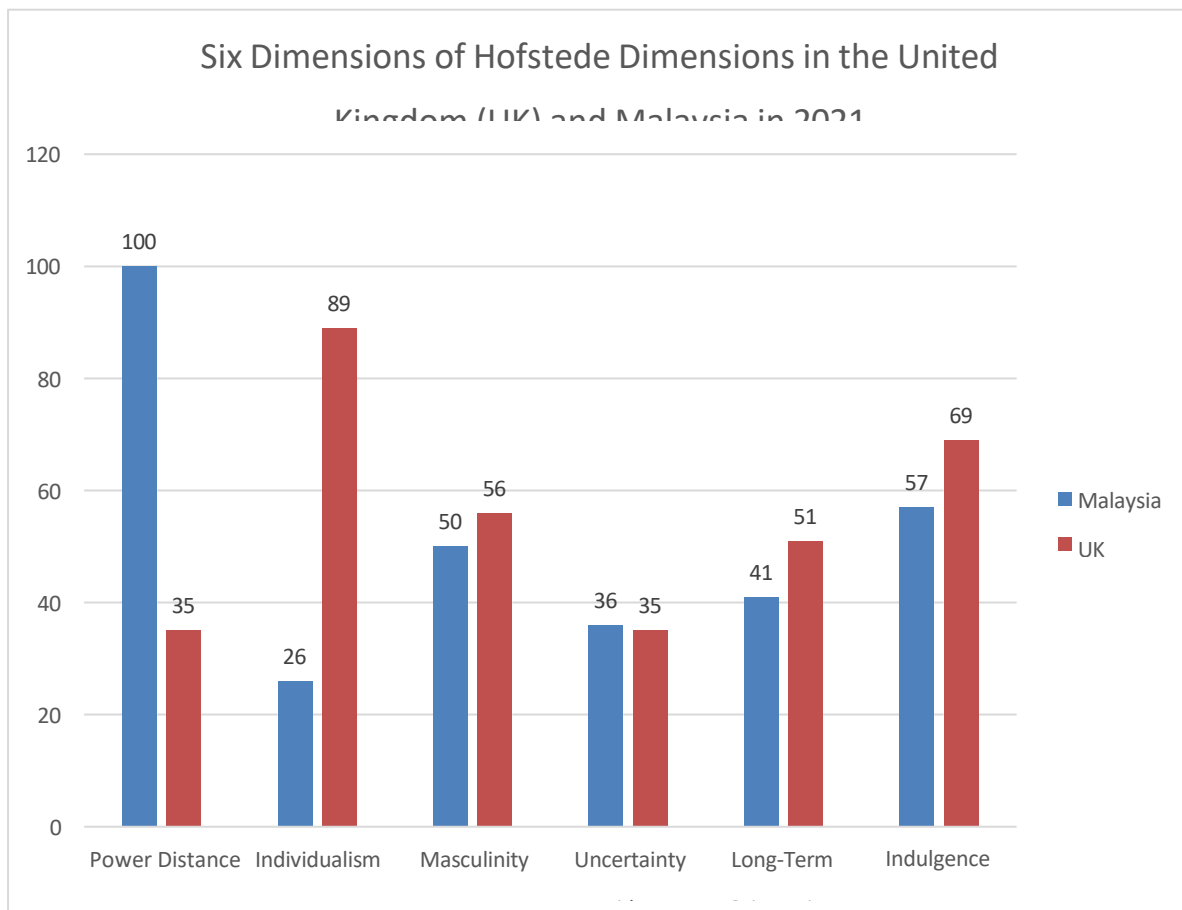
Overall, it is evident that the samples exhibited differences in terms of religions and ethnicities, and these variations in the samples could potentially impact the findings of the studies.

6.3.2.2 Cultural differences

Upon comparison between Malaysia and the UK, it is evident that religion does not hold a fundamental position in the UK, resulting in a distinct social and cultural climate in comparison to Malaysia. Malaysia exhibits a collectivist culture, as highlighted by Burns and Brady (1992) and Bochner (1994). This culture is characterized by values such as support, helpfulness, compliance, reliance, and the promotion of interactive relationships (Kling, 1995). Historically, the Malays were known for their collectivist tendencies, prioritizing harmonious relationships within society (Kling, 1995; Sumari, Baharudin, Khalid, Ibrahim, N. H., & Ahmed Tharbe, 2020). However, as noted by Ahmad (2001), the Malays now tend to exhibit collectivist behaviors primarily within their in-groups, with a shift towards more individualistic attitudes in response to increased competition at a national level.

In contrast, the Chinese culture emphasizes honesty, politeness, and respect towards others, regardless of their race or religion (Ahmed, 2001). On the other hand, Indian cultural values are centered around the self, influenced by beliefs in concepts such as 'rebirth' (Nordin & Hussin, 2004). This focus on the self may explain why Indians strive to attain authority, self-respect, and self-assurance, displaying individualistic traits.

Figure 4: The cultural dimensions in the UK and Malaysia



On the other hand, the UK has a higher score of individualism (89) and is number 3 in the global rank (Hofstede, 2003) (see Figure 4). In an individualist society, people act or make decisions in accordance with their inner will since they do not regard themselves as being a part of an organization. It is a society of free spirits, where ideas are not constrained, where people value individuality, and therefore are only expected to care for themselves and their immediate family (Triandis, 1995).

In addition, Malaysia scores very high on the power distance dimension (score of 100). According to Hofstede (2003), power distance is defined as the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. Accordingly, these values could explain the kind of respect Malaysians have for the elders and those who have authority (Abdullah, 1996; Soo Hoo & Hassan, 2021). In line with this, Abdullah and Pedersen (2003) found that Malaysians tend to be more relationship-oriented than task-oriented, more group than individual, more hierarchical than equal, more shame-driven than guilt-driven, more tolerant in time orientation, and also more religious than secular.

On the other hand, the UK has a low score on this (35), which indicates that UK people have a stronger sense of fair play, which underpins their conviction that everyone should be treated equally in some way (Curtice, Hudson, & Montagu, 2020).

6.3.2.3 Cultural dimensions and religion

In terms of the idea of how religions/spirituals differ in their individualism and collectivism, it raises questions on how religions and cultures affect each other. For example, Cohen and colleagues (2005) engaged in a debate where they proposed that in the United States, American Jews and Catholics, among other groups, tend to lean towards collectivistic forms of religion. On the other hand, American Protestants, and potentially other groups, are more inclined towards individualistic expressions of religion.

While collectivistic Western religious followers emphasize tradition and community-based religious practices, individualistic Western religious followers are viewed as holding the belief that religion is a personal affair, meant to reflect one's personal faith and relationship with God. Within an individualistic Western religious context, engaging in religious practices for the sake of social interaction is considered to diminish the profound and meaningful personal experiences that occur between an individual and God (Cohen et al., 2005). This is in line with the study by Sampson (2000), who examined the historical roots of each religion. Sampson demonstrates the logical deduction behind this distinction. Christianity's emphasis on "the individual's personal relationship to God, responsibility for salvation, and autonomy" (1427) forms the basis for its individualistic tendencies. Sampson (2000) also suggests that Protestantism embraces a more individualistic understanding of the person-other relationship compared to Rabbinic Judaism.

Despite the primary focus of this study being on the United States, it is crucial to acknowledge that the conclusions drawn from it cannot be applied universally to the population of the United Kingdom. Nevertheless, the findings do suggest a potential correlation between individualism and a preference for spiritual pursuits rather than religious affiliations among individuals in the UK. This notion is supported by an emerging trend in the country where there is an increasing inclination towards spirituality as opposed to religious associations (Woodhead, 2016; Oake, 2021; UK censuses 2001-2011; Brown & Andrew, 2015). Furthermore, people in individualistic culture regard religiosity as a personal matter and unique that should not be shared with other people, and that religion is supposed to express one's personal faith and personal relationship with God (Cohen, et al., 2016). Accordingly, in an individualistic Western religious framework, engaging in religion just for the purpose of social connection devalues the much more significant and meaningful personal experiences that occur between an individual and God (Cohen, et al., 2016).

A recent survey conducted by the Institute for the Impact of Faith in Life (IIFL) in the UK aimed to explore the degree to which individuals in the country feel a sense of belonging in various aspects of their lives, including religiosity and spirituality. The survey revealed a consistent and significant correlation between high levels of religiosity or spirituality and a strong sense of belonging across all four spheres of life. Individuals who expressed a strong attachment to God, gods, or higher spiritual beings reported significantly higher levels of belonging in their family (93%), friendship network (79.7%), working life (72.3%), and local neighbourhood (50.1%) (Rakib, IIFL, 2023).

On the other hand, those who did not believe in the existence of any divine or spiritual power experienced lower levels of belonging. Interestingly, among individuals who identified as atheists or outright non-believers in divine or spiritual powers, there was a higher prevalence of a weak sense of belonging. These findings underscore the significant association between stronger forms of religiosity and spirituality and a strong sense of belonging. It is worth considering that these results may be influenced by the contemporary societal factors of growing secularization, individualism, and social fragmentation (Rakib, IIFL, 2023).

In Malaysia, the impact of collectivism on religion and its practices is evident, although there is a lack of specific data on the relationship between the two in the country. It is widely acknowledged that collectivism influences the way religious beliefs and practices are carried out. According to Abdullah (1996), an individual's sense of identity is shaped by their social connections and religious convictions. Triandis (2006) has classified Muslim countries as "traditional," where the importance of God is emphasized, in contrast to secular Western nations. Malaysia, being a predominantly Muslim country, has a religious population (Abdullah, 1996; Lim, 2001), and this study acknowledges the inclusion of aspects related to the significance of religion and the perception of religiousness. The teachings of traditional religions like Islam actively promote a blending of religion with the political, social, and legal aspects of life (Cash, Gray, & Rood, 1993). This integration of various social factors aligns with the values of a collectivist society (Yang, 2005).

Furthermore, it is plausible to suggest that many East and Southwest Asian cultures exhibit collectivistic tendencies today as a result of religious influences. Various ethnic groups utilize religion as a symbol of their ethnicity and strive to incorporate it into various aspects of their lives whenever possible (Guan, 2000). For example, it can be argued that Eastern religions, such as Buddhism, have been influenced by Eastern collectivism due to the broader cultural context in which they originated (Cohen et al., 2005).

In conclusion, these cultural dimensions potentially shape how individuals in both countries express their religious beliefs and practices.

6.3.2.4 Sample characteristics

It is crucial to emphasize the significant differences in sample characteristics among the three samples examined in the study. These samples include the UK sample in the EFA study (Sample 1), the Malaysian sample in the EFA study (Sample 2), and the new UK sample in the CFA study (Sample 3). Notably, Sample 1 had a lower percentage of individuals identifying as having no religion compared to the other two samples, with 27% of the group falling into this category, which is the highest proportion among the samples. This percentage closely aligns with the data from the UK census in 2011. In contrast, Sample 3 had only 16.3% of individuals identifying as having no religion, which is relatively lower than the UK Census in 2011.

In the Malaysian study, the percentage of individuals identifying as non-religious (i.e., having no religion) was less than 1.5%, but higher than the Malaysian Census in 2010, as shown in Table 14. Surprisingly, despite the EFA study for the UK sample being conducted in the UK, the percentage of Hindus and Muslims was significantly higher compared to the new UK sample (CFA) and the UK Census in 2012, as indicated in Table 25. Additionally, the percentage of White British individuals in the UK for the EFA study was relatively lower than in the UK sample for the CFA study and the UK Census in 2012.

Furthermore, the percentage of Muslims in Sample 1 was the highest compared to Sample 3 and the UK Census in 2011, with 11%. Conversely, the percentage of Muslims in Sample 2 was relatively low at only 1.8%, as shown in the table. These intriguing sample characteristics across all samples may be attributed to the specific sampling recruitment strategies employed, such as targeting various religious groups and organizations (e.g., Sikhism, Hinduism, and Buddhism religious organizations) in the UK.

It is crucial to emphasize that there were significant differences in the characteristics of the three samples. These samples include 1) the UK sample in the EFA study, referred to as Sample 1, 2) the Malaysian sample in the EFA study, referred to as Sample 2, and 3) the new UK sample in the CFA study, referred to as Sample 3. Firstly, when compared to the other two samples, Sample 1 consisted of a less religious group, with 27% of participants identifying as having no religion. This proportion is the highest among the samples and is similar to the percentage reported in the UK census of 2011 (for more details, see Table 25).

On the other hand, the percentage of participants identifying as having no religion in Sample 3 was only 16.3%, which is relatively lower than the UK Census in 2011. As depicted in Table 25, the percentage of non-religious groups (i.e., no religion) in Sample 2 was less than 1.5%, but was relatively higher than the Malaysian Census in 2010.

Interestingly, despite the EFA study for the UK sample (Sample 1) being conducted in the UK, the percentage of Hindus and Muslims was significantly higher compared to the Sample 3 (CFA study in the UK) and the UK Census of 2012 (refer to Table 25). Moreover, the percentage of White British individuals in Sample 1 was relatively lower than the Sample 3 and the UK Census in 2012. Similarly, the percentage of Muslims in Sample 1 was the highest compared to Sample 3 and the UK Census in 2011, with a value of 11%. In contrast, the percentage of Muslims in Sample 2 was relatively low, with only 1.8% (see Table 25).

All of these intriguing sample characteristics in all samples can be attributed to the sampling recruitment process. For example, in order to obtain a diverse range of religious and ethnic backgrounds, the researchers specifically targeted certain religious groups and organizations (such as Sikhism, Hinduism, and Buddhist religious organizations) in the UK. The targeted recruitment strategies employed may elucidate the higher proportion of Hinduism and slightly lower proportion of White British individuals in the UK. Conversely, the percentage of Christians in Sample 3 stood at 68.3%, representing over two-thirds of the sample. This could be attributed to the recruitment methods used for the sample.

The new CFA sample (Sample 3) may be deemed to more accurately reflect the UK population compared to the UK sample in the EFA study (Sample 1) in terms of ethnic diversity. However, in terms of religious affiliation and beliefs, Sample 1 closely mirrored the religious landscape in the UK, with 45% identifying as Christians and 27% claiming to have 'No religion'. The characteristics of the samples across all three groups (Sample 1, 2, and 3), along with various cultural trends and religious expression, could potentially influence the outcomes of the studies.

In conclusion, it is apparent that the samples displayed disparities in terms of religions, cultures, and ethnicities, and these differences in the samples could potentially impact the results of the studies.

Table 25: The percentage of religions and cultural dimensions

Dimension	UK Sample 1	(%)	Malaysia (%) Sample 2	New Sample (%) Sample 3	UK 2011 (%)	Census	Malaysia Census 2010 (%)
Country	UK		Malaysia	UK	UK		Malaysia
% Not religious	27		1.4	16.3	25.1		0.7
% Christian	45		11.5	68.3	59.3		9.2
% Muslim	11%		65.1	1.8	4.8		61.3
% Hinduist	4.3		9.5	0.7	1.5		6.3
% Buddhist	6.3		8.6	6.2	0.4		19.8
% Other	12.8		12.6	12.9	2.5		1.7
Ethnicity	51.9 White British		67.4 Malay & Bumiputera	86.9 White British	80.5 White British		69.9 Malay & Bumiputera
Hofstede's dimensions	89 Individualism		26 Individualism	89 Individualism	89 Individualism		26 Individualism
Individualism vs Collectivism	Individualism		Collectivism	Individualism	Individualism		Collectivism

Note: Hofstede Dimension sources: <https://www.hofstede-insights.com/country-comparison-tool?countries=united+kingdom>
 Religion sources: Religion, England and Wales: Census 2011, 2021
 (<https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/religion/bulletins/religionenglandandwales/census2021>)

Bumiputra:

Bumiputera Sabah = "If one of the parents is a Muslim Malay or indigenous native of Sabah as stated in Article 160A (6)

(a) Federal Constitution of Malaysia, his child is considered a Bumiputera"(p 2, Article 160(2), Federal Constitution of Malaysia, 1963)

*Bumiputera Sarawak = "If both of the parents are indigenous natives of Sarawak.

6.3.3 Recap of EFA findings on the samples in the UK and Malaysia

To recap, although the combined factors in EFA studies were discussed before, it is important to highlight again that this interesting finding might be due to religious and cultural aspects that have been practiced and embedded in these two samples. If we look at the religious composition in Malaysia, it is unique as it not only represents individuals' religious faith but also their ethnic identity (see Table 24 for details). Besides, as religion is central, Malaysian people are considered more religious in other countries. For example, although Islam is practiced by more than 60% in Malaysia and 99% in Turkey, Muslims in Turkey are less religious than Muslims in Malaysia (Mohdali et.al., 2017).

Further, it may also influence the perspectives of religions in Malaysia and how religions are practiced. In the previous study on the Validity and Psychometric Properties of Malay Translated Religious Orientation Scale-Revised (AUROS) among Malaysian samples, the researchers found that three of the items of Intrinsic Religiosity were strongly loaded onto the Extrinsic Religiosity (Ep Orientation) (Kamaluddin, Nasir, Sulaiman, Khairudin, & Zamani, 2017). The items were *"It doesn't matter much what I believe so long as I am good"* *"Although I believe in my religion, many other things are more important in life,"* and *"Although I practice teachings of my religion, I don't let it affect my daily life,"* respectively. Similar to the current study, most (95.6%) of the respondents in this study were Muslims, and Islam is deeply embedded in the lives of most Muslims, whether in good and bad times (Abu Raiya, 2009; Abu Raiya & Pargament, 2010).

Consequently, given the established pattern where Intrinsic Religiosity (IR) and Personal Extrinsic Religiosity (PER) items were grouped within the same factor, it is reasonable to infer that the interplay of these factors may be elucidated by the Islamic framework and the Malaysian viewpoint on religious expressions (Kamaluddin, Nasir, Sulaiman, Khairudin, & Zamani, 2017). For example, the same pattern of combination between the intrinsic religiosity and extrinsic religiosity was observed in the previous study with a different religiosity scale. From the study on the validity and psychometric properties of Malay Translated Religious Orientation Scale-Revised (AUROS) among Malaysian samples, the researchers found that three of the items of Intrinsic Religiosity were strongly loaded onto the Extrinsic Religiosity (Ep Orientation) (Kamaluddin, Nasir, Sulaiman, Khairudin, & Zamani, 2017). The items were “*It doesn’t matter much what I believe so long as I am good*” “*Although I believe in my religion, many other things are more important in life,*” and “*Although I practice teachings of my religion, I don’t let it affect my daily life,*” respectively.

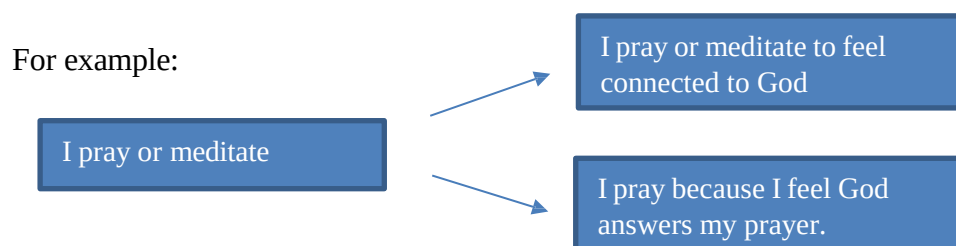
The researchers proposed that the findings, while differing from the original conceptual framework of Intrinsic Religiosity (IR) and Public Extrinsic Religiosity (PER), suggest a need to reassess the comprehension of religious expressions among Malaysian individuals, especially within the Muslim community. Despite employing various religiosity measurement scales, the results support the current observations regarding the interplay between IR and PER as reflected in the NSRS scale. This insight may provide an explanation for the contradictory results observed in the Exploratory Factor Analysis (EFA) of the NSRS in Malaysia, potentially stemming from differing interpretations of religious expression and the concepts of intrinsic and extrinsic religiosity.

Furthermore, research on cultural values in Malaysia has shown that the Malaysian populace, particularly the Malay demographic, is marked by a strong sense of religiousness, relational orientation, and collectivist values (Abdullah, 1996; Merriam & Mohamad, 2000; Majid, 2008). Abdullah (1996) specifically highlighted that Malaysians possess a collectivist religious ethos, firmly believing that “happiness arises from subordinating self-interests for the welfare of others” and that “inner happiness can be attained through prayer and meditation” (Abdullah, 1996, p. 106). This suggests that regardless of the underlying motivations for engaging in religious practices—be it for personal connection with the divine or the pursuit of tangible benefits—such practices ultimately strengthen the transcendent relationship with God. For instance, in Islam, a fundamental aspect of life is the unwavering commitment to fulfilling God's will (Mokhlis, 2006). This implies that regardless of the motivations driving individuals to engage in religious practices or behaviors—be it for personal connection with God or for the attainment of benefits—such engagement ultimately serves to enhance the transcendent relationship with the divine.

For instance, in Islam, the ideal way of life is to devote oneself to God's will at all times (Mokhlis, 2006). This could explain why individuals who engage in religious behaviors are often seen as connected to God, as it is both a goal in itself and a means to achieve positive outcomes or avoid negative consequences (see Figure 5). In other words, engaging in religious behavior serves both personal relationships and motivational purposes. When one feels connected to God, they also hope for God's protection. This connection to God serves as a tool to avoid negative consequences and attain positive outcomes. Thus, it possibly explains the combined factor of IR/PER.

Figure 5

Religious expression among the Malaysian sample in which Intrinsic Religiosity (IR) overlaps with Personal Extrinsic Religiosity (PER)



During challenging times, individuals of the Muslim faith in Malaysia often seek solace and assistance from Allah (Abu Raiya, 2009). A study conducted among Muslim men in Australia by Sav, Harris, Sebar, Stewart, and Abdalla (2009) discovered that religious obligations were perceived as valuable resources. In addition, a study by Noor (1999) on the well-being of employed Malaysian women focused on happiness and distress among 388 employed Malaysian women. Noor (1999) further interpreted the findings through the lens of religion and found that religion directly impacts well-being, particularly when other resources have been depleted and individuals seek support elsewhere. Belief in God has the potential to minimize the influence of stress on well-being and act as a buffer against negative experiences (Jones, Zhang, Jaceldo-Siegl & Meleis, 2002; Noor, 1999), ultimately leading to reduced conflict and increased enrichment.

In line with these findings, a recent study by Moten and colleagues (2019) examined the level of religiosity among Malays in rural areas and found that Islam appears to influence all aspects of their behavior in Malaysia. Religiosity was measured in this study by assessing respondents' belief in the deity, the frequency and intensity of their participation in religious rites and rituals, and their dedication to religious ceremonies. Interestingly, the study revealed that a majority of the sample (ranging from 61.9% to 87.1%) who reported having a strong connection with God also scored high in religious behaviors such as performing "*solah*" for various reasons, including feelings of happiness, tranquility, self-satisfaction, and for the sake of others (e.g., parents, teachers, community) (Moten et al., 2019).

This also suggests that they often feel a deep connection with God, and they think about the meaning and purpose of life lived in obedience to the dictates of Islam in which leads to engagement in religious practices, although it is influenced by various reasons, but the variation is in degree rather than in kind. In other words, a person with a higher level of religiosity is more likely to align her behavior in compliance with religious beliefs and practices.

On the contrary, in the UK, which is often associated with an individualistic culture, this also extends to religious aspects such as religious expressions and perception. Western individualist perceives religious and spiritual experiences as a unique and personal interaction between themselves and God. Previous research has indicated that Western individuals with an individualistic religious perspective tend to view religion as a personal matter, with a purpose (Cohen, Mazza, Johnson, Enders, & Warner, 2016).

Although this finding was based on the research in the United States of America (USA) and may not fully represent the views of individuals in the UK, there are similarities in religious denomination and cultural dimensions. Consequently, religious identity and motivation are centered on personal faith, the transcendental experience, and the significance of religion to the individual. This may explain the combination of factors between Theistic Spirituality and Intrinsic Religiosity observed in the UK sample.

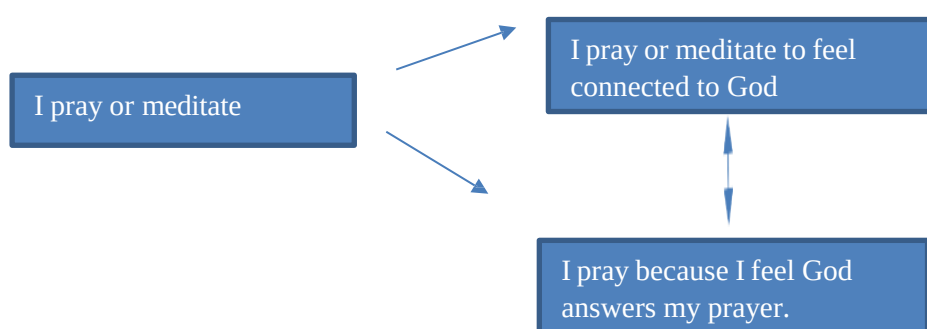
For instance, individuals who have experienced or believe in transcendental encounters with God, or those who have a transcendental relationship with God, may consider it both an objective in itself and a source of motivation (see Figure 6). Ultimately, feeling connected to God and being personally motivated by religious beliefs can be seen as interconnected yet distinct aspects. The combined factors between TS and IR were also understandable as the correlation between Theistic Spirituality and Intrinsic Religiosity from the NSRS-SV, as well as the correlation between Intrinsic Religiosity and the God subscale of the Spiritual Transcendence Index, was strong (with a correlation coefficient of $r = .90$).

Furthermore, it is worth noting that certain elements of the NTS questionnaire may be indicative of individuals who also exhibit high scores in the TS items. For example, individuals who identify as religious or spiritual may also rate highly on the TS item "I believe God is everywhere" and the NTS item "I believe that there is a purpose to the universe," as they perceive the concept of "purpose" to be closely linked to their belief in God.

This finding is also in line with previous research conducted by Hill and Pargament (2003), which found a significant correlation between intrinsic religiosity and all measures of spirituality. This evidence seems to reinforce the notion that spirituality and religiosity are distinct yet closely intertwined constructs.

Figure 6:

Religious expression among the UK sample in which Theistic Spirituality (TS) overlaps with Intrinsic Religiosity (IR)



As stated in the initial section, the EFA studies conducted on the two samples revealed certain differences and similarities. Whilst it has been determined that the NSRS shall remain in its current form, consisting of eight factors, it would be remiss to disregard the evidence that the combined items from the TS, IR, and PER scales resulted in two factors in both samples. Therefore, the present study was undertaken to scrutinize the dimensionality of NSRS and evaluate whether the factor structure of NSRS is attributable to the samples or the scale. Consequently, a confirmatory factor analysis (CFA) was conducted among the UK sample on the original scale of NSRS.

6.3.4 *Confirmatory Factor Analysis (CFA)*

The Newcastle Scale of Religion and Spirituality (NSRS) consisted of 82 items and was designed conceptually to have eight subscales. After performing the EFA, it is necessary to confirm the obtained results, i.e., the Confirmatory Factor Analysis (CFA). More specifically, CFA is a technique that seeks to confirm whether the number of factors (or constructs) and loadings on the observed (indicator) variables are consistent with what is expected based on theory (Malhotra, Hall, Shaw, & Oppenheim, 2007). In other words, CFA was performed to find the best-fitting factor structure to confirm the latent variables of the original scale of NSRS (Muthén & Muthén, 2012).

We scrutinized the models based on a conceptualized framework and the results obtained from exploratory factor analysis. In light of our decision to maintain the NSRS with eight factors, we proceeded to examine an eight-factor structure that was found to be correlated. However, the results of the EFA revealed the presence of seven factors with one combined factor in both samples. Consequently, two distinct models, namely the UK model and the Malaysian model, were tested.

As a result, three models were tested in the CFA study, namely: (a) Model 1- an eight correlated factor (b) Model 2 – a seven correlated factor based on the UK sample as identified in EFA, and (b) Model 3- seven correlated factors based on the Malaysia sample as identified in EFA. These models are presented in Table 26 and in Figures 7, 8, and 9.

Table 26: The CFA studies of Models 1, 2, and 3

No	Constructs	Model 1	Model 2	Model 3
1	Religious Behaviour (RB)	Factor 1	Factor 1	Factor 1
2	Non-Theistic Spirituality (NTS)	Factor 2	Factor 2	Factor 2
3	Theistic Spirituality (TS)	Factor 3	Factor 3	Factor 3
4	Intrinsic Religiosity (IR)	Factor 4		Factor 4
5	Personal Extrinsic Religiosity (PER)	Factor 5	Factor 4	
6	Social-Family Extrinsic Religiosity (SFER)	Factor 6	Factor 5	Factor 5
7	Religious Fundamentalism (RF)	Factor 7	Factor 6	Factor 6
8	Quest (Q)	Factor 8	Factor 7	Factor 7

Figure 7: Model 1 -An Eight-Correlated Factor

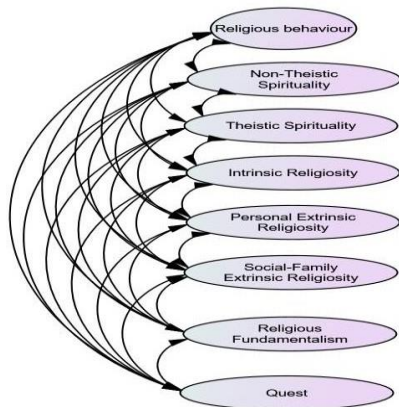


Figure 8: Model 2 – A Seven-Correlated Factors model based on the UK model

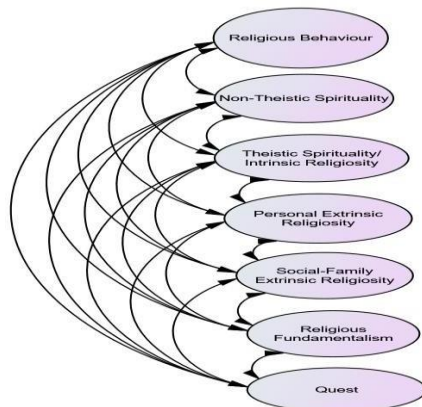
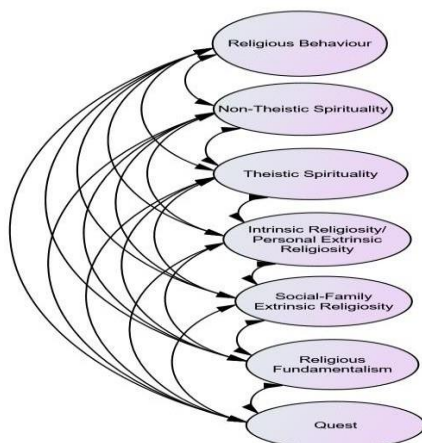


Figure 9: Model 3 – A Seven-Correlated Factors model based on the Malaysia model



The configuration of each model may exhibit subtle variations contingent upon the characteristics of the samples and where the sample was recruited. For instance, Model 2 was subjected to testing due to the anticipation that the "UK" model, comprising seven interrelated factors with a combined factor of TS/IR, may be more fitting as the sample is from the UK and predominantly Christian. However, the UK sample utilized in the EFA study was derived from a non-religious sample, and the religious groups were primarily Christian, albeit not exclusively (i.e., there was a relatively higher percentage of other religions such as Hinduism and Islam).

Consequently, it is plausible that the 'Malaysian' model, consisting of seven correlated factors with a combined factor of IR/PER, may be more suitable for the CFA study in the new UK sample, given that both samples have fewer non-religious individuals (refer to Table 5 for further details). Nevertheless, there is a likelihood that it may not be as appropriate since the new UK sample comprises almost entirely Christians, and the combined factor of TS/IR may better reflect a Christian perspective of relationships than IR/ERP.

Upon comparing the three models, it is plausible that Model 2 would be better suited for the new UK sample in the context of the CFA study due to its shared sample characteristics. Despite the fact that the 'UK' model was conducted with fewer religious groups, it remains a UK sample and, irrespective of religious groups, the expression of beliefs and practices would be comparable.

However, there is a possibility that Model 1 may be a better fit than the other models, as conceptually, all dimensions are interrelated yet distinct and function differently. As the objective of scale development is to create a scale that can be utilized in both religious and non-religious groups, it is not expected that the experience of religions would be identical. Consequently, all three models were subjected to testing in order to investigate all potential options for a well-fitting model for the new UK sample in the CFA study.

6.3.5 *Methodology*

6.3.5.1 *Participants*

This study used a quantitative design and employed a cross-sectional study design. Participants were recruited through online means such as forums, social media, friends, religious organizations, social clubs, and email. The study was conducted in 2013, and all participants took part on a voluntary basis. All the participants who agreed to participate in the studies were given signed informed consent. The participants completed the questionnaire anonymously, and all data were treated confidentially.

For this analysis, two samples were combined in order to test all three models. The first sample (N = 302) consisted almost entirely of Christians, while the second (N = 262) sample included participants from a range of religions and no religion. Therefore, the combined data set contained a higher percentage of Christians and a higher percentage of people overall reporting a religion. Thus, the final sample consisted of 564 participants, with more females (67.7%) than males (32.3%). The average age of participants was 39.52 years (SD = 16.14). Although most of the participants were aged 25 to 45 years old, with a percentage of 62.7%, the smallest group was from 76 to 85 years old, with 1.1%. The demographic data for the United Kingdom sample is shown in Table 16. Overall, as can be seen in Table 27, the sample ethnicity was predominantly White British and included people from England, Wales, Scotland, and Northern Ireland (86.9%), the smallest group was Others (1.6%).

The religious affiliation of almost two-thirds of the sample was Christian (68.3%), and the second largest group of participants defined themselves as having ‘no religion’ (16.3%), while 15.4% reported another major world religion. The religious denominations for the United Kingdom sample are shown in Table 28.

Table 27: Demographic data for the Sample in the United Kingdom (N = 564)

Demographic Variables	Frequency	Percentages (%)
Gender		
Male	182	32.3
Female	382	67.7
Total	564	100
Age group		
16-25	158	28
26-35	109	19.3
36-45	87	15.4
46-55	105	18.6
56-65	63	11.2
66-75	36	6.4
76-85	6	1.1
Ethnicity		
White British	490	86.9
Mixed Race	13	2.3
Asian/Asian British	41	7.3
Black/African/Caribbean/Black British	11	2.0
Other ethnic groups	9	1.6

Table 28: Religious Denominations among the sample in the United Kingdom (N=564)

Religious Denominations	Frequency	Percentages (%)
No Religion	92	16.3
Christian (including Church of England, Catholic, Protestant, and all other Christian denominations)	385	68.3
Buddhism	35	6.2
Hinduism	4	0.7
Islam	10	1.8
Judaism	21	3.7
Sikhism	17	3.0
Other religion	92	16.3
Total	564	100

6.3.5.2 Measure

This study employed the original NSRS (Alias, Freeston & Rosenkranz, 2012), which consists of 82 items to assess various aspects of religiosity. There were eight subscales, namely Religious Behaviour, Non-Theistic Spirituality, Theistic Spirituality, Intrinsic Religiosity, Personal Extrinsic Religiosity, Social- Family Extrinsic Religiosity, Religious Fundamentalism, and Quest. To recap, all the items were measured by using the Likert scale of 1 to 5 (*Strongly disagree* to *Strongly agree*) with the exception of Religious behaviour, which also uses a scale of 1 to 5 (*Never* to *Daily or more*) (see Appendix 1).

6.3.5.3 Data handling issues

In the present study, it was observed that 130 items were missing from the samples at various NSRS values. The data revealed that the percentage of missing data was less than 0.5%. The percentage of missing values in this study was 0.3%, and the mean replacement was deemed acceptable. This method is considered appropriate in the absence of other information (Cokluk and Kayri, 2011).

6.3.5.4 Software

All analyses were performed using the SPSS statistical software package version 25. To assess the validity of the NSRS, Confirmatory Factor Analysis (CFA) was conducted through Structural Equation Modeling (SEM) utilizing AMOS 28 (Muthén & Muthén, 2012) to evaluate the measurement model validity of each of the proposed models. In AMOS, visual paths are manually drawn on the graphic window, and analysis is performed.

6.3.5.5 Indices to report

The goodness of fit of a statistical model was used to assess how well the theoretical model fitted to the empirical data, and several statistics were used: (i) the minimum value of the differences between the observed data and the hypothesis model is divided by degrees of freedom (CMIN / df) (Kline, 2011) (Steiger, 1990; Hooper, et al., 2008), (ii) the root mean square error of approximation (RMSEA) (Schreiber, Nora, Stage, Barlow, & King, 2006), (iii) Comparative of Fit Index (CFI) (Hu & Bentler, 1999), (iv) the Tucker-Lewis index (TLI) (Hu & Bentler, 1999) and (v) the standardized root mean square residual (SRMR) (Hooper, et al., 2008). Apart from that, the size of standardized factor loading ($\beta > |.5|$, $p < 0.05$), the value of the average variance extracted (Gore et al., 2017), and the construct reliability ($CR > 0.7$) were considered to estimate the amount of convergent validity among indicators (Fornell & Larcker, 1981).

6.3.5.6 Deciding on the improvement of the indices

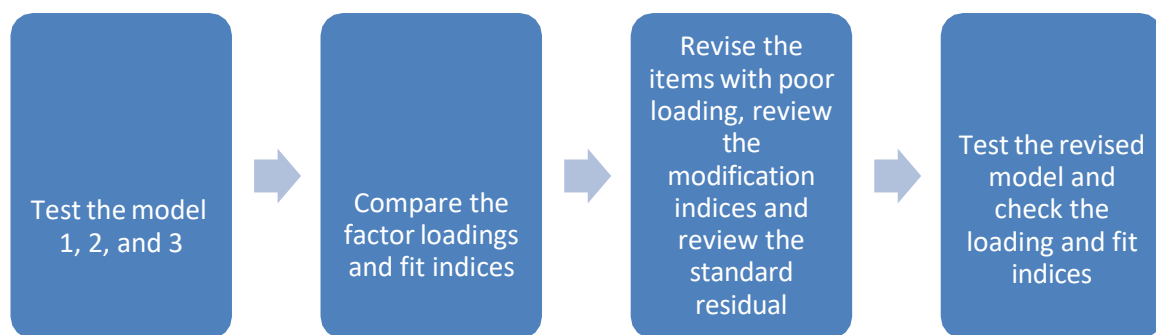
As shown in Figure 10, several procedures were taken for the improvement of the model fit. Firstly, following model testing, the factor loadings and model fit were scrutinized. The steps in the CFA analysis are shown in Figure 10. Then, modifications to the model were made based on Hair et al. (2006), with some of the information being examined. Proposed modifications are as follows: (i) Load factor review of each item must exceed 0.50. MacCallum and colleagues (1999, 2001) suggested that all items in a factor model should have an over 0.60 or an average of 0.7 to justify performing a factor analysis with small sample sizes.

Conversely, Hair and colleagues (2006) have recommended that a sample size of over 250 respondents necessitates a loading factor of at least 0.35 to determine significance at the .05 level, which determines the strength of an item or indicator related to or measured by a construct or latent variables in a CFA analysis.

In accordance with the work of Hair and colleagues, Stevens (1992) proposed a factor loading cut-off of 0.4, irrespective of the sample size. He also indicated that this threshold should be utilized for interpretative analysis. Conversely, Awang (2012) argued that a minimum factor loading of 0.6 is necessary, as inadequate factor loadings suggest that certain items do not effectively measure the intended construct. Furthermore, items with low loadings can compromise construct validity, impacting calculations for Average Variance Extracted (AVE) and Composite Reliability (CR) (Awang, 2012; Hoque and Awang, 2016).

Consequently, this study adopted a more rigorous cut-off of 0.50, leading to the exclusion of items with loadings below this threshold. Additionally, a minimum of three items per construct was established, as recommended by Hair and colleagues (2006). The standard residual values were assessed, with those ranging from 2.58 to 4.00 being considered for retention or removal, while values exceeding 4.00 were discarded. Lastly, modification indices were examined to improve the model.

Figure 10: The steps of CFA analysis in this study



6.3.6 *Results*

6.3.6.1 *The CFA*

Initially, Model 1 was subjected to testing with eight correlated factors, which were similar to the original scale that was developed with eight subscales. The original measurement model for the NSRS with eight correlated factors is depicted in Figure 10. However, the fit indexes did not align well with the data, and modifications to the model were made based on the recommendations of Hair et al. (2006), with some information being examined.

Table 29 shows that the loading factor for all items was above 0.40, except for five items that loaded lower than 0.40. Following the suggestion of Hair and colleagues (2006), this indicates that all items can be retained. However, a more stringent cut-off of 0.50 was utilized, and nine items (in red font) that loaded lower than 0.50 were removed. These included three items of PER, two items of NTS and F, and also one item from Quest and RB. The minimum requirement of three items per construct, as recommended by Hair and colleagues (2006), has been met. Table 33 provides the model fitness indices for both the original model and the improved model for the NSRS.

Table 29: Factor Loading for Model 1- 8 Correlated Factor

Indicator	Construct	Factor loading	Indicator	Construct	Factor loading	Indicator	Construct	Factor loading
F1	RF	0.82	EP1	PER	0.47	TS1	TS	0.91
F2	RF	0.78	EP2	PER	0.71	TS2	TS	0.96
F3	RF	0.63	EP3	PER	0.39	TS3	TS	0.82
F4	RF	0.85	EP4	PER	0.70	TS4	TS	0.93
F5	RF	0.56	EP5	PER	0.46	TS5	TS	0.88
F6	RF	0.73	EP6	PER	0.79	TS6	TS	0.90
F7	RF	0.50	EP7	PER	0.81	TS7	TS	0.95
F8	RF	0.48	EP8	PER	0.77	TS8	TS	0.97
F9	RF	0.38	EP9	PER	0.78	TS9	TS	0.95
F10	RF	0.82	EP10	PER	0.58	TS10	TS	0.93
Q1	QUEST	0.57	EP11	PER	0.80	I1	I	0.88
Q2	QUEST	0.63	EP12	PER	0.77	I2	I	0.90
Q3	QUEST	0.67	RB1	RB	0.88	I3	I	0.66
Q4	QUEST	0.81	RB2	RB	0.89	I4	I	0.89
Q5	QUEST	0.42	RB3	RB	0.87	I5	I	0.85
Q6	QUEST	0.70	RB4	RB	0.83	I6	I	0.82
Q7	QUEST	0.55	RB5	RB	0.88	I7	I	0.92
Q8	QUEST	0.77	RB6	RB	0.38	I8	I	0.89
EF1	SFER	0.83	RB7	RB	0.65	I9	I	0.80
EF2	SFER	0.82	RB8	RB	0.77	I10	I	0.55
EF3	SFER	0.73	RB9	RB	0.82	I11	I	0.76
EF4	SFER	0.78	RB10	RB	0.86	S1	NTS	0.79
EF5	SFER	0.78	RB11	RB	0.59	S2	NTS	0.52
ES1	SFER	0.69				S3	NTS	0.75
ES2	SFER	0.72				S4	NTS	0.76
ES3	SFER	0.62				S5	NTS	0.36
ES4	SFER	0.59				S6	NTS	0.62
ES5	SFER	0.67				S7	NTS	0.36
						S8	NTS	0.50
						S9	NTS	0.85
						S10	NTS	0.85

Then, the standard residual values were observed and none of the items above 4.00. From the review of MI, those items that had high modification indices (MI) such as item TS2 (*'I believe God gives purpose to my life'*) and item TS8 (*'I believe that God gives meaning to my life'*) of Theistic Spirituality and this, indicates items TS1 and TS8 are redundant.

Apart from that most of the items of SFER showed high MI between errors for the items such as item ES3 (*'I practice my religion to feel closer to my community'*) and item ES4 (*'I practice my religion to show respect to my community'*); between ES1 (*'I practice my religion to be accepted by my community'*) and ES4; between EF5 (*'I practice my religion to get rewards or favours from my family'*) and ES2 (*'I practice my religion because if I do not, my community will disapprove me'*). This means that most of the items of SFER are redundant.

In addition, there were MI (300+) between errors of the items PER1 (*I pray because I feel God answers my prayer*)-PER5 (*When I am in difficulty, I pray to God for aid*) at (300+); PER1 (*I pray because I feel God answers my prayer*)-PER3 (*I read sacred writings to find comfort*); PER3 (*I read sacred writings to find comfort*)-PER5 (*When I am in difficulty, I pray to God for aid*); and IR3 (*I go to religious places to feel closer to God*)-IR10 (*I make a special effort to visit sacred places (pilgrimage) to be closer to God*). Therefore, the items that showed high MI within the factors were covariated between error terms to improve the fit of the model. Some of the items that had high MI also had poor loadings and were removed, such as PER1, PER3, PER5, and RB6 (see details in Figure 11).

Interestingly, there was also a high MI between the errors of items among different factors, namely RB6 (*I make a special effort to visit sacred places (pilgrimage)*), and PER12 (*I go to religious places to please God*). The error terms between the items from different factors were not covariates. Apparently, these items also had poor loadings and were removed, such as PER1, PER3, PER5, and RB6 (See details in Figure 10). As shown in Table 33, the model fit was improved, with CFI improving from .81 to .89 and CMIN/df being reduced from 3.58 to 2.71 (<3) (see details in Table 33).

As Table 33 shows, all of the goodness of fit indices for the improved model met predetermined thresholds for a considerably good model fit. After accomplishing the model fit, the evaluation and interpretation of the relationship between indicators or items were discussed in the following part. The analysis was re-run, and the model fit was observed (see Figure 12). After revising the model, there is a significant improvement in the model fitness indices of the NSRS.

Then, we tested the CFA with Model 2 (i.e., 7 correlated factors based on the UK model). As can be seen in Figure 13, Theistic Spirituality was combined in one factor together with Intrinsic Religiosity. However, the models were found less compatible with data from a sample (n = 564) (see details in Figure 14). In terms of factor loadings, there were ten items were removed. The nine items removed were similar to Model 1, and one item of IR10 (*I make a special effort to visit sacred places (pilgrimage) to be closer to God*).

Then, a similar process of modifications was conducted, and the fit indexes were observed (see Figure 14) and compared (see Table 33). Several items showed high MI with above 80 between the errors, such as IR8 (*I take part in religious study to feel connected with God*)-IR10 (*I make a special effort to visit sacred places (pilgrimage) to be closer to God*) and IR10 (*I make a special effort to visit sacred places (pilgrimage) to be closer to God*) - IR11 (*I observe and participate in the festivals of my religion to be closer to God*), and the highest MI with more than 200 such as items IR7 (*I read religious texts to be closer to God*) - IR8 (*I take part in religious study to feel connected with God*). The high MI showed item redundancy, and the errors were covariates. The analysis was re-run, and then the model fit was observed (see Table 33).

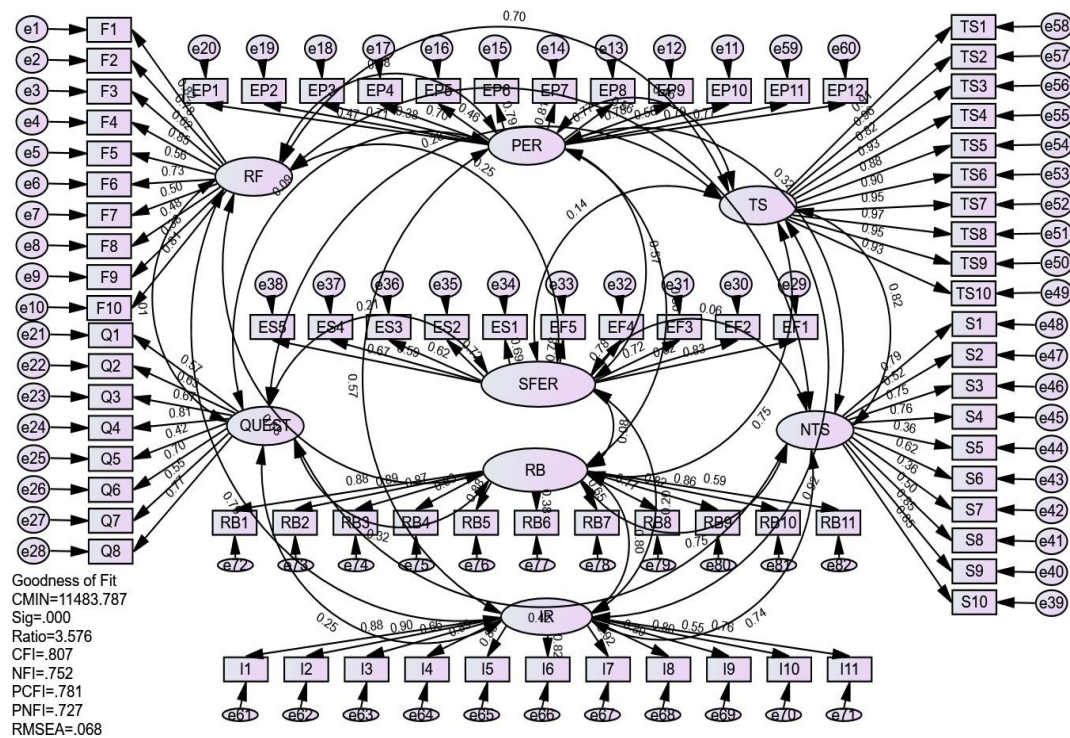
Subsequently, we tested Model 3 (i.e., seven correlated factors based on the Malaysia model). Similar to Model 2, the model was found less compatible with data from a sample (n=564). As items of Intrinsic Religiosity (IR) and Personal Extrinsic (PER) Religiosity were combined in one factor (see Figure 15), the factor loading was different. As can be seen in Figure 16, overall, there were twelve items removed. Interestingly, in comparison with Model 1 (eight-factor), items EP1, EP3, and EP5 were highly loaded with 0.70 to 0.90. On the other hand, items EP2, EP4, EP6, EP7, EP9, and EP11 were found loaded lower than 0.50 in Model 3.

Many items showed very high MI in model 3 with more than 200, especially for the items in combined factor IR/PER such as items PER7 (*I give money, time, or goods to my religious community because God will approve of me*)-PER11 (*I take part in worship or religious rituals to avoid God's displeasure / bad karma*), PER6 (*I make special efforts to visit sacred places (pilgrimage), so God will reward me*)-PER11 (*I take part in worship or religious rituals to avoid God's displeasure / bad karma*), PER6 (*I make special efforts to visit sacred places (pilgrimage), so God will reward me*) -PER7 (*I give money, time, or goods to my religious community because God will approve of me*), etc.

The high MI between the errors was not only within the same factor but the high MI of more than 150 was also between the different factors such as items RB6 (*I make a special effort to visit sacred places (pilgrimage)*)-IR10 (*I make a special effort to visit sacred places (pilgrimage) to be closer to God*) similar with Model 2. Then, items with high errors within the same factor were covariated, and fit indexes were observed. The same process of modification was repeated, and the fit indexes were observed (see Figure 16) and compared (see Table 33).

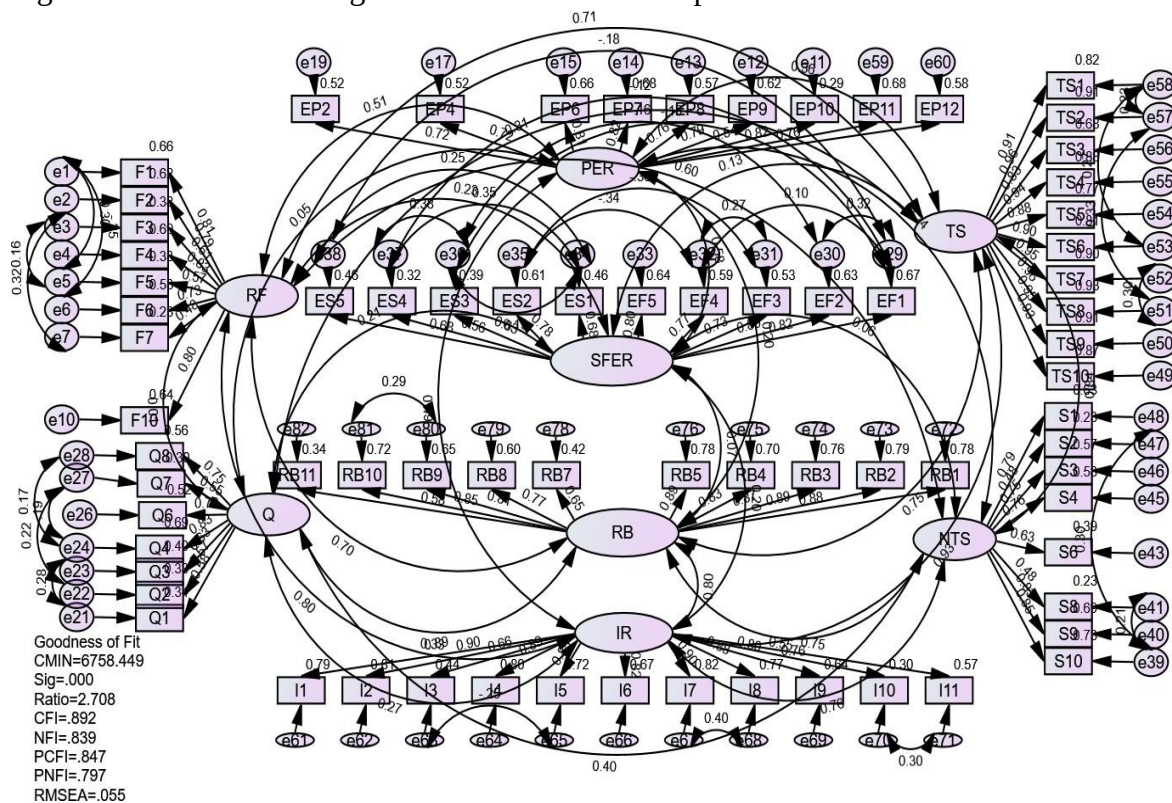
In sum, each of the model were observed after the modifications were made and the fit indexes were compared.

Figure 11: Model 1: An Eight-Correlated Factor Model Tested in the CFA



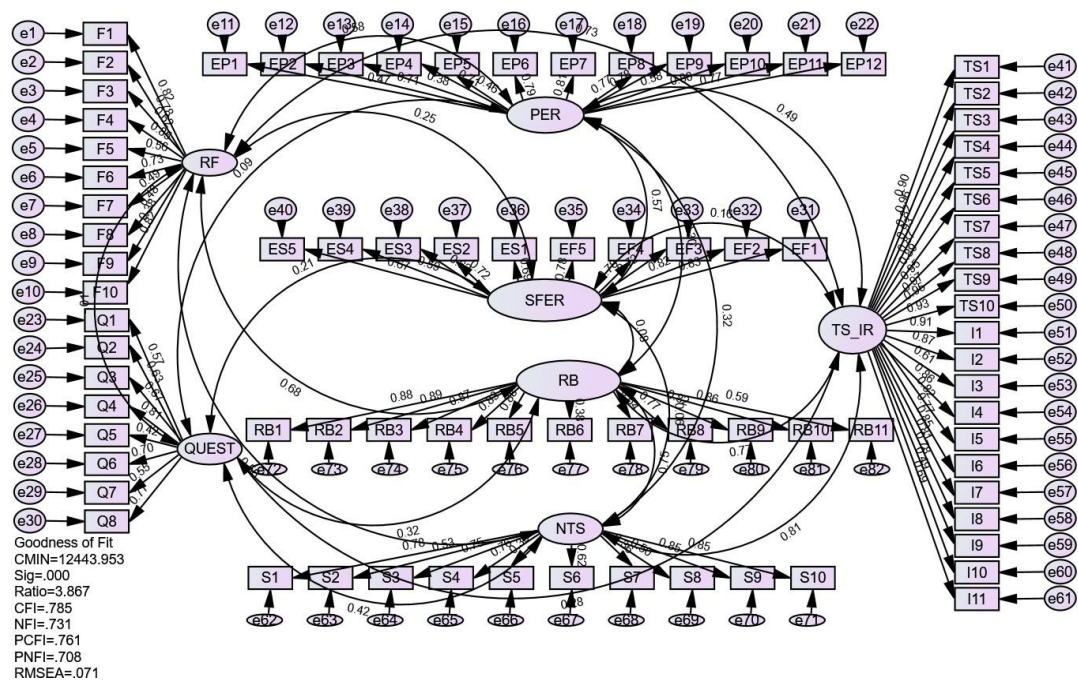
Note: All reported figures are significant at $p > .001$.

Figure 12: Model 1: An Eight-Correlated Factor – Improved Model in the CFA



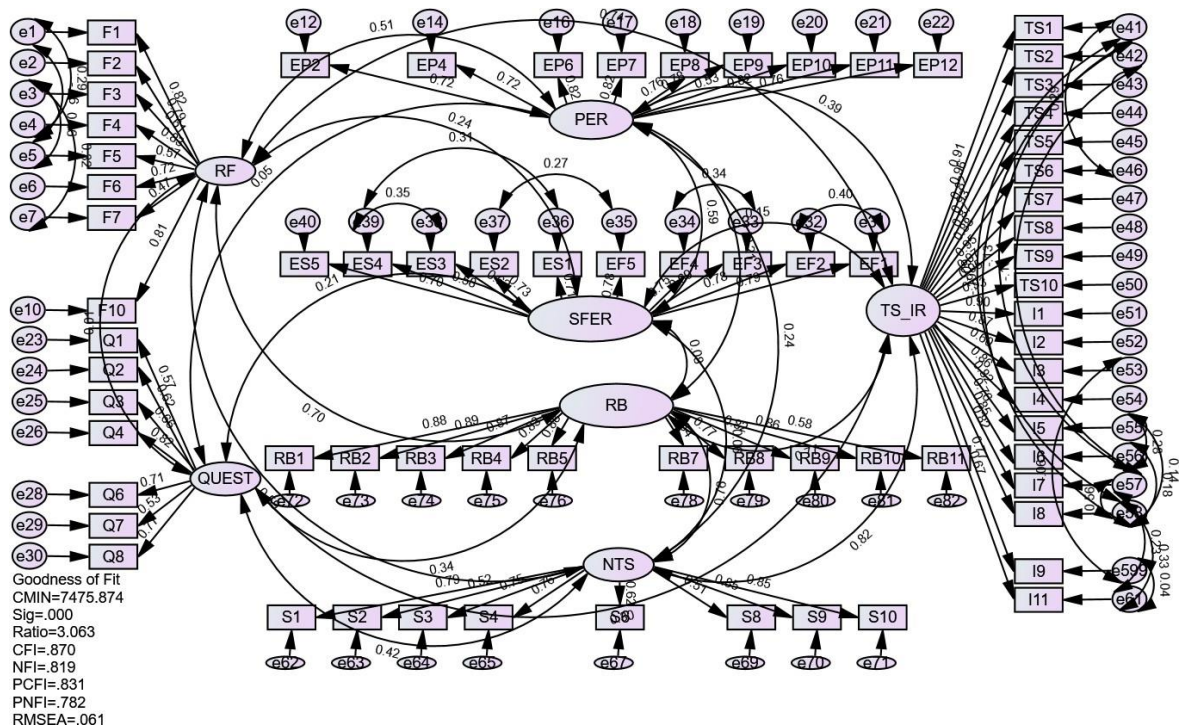
Note: All reported figures are significant at $p > .001$.

Figure 13: Model 2: A Seven-Correlated Factor -UK Model in the CFA



Note: All reported figures are significant at $p > .001$. TS_IR is the combination factor between Theistic Spirituality (TS) and Intrinsic Religiosity (IR)

Figure 14: Model 2: A Seven-Correlated Factor – Improved UK Model in the CFA



Note: All reported figures are significant at $p > .001$. TS_IR is the combination factor between Theistic Spirituality (TS) and Intrinsic Religiosity (IR)

Figure 15: Model 3: A Correlated Seven-Factor -‘Malaysia’ Model in the CFA

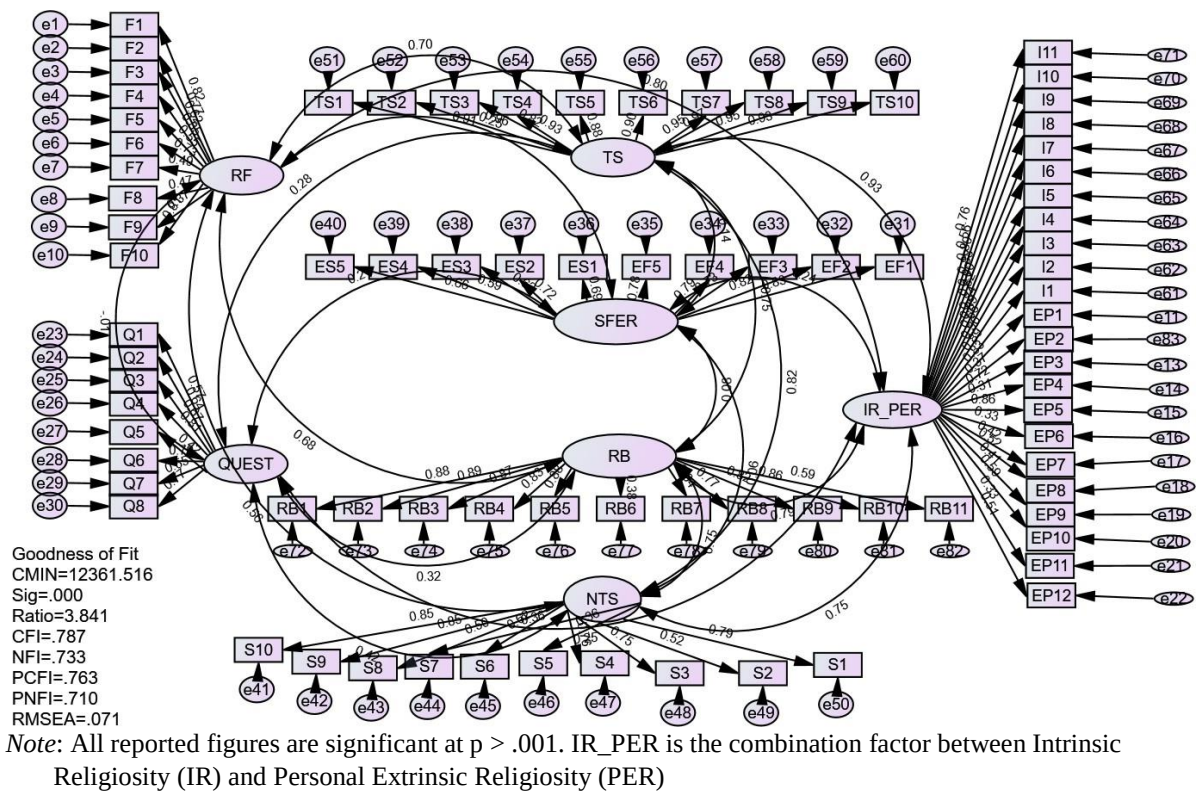
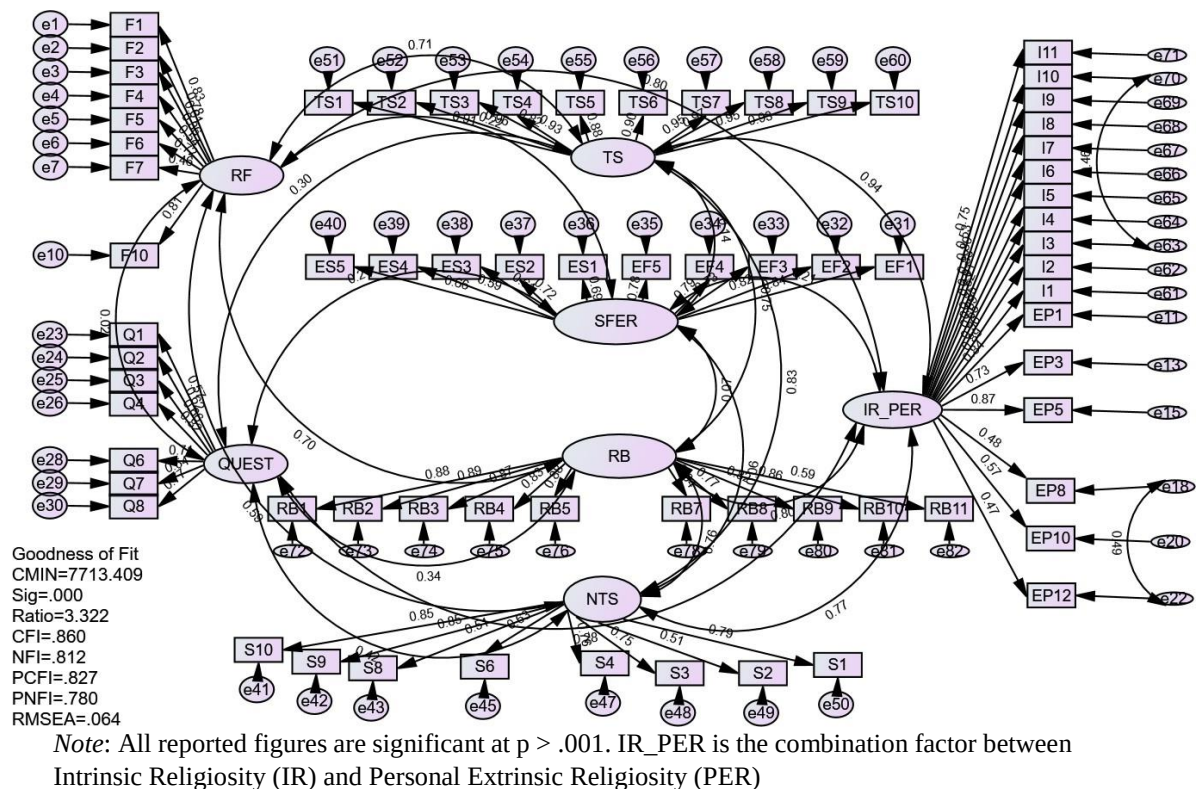


Figure 16: Model 3- A Correlated Seven-Factor – Improved ‘Malaysia’ Model in the CFA



6.3.6.2 *Composite Reliability, Convergent Validity, and Discriminant Validity*

Hair, Black, Babin, Anderson, and Tatham (2006) suggested using multiple criteria when performing CFA, in addition to model fit evaluation, to gain a clear understanding of the individual parameters. This can strengthen the theoretical position of the constructs by calculating composite reliability and conducting tests for convergent validity and discriminant validity. The assessment of composite reliability aims to examine the internal consistency and reliability of a construct. Conversely, the evaluation of average variance extracted is used to assess convergent validity (Hair et al., 2014).

In this study, composite reliability was chosen as a measure of internal consistency, in addition to Cronbach's alpha. Composite reliability considers the different outer loadings of the items within a construct. The values of composite reliability range from 0 to 1, with higher values indicating higher levels of reliability. According to Hair et al. (2014), composite reliability values between 0.60 and 0.70 are considered acceptable. Values below 0.60 indicate a lack of internal consistency reliability. As shown in Table 31, all constructs had composite reliability values above 0.85 (highlighted in bold), surpassing the threshold of 0.70. These results indicate that composite reliability was achieved.

Convergent validity refers to the extent to which an item correlates positively with other items of the same construct. The items within a specific construct should converge, indicating a high proportion of shared variance (Hair et al., 2014). This study recommends using average variance extracted (AVE) to establish convergent validity, as suggested by Hair et al. (2014). The minimum acceptable value for AVE is 0.50, as an AVE of 0.50 or higher indicates that the construct explains more than half of the variance of its items. As shown in Table 30, the Average Variance Extracted (AVE) was above 0.50 (highlighted in bold) for all variables except for Quest, which had an AVE of 0.45. This suggests that the variables within their latent factor do not correlate well with each other, indicating that the latent factor is not well explained by its items (Hair et al., 2014).

The Discriminant validity of the constructs is achieved when the diagonal values (i.e., the square root of AVE for the respective constructs) are greater than any values in their rows and columns, respectively (Hoque et al., 2018; Hoque et al., 2017a; Hoque et al., 2017b; Hoque et al., 2017d; Awang, 2015a; Hair et al., 2014). Fornel and Larcker (1971) were used to assess discriminant validity by comparing the square root of each AVE on the diagonal with the correlation coefficients (off-diagonal) for each construct in the relevant rows and columns. From Table 32, there is little disagreement regarding the RF-IR and IR-TS constructs. The AVE for IR and RF is smaller than the correlations TS-IR and IR-RF (underlined).

In summary, the values of construct reliability (CR) and AVE for each construct, as shown in Table 30, demonstrate that all latent constructs have successfully achieved convergent validity, construct reliability, and internal reliability, except for Quest (in red font and bold). Despite some minor disagreements regarding discriminant validity, the overall discriminant validity for most of the factors can be accepted in this measurement model and supports the distinction between the constructs.

Table 30: Convergent Reliability and Average Variance Extracted in the NSRS

Indicator	Latent variables	Standardized loadings	Square of standardized loadings	Sum of the Square of standardized loadings	Number of indicators	AVE	Square root of AVE
F1	RF	0.81	0.66				
F2	RF	0.79	0.62				
F3	RF	0.61	0.38				
F4	RF	0.83	0.69				
F5	RF	0.57	0.33				
F6	RF	0.73	0.53				
F7	RF	0.48	0.23				
F10	RF	0.80	0.64	4.08	8.00	0.51	0.71
EP11	PER	0.82	0.68				
EP12	PER	0.76	0.58				
EP10	PER	0.54	0.29				
EP9	PER	0.79	0.62				
EP8	PER	0.76	0.57				
EP7	PER	0.82	0.68				
EP6	PER	0.81	0.66				
EP4	PER	0.72	0.52				
EP2	PER	<u>0.72</u>	0.52	5.12	7.00	0.73	0.85

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Indicator	Latent variable s	Standardized loadings	Square of standardized loadings	Sum of the Square of standardized loadings	Number of indicators	AVE	Squar e root of AVE
Q1	Quest	0.57	0.33				
Q2	Quest	0.59	0.34				
Q3	Quest	0.64	0.41				
Q4	Quest	0.84	0.70				
Q6	Quest	0.71	0.51				
Q7	Quest	0.50	0.25				
Q8	Quest	0.78	0.61	3.15	7.00	0.45	0.67
Q1	Quest	0.57	0.33				
EF1	SFER	0.80	0.64				
EF2	SFER	0.79	0.63				
EF3	SFER	0.73	0.53				
EF4	SFER	0.78	0.61				
EF5	SFER	0.79	0.63				
ES1	SFER	0.69	0.47				
ES2	SFER	0.80	0.63				
ES3	SFER	0.62	0.39				
ES4	SFER	0.57	0.33				
ES5	SFER	0.67	0.44	5.28	10.00	0.53	0.73

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Indicator	Latent variables	Standardized loadings	Square of standardized loadings	Sum of the Square of standardized loadings	Number of indicators	AVE	Square root of AVE
S10	NTS	0.85	0.72				
S9	NTS	0.84	0.70				
S8	NTS	0.51	0.26				
S6	NTS	0.63	0.40				
S4	NTS	0.76	0.57				
S3	NTS	0.75	0.56				
S2	NTS	0.48	0.23				
S1	NTS	0.79	0.62	4.06	8.00	0.51	0.71
TS10	TS	0.94	0.87				
TS9	TS	0.95	0.91				
TS8	TS	0.97	0.93				
TS7	TS	0.95	0.90				
TS6	TS	0.90	0.81				
TS5	TS	0.88	0.77				
TS4	TS	0.94	0.88				
TS3	TS	0.83	0.68				
TS2	TS	0.96	0.91				
TS1	TS	0.91	0.82	8.48	10.00	0.85	0.92

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Indicator	Latent variable s	Standardized loadings	Square of standardized loadings	Sum of the Square of standardized loadings	Number of indicators	AVE	Squar e root of AVE
I1	IR	0.89	0.79				
I2	IR	0.90	0.81				
I3	IR	0.66	0.44				
I4	IR	0.89	0.80				
I5	IR	0.85	0.72				
I6	IR	0.82	0.67				
I7	IR	0.90	0.82				
I8	IR	0.88	0.77				
I9	IR	0.80	0.64				
I10	IR	0.55	0.30				
I11	IR	0.75	0.57	7.32	11.00	0.67	0.82
RB1	RB	0.88	0.78				
RB2	RB	0.89	0.79				
RB3	RB	0.87	0.76				
RB4	RB	0.83	0.70				
RB5	RB	0.89	0.78				
RB7	RB	0.65	0.42				
RB8	RB	0.77	0.60				
RB9	RB	0.81	0.65				
RB10	RB	0.85	0.72				
RB11	RB	0.58	0.34	6.54	10.00	0.65	0.81

Table 31: The Composite Reliability the NSRS

Indicator	Latent variables	Standardized loadings	Square of standardized loadings (A)	Measurement Error (ME)=1-A	Sum of ME	Sum of the standardized loadings	Square of the Sum of standardized loading, C	C+ME	Composite Reliability= C/(C+ME)
F1	RF	0.81	0.66	0.34					
F2	RF	0.79	0.62	0.38					
F3	RF	0.61	0.37	0.63					
F4	RF	0.83	0.69	0.31					
F5	RF	0.57	0.32	0.68					
F6	RF	0.73	0.53	0.47					
F7	RF	0.48	0.23	0.77					
F10	RF	0.80	0.64	0.36	3.93	5.62	31.58	35.52	0.89
EP11	PER	0.82	0.67	0.33					
EP12	PER	0.76	0.58	0.42					
EP10	PER	0.54	0.29	0.71					
EP9	PER	0.79	0.62	0.38					
EP8	PER	0.76	0.58	0.42					
EP7	PER	0.82	0.67	0.33					
EP6	PER	0.81	0.66	0.34					
EP4	PER	0.72	0.52	0.48					
EP2	PER	0.72	0.52	0.48	3.89	6.74	45.43	49.32	0.92

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Indicator	Latent variables	Standardized loadings	Square of standardized loadings (A)	Measurement Error (ME)=1-A	Sum of ME	Sum of the standardized loadings	Square of the Sum of standardized loading, C	C+ME	Composite Reliability= C/(C+ME)
Q1	Quest	0.57	0.32	0.68					
Q2	Quest	0.59	0.35	0.65					
Q3	Quest	0.64	0.41	0.59					
Q4	Quest	0.84	0.71	0.29					
Q6	Quest	0.71	0.50	0.50					
Q7	Quest	0.50	0.25	0.75					
Q8	Quest	0.78	0.61	0.39	3.85	4.63	21.44	25.29	0.85
EF1	SFER	0.80	0.64	0.36					
EF2	SFER	0.79	0.62	0.38					
EF3	SFER	0.73	0.53	0.47					
EF4	SFER	0.78	0.61	0.39					
EF5	SFER	0.79	0.62	0.38					
ES1	SFER	0.69	0.48	0.52					
ES2	SFER	0.80	0.64	0.36					
ES3	SFER	0.62	0.38	0.62					
ES4	SFER	0.57	0.32	0.68					
ES5	SFER	0.67	0.45	0.55	4.70	7.24	52.42	57.11	0.92

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Indicator	Latent variables	Standardized loadings	Square of standardized loadings (A)	Measurement Error (ME)=1-A	Sum of ME	Sum of the standardized loadings	Square of the Sum of standardized loading, C	C+ME	Composite Reliability= C/(C+ME)
TS10	TS	0.94	0.88	0.12					
TS9	TS	0.95	0.90	0.10					
TS8	TS	0.97	0.94	0.06					
TS7	TS	0.95	0.90	0.10					
TS6	TS	0.90	0.81	0.19					
TS5	TS	0.88	0.77	0.23					
TS4	TS	0.94	0.88	0.12					
TS3	TS	0.83	0.69	0.31					
TS2	TS	0.96	0.92	0.08					
TS1	TS	0.91	0.83	0.17	1.46	9.23	85.19	86.66	0.98
S10	NTS	0.85	0.72	0.28					
S9	NTS	0.84	0.71	0.29					
S8	NTS	0.51	0.26	0.74					
S6	NTS	0.63	0.40	0.60					
S4	NTS	0.76	0.58	0.42					
S3	NTS	0.75	0.56	0.44					
S2	NTS	0.48	0.23	0.77					
S1	NTS	0.79	0.62	0.38	3.92	5.61	31.47	35.39	0.89

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Indicator	Latent variables	Standardized loadings	Square of standardized loadings (A)	Measurement Error (ME)=1-A	Sum of ME	Sum of the standardized loadings	Square of the Sum of standardized loading, C	C+ME	Composite Reliability= C/(C+ME)
I1	IR	0.89	0.79	0.21					
I2	IR	0.90	0.81	0.19					
I3	IR	0.66	0.44	0.56					
I4	IR	0.89	0.79	0.21					
I5	IR	0.85	0.72	0.28					
I6	IR	0.82	0.67	0.33					
I7	IR	0.90	0.81	0.19					
I8	IR	0.88	0.77	0.23					
I9	IR	0.80	0.64	0.36					
I10	IR	0.55	0.30	0.70					
I11	IR	0.75	0.56	0.44	3.69	8.89	79.03	82.72	0.96

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Indicator	Latent variables	Standardized loadings	Square of standardized loadings (A)	Measurement Error (ME)=1-A	Sum of ME	Sum of the standardized loadings	Square of the Sum of standardized loading, C	C+ME	Composite Reliability= C/(C+ME)
RB1	RB	0.88	0.77	0.23					
RB2	RB	0.89	0.79	0.21					
RB3	RB	0.87	0.76	0.24					
RB4	RB	0.83	0.69	0.31					
RB5	RB	0.89	0.79	0.21					
RB7	RB	0.65	0.42	0.58					
RB8	RB	0.77	0.59	0.41					
RB9	RB	0.81	0.66	0.34					
RB10	RB	0.85	0.72	0.28					
RB11	RB	0.58	0.34	0.66	3.47	8.02	64.32	67.79	0.95

Note:

S=Non-Theistic Spirituality, TS= Theistic Spirituality, F= Religious Fundamentalism, Q= Quest, I = Intrinsic Religiosity, EP= Extrinsic Religioisty, ES=Extrinsic RELigioisity Social, EF= Extrinsic Religiosity Family, and RB= Religious Behaviour

Table 32: Discriminant Validity of the NSRS - The square root of the average variance extracted (AVE) (in bold) and correlations between constructs (off-diagonal).

	RB	NTS	TS	IR	PER	SFER	RF	QUEST
RB	0.81							
NTS	0.77	0.71						
TS	0.76	0.83	0.92					
IR	0.81	0.76	<u>0.94</u>	0.82				
PER	0.21	0.24	0.36	0.48	0.85			
SFER	0.11	0.08	0.16	0.22	0.55	0.73		
RF	0.70	0.59	0.71	<u>0.81</u>	0.50	0.23	0.71	
QUEST	0.34	0.41	0.30	0.27	0.04	0.19	0.01	0.67

6.3.7 *Confirming the structure of NSRS*

In this section, the discussion focused on the results of the Confirmatory Factor Analysis (CFA) to confirm the suitability of the data set for CFA. The results of the CFAs for each model are shown in Figures 11, 12, 13, 14, 15, and 16. As can be seen in Table 33, in all the analyses, following the removal of poor factor loadings, indices for this model improved significantly. For instance, after the improvement, Model 3 also showed a fairly better fit, but the removal of six PER items may possibly not be able to capture the construct as per its operational definition or not. Apart from that, the results of the initial estimation of Model 2, seven correlated factors did not provide a satisfactory result with a chi-square value of 3.87, which was significant at the $p < .001$ level. Other fit indices revealed a low fit (RMSEA = .071; CFI = .7; TLI = .78). But after the improvement, seven correlated factors showed a better fit with (CMIN/DF) = 3.17; CFI = .86; TLI = .85 and RMSEA = 0.62.

In deciding the suitable models that need to be further investigated, several aspects were considered. For example, comparing the EFA in the UK sample and the CFA in the UK sample in Models 1 and 2, the findings were quite similar, such as the poorly loading items. However, the EFA was conducted in a less religious group, with about half of the sample being Christians, while the CFA was conducted in a more religious group, with a majority of the sample being Christians. Thus, the findings may be influenced by sample characteristics. When deciding on the most suitable model for the new sample, several aspects were considered, such as sample characteristics

Based on the criteria associated with RMSEA, CFI, and TLI, it has been demonstrated that the Model 1 eight-correlated factor improvement provides a better fit of the data when compared to the seven-correlated factor model. This indicates that the eight-correlated factors account for a greater amount of variance than the seven-correlated factors model. Furthermore, the CMIN/DF for the Model 1-improved was less than 3.00, which further supports the advantages of the eight-factor model over the seven-factor model based on the UK and the Malaysian model.

Based on these results, the factor structure for an eight-correlated factor-improved model was deemed acceptable, as the hypothesized model fit the observed data well, and the eight factors with 82 items contributed to an overall NSRS construct. Given the so-called acceptable model fit of Model 1, at this stage, this model was preferred. While covariate treatments can be used to improve model fit, it is important to note that they cannot always be relied upon 100%, as they do not consider our theoretical and conceptual framework. Therefore, it is necessary to provide justifications for their use and to ensure that they make sense in the context of our research. Hence, we believe that Model 1 presents the most proximate alternative with a significant degree of suitability.

Table 33: Goodness-of-Fit Indexes for the Confirmatory Factor Analyses

Model	(CMIN/DF)	CFI	TLI	SRMR	RMSEA
Model 1	3.58	.81	.80	0.12	.069
Model 1-improved	2.71	.89	.89	0.08	.055
Model 2	3.87	.79	.78	0.13	.071
Model 2- improved	3.06	.87	.86	0.08	.061
Model 3	3.84	.79	.78	0.10	.071
Model 3 - improved	3.31	.85	.84	0.08	.064

Note: Using maximum likelihood and the criteria for acceptable fit. The comparative fit index (CFI) represents the proportion of improvement of the overall fit relative to the independence model (i.e., the model that assumes that all subtests are unrelated). The Tucker–Lewis’s index (TLI) is conceptually similar but includes a correction for model complexity. The goodness of fit index (GFI) represents the proportion of variance in the observed covariance matrix explained by the hypothesized model. The standardized root-mean-square residual (SRMR) is the average of the standardized residuals after the hypothesized model is fit to the observed covariance matrix. CFI, and TLI values of .90 and greater and SRMR values of ≤ 0.08 (Hu & Bentler, 1999) indicate excellent and RMSEA values ≤ 0.08 (Browne & Cudeck, 1993), Hair et al. 2006) (Hu & Bentler, 1999) or less indicate an acceptable fit (Byrne, 2001; Kline, 1998). RMSEA value of less than 0.05 indicates a good fit while a value between 0.05 and 0.08 indicates an acceptable fit (Browne and Cudeck, 1993; Hair et al. (2006). Ratio of chi-square to its degree of freedom (CMIN/DF) value of less than 5.00 is acceptable (Hair et al., 1998; Hair et al., 2006).

Model 1= an eight-correlated factor;

Model 2= a seven-correlated factor based on the UK model;

Model 3 = a seven-correlated factor based on the Malaysia Model

6.3.8 Discussion

6.3.8.1 Main findings

In summary, all models suggested so-called acceptable model fits, but Model 1 is considered the best ‘acceptable’ model fit. Several interesting findings need to be highlighted. As can be seen in Table 34, the comparison of models 1, 2, and 3 in terms of poor loading and modification indices, several findings need to be highlighted. First, the results from the three models showed some similarities and differences. As for the similarities, all three models showed a consistent poor factor loading for the items– Q5, S7, S5, RB6, F8, and F9, with fairly similar factor loadings (see details in Table 11). Irrespective of the models, those items might possibly not belong to the latent factors. Interestingly, item RB6 (*I make a special effort to visit sacred places (pilgrimage)*) was also the lowest factor loading at .52 in the EFA study in the UK sample (see details in Chapter 5). As discussed in Chapter 5, the item on the visit to sacred places or pilgrimage is seldom practiced, particularly in the UK. Thus, this item may possibly need to be removed or reworded.

Apart from that, item Q5 (*There may be many ways to find the truth about existence*) was also found to have consistently poor loading in all three models. This is interesting as in the EFA, this item was loaded with 0.8 in the UK sample and 0.7 in the Malaysian sample. However, as in this current study, a more stringent cut-off was used (i.e., 0.50), so this item cannot be considered as a ‘bad’ item, particularly as the subscale contains only eight items. More importantly, this item was generated to reflect the search for the truth in different ways, and it does capture the construct. However, it is suggested that this item needs to be revised and may possibly need to be reworded although this item was retained in the NSRS-SV.

Surprisingly, three items of PER, namely i) PER1, ii) PER3, and iii) PER5 with poor factor loadings in the CFA also showed complex patterns or double loading in the EFA study among the UK sample. To recap, items PER5 (*'When I am in difficulty, I pray to God for aid'*) and PER1 (*I pray because I feel God answers my prayer*) were moderately loaded on the combined Theistic Spirituality/Intrinsic Religiosity factor while item PER3 (*I read sacred writings to find comfort*) were poorly loaded on the factor of Extrinsic Personal Religiosity. This pattern may possibly be due to an expression of one's transcendental relationship with a purpose to connect to God. More importantly, these complex patterns and poor factor loadings for those three items suggested those items were considered "bad" items because it is unreliable and otherwise very different from other items in the set. Those items might be considered problematic and should be removed. Accordingly, those two items (PER1 and PER3) were removed, and apparently, similar items were also dropped, and item PER5 was reworded in a shortened version of NSRS-SV (see Table 10 for details). More importantly, current findings from CFA have contributed support and evidence for the process of NSRS-SV.

While most of the items showed fairly consistent factors loading in Models 1 and 2, there was one item of IR10 (*I make a special effort to visit sacred places (pilgrimage) to be closer to God*) that was poorly loaded lower than 0.50 and this item also showed a high MI between the errors in Model 2 with the item from different factors such as RB6 (*I make a special effort to visit sacred places (pilgrimage)*). Although this study was conducted in a more religious sample with more Christians, activities such as a visit to a sacred place (pilgrimage) are seldom practiced among the UK people; thus, regardless of more religious or not, the notion of pilgrimage might be perceived as an uncommon religious behavior.

As the idea of covariate, the error terms are used to minimize the redundancy of items in measuring the same construct, those items were not covariates. Thus, if a given indicator or item has lots of errors, it might be considered a problematic item and should also be removed. These items (e.g., items IR10 and RB6) were removed in the NSRS-SV were removed and this current finding has enhanced support for the removal items.

In Model 3, those items of PER that were highly loaded in Models 1 and 2 were poorly loaded on the combined factor of IR/PER (i.e., factor loadings lower than 0.50), such as PER2, PER4, PER6, PER7, PER9, and PER11. This suggests that the items are largely explained by other latent factors, or do not belong to the combined factor. Thus, as the items had poor loadings and lots of error variance, these items should be removed. However, the removal of six PER items may possibly not be able to capture the construct as per its operational definition.

In addition, a majority of the variables exhibiting weak loadings on the latent constructs displayed substantial modification indices exceeding 200 in Model 2 with the composite factor TS/IR and Model 3 with the composite factor IR/PER. This phenomenon can be attributed to the fact that lower factor loadings lead to larger error variances, with error variances representing the variance in each measurement that is not shared with the latent construct.

The presence of high modification indices indicates redundancy, with these covariances of item errors often suggesting overlapping conceptual content (Brown, 2015). For instance, as illustrated in Table 23, within Model 2, the items IR7 (*I read religious texts to be closer to God*) and IR8 (*I take part in religious study to feel connected with God*) exhibited the highest modification indices, exceeding 200. This could be due to the similarity between the concepts of religious study and religious texts. In a context where religious practices are less common, such as in the UK, where individuals may have limited exposure to religious activities, it is plausible that religious study and religious texts are perceived as similar by respondents.

Interestingly, items that had high MI between the errors were also removed in the NSRS-SV such as TS2 (*I believe God gives purpose to my life*), RB9 (*I practice my religion according to its rule*), and RB10 (*I am guided by my religion in many aspects of my everyday life*). Although not all the items that showed high MI were the same items as were removed in the shortened version, some of the items were reworded or combined in the NSRS-SV such as the ten items of SFER were combined and shortened into five items without losing the essence of the construct and PER4 (*I follow the rules of my religion to avoid God's punishment / bad karma*) were replaced from punishment to God's disapproval. Another example of the items that were changed was item PER5, which was changed from *When I am in difficulty, I pray to God for aid* to *When I am in difficulty, I pray to God for comfort*.

We anticipated that Model 2 would yield convincing results due to similarities with the UK sample, but the CFA results did not support this assumption. The new sample is more religious (68.3%) and predominantly White British (86.9%), while the EFA study sample (UK sample) was less religious, with 51.9% being White British, and the differences in the cultural-religious factor might affect this finding. For instance, individuals in the individualist culture who are religious may score high in IR and TS, while non-religious individuals may score high in NTS and TS. Despite some individuals in the UK abstaining from religious practices like church attendance, they may still hold spiritual beliefs related to God while seeking solace in the spiritual realm.

On the other hand, for the Model 3, based on the EFA findings from the Malaysian sample, was expected to exhibit similarities with the characteristics observed in the Malaysian sample, known for its religious nature. However, the results did not support this hypothesis, possibly due to differing religious attitudes and behaviors between individuals in the UK and Malaysia, where religious values are deeply rooted. The interplay between religious beliefs, expressions, and cultural factors may contribute to these unexpected findings. For example, in Malaysia, individuals adhering to religious beliefs within a collectivist culture may engage heavily in religious practices and display extrinsic religiosity. Conversely, in the UK, individuals practicing religion within an individualistic culture may show less involvement in religious activities, viewing religion as a personal matter.

Given the unconvincing results in models 2 and 3, it is undoubtedly that we cannot predict the structure of the scale in the Malaysia Model or the UK model could be explained in this CFA analysis. Regardless of the results on the fit indexes, it showed that none of the Models showed an excellent model fit. Although checking on the fit indexes is crucial, the interpretation of the factor loadings (similar to the discussion in the EFA context) was also an important part.

More importantly, as can be seen in Table 35 on the comparison of the removal items from the CFA study and the removal from the revised version of NSRS-SV, there were more similarities than differences. For example, most of the items that had poor loadings were removed in the CFA study and were also removed in the process of NSRS-SV (e.g., F8 (*Other religious points of view cannot be tolerated*), F9 (*Those who offend my religion should be punished*), RB6 (*I make a special effort to visit sacred places (pilgrimage)*). The findings of the CFA study have contributed to the evidence on the justification of the removal of items in the process of the NSRS-SV.

It is important to highlight that, in all models, some of the items showed high MI, which indicates redundancy, and the items that need to be reviewed, reworded, and shortened were combined and shortened in the NSRS short version. All three models showed a consistent factor loading for the items— Q5, S7, S5, RB6, and F9, with fairly similar factor loadings. As the original models were tested and showed ‘not satisfying fit indexes’, all the models went through the process of modification, such as item removal and covariation of the error terms, and the indexes were improved.

Interestingly, several items showed a fairly consistent pattern of factor loading in both EFA and CFA studies among the UK sample. Although not all of the removal items in models 1, 2, and 3 were similar to the items that were removed in the NSRS short version.

In conclusion, as can be seen in Table 36, it is evident that the models share more similarities than differences, with the variations primarily observed in the combined factors of TS, IR, and PER. Notably, the factor structure for the new UK sample, which exhibits a higher degree of religiosity, did not achieve a straightforward structure, although the fit indices were deemed acceptable. Therefore, all the reasons need to be weighed, and several reasons could possibly be trade-offs in order to get the so-called better-fit model. Nevertheless, taking into account all the pertinent factors and justifications, and based on the scale's intended use among both religious and non-religious groups, we shall opt for the eight correlated factors as originally developed.

Table 34: The comparison of Models 1, 2, and 3

Criteria	Model 1	Model 2	Model 3
Poor Loading Items	PER1, PER3, PER5, S5, S7, F8, F9, Q5	PER1, PER3, PER5, S5, S7, F8, F9, Q5, I10	PER2, PER4, PER6, PER7, PER9, PER11, S5, S7, F7, F8, F9, Q5
Similarities in the poor factor loading items	RB6, F8, F 9, Q5	RB6, F8, F9, Q5	RB6, F8, F9, Q5
Modification Indices (e.g.,)	PER1-PER5 (307) PER1-PER3 PER3-PER5 PER12-RB6 IR3-IR10 TS2-S3	TS3-S3 IR7-IR8, IR10-RB6 PER3-PER5, PER1-PER3, PER1-PER5, IR3-IR10	TS3-S3 IR10-RB6 PER3-PER5, PER1-PER3, PER1-PER5, IR3-IR10

Table 35: The comparison of the removal items and item-restructuring in the CFA study and the shortening process of NSRS-SV

Items	Removal items in the CFA	Removal items from the NSRS to NSRS-SV (82 items)	Changes, or rewording of the items
Religious Behaviour	RB6	RB6, RB9, RB10 (-3)	
Non-Theistic Spirituality	S5, S7	S3, S5, S8 (-3)	
Theistic Spirituality	none	TS2, TS3, TS4, TS5, TS10 (-5)	
Intrinsic Religiosity	I10 (Model 2)		IR8- changing the word <i>religious study</i> to <i>worship</i>
Personal Extrinsic Religiosity	PER1, PER3, PER5	PER1, PER3, PER6, PER10 (-4)	PER5- changing the word <i>aid</i> to <i>comfort</i> PER4 – changing the word of <i>punishment</i> to <i>disapproval</i> PER9- changing the word <i>so God will look favourably on me</i> to <i>to please God</i> PER11- remove <i>bad karma</i>
Social-Family Extrinsic Religiosity	None	Shortened 10 items to 5 items (-5)	Combined items from each Extrinsic Religiosity Family & Extrinsic Religiosity Family (e.g., <i>I practice my religion to be accepted by my family or community</i>)
Religious Fundamentalism	F8, F9	F8, F9 (-2)	F6 – changing the word <i>Defending</i> to <i>Promoting</i>
Quest	Q5	none	
Additional subscales		(+8)	An additional 8 items of Extrinsic Instrumental
Total		65	

Table 36: Similarities and Differences in all models of the CFA study

Similarities	Differences
All three models showed a consistent factor loading for the items– Q5, S7, S5, RB6, F8, and F9 with fairly similar factor loadings. For example, item Q5 (factor loading at 0.420)	For Model 2, there was one item of Intrinsic that showed poor loading, lower than 0.50, and this item also showed a high M between the error IR10
After the models went through the process of modification, the fit indexes were improved.	For Model 3, those items of PER that were poorly loaded in Models 1 and 2 were highly loaded in Model 3.
For Model 2 and Model 3, the combined factor showed that there were a lot of paths between the errors that had extremely high Mi with more than >200.	Item of EP2, EP4, EP6, EP7, EP9 and EP11 was found loaded lower than 0.50
The high MI in Models 2 and 3 showed redundancy, and some items need to be reworded.	
In all models, some of the items of SFER showed high MI it indicating redundancy and the items need to be reviewed, reworded, and shortened, which we did in the NRSR short version.	
Although not all of the removal items in models 1 and 2 were similar items that were removed in the NSRS short version.	

6.3.8.2 *Composite Reliability, Convergent Validity, and Discriminant Validity*

In the preceding section, the study examined the reliability and validity of a construct within the NSRS. The findings indicate that all latent constructs have successfully demonstrated convergent validity, construct reliability, and internal reliability, except for Quest. While there were some minor discrepancies regarding discriminant validity on the factors (IR-TS, IR-RF), the overall discriminant validity of most factors can be accepted in this measurement model, thus supporting the differentiation between the constructs.

However, it is worth noting that the Fornell-Larcker criterion, which was utilized for assessing discriminant validity, has been criticized in a recent study by Hair et al. (2021) as being unsuitable for this purpose. Additionally, Henseler, Ringle, and Sarstedt (2015) have demonstrated that the Fornell-Larcker criterion does not perform well, particularly when the indicator loadings on a construct exhibit minimal differences (e.g., all indicator loadings falling between 0.65 and 0.85). Consequently, the Fornell-Larcker criterion often fails to reliably identify issues with discriminant validity in empirical applications (Radomir & Moisescu, 2019) and should therefore be avoided. As a more effective alternative, Hair and colleagues (2021) have recommended the use of the heterotrait-monotrait ratio (HTMT) of correlations (Henseler et al., 2015) for assessing discriminant validity.

Hence, it is imperative to reconsider and reassess the NSRS due to its shortcomings in establishing discriminant validity. To address this issue, the adoption of the HTMT criterion is recommended, as it ensures that the interpretation of causal effects in modeling analysis remains accurate and avoids any misleading conclusions. Despite its rigorous procedure compared to the Fornell and Larcker criterion, the HTMT criterion offers high sensitivity and ensures the measurement model is devoid of any issues. Moreover, it facilitates the creation of a high-quality measurement tool through the items included in the developed questionnaire (Haji-Othman & Yusuff, 2022).

Apart from that, the intriguing findings on discriminant validity may be linked to the initial findings in the exploratory factor analysis (EFA), which revealed overlapping constructs between Theistic Spirituality (TS) and Intrinsic Religiosity (IR) among the UK sample. Despite variations in sample characteristics (e.g., the EFA study in the UK sample included more irreligious individuals, while the confirmatory factor analysis (CFA) study in the UK sample had a more religious sample), these results suggest that, on the whole, expressions of religiosity and spirituality could be similar. For instance, an individual may believe in the Christian God but not attend church. Nevertheless, they may have a personal connection to God that is demonstrated through their religious practices and interpretations.

6.4 Implications

6.4.1 *Current status*

The current study establishes a reliable and valid 82-item scale to measure various aspects of religiosity among religious and non-religious groups. Besides, the study supports findings in the previous studies on the shortened version of NSRS. The implications of this study are based on the development of an authentic and reliable scale to measure the various aspects of religiosity based on the substantial CFA measurement model. Thus, the scale containing 82 with some dropped items that measure the model, produces a valid and reliable result and can be used in religious and non-religious groups. As we know, the NSRS went through the process of a revised version, more importantly, as mentioned earlier, there were similarities between the findings in the current study and the NSRS-SV which contributed to enhancing support on the items such as the removal of poor loadings the removal of redundancy items, and reworded items.

6.4.2 *Next steps*

In support of the factor structure of this model, future directions of research may continue to test the validation of NSRS in different cultures and religious groups, or non-religious groups, such as testing a CFA study among one religious group in a one sample. For example, to test the CFA among Muslims in Malaysia, and then these findings can help researchers to understand whether there is a problem with items or the sample.

Apart from that, in future research, the possibility of potential higher-order factors that lead to an additional subscale could be examined. In the new version of NSRS, there was an additional subscale of extrinsic (why people do what they do), namely Extrinsic Personal Instrumental (to get good things/avoid bad things from God). This new subscale together with the existing Extrinsic subscales such as a) intrinsic (relational, for the pleasure of the relationship with God), b) Extrinsic Personal (to be in a good relationship/avoid a bad relationship with God), c) Extrinsic Social and Family (to get good things from family/society and avoid bad thing) can be further investigated in order to confirm the factor structure of NSRS. Thus, it will be beneficial if a new model of CFA study can be tested.

6.4.3 *Limitations*

As expected in all research, it is common to encounter limitations that need to be addressed in order to enhance the effectiveness of future research. The main limitation of this particular study lies in its generalizability. A portion of the study exclusively utilized a sample from the UK. Consequently, while data collection took place in various regions within the UK, the resulting measurement scale may be restricted to the UK population or may only pertain to specific groups (e.g., the Christian religious group).

Additionally, another segment of the study, such as the assessment of Convergent/Divergent Validity and Test-Retest Reliability, utilized a sample from Malaysia, which did not have an equal distribution of religious affiliations. For instance, the higher proportion of Muslim participants in this study could potentially skew the results and limit the applicability to individuals from other religious backgrounds in Malaysia. Therefore, the findings of this study should be interpreted with caution. Conducting research with samples from diverse populations and replicating the study would help validate the conclusions across different cultural groups and provide evidence of generalizability. Consequently, further evaluation of the measurement scale developed in this study is imperative to determine its suitability for various population groups.

Moreover, it is important to note that this study is cross-sectional in nature. Additionally, the sensitive nature of religiosity and spirituality concepts may lead respondents to feel uncomfortable answering truthfully or to underreport, which could jeopardize the validity of the results.

Despite the comprehensive nature of this study in exploring religion and spirituality through literature review and extensive research, it is acknowledged that certain aspects of religious behavior and motivations may have been inadvertently omitted. For instance, the combination of Intrinsic Religiosity (IR) and Personal Extrinsic Religiosity (PER) in the Malaysian sample raises the need for further investigation into potential cultural and religious factors influencing this combination. The addition of the new subscale Personal Instrument Extrinsic Religiosity (PIR) in the revised version of the NSRS warrants additional examination among Malaysian or religious samples.

Furthermore, there is a possibility that the Quest items may require revision based on the findings from the CFA and convergent/divergent validity analyses, which were conducted using samples from the UK and Malaysia. The refinement of the measurement scale proposed in this study could be enhanced through future research efforts, with a particular focus on religious domains such as Intrinsic and Extrinsic Religiosity within the Malaysian context.

Moreover, such investigations and modifications could include the addition and/or deletion of items, or even a modification of the factor structure if so indicated. These will be incorporated to ensure a valid measure of religiosity. Additionally, it would be interesting to analyze the effect of different factors, constructs, or scales on other samples with different religious groups or non-religious groups. In order to comprehend the factors behind the intriguing findings in the factor structure of NSRS, it is crucial to take into account the significance of extrinsic and intrinsic religious orientations within the Malaysian context and the combination between Theistic Spirituality and Intrinsic Religiosity in the UK context. Although the models tested in the CFA based on the EFA findings were not convincing and supportive, there is a possibility that the sample characteristics might affect the findings, such as a more religious sample with sample characteristics which not present.

Given that there may be individuals who participate in religious groups for social reasons without adhering to the prescribed theism, and vice versa, it is recommended that future studies explore this area. Additionally, it is strongly advised that future research investigates and validates the NSRS-SV among practitioners of various religions within the Malaysian and the UK populations.

Nonetheless, the findings derived from this investigation present compelling evidence that both the NSRS and the NSRS-SV are effective and reliable instruments for evaluating different aspects of religiosity and spirituality. As a result, it can be deduced that the NSRS-SV has been successfully validated and possesses robust psychometric properties for implementation among individuals in Malaysia and the UK. In summary, with some minor adjustments, the NSRS-SV can be applied in a wide range of research fields within the Malaysian and the UK context.

6.5 Conclusion

The aim of developing the NSRS scale was to create a tool that could be utilized across different religious and non-religious groups. Measuring religiosity comes with its challenges, particularly because it has been viewed as comprising multiple concepts that might relate to one another in different ways. Numerous attempts have been made to determine the most effective approach and tools for measurement, leading to the development of different frameworks to conceptualize religiosity. During the scale development process, it was recognized that while there are similarities among diverse religions, there are also notable differences in religious experiences. Although our study may not cover all dimensions of religiosity, the results strongly support the idea of multidimensionality, with scale items reflecting a common underlying factor despite some conflicting outcomes.

The study findings revealed that the NSRS measurement instrument comprises eight constructs: Religious Behavior, Non-Theistic Spirituality, Theistic Spirituality, Intrinsic Religiosity, Personal Extrinsic Religiosity, Social-Family Extrinsic Religiosity, Fundamentalism, and Quest, which are valid and reliable for assessing religiosity and spirituality. The measurement model meets the recommended criteria with an RMSEA value of ≤ 0.08 and CFI and TFI values approaching ≥ 0.9 . Additionally, the scale demonstrates favorable psychometric properties, including internal consistency, content validity, construct validity, convergent validity, discriminant validity, and test-retest.

Hence, through the replication of the NSRS validation study in a range of cultural and religious or non-religious settings, it is proposed that the NSRS possesses the capability to accurately assess different dimensions of religiosity and spirituality among diverse religious and non-religious communities. Consequently, this newly devised scale can be employed for self-evaluation and ongoing enhancement.

Chapter 7

Main Analyses

7.1 Correlation Analyses

Correlation analyses were conducted on eight subscales of the Newcastle Religiosity and Spirituality Scale (NSRS), three TAF subscales, and the obsession subscale from OCI-V in the UK (N = 493) and Malaysia (N = 581) samples.

Table 37 presents the correlations between the religiosity/spirituality variables, TAF variables, and obsessions in the UK study. The religiosity/spirituality variables were significantly positively correlated with each other, from a moderate to strong correlation, ranging from $r = .146$ to $.913$, $p < .001$. The strongest correlation coefficient for the NSRS subscales was between Intrinsic Religiosity and Personal Extrinsic Religiosity, $r = .913$, $p < .001$. Interestingly, Religious Fundamentalism and Quest were significantly positively correlated, but with a very low correlation, $r = .146$. Despite all the positive correlations, there were also significant negative correlations between SFER and the other seven religiosity/spirituality variables with negative coefficients in the moderate range ($r = -.250$ to $-.504$, $p < .001$).

The correlations between TAF variables (i.e., TAF Morality, TAF Likelihood, and TAF Impulsivity) were positive and strong, ranging from $r = .608$ to $.806$. Next, the correlations between the religiosity/spirituality variables and TAF variables were also positively correlated in the low to moderate range, ranging from $r = .100$ to $.351$. Religious Behaviour was significantly correlated with all TAF variables except for TAF Likelihood, but SFER was negatively correlated with all three TAF variables. The religiosity/spirituality variables were all positively low correlated with obsessions, ranging from $r = .205$ to $.265$. Once again, SFER was negatively correlated with obsessions ($r = -.205$).

Finally, the correlations between the TAF variables and the obsession subscale were positive and moderate, ranging from $r = .421$ to $.544$.

Overall, most of the correlations were in the expected direction except for the positive correlation between Religious Fundamentalism and Quest and the negative correlations between SFER and the other variables of NSRS. More importantly, all the TAF variables were moderately and positively correlated with the obsessions subscale.

Table 37:

Correlation Matrix for the UK Sample (N=493)

Subscale	RB	NTS	TS	IR	PER	SFER	F	Q	TAF-L	TAF-M	TAF-I
NTS	.670**										
TS	.793**	.751**									
IR	.845**	.727**	.913**								
PER	.764**	.673**	.837**	.915**							
SFER	-.250**	-.376**	-.398**	-.453**	-.504**						
F	.716**	.581**	.752**	.807**	.839**	-.424**					
Q	.238**	.499**	.328**	.334**	.306**	-.425**	.146**				
LTAF	.038	.128**	.100*	.122**	.163**	-.223**	.148**	.108*			
MTAF	.293**	.328**	.344**	.347**	.351**	-.167**	.362**	.123**	.608**		
ITAF	.200**	.281**	.263**	.299**	.338**	-.349**	.319**	.152**	.806**	.731**	
OC	.205**	.250**	.212**	.231**	.256**	-.205**	.265**	.239**	.544**	.421**	.469**

Note:

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

RB=Religious Behaviour, NTS = Non-Theistic Spirituality, TS = Theistic Spirituality, IR = Intrinsic Religiosity, PER = Personal Extrinsic Religiosity, SFER = Social-Family Extrinsic Religiosity, Q = Quest, RF = Religious Fundamentalism, TAF-L = Thought Action Fusion Likelihood, TAF-M = Thought Action Fusion Morality, TAF = Thought Action Fusion Impulsivity, OC = Obsessions

Table 38 presents the correlations between the religiosity/spirituality variables, TAF variables, and obsessions in the Malaysian study. There were several notable results. First, the correlations between the religiosity/spirituality variables were positive and moderate to strong, ranging from $r = .360$ to $.816$, $p < .001$. Similar to the results obtained in the UK study, the strongest correlation coefficient was between Intrinsic Religiosity and Personal Extrinsic Religiosity, $r = .816$, $p < .001$.

Similar to the UK study, the correlations between TAF variables (i.e., TAF Morality, TAF Likelihood and TAF Impulsivity) were positive and strong, ranging from $r = .561$ to $.856$. However, in contrast to the UK study, although SFER was negatively correlated with PER, Religious Fundamentalism, and SFER (similar to the UK), it was not correlated with Non-Theistic Spirituality or Personal Intrinsic Religiosity and weakly and positively correlated with Theistic Spirituality. Next, in contrast to the UK, the correlations between the religiosity/spirituality variables and Likelihood and Impulsivity but (not Moral) TAF variables were significant but negatively correlated, with low correlations, ranging from $r = -.100$ to $-.224$, $p < .001$. TAF Morality was weakly but positively correlated with Quest ($r = .095$, $p < .005$).

The correlations between the religiosity/spirituality variables and obsessions were significant, weak, and with a negative coefficient except for two subscales namely, Religious Fundamentalism, which was not significantly correlated, and Quest, which was significantly and positively correlated. Finally, and consistent with the UK sample, the correlation between the scales and obsessions was moderate and positively correlated, ranging from $r = .327$ to $.552$, $p < .001$.

Overall, while the correlations between the religiosity/spirituality variables were similar to the UK, the direction of their correlations with the TAF and obsessions was opposite. More importantly, for both the UK and Malaysia samples, the correlations between TAF variables and obsessions were positive.

Table 38

Correlation Matrix for the Malaysia sample (N = 581)

Subscale	RB	NTS	TS	IR	PER	SFER	RF	Q	TAF-L	TAF-M	TAF-I
NTS	.434**										
TS	.442**	.528**									
IR	.604**	.555**	.637**								
PER	.571**	.480**	.548**	.816**							
SFER	-.056	.054	.085*	-.081	-.225**						
F	.490**	.360**	.534**	.531**	.602**	-.112**					
Q	.018	.155**	-.021	.045	.078	-.324**	-.006				
LTAF	-.190**	-.193**	-.231**	-.205**	-.221**	-.100*	-.175**	.084*			
MTAF	.011	.065	.025	.075	.015	-.044	-.017	.095*	.561**		
ITAF	-.168**	-.180**	-.255**	-.208**	-.224**	-.142**	-.188**	.108**	.856**	.599**	
OC	-.090*	-.130**	-.175**	-.159**	-.124**	-.171**	-.062	.092*	.552**	.327**	.444**

Note:

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

RB=Religious Behaviour, NTS = Non-Theistic Spirituality, TS = Theistic Spirituality, IR = Intrinsic Religiosity, PER = Personal Extrinsic Religiosity, SFER = Social-Family Extrinsic Religiosity, Q = Quest, RF = Religious Fundamentalism, TAF-L = Thought Action Fusion Likelihood, TAF-M = Thought Action Fusion Morality, TAF = Thought Action Fusion Impulsivity, OC = Obsessions

7.2 Indirect Effects in the United Kingdom (UK)

In this study, direct estimation of the indirect effects and conditional indirect effects was used rather than other approaches to mediation and moderation, as recommended by Hayes (2003) (see Hayes, 2003 for details). To illustrate the approach, the terms indirect effect/mediation and conditional effect/moderation are used interchangeably, although later sections use the conditional process language. The mediation models were tested before the moderated mediation models. For the mediation analyses, we conducted both a separate test and a combined test. The separate test examines whether each of the TAF variables mediates the relationship between religiosity and obsessive symptoms when entered alone. The combined test examined the indirect effect of religiosity/spirituality variables on obsessive symptoms when all three TAF variables were entered together. The combined test first examines whether the TAF variables collectively, i.e. additively, mediate the relationship between religiosity and obsessions. Second, examining the individual contributions within the combined indirect effect will identify whether one or more of the TAF variables make a significant individual contribution when all three are entered.

First, separate analyses were conducted for each TAF variables in turn without competition from the other two. Figure 17 shows the model tested for TAF Morality.

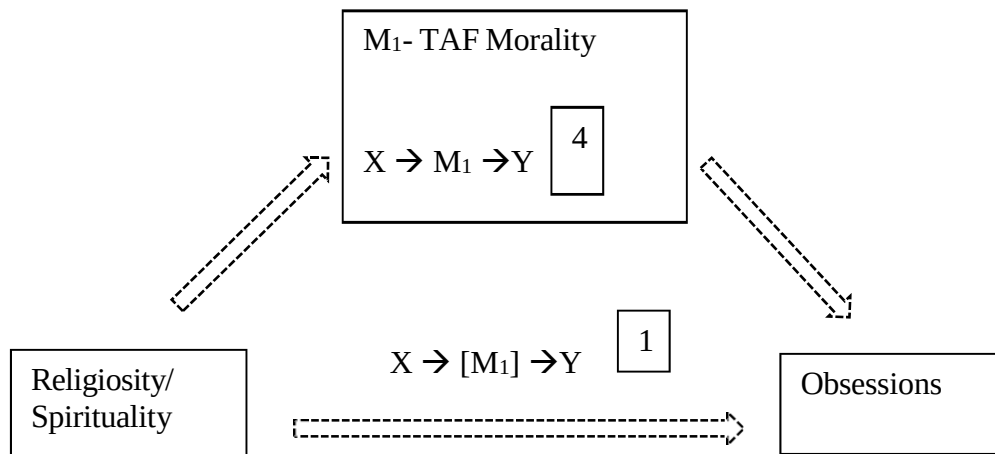


Figure 17:

Separate test for the Indirect Effect through TAF Morality (Mediation) Model 4 (Hayes, 2013)

*The number in the box represents the relationship of the Indirect Effect (please see the table for details)

Figure 4 shows the model tested for TAF Likelihood.

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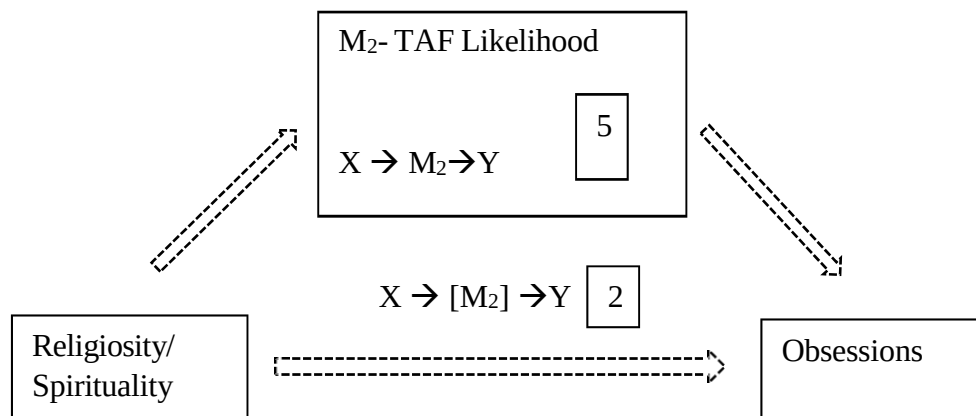


Figure 18:

Separate test for the Indirect Effect through TAF Likelihood (Mediation) Model 4 (Hayes, 2013)

*The number in the box represents the relationship of the Indirect Effect (please see the table for detail)

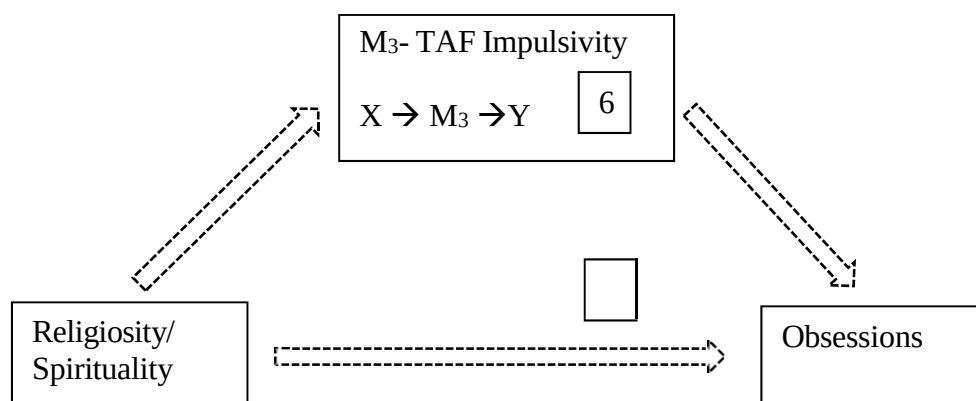


Figure 19:

Separate Test for the Indirect Effect through TAF Impulsivity (Mediation) Model 4 (Hayes, 2013)

*The number in the box represents the relationship of the Indirect Effect (please see the table for details)

Next, combined analyses were conducted. Any mediator which remains significant under the combined condition will be deemed have greater importance in the model. If two mediators remain significant in the combined model, the mediator with the greater Completely Standardised Index (CSI) (i.e., which expresses the strength of the effect in a common effect size) would be the more important of the two.

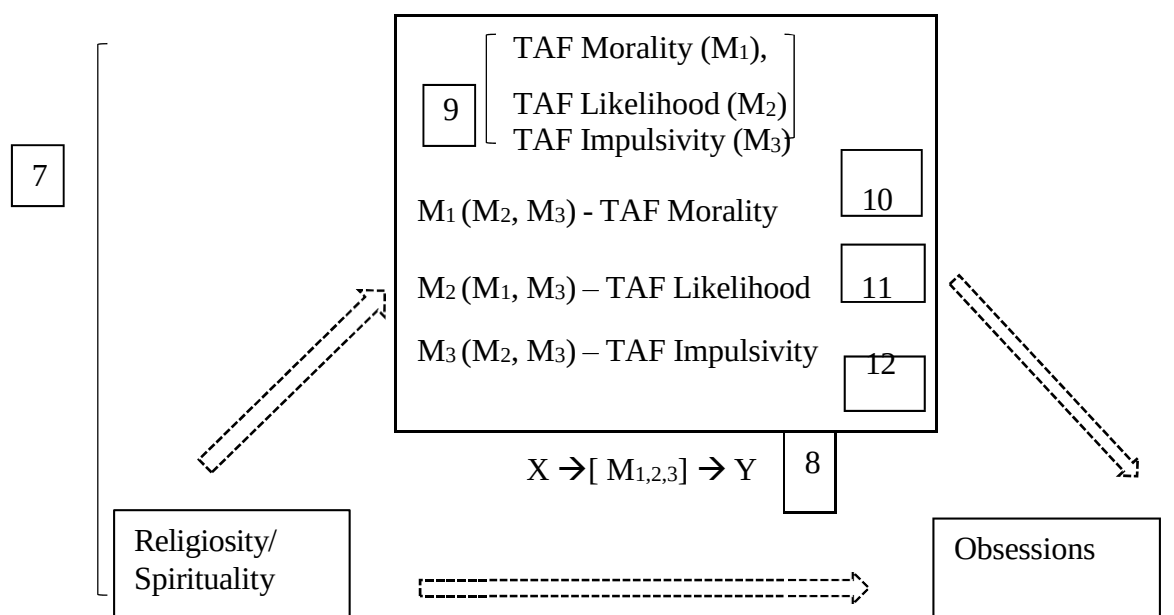


Figure 20:

Parallel mediators test for the Indirect Effect (Mediation) of Religiosity/Spirituality on Obsessions through the combined effect of Moral, Likelihood and TAF Impulsivity Model 4 (Hayes, 2013)

*The numbers in the box represent the Indirect Effect (please see the table 39 for details)

The results of the separate analyses for the indirect effect in the UK study are presented in Table 39. Table 39 displays the coefficient for each effect, its standard error, 95% confidence interval and whether the effect is significant. Furthermore, as the scales contain unequal numbers of items (TAF Morality and TAF Likelihood contain eight items, while TAF Impulsivity contains four items), the regression coefficients are scaled differently. Therefore, to enable valid comparisons between the indirect effects, as stated earlier, we reported the Completely Standardised Index (CSI), in order to determine which variables express the strength of the effect in a common effect size.

Table 39

The direct effect and indirect effect of the separate analyses among the UK sample (N=493)

	Direct Effect					Indirect Effect Through TAF			
	M1 (1)	M2 (2)	M3 (3)	Morality (4)		Likelihood (5)		Impulsivity (6)	
	Coef.			Coef.	CSI	Coef.	CSI	Coef.	CSI
Religious Behaviour (RB)									
Coef.	.0468	.0824	.0580	.0600	.1159	.0244	.0471	.0488	.0942
SE	.0222	.0193	.0210	.0105	.0194	.0134	.0255	.0112	.0207
LLCI	.0032	.0446	.0168	.0396	.0777	.0001	.0001	.0294	.0571
ULCI	.0905	.1203	.0993	.0816	.1542	.0517	.0974	.0713	.1347
Sig.	*	*	*	*	*	*	*	*	*
Non-Theistic Spirituality (NTS)									
Coef.	.0802	.1010	.0773	.0782	.1225	.0574	.0899	.0810	.1270
SE	.0275	.0240	.0264	.0129	.0192	.0151	.0232	.0141	.0212
LLCI	.0262	.0538	.0254	.0546	.0852	.0280	.0436	.0540	.0880
ULCI	.1343	.1482	.1293	.1053	.1629	.0869	.1356	.1104	.1715
Sig.	*	*	*	*	*	*	*	*	*
Theistic Spirituality (TS)									
Coef.	.0324	.0588	.0382	.0591	.1342	.0328	.0744	.0534	.1212
SE	.0192	.0166	.0182	.0093	.0196	.0105	.0233	.0098	.0212
LLCI	-.0053	.0262	.0024	.0411	.0946	.0134	.0303	.0372	.0845
ULCI	.0702	.0913	.0739	.0772	.1732	.0550	.1209	.0743	.1657
Sig.	n.s	*	*	*	*	*	*	*	*

Note:

This result is a summary from 10, 000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariated.

The separate test examined the religiosity/spirituality variables on obsessive symptoms through each variable of TAF.

In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M1 = TAF Morality, M2= TAF

Likelihood, M3= TAF Impulsivity. Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, CSI=Completely Standardized Index, n.s =not significant, * = significant at CI does not include zero.

The number in red parentheses indicates the relationship as explained in Figure 17, 18, and 19.

Continued from the previous page

	Direct Effect					Indirect Effect Through TAF			
	M1 (1)	M2 (2)	M3 (3)	Morality (4)		Likelihood (5)		Impulsivity (6)	
	Coef.			Coef.	CSI	Coef.	CSI	Coef.	CSI
Intrinsic Religiosity (IR)									
Coef.	.0394	.0590	.0383	.0522	.1339	.0356	.0864	.0563	.1365
SE	.0180	.0156	.0172	.0088	.0200	.0103	.0240	.0094	.0213
LLCI	.0040	.0284	.0045	.0381	.0939	.0163	.0404	.0404	.0990
ULCI	.0748	.0895	.0722	.0722	.1705	.0567	.1322	.0765	.1812
Sig.	*	*	*	*	*	*	*	*	*
Personal Extrinsic Religiosity (PER)									
Coef.	.0497	.0617	.0424	.0525	.1304	.0406	.1008	.0599	.1487
SE	.0175	.0153	.0170	.0084	.0916	.0100	.0235	.0097	.0219
LLCI	.0153	.0317	.0089	.0363	.0912	.0205	.0536	.0435	.1086
ULCI	.0842	.0916	.0758	.0686	.1678	.0603	.1469	.0811	.1954
Sig.	*	*	*	*	*	*	*	*	*
Social-Family Extrinsic Religiosity (SFER)									
Coef.	.0847	.0498	.0324	.0402	.0688	.0751	.1284	.0926	.1583
SE	.0241	.0227	.0249	.0109	.0181	.0146	.0235	.0146	.0235
LLCI	.0373	.0053	.0166	.0202	.0338	.0473	.0808	.0666	.1153
ULCI	.1321	.0943	.0813	.0625	.1038	.1053	.1726	.1216	.2050
Sig.	*	*	*	*	*	*	*	*	*

Note:

This result is a summary from 10,000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariates. The separate test examined the religiosity/spirituality variables on obsessive symptoms through each variable of TAF. In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M1 = TAF Morality, M2 = TAF Likelihood, M3 = TAF Impulsivity. Coef. = Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI = 95% Upper Confidence Interval, CSI = Completely Standardized Index, n.s. = not significant, * = significant at CI does not include zero. The number in red parentheses indicates the relationship as explained in Figure 17, 18, and 19.

In order to illustrate the analyses, we first summarize the results for Religious Behaviour through Table 40. As can be seen, for each TAF variable, the direct and the indirect effects were all significant. As can be seen in Table 40, in relation to the separate analyses, working from left to right for the variable of Religious Behaviour, the direct effects of all three TAF variables were all significant in separate analyses (1), (2), and (3) (as indicated in blue). Furthermore, the indirect effects for all TAF variables were also significant in separate analyses (4), (5) and (6).

Table 40

Summary of the results of the separate analyses of the indirect effect of Religious Behaviour on Obsessions through TAF in the UK sample

Relationship	No. of Indicator	Significance of the results
$X \rightarrow [M_1] \rightarrow Y$	1	The direct effect is significant in the separate analysis.
$X \rightarrow [M_2] \rightarrow Y$	2	The direct effect is significant in the separate analysis.
$X \rightarrow [M_3] \rightarrow Y$	3	The direct effect is significant in the separate analysis.
$X \rightarrow M_1 \rightarrow Y$	4	The indirect effect <u>is</u> significant in the separate analysis
$X \rightarrow M_2 \rightarrow Y$	5	The indirect effect <u>is</u> significant in the separate analysis
$X \rightarrow M_3 \rightarrow Y$	6	The indirect effect <u>is</u> significant in the separate analysis

Note:

Separate analyses for M_1 M_2 M_3

In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M_1 = TAF Morality, M_2 = TAF Likelihood, M_3 = TAF Impulsivity.

Next, the results of the combined analyses were presented in Table 41. Table 41 displays the coefficient for each effect, its standard error, 95% confidence interval and whether the effect is significant.

Table 41

The total effect, direct effect and indirect effect of the combined analyses among the UK study (N=493)

Total Effect M1 M2 M3(7)				Direct Effect M1 M2 M3(8)			Combined indirect Effect M1 M2 M3(9)			Indirect Effect Through TAF			
Morality (10)													
Likelihood (11)													
Impulsivity (12)													
Coef.													
Total													
SI													
Coef.													
SI													
Coef.													
SI													
Coef.													
SI													
Religious Behaviour (RB)													
Coef.			.1068	.0752	.0316	.0610	.0136	.0262	.0240	.0463	-.0059	-.0115	
SE			.0229	.0204	.0146	.0276	.0088	.0168	.0134	.0255	.0092	.0177	
LLCI			.0618	.0352	.0042	.0082	-.0023	-.0051	.0004	.0006	-.0254	-.0501	
ULCI			.1519	.1153	.0587	.1120	.0326	.0617	.0528	.0991	.0109	.0207	
Sig.			*	*	*	*	n.s	n.s	*	*	n.s	n.s	
Non-Theistic Spirituality (NTS)													
Coef.			.1584	.0936	.0647	.1015	.0203	.0319	.0569	.0891	.0125	.0197	
SE			.0279	.0253	.0167	.0255	.0115	.0179	.0163	.0253	.0153	.0240	
LLCI			.1035	.0439	.0312	.0494	-.0010	-.0016	.0276	.0419	.0466	.0708.	
ULCI			.2133	.1433	.0953	.1482	.0449	.0688	.0917	.1449	.0158	.0245	
Sig.			*	*	*	*	n.s	n.s	*	*	n.s	n.s	
Theistic Spirituality (TS)													
Coef.			.0195	.0538	.0408	.0989	.0142	.0344	.0355	.0860	.0088	-.0214	
SE			.0195	.0167	.0118	.0275	.0088	.0198	.0109	.0257	.0106	.0256	
ULCI			.0532	.0211	.0175	.0424	-.0012	-.0045	.0162	.0393	-.0308	-.0741	
LLCI			.1298	.0865	.0629	.1477	.0311	.0748	.0596	.1415	.0117	.0280	
Sig.			*	*	*	*	n.s	n.s	*	*	n.s	n.s	

Note:

This result is a summary from 10, 000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariated. The combined test examined the indirect effect of religiosity/spirituality variables on obsessive symptoms through Thought-Action Fusion (TAF) (all three variables, Moral, Likelihood, and Impulsivity). In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M1 = TAF Morality, M2= TAF Likelihood, M3= TAF Impulsivity. Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, CSI=Completely Standardized Index,n.s =not significant, * = significant at CI does not include zero. **The number in red () indicates the relationship as explained in Figure 20.**

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Table 41

The total effect, direct effect and indirect effect of the combined analyses among the UK study (N=493)

	Total Effect M1 M2 M3(7)			Direct Effect M1 M2 M3(8)			Combined indirect Effect M1 M2 M3(9)			Indirect Effect Through TAF	
	Morality (10)						Likelihood (11)		Impulsivity (12)		
		Coef.	Total	SI	Coef.	SI	Coef.	SI	Coef.	SI	
Intrinsic Religiosity (IR)											
Coef.		.0946	.0538	.0408	.0989	.0142	.0344	.0355	.0860	-.0088	-.0214
SE		.0181	.0167	.0118	.0275	.0088	.0198	.0109	.0257	.0106	.0256
LLCI		.0589	.0211	.0175	.0424	.0012	.0045	.0162	.0393	-.0308	-.0741
ULCI		.1303	.0865	.0629	.1477	.0311	.0748	.0596	.1415	.0117	.0280
Sig.		*	*	*	*	n.s	n.s	*	*	n.s	n.s
Personal Extrinsic Religiosity (PER)											
Coef.		.1023	.0583	.0439	.1090	.0144	.0357	.0410	.1019	-.0115	-.0286
SE		.0258	.0236	.0116	.0273	.0081	.0200	.0111	.0265	.0114	.0284
LLCI		.0742	.0087	.0209	.0539	-.0008	-.0031	.0203	.0512	-.0360	-.0888
ULCI		.1757	.1015	.0661	.1604	.0315	.0760	.0651	.1567	.0100	.0248
Sig.		*	*	*	*	n.s	n.s	*	*	n.s	n.s
Social-Family Extrinsic Religiosity (SFER)											
Coef.		.1249	.0551	.0698	.1194	.0155	.0265	.0708	.1210	-.0164	-.0281
SE		.0258	.0236	.0166	.0273	.0068	.0115	.0167	.0273	.0177	.0301
LLCI		.0742	.0087	.0393	.0660	.0047	.0077	.0435	.0763	-.0569	-.0962
ULCI		.1757	.1015	.1020	.1698	.0304	.0521	.1098	.1871	.0165	.0299
Sig.		*	*	*	*	*	*	*	*	n.s	n.s

Note:

This result is a summary from 10, 000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariated. The combined test examined the indirect effect of religiosity/spirituality variables on obsessive symptoms through Thought-Action Fusion (TAF) (all three variables, Moral, Likelihood, and Impulsivity). In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M1 = TAF Morality, M2= TAF Likelihood, M3= TAF Impulsivity. Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, CSI=Completely Standardized Index,n.s =not significant, * = significant at CI does not include zero. **The number in red () indicates the relationship as explained in Figure 20.**

In a manner consistent with the separate analyses, we present the findings related to Religious Behaviour in Table 42 to elucidate the analyses. Table 42 reveals that both the total effect (7) and the direct effect (8) are significant in the combined analyses (as highlighted). Notably, the individual indirect effect is significant for TAF Likelihood (11), whereas it is not significant for TAF Morality (10) or TAF Impulsivity (12) (as indicated in green). Following the rationale previously discussed, TAF Likelihood is deemed the most critical of the three and will be retained in subsequent moderation analyses.

Table 42

Summary of the results of the combined analyses of the indirect effect of Religious Behaviour on Obsessions through TAF in the UK study

Relationship	No. of Indicator	Significance of the results
$X \rightarrow Y$ +	7	The total effect (i.e. the direct and indirect effects together) is significant.
$X \rightarrow M_{1,2,3} \rightarrow Y$		
$X \rightarrow [M_{1,2,3}] \rightarrow Y$	8	The direct effect in the combined model is significant.
$X \rightarrow M_{1,2,3} \rightarrow Y$	9	The combined indirect effect (all three TAF variables together) is significant.
$X \rightarrow M_1 (M_{2,3}) \rightarrow Y$	10	<u>For Moral TAF:</u> The individual indirect effect is <u>not</u> significant in the combined model
$X \rightarrow M_2 (M_{1,3}) \rightarrow Y$	11	<u>For Likelihood TAF</u> The individual indirect effect <u>is</u> significant in the combined model
$X \rightarrow M_3 (M_{2,3}) \rightarrow Y$	12	<u>For Impulsivity TAF</u> The individual indirect effect is <u>not</u> significant in the combined model

Note:

Combined analyses $M_1 M_2 M_1$

In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M_1 = Moral TAF, M_2 = Likelihood TAF, M_3 = Impulsivity TAF.

The other religiosity/spirituality variables were each examined in turn, specifically Non-Theistic Spirituality (NTS), Theistic Spirituality (TS), Intrinsic Religiosity (IR), Personal Extrinsic Religiosity (PER) and Social-Family Extrinsic Religiosity (SFER). As can be seen in Tables 39 and Table 41, and as previously seen for Religious Behaviour, the direct effect of the other five religiosity/spirituality variables on obsessions were significant in both the combined and separate analyses, except for Theistic Spirituality, where the direct effect in the separate analysis was not significant when TAF Morality was a single mediator.

A similar pattern of Religious Behaviour was observed for the indirect effects relationship of all five religiosity/spirituality variables on obsessions by way of TAF Likelihood in both the combined and separate analyses. In addition, the indirect effect of SFER on obsessions was also significant through TAF Morality. Comparing the CSI for TAF Morality (.0521) to TAF Likelihood (.1871) indicates that TAF Likelihood is over three times larger. Therefore, although Moral and TAF Likelihood are both significant and so more important than Impulsivity, Likelihood remains the more important of the two.

In conclusion, there is the broad support that TAF mediates the relationship between Religiosity/Spirituality and obsession. This is equally true for Religious Behaviour, Theistic Spirituality, Intrinsic Religiosity, Personal Extrinsic Religiosity, and Social-Family Extrinsic Religiosity. Specifically, TAF Likelihood consistently contributes individually in the combined analysis and therefore, will be carried forward in the moderation analyses.

Against this comprehensive pattern of agreement, there are two additional findings involving TAF Morality. The first, the lack of a direct path between Theistic Spirituality (TS) and obsessions when only TAF Morality is entered is of lesser interest. Second, the involvement of TAF Morality in the combined and separate indirect effects of Social-Family Extrinsic Religiosity (SFER) is of greater interest, although not as strong as Likelihood. Given its theoretical significance, TAF Morality will be retained for SFER only.

7.3 Indirect Effects in Malaysia

Identical analyses were conducted for the Malaysian sample. To test for indirect effects, we compared the mediating effects of the TAF beliefs both in separate analyses (PROCESS Model 4, see Figures 17, 18 and 19) and in combined analyses (PROCESS Model 4, see Figure 20) following procedures outlined by Hayes (2012). Again, age and gender were included as covariates in all analyses. This analysis was repeated for all six religiosity/spirituality variables.

Table 43 presents the results of the separate analyses in the Malaysia study. As can be seen in, start from left in Table 43 for TAF Morality, the direct effects (1) were significant and negative for all six variables of religiosity/spirituality. However, the indirect effects (4) for TAF Morality were not significant for all six variables, religiosity/spirituality. Interestingly, for TAF Likelihood (2), none of the direct effects were significant (except for SFER), but all indirect effects (5) were significant and negative. Finally, for the result of direct effects of TAF Impulsivity (3), the results were similar to Likelihood except for Religious Behaviour (RB). However, the indirect effects for TAF Impulsivity (6) were all significant except for Religious Behaviour.

Table 43:

The direct effect and indirect effect of the separate analyses of the Malaysia study (N=581)

	Direct Effect					Indirect Effect Through TAF			
	M1 (1)	M2 (2)	M3 (3)	Morality (4)		Likelihood (5)		Impulsivity (6)	
	Coef.			Coef.	CSI	Coef.	CSI	Coef.	CSI
Religious Behaviour (RB)									
Coef.	-.0827	-.0037	-.0274	.0084	0122	-.0706	-.1029	.0087	.0127
SE	.0266	.0241	.0256	.0103	0150	.0161	.0229	.0083	.0119
LLC	-.1349	-.0510	-.0777	-.0117	-.0173	-.1036	-.1481	-.0044	-.0063
ULCI	-.0304	.0435	.0229	.0301	0435	-.0419	-.0613	.0299	.0426
Sig.	*	n.s	n.s	n.s	n.s	*	*	n.s	n.s
Non-Theistic Spirituality (NTS)									
Coef.	-.1767	-.0321	-.0617	.0290	0266	-.1156	-.1062	-.0860	-.0790
SE	.0420	.0382	.0408	.0185	0169	.0276	.0247	.0233	.0210
LLCI	-.2593	-.1073	-.1418	-.0075	-.0069	-.1683	-.1534	-.1288	-.1175
ULCI	-.0942	.0430	.0184	.0644	0583	-.0588	-.0558	-.0391	-.0354
Sig.	*	n.s	n.s	n.s	n.s	*	*	*	*
Theistic Spirituality (TS)									
Coef.	-3.0214	-1.0226	-1.2338	.2490	0164	-1.7497	-.1154	-1.5386	-.1015
SE	.5796	.5333	.5730	.2407	0159	.3676	0235	.3174	.0202
LLCI	-4.1597	-2.0702	-2.3592	-.2368	-.0134	-2.4849	-.1618	-2.2346	-.1432
LLCI	-1.8830	.0249	-.1084	.7363	0500	-1.0602	-.0713	-.9902	-.0644
Sig.	*	n.s	*	n.s	n.s	*	*	*	*

Note:

This result is a summary from 10,000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariated. The separate test examined the religiosity/spirituality variables on obsessive symptoms through each variable of TAF. In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M1 = TAF Morality, M2 = TAF Likelihood, M3 = TAF Impulsivity. Coef. = Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI = 95% Upper Confidence Interval, CSI = Completely Standardized Index, n.s = not significant, * = significant at CI does not include zero. The number in red parentheses indicates the relationship as explained in Figure 17, 18, and 19.

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The direct effect and indirect effect of the separate analyses of the Malaysia study (N=581)

	Direct Effect					Indirect Effect Through TAF			
	M1 (1)	M2 (2)	M3 (3)	Morality (4)		Likelihood (5)		Impulsivity (6)	
	Coef.			Coef.	CSI	Coef.	CSI	Coef.	CSI
Intrinsic Religiosity (IR)									
Coef.	-.8779	-.2204	-.3098	.1336	.0286	-.5239	-.1123	-.4344	-.0931
SE	.1792	.1641	.1757	.0762	.0164	.1131	.0238	.0942	.0196
LLCI	-1.2298	-.5427	-.6550	-.0137	-.0028	-.7624	-.1616	-.6335	-.1328
ULCI	-.5259	.1020	.0353	.2849	.0608	-.3221	-.0694	-.2616	-.0553
Sig.	*	n.s	n.s	n.s	n.s	*	*	*	*
Personal Extrinsic Religiosity (PER)									
Coef.	-.6797	-.0774	-.1862	.0536	.0115	-.5486	-.1175	-.4398	-.0942
SE	.1803	.1647	.1761	.0729	.0156	.1125	.0235	.0916	.0191
LLCI	-1.0339	-.4010	-.5321	-.0885	-.0188	-.7756	-.1639	-.6434	-.1361
ULCI	-.3255	.2461	.1597	.2013	.0433	-.3369	-.0714	-.2732	-.0595
Sig.	*	n.s	n.s	n.s	n.s	*	*	*	*
Social-Family Extrinsic Religiosity (SFER)									
Coef.	-.0785	-.0593	-.0542	-.0077	-.0151	-.0269	-.0526	-.0320	-.0626
SE	.0197	.0175	.0189	.0075	.0146	.0123	.0236	.0104	.0199
LLCI	-.1171	-.0937	-.0913	-.0249	-.0472	-.0534	-.1017	-.0553	-.1051
ULCI	-.0398	-.0249	-.0171	.0054	.0104	-.0038	-.0070	-.0139	-.0261
Sig.	*	*	*	n.s	n.s	*	*	*	*

Note:

This result is a summary from 10,000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariates. The separate test examined the religiosity/spirituality variables on obsessive symptoms through each variable of TAF. In this study of indirect effect, X = Religious Behaviour, Y = Obsessive symptoms, M = Mediator, M1 = TAF Morality, M2 = TAF Likelihood, M3 = TAF Impulsivity. Coef. = Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI = 95% Upper Confidence Interval, CSI = Completely Standardized Index, n.s = not significant, * = significant at CI does not include zero.

The number in red parentheses indicates the relationship as explained in Figure 17, 18, and 19.

Next, similar to the UK study, combined analyses were conducted in the Malaysian study, and the results were presented in Table 44. As can be seen in Table 44, interestingly, when all three TAF variables were included in combined analyses, the total effects (7) were all significant and negative, but none of the direct effects (8) were significant, except for SFER. However, in comparison to the other two forms of TAF, TAF Likelihood (11) only contributed individually in the combined analyses, but not TAF Morality (10) and TAF Impulsivity (12).

In conclusion, there are clear similarities and differences between the UK and Malaysia. First, TAF Likelihood is clearly the most important of the three TAF components in both samples. Second, the relationships (direct, indirect, and total) between religiosity/spirituality and obsessions are positive in the UK sample and negative in the Malaysian sample. Finally, there were inconsistent findings involving SFER and TAF Morality in both samples.

Table 44

The total effect, direct effect and indirect effect of the combined analyses among the Malaysian study (N=581)

	Total Effect M1 M2 M3(7)			Direct Effect M1 M2 M3(8)			Combined indirect Effect M1 M2 M3(9)			Indirect Effect Through TAF	
</											

Continued from the previous page

Table 44

The total effect, direct effect and indirect effect of the combined analyses among the Malaysian study (N=581)

	Total Effect M1 M2 M3(7)			Direct Effect M1 M2 M3(8)			Combined indirect Effect M1 M2 M3(9)			Indirect Effect Through TAF	

7.4 Conditional Indirect Effect in the United Kingdom

7.4.1 Conditional indirect effect of Religiosity/Spirituality subscales on Obsessions through TAF Likelihood at various levels of Religious Fundamentalism

As mentioned in the previous analyses, TAF Likelihood will be retained and entered into the model, testing for conditional indirect effects (i.e. moderated mediation analyses). For the next analysis of conditional indirect effect, Religious Fundamentalism was used as a moderator.

Previous studies suggested that the rigidity of religious beliefs and teachings may lead to certain cognitive appraisals, such as inflated responsibility and TAF, which are thought to contribute to the obsessions (Rachman, 1997; Rassin & Koster, 2003; Salkovskis, Shafran, Rachman & Freeston, 1999). Salkovskis et al. (1999) suggest that rigidity of religious beliefs comprises extreme codes of conduct and duty, which are indoctrinated by authority figures and may include punishment. Sharing the same idea with the rigidity of belief, in this case in the religious sphere, Religious Fundamentalism in this study is based on the notion that a set of writings or teachings must be strictly interpreted and rigidly followed by oneself and others without exception (see Chapter 5 for details). Therefore, it is predicted that Religious Fundamentalism may influence the indirect effect from the religiosity/spirituality variables through the style of thinking, which may lead to the obsessions.

To test for conditional indirect effects, we examined the mediating effects of TAF Likelihood as a function of Religious Fundamentalism in a moderated mediation model (PROCESS Model 7, see Figure 21) following procedures outlined by Hayes (2012). Age and gender were included as covariates in all analyses.

First, the interaction between the religiosity/spirituality and Religious Fundamentalism variables was tested using a normal sampling distribution test. If the interaction between religiosity/spirituality variables and Religious Fundamentalism was significant, 10,000 random bootstrap re-samples were computed using the same seed to determine the coefficient for the indirect effect, its standard error and 95% bias-corrected confidence interval (lower and upper) at a range of values for the moderator (See Table 45). This analysis was repeated for all six religiosity/spirituality variables.

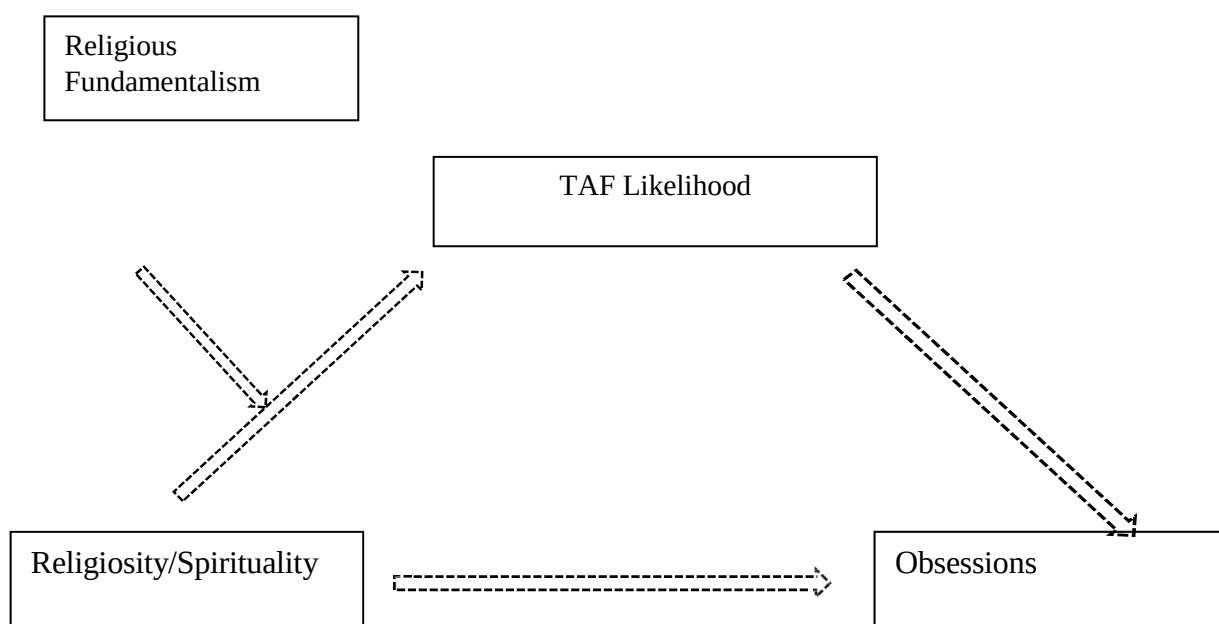


Figure 21:

Conditional Indirect Effect (Moderated Mediation) Model 7 (Hayes, 2013) in the UK study

As can be observed in Table 45, as before, the direct effects of TAF Likelihood on obsessions for all six religiosity/spirituality variables were also significant and positive. Subsequently, the interactions between the religiosity/spirituality variables and Religious Fundamentalism (moderator) on TAF Likelihood were all significant and negative (when estimated at the mean of the moderator) except for Religious Behaviour (RB) and Social-Family Extrinsic Religiosity (SFER), which were not significant.

Therefore, Religious Fundamentalism moderates or *conditions* the indirect effect through TAF Likelihood on obsessions for Non-Theistic Spirituality (NTS), Theistic Spirituality (TS), Intrinsic Religiosity (IR) and Personal Extrinsic Religiosity (PER).

Table 45:

The direct effect of religiosity/spirituality variables and obsessions and the interactions on the conditional indirect effect of religiosity/spirituality variables on obsessions through TAF Likelihood at various values of Religious Fundamentalism in the UK study (N=493)

Variables	Direct Effect				Interaction			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.
Religious	0.0824	0.0193	0.0446	*	-0.0042	0.0025	-0.0092	n.s
Behaviour			0.1203				0.0008	
Non- Theistic	0.1010	0.0240	0.0538	*	-0.0146	0.0034	-0.0213	*
Spirituality			0.1482				-0.0078	
Theistic	0.0588	0.0166	0.0262	*	-0.0077	0.0027	-0.0130	*
Spirituality			0.0913				-0.0024	
Intrinsic	0.0590	0.0156	0.0284	*	-0.0070	0.0023	-0.0116	*
Religiosity			0.0895				-0.0024	
Personal Extrinsic	0.0617	0.0153	0.0317	*	-0.0060	0.0022	-0.0103	*
Religiosity			0.0916				-0.0016	
Social-Family	0.0498	0.0227	0.0053	*	-0.0004	0.0027	-0.0057	n.s
Extrinsic			0.0943				0.0050	
Religiosity								

Note

This result is a summary from 10, 000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariated.

Coef. = Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, n.s =not significant,* = significant at CI does not include zero

When the strength of the indirect effect was conditional on Religious Fundamentalism i.e., moderation was present), the interaction was probed using the Johnson-Neyman Technique (Bauer & Curran, 2005; Hayes & Matthes, 2009). This technique was chosen so as to avoid the arbitrariness of choosing low, moderate, and high scores to examine the effects of moderator variables typically used in the simple slopes or pick-a-point approaches (Miller, Stromeier & Schwieterman, 2013; Spiller, Fitzsimons, Lynch, & McClelland, 2013).

In this study, a range of different values of Religious Fundamentalism was used to first estimate the strength of the indirect effect at different values and subsequently test whether the indirect effect (religiosity/spirituality variables on obsessions through TAF) was statistically significant or not at each value

The value of the indirect effect, its lower and upper confidence interval, was plotted as a function of the moderator to determine the zones where the (conditional) indirect effect is significant. Values were chosen to cover the full possible range of the Religious Fundamentalism scale, from 10 to 50 in five-point increments. It is important to note that in this sample, the observed minimum and maximum were also 10 and 50, so the values plotted were observed rather than hypothetical.

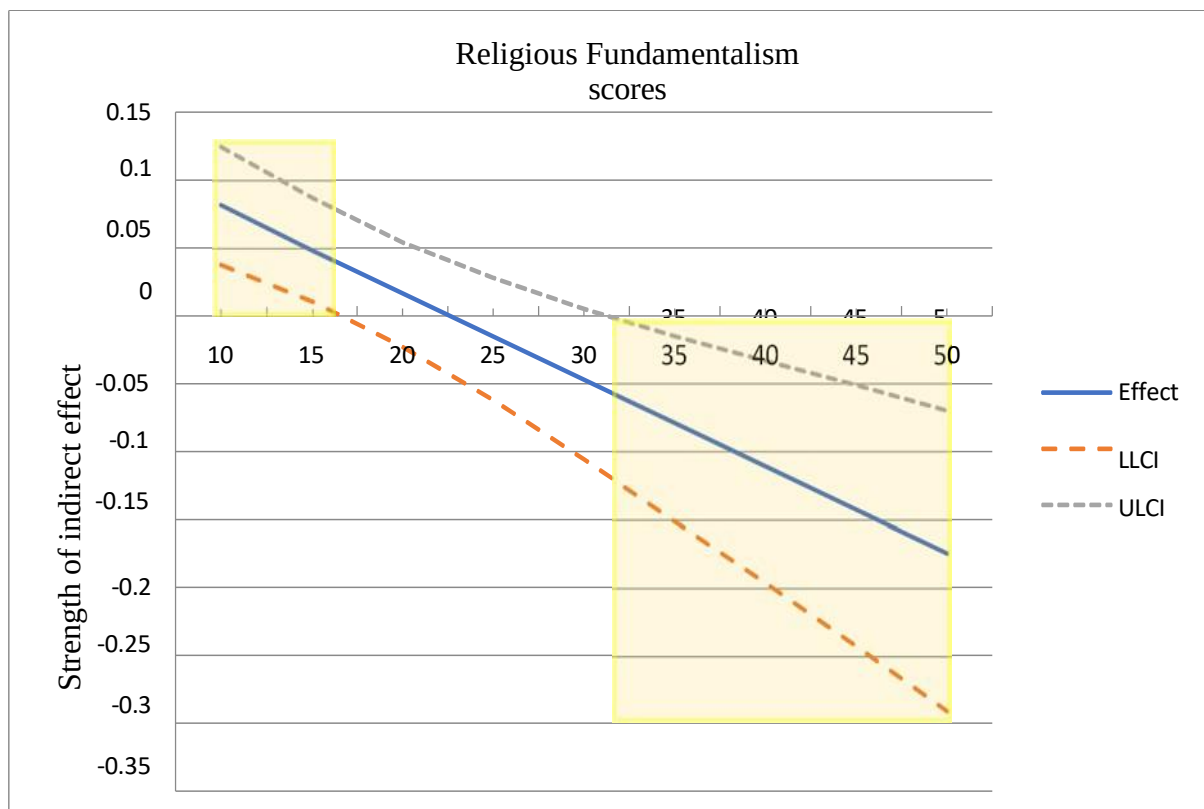


Figure 22:

Strength of the conditional indirect effect of Non-Theistic Spirituality on Obsessions through TAF Likelihood at various levels of Religious Fundamentalism (Model 7) in the UK study (N=493)

As shown in Figure 22, from the slope we can see that the strength of the indirect effect changed substantially across different scores of Religious Fundamentalism. More importantly, the strength of the indirect effect of Non-Theistic Spirituality (NTS) on obsessions via TAF Likelihood decreases as Religious Fundamentalism increases. From the regions of significance (see the shaded yellow squares), we can see that the indirect effect was significant and positive when the scores of Religious Fundamentalism were lower than approximately 16, whereas the effect was significant and negative when the scores of Religious Fundamentalism were greater than 31 (see Figure 22 for details).

For the lower 40.8% scoring, less than 16 on Religious Fundamentalism, who are least likely to strictly interpret religious readings and teachings, there is a positive indirect effect through TAF, that is, increased NTS → increased TAF → increased obsessions. In contrast, for the upper 22.7% scoring above 32 on Religious Fundamentalism, who are most likely to strictly interpret religious readings and teachings, there is a negative indirect effect, i.e., increased NTS → decreased TAF → decreased obsessions.

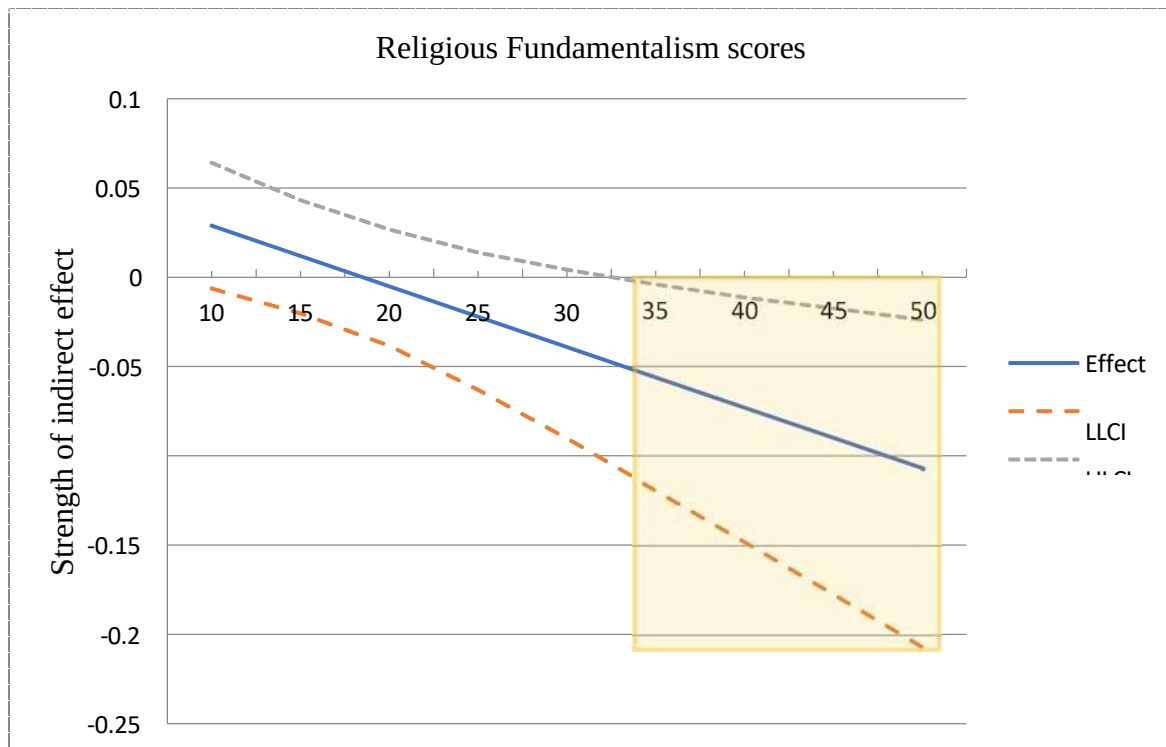


Figure 23:

Strength of the conditional indirect effect of Theistic Spirituality on Obsessions through TAF Likelihood at various levels of Religious Fundamentalism (Model 7) in the UK study

Somewhat similar patterns were ascertained for Theistic Spirituality (TS), Intrinsic Religiosity (IR), and Personal Extrinsic Religiosity (PER) in that the indirect effect sloped downward from the positive effect at low Religious Fundamentalism values to the negative effect at high Religious Fundamentalism values (see Figure 23). However, for Theistic Spirituality, the indirect effects were only significant when the Religious Fundamentalism score was high from 33 to 50 (see Figure 23 for details), indicating a negative indirect effect for the upper 21.7% of the sample.

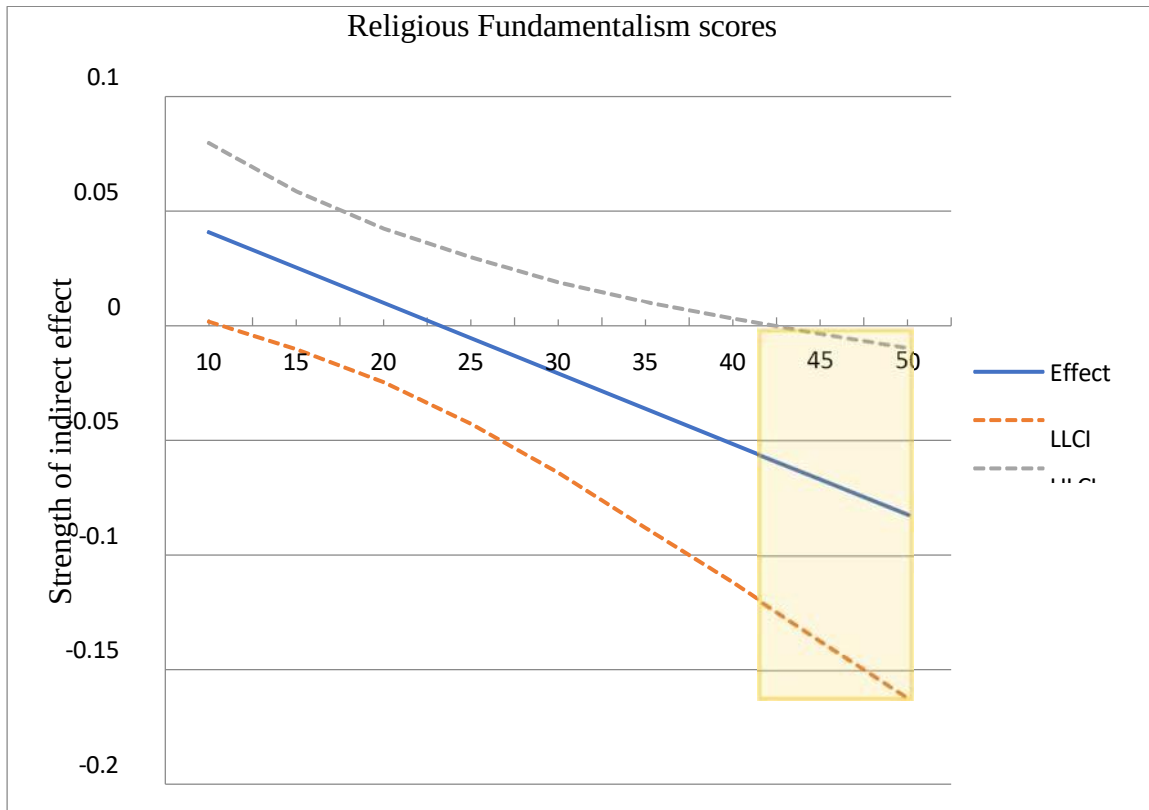


Figure 24:

Strength of the conditional indirect effect of Intrinsic Religiosity on Obsessions through TAF Likelihood at various levels of Religious Fundamentalism (Model 7) in the UK study (N=493)

Similarly, the indirect effect of Intrinsic Religiosity (IR) was only significant when the Religious Fundamentalism score consisted of high scores from 42 to 50 (see Figure 24 for details), indicating negative effects for the upper 6.5% of the sample.

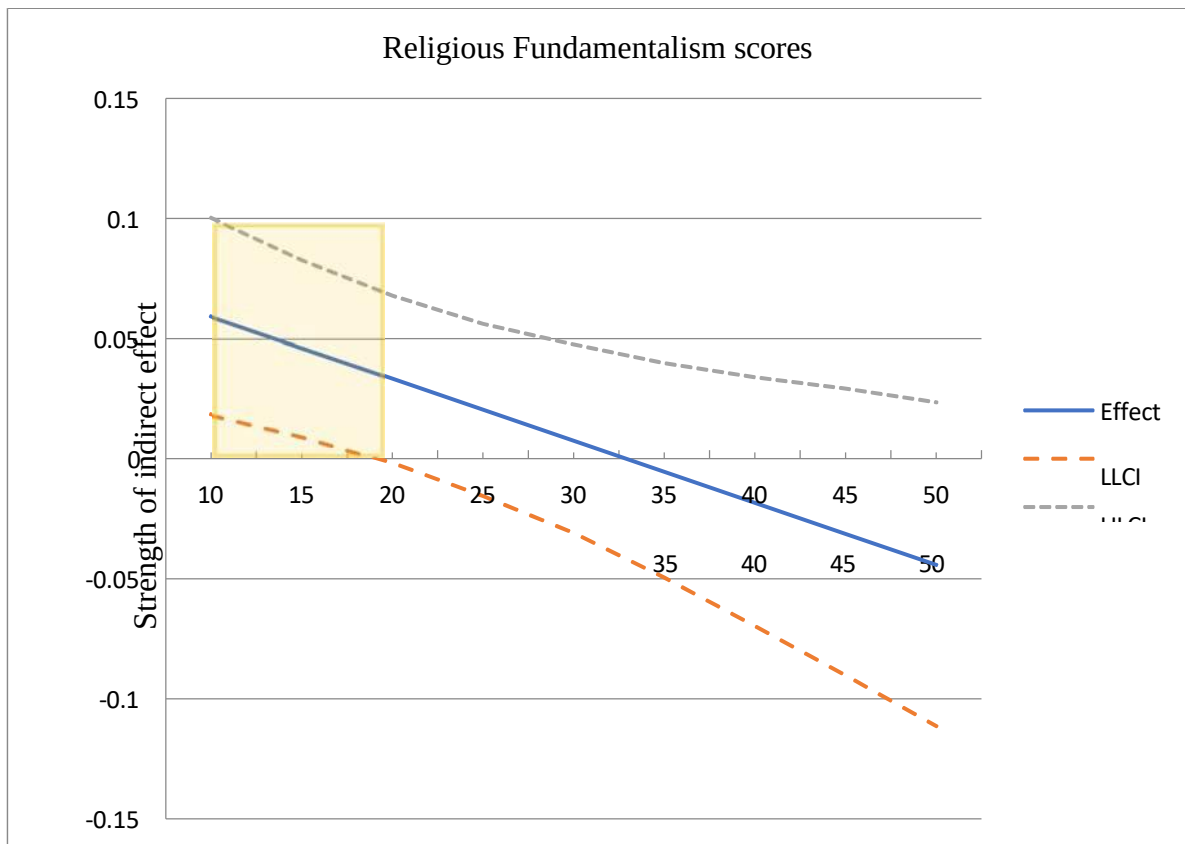


Figure 25:

Strength of the conditional indirect effect of PER on Obsessions through TAF Likelihood at various levels of Religious Fundamentalism (Model 7) in the UK study (N=493)

In contrast, the indirect effect of PER on obsessions by means of TAF Likelihood was only significant and positive when the Religious Fundamentalism scores were lower than 19 (see Figure 25 for details), that is, for the lower 49.9 % of the sample. These significant conditional indirect effects illustrated that the indirect effect of the four religiosity variables through TAF Likelihood depended on Religious Fundamentalism scores, and interestingly, in opposite directions at the extremes of the distribution.

7.4.2 *Conditional indirect effect of SFER on obsessions through TAF Morality at various levels of Religious Fundamentalism*

The initial mediation analyses confirmed that there was a significant indirect effect of religiosity/spirituality on obsessions through TAF Morality for SFER only. This indicates that those who engage in religious behaviour with motivation related to social and family recognition or reward are more likely to assume that by thinking about a behaviour (even involuntary ones) is morally equal to the behaviour itself. Therefore, we decided to test the moderating effect of Religious Fundamentalism for the conditional indirect effect of SFER on obsessions via TAF Morality.

A similar procedure was used (PROCESS model 7, see Figure 26). The direct effect was significant ($-.0847$, CI's = $-.1321$ – $-.0373$), and the interaction between SFER and Religious Fundamentalism was also significant ($.0057$, CI's = $.0002$ – $.0113$). Thus, as before, the Johnson-Neyman technique was used to probe the interaction.

As can be seen in Figure 27, there were no regions where the conditional effect of SFER was significant (i.e. CI's did not include 0) at any value of Religious Fundamentalism. This means that although there was a statistically significant interaction between SFER and Religious Fundamentalism, and so moderation is present, there was no evidence of a statistically significant conditional effect of SFER at any value of Religious Fundamentalism (although in a larger sample or with greater power, the CIs may narrow and exclude zero).

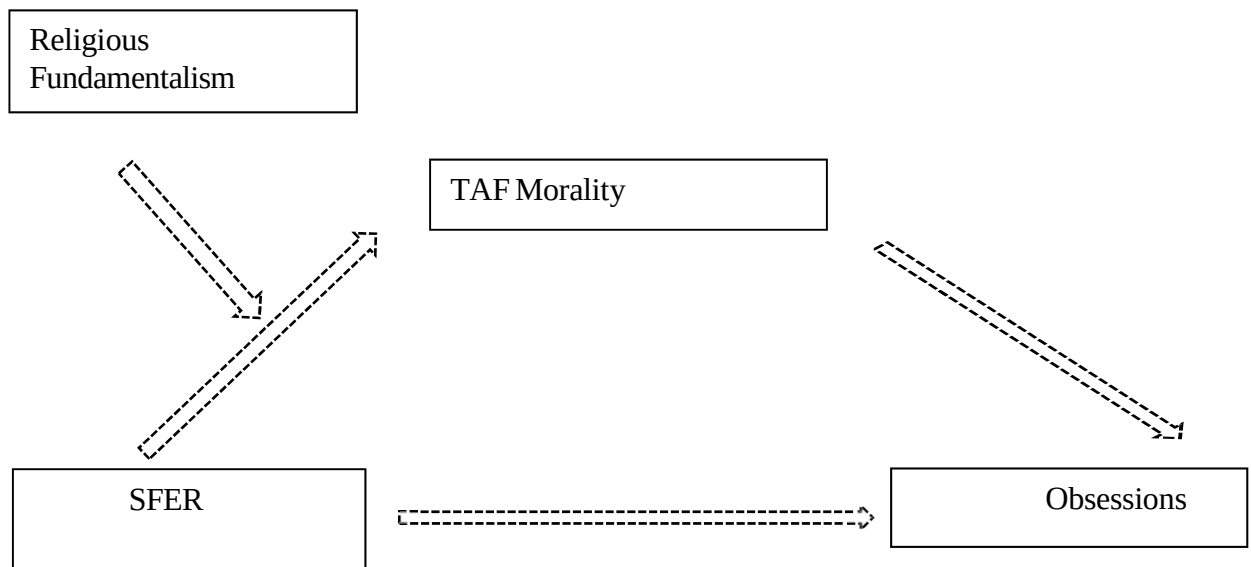


Figure 26:
Conditional Indirect Effect (Moderated Mediation) Model 7 (Hayes, 2013) in the UK study (N=493)

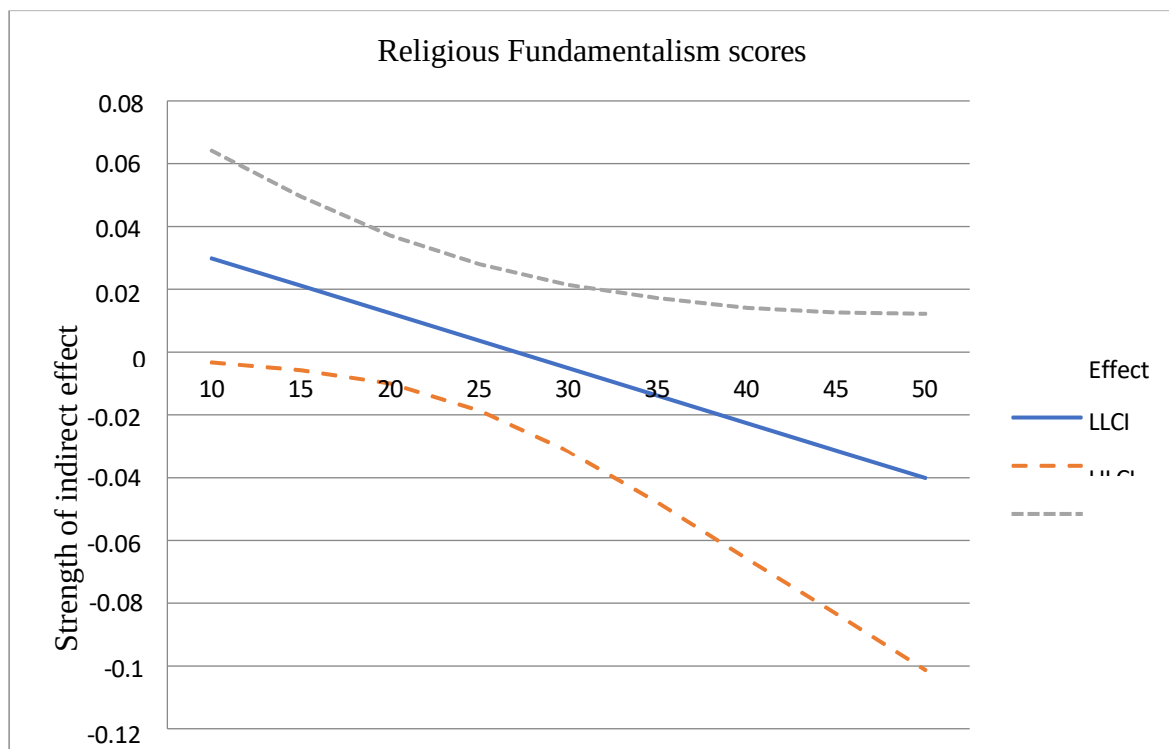


Figure 27:
Conditional indirect effect of SFER on Obsessions through TAF Morality at various levels of Religious Fundamentalism in the UK sample (N=493)

7.4.3 Conditional indirect effect of Religiosity/Spirituality on Obsessions through TAF at various levels of SFER

Previously, we considered SFER as an independent variable in predicting obsessions through TAF Likelihood. In this analysis, we will consider SFER as a moderator in the relationship between religiosity/spirituality and obsessions because SFER is different in certain ways from the other religiosity and spirituality variables. First, the theory put forward by Salkvoskis et al. (1999) of multiple pathways to inflated responsibility suggested a list of childhood experiences, which are embedded in the family, could possibly develop a set of attitudes concerning certain standards of thinking and behaviours. In other words, they suggested that family-related factors, such as early exposure, rigid, extreme codes and learning experiences, may lead to obsessions due to inflated responsibility (Salkovskis et al., 1999). However, it is equally possible that a set of attitudes concerning particular standards of thinking and behaviours could also influence other beliefs and appraisals that may be relevant to intrusive thoughts.

Second, SFER was conceptually designed to examine the influences of social and family factors in developing religious beliefs and especially behaviour. Further, for example, religiosity/spirituality variables that examine expressions of the personal relationship to God, for instance, Theistic Spirituality and Intrinsic Religiosity, could possibly be influenced by one's engagement in religious behaviour with motivations involving social and family purposes. Given these two reasons, it is hypothesised that SFER may possibly strengthen or weaken the indirect effect between aspects of religiosity/spirituality and obsessions through TAF.

To test for conditional indirect effects, we compared the mediating effects of TAF Likelihood at various levels of SFER in a moderated mediation model (PROCESS model 7, see Figure 28) following procedures outlined by Hayes (2012).

As can be seen in Table 46, although the direct effects were significant for all the religiosity/spirituality variables, none of the interactions between religiosity/spirituality variables and SFER were significant, and so no moderation occurred.

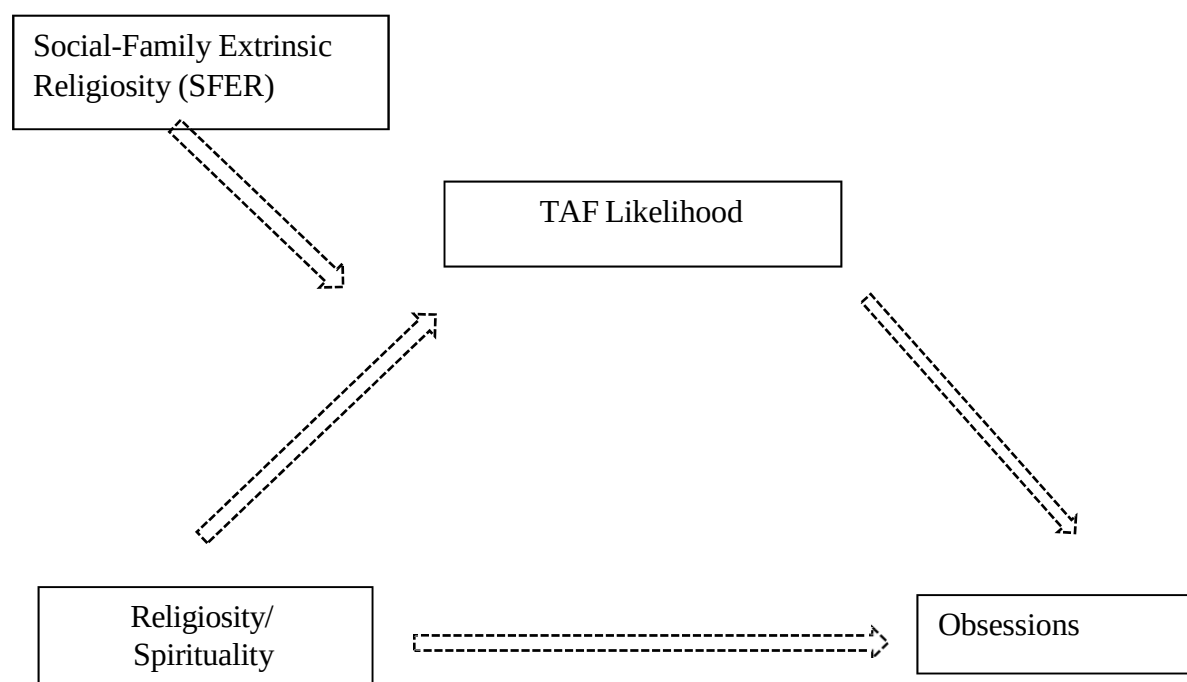


Figure 28:

Conditional Indirect Effect (Moderated Mediation) Model 7 for SFER as a moderator (Hayes, 2013)

Table 46:

The direct effect of religiosity/spirituality variables and obsessions and the interactions on the conditional indirect effect of religiosity/spirituality variables on obsessions through TAF Likelihood at various levels of SFER in the UK study (N = 493)

Variables	Direct Effect				Interaction			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.
Religious Behaviour	0.0824	0.0193	0.0446	*	0.0025	0.0027	-0.0028	n.s
			0.1203				0.0078	
Non- Theistic Spirituality	0.1010	0.0240	0.0538	*	-0.0041	0.0035	-0.0110	n.s
			0.1482				0.0029	
Theistic Spirituality	0.0588	0.0166	0.0262	*	-0.0027	0.0025	-0.0076	n.s
			0.0913				0.0022	
Intrinsic Religiosity	0.0590	0.0156	0.0284	*	-0.0005	0.0024	-0.0052	n.s
			0.0895				0.0041	
Personal Extrinsic Religiosity	0.0617	0.0153	0.0317	*	-0.0009	0.0024	-0.0055	n.s
			0.0916				0.0037	

Note:

This result is a summary from 10,000 bootstrap resampling among the UK sample (N=493). Age and gender were covariated.

Coef. = Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI = 95% Upper Confidence Interval, n.s =not significant,* = significant at CI does not include zero.

In conclusion, although there were significant direct effects of religiosity/spirituality on the obsessions, SFER did not influence the relationship between the religiosity/spirituality variables and TAF Likelihood on obsessions; no moderation occurred.

7.5 Conditional Indirect Effect in Malaysia

7.5.1 Conditional indirect effect of Religiosity/Spirituality subscales on Obsessions through TAF Likelihood at various levels of Religious Fundamentalism

Identical analyses were conducted on the Malaysian study with Religious Fundamentalism entered as a moderator (see Figure 29 for the analyses).

As can be seen in Table 47, none of the interactions between the religiosity/spirituality variables and Religious Fundamentalism (moderator) on TAF Likelihood were significant, except for the interaction between Non-Theistic Spirituality and Religious Fundamentalism, which was significant and positive when estimated at the mean of the moderator.

Additionally, as before, none of the direct effects of all six religiosity/spirituality variables on the obsessions were significant, except for SFER.

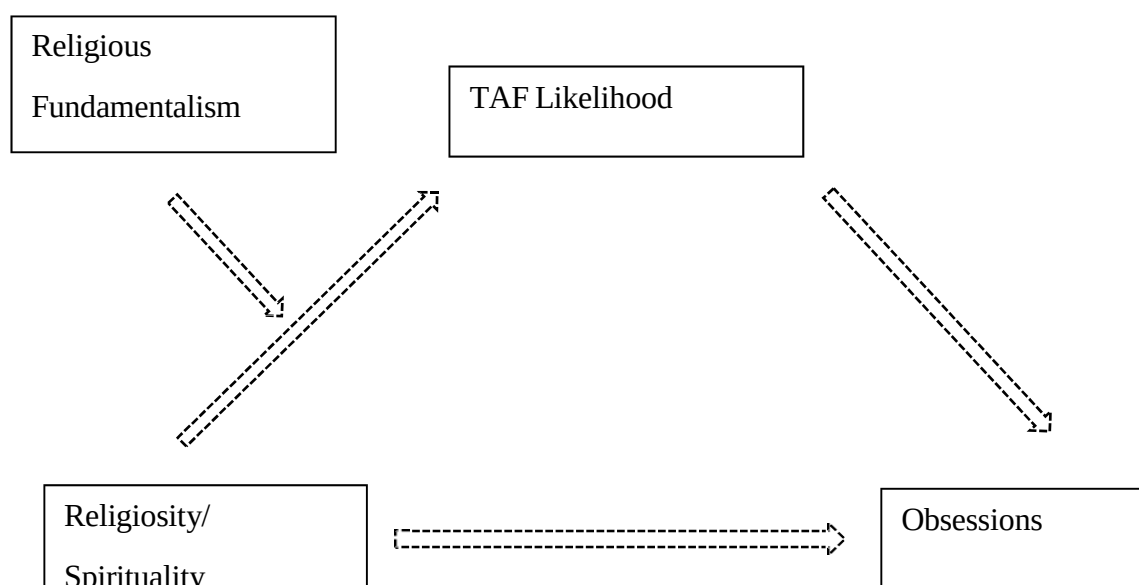


Figure 29:

Conditional Indirect Effect (Moderated Mediation) Model 7 (Hayes, 2013) in the Malaysian study

Table 47

The direct effect of religiosity/spirituality variables and obsessions and the interactions on the conditional indirect effect of religiosity/spirituality variables on obsessions through TAF Likelihood at various levels of Religious Fundamentalism in the Malaysian study (N = 581)

Variables	Direct Effect				Interaction			
	Coeff.	SE	LLCI-ULCI	Sig.	Coeff.	SE	LLCI-ULCI	Sig.
Religious Behaviour	-.0037	.0241	-.0510 .0435	n.s	.1590	.1083	-.0537 .3717	n.s
Non- Theistic Spirituality	-.0321	.0382	-.1073 .0430	n.s	.3398	.1703	.0054 .6743	*
Theistic Spirituality	-1.0226	-1.9174	-2.0702 .0249	n.s	2.4831	2.6778	-2.7764 7.7425	n.s
Intrinsic Religiosity	-.2204	.1641	-.5427 .1020	n.s	1.3564	.7721	-.1600 2.8728	n.s
Personal Extrinsic Religiosity	-.0774	.1647	-.4010 .2461	n.s	.5748	.7600	-.9179 2.0675	n.s
Social-Family Extrinsic Religiosity	-.0593	.0175	-.0937 -.0249	*	.0011	.0819	-.1598 .1621	n.s

Note:

This result is a summary from 10, 000 bootstrap resampling among the Malaysian sample (N=581). Age and gender were covariated.

Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, n.s =not significant, * = significant at CI does not include zero

As the strength of the indirect effect is conditional on the level of Religious Fundamentalism for Non-Theistic Spirituality, the significant interaction was probed using a similar procedure to the Johnson-Neyman Technique. As the Religious Fundamentalism scores had been log-transformed due to skew, values were chosen based on the equivalent value of the untransformed data.

As shown in Figure 30, we can see that the strength of the indirect effect of Non-Theistic Spirituality on obsessions through TAF Likelihood increases as Religious Fundamentalism increases. From the regions of significance (see the shaded yellow squares), we can see that the indirect effect was significant at over most of the range from approximately 49.47 to 50.05 in the log-transformed score (i.e., 10 to 45 in raw scores). The strength of the effect decreases, and for the higher scores, there is no longer a significant indirect effect.

This means that for the lower 68.8% of the sample scoring from 10 to 45, which are from the least to most likely to strictly interpret religious readings and teachings, there is a negative indirect effect, i.e., increased NTS → decreased TAF → decreased obsessions. As Religious Fundamentalism increases, the protective effect of NTS reduces.

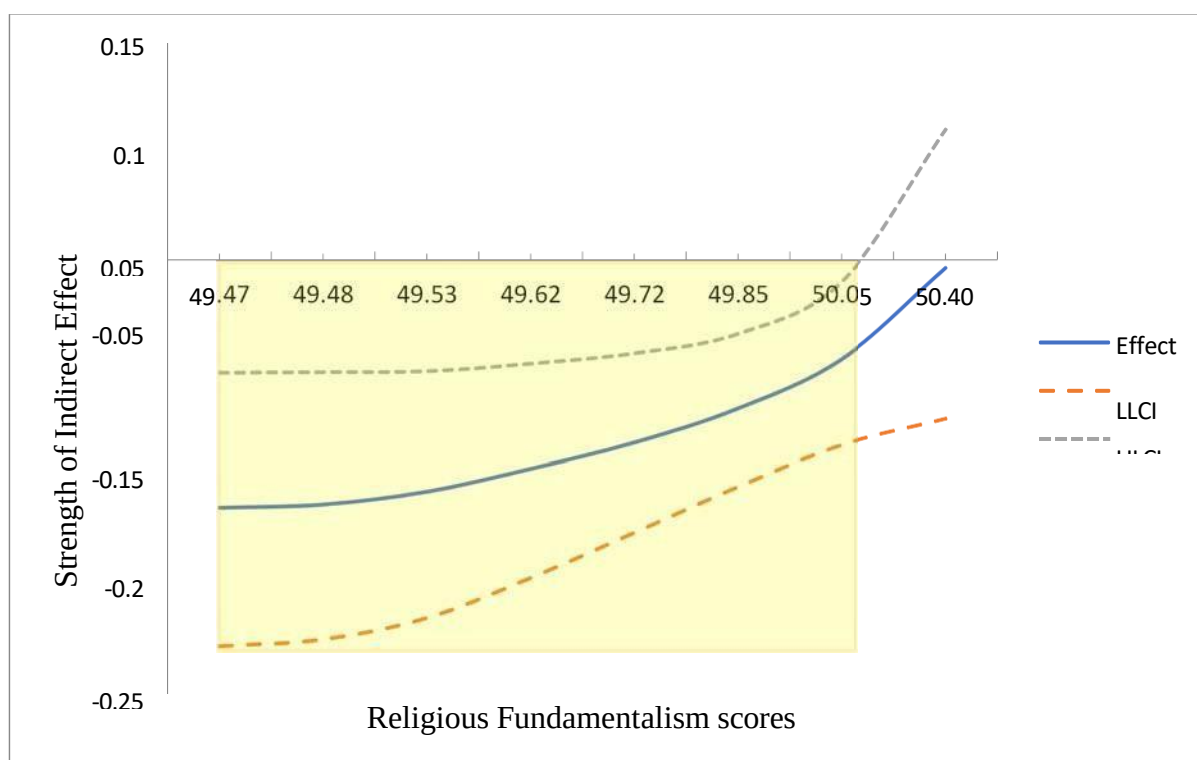


Figure 30:

Conditional indirect effect of Non-Theistic Spirituality on Obsessions through TAF Likelihood at different levels of Religious Fundamentalism scores (Model 7 (with an unconditional indirect effect TAF Likelihood) in the Malaysian study (N = 581)

Note: The conditional indirect effect was examined using the transformed Logarithm scores of Religious Fundamentalism. Their confidence intervals that do not include zero indicate a significant conditional indirect effect over a range of values.

No further tests of conditional indirect effects for the SFER on obsessions through TAF Morality at different values of Religious Fundamentalism were conducted, given none of the models were significant in the Malaysian sample.

7.5.2 *Conditional indirect effect of Religiosity/Spirituality on Obsessions through TAF at various levels of SFER*

As for the UK sample, we tested the role of SFER as an independent variable and as a moderator in the Malaysian sample. In this analysis, we compared the mediating effects of TAF Likelihood at various levels of SFER in a moderated mediation model (PROCESS model 7, see Figure 28). As can be seen in Table 48, none of the direct effects of religiosity/spirituality variables on obsessions were significant. None of the interactions between religiosity/spirituality variables and SFER were significant.

Table 48

The direct effect of religiosity/spirituality variables and obsessions and the interactions on the conditional direct effect of religiosity/spirituality variables on obsessions through TAF Likelihood at various levels of SFER in the Malaysia study (N=581)

Variables	Direct Effect				Interaction			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.
Religious	-.0037	.0241	-.0510	n.s	-.0045	.0026	-.0096	n.s
Behaviour			.0435				.0006	
Non- Theistic	-.0321	.0382	-.1073	n.s	-.0057	.0038	-.0131	n.s
Spirituality			.0430				.0017	
Theistic	-1.0226	.5333	-2.0702	n.s	-.0242	.0544	-.1310	n.s
Spirituality			.0249				.0827	
Intrinsic	-.2204	.1641	-.5427	n.s	-.0118	.0167	-.0446	n.s
Religiosity			.1020				.0210	
Personal	-.0774	.1647	-.4010	n.s	.0105	.0169	-.0227	n.s
Extrinsic			.2461				.0437	
Religiosity								

Note:

Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, n.s =not significant,* = significant at CI does not include zero

In conclusion, SFER did not influence the effect of the religiosity/spirituality variables through TAF Likelihood on obsessions; no moderation occurred.

7.6 Conditional direct effect in the United Kingdom

7.6.1 *Conditional direct effect of Religiosity/Spirituality variables on Obsessions at various levels of Religious Fundamentalism*

In the previous analyses, Religious Fundamentalism was investigated as a moderator of the indirect effect between religiosity/spirituality and obsessions through TAF Likelihood.

However, there is a case to be made for investigating Religious Fundamentalism as a moderator of the direct relationship due to the reason that both Religious Fundamentalism and religiosity may be related. Moreover, Religious Fundamentalism and religiosity/spirituality are understood as beliefs and behaviours that are likely to operate psychologically on overlapping principles. Conceptually, religiosity emphasises how beliefs about a Higher Being/God are expressed through engagement in certain behaviours related to personal, family and social motivations (see Chapter 5 for details). It is suggested that Religious Fundamentalism may act on religiosity in terms of strengthening religious beliefs.

Thus, we tested the unconditional indirect effect of religiosity/spirituality through TAF Likelihood. As can be seen in Table 49, the interaction between Religious Fundamentalism (moderator) and the religiosity/spirituality variables on obsessions (i.e. the indirect effect) was only significant for Theistic Spirituality (TS) and Intrinsic Religiosity (IR). In contrast, as reported in the earlier simple mediation models, the (unconditional) indirect effects of religiosity/spirituality by means of TAF Likelihood on obsessions were significant for all religiosity variables except for Religious Behaviour.

Table 49

The (unconditional) indirect effect of religiosity/spirituality variables on obsessions through TAF Likelihood and the interactions for the conditional direct effect of religiosity/spirituality variables on obsessions at various levels of Religious Fundamentalism in the UK study (N=493)

Variables	Indirect Effect				Interaction			
	Coeff.	SE	LLCI-	Sig.	Coeff.	SE	LLCI-	Sig.
	ULCI				ULCI			
Religious	0.0240	0.0128	-0.0001	n.s	0.0028	0.0018	-0.0006	n.s
Behaviour			0.0501				0.0062	
Non- Theistic	0.0574	0.0153	0.0285	*	0.0032	0.0025	-0.0016	n.s
Spirituality			0.0897				0.0080	
Theistic	0.0327	0.0106	0.0129	*	0.0039	0.0019	0.0002	*
Spirituality			0.0549				0.0076	
Intrinsic	0.0359	0.0102	0.0169	*	0.0032	0.0016	0.0000	*
Religiosity			0.0571				0.0064	
Personal Extrinsic	0.0409	0.0099	0.0226	*	0.0017	0.0015	-0.0013	n.s
Religiosity			0.0620				0.0047	
Social-Family	0.0734	0.0147	0.0463	*	-0.0016	0.0019	-0.0054	n.s
Extrinsic			0.1031				0.0021	
Religiosity								

Note:

This result is a summary from 10, 000 bootstrap re-sampling among the UK sample (N=493). Age and gender were covariated.

Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, n.s =not significant,* = significant at CI does not include zero

To test for conditional direct effects, we examined the effects of religiosity/spirituality variables on obsessions at various levels of Religious Fundamentalism in a moderation model (while the mediator TAF Likelihood was still present, although unconditionally), (PROCESS model 5, see Figure 31).

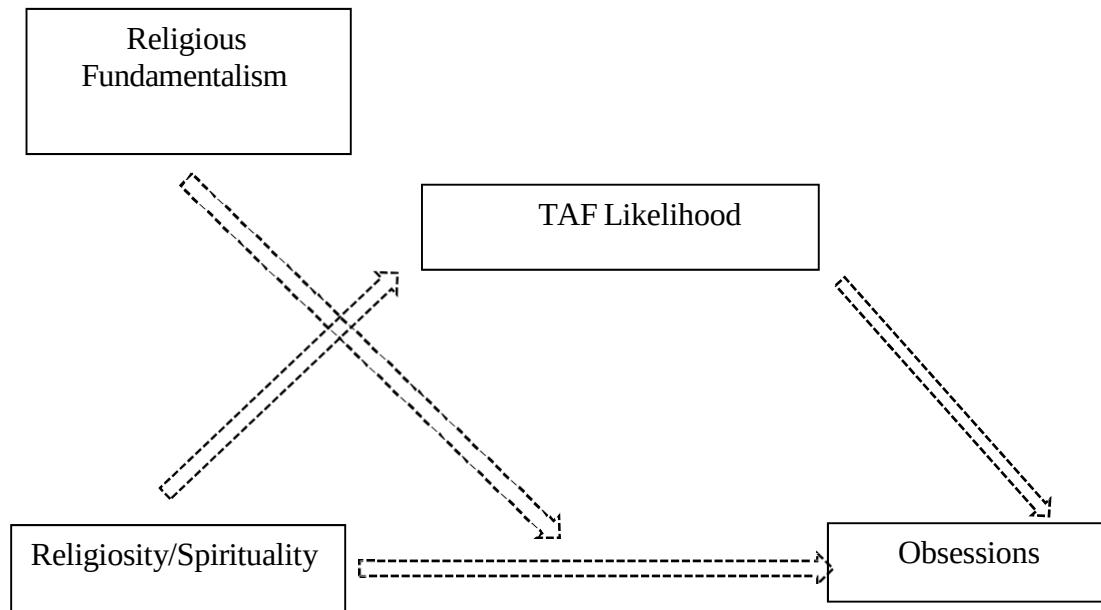


Figure 31:

Conditional Direct Effect (Moderation) Mediation) Model 5 (Hayes, 2013) in the UK study (N=493)

Following the significant interaction between Religious Fundamentalism and Theistic Spirituality (TS) and Intrinsic Religiosity (IR), as before, the Johnson-Neyman Technique was used to probe the interaction. The shaded yellow square in Figure 32 displays the region of significance in the upper range of Religious Fundamentalism scores. Interestingly, in contrast to previous analyses on the conditional direct effect where the slope was negative, the slope here was positive indicating that the strength of the direct effect increases when Religious Fundamentalism. However, the direct effects were only significant and positive at high levels of Religious Fundamentalism, at scores of approximately 42 or above (see Figure 32 for details). Thus, for the upper 6.5 % who are most likely to strictly interpret religious readings and teachings, there is a positive direct effect, i.e., increased TS → increased TAF → increased obsessions.

There were no significant regions found for the conditional direct effect of Intrinsic Religiosity on obsessions (see Figure 33).

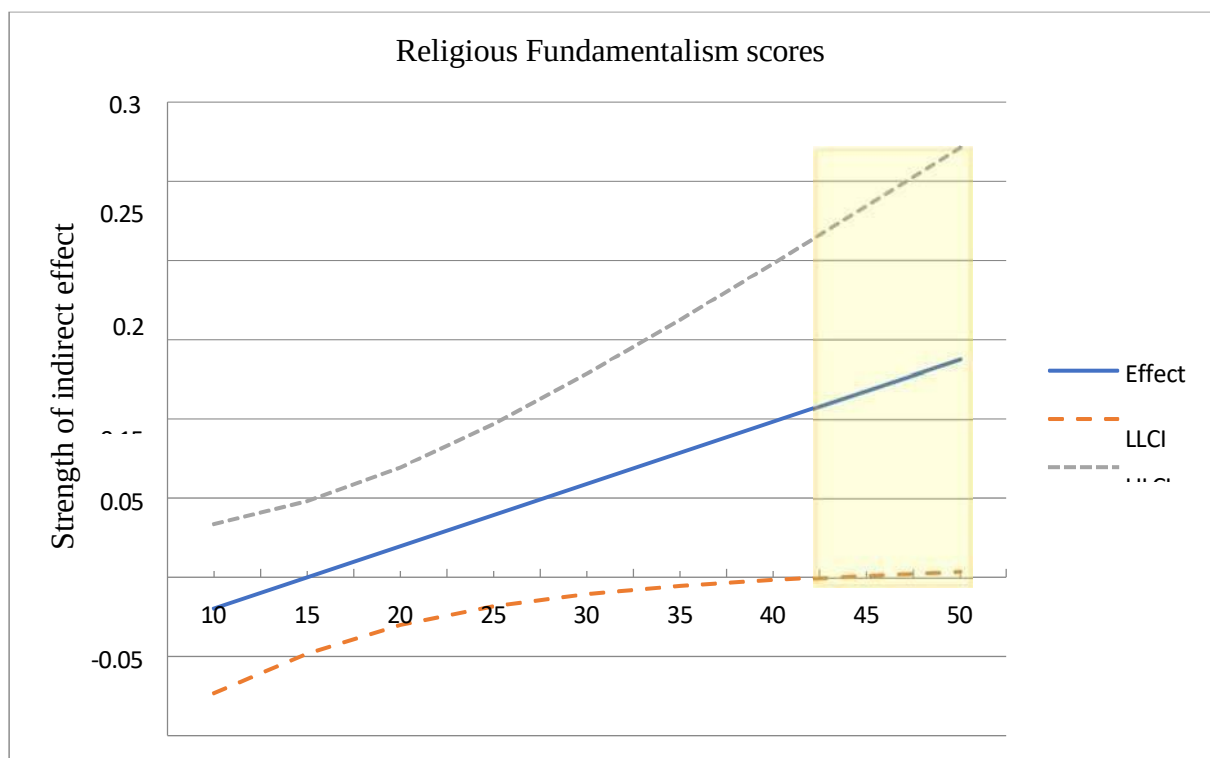


Figure 32

Conditional direct effect of Theistic Spirituality on Obsessions at various levels of Religious Fundamentalism (with an unconditional indirect effect of TAF Likelihood) (Model 5) in the UK study (N = 493)

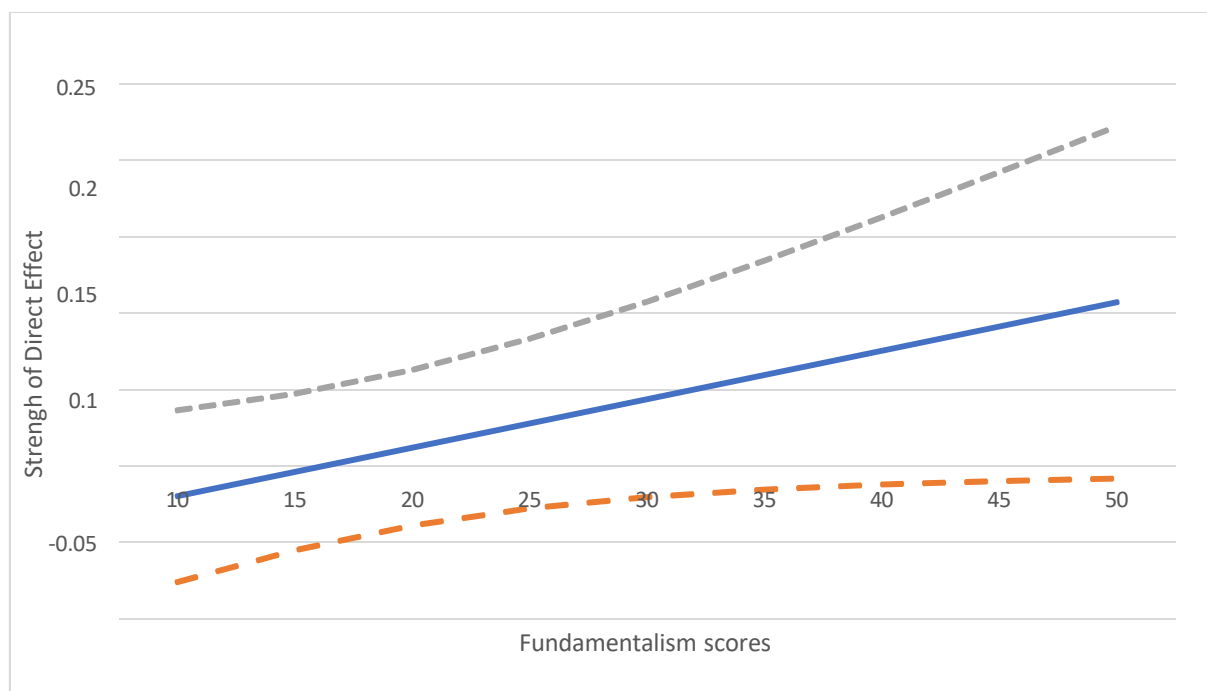


Figure 33:

Conditional direct effect of Intrinsic Religiosity on Obsessions at various levels of Religious Fundamentalism (with an unconditional indirect effect of TAF Likelihood) (Model 5) in the UK study (N=493)

To sum up the findings in relation to the conditional indirect effect and conditional direct effect, Religious Fundamentalism exerts an influence on four of the religiosity/spirituality variables (except Religious Behaviour and SFER) on the indirect effect via TAF, and in two cases on the direct effect (for Theistic Spirituality and Intrinsic Religiosity only). However, for the indirect effect, the slope is downward, whereas for the direct effect, the slope is upward. Religious Fundamentalism thus exerts an influence on whether the effects of religiosity/spirituality on obsessions are transferred to a greater or lesser extent by way of the indirect influence through TAF Likelihood.

7.7 Conditional direct effect in Malaysia

7.7.1 *Conditional direct effect of Religiosity/Spirituality on Obsessions through TAF at various levels of Religious Fundamentalism*

As with the UK sample, model 5 from the PROCESS of moderated mediation was used (see Figure 34) to examine the role of Religious Fundamentalism as a moderator. In these analyses, the indirect effect was specified as unconditional, while the direct effect was conditional as a function of Religious Fundamentalism.

As can be seen in Table 50, the interaction between the religiosity/spirituality variables and Religious Fundamentalism (moderator) on obsessions was not significant. Conversely, the indirect effects of religiosity/spirituality through TAF Likelihood on obsessions were all significant and negative in the Malaysian sample. As none of the interactions on the direct effect were significant, there was no evidence of moderation, and so no probing of the interactions was conducted.

Table 50

The (unconditional)indirect effect of religiosity/spirituality variables through TAF Likelihood on obsessions and the interaction of the conditional direct effect of religiosity/spirituality variables on obsessions at various levels of Religious Fundamentalism in the Malaysian sample (N=581)

Variables	<u>Indirect Effect</u>				<u>Interaction</u>			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff	SE	LLCI- ULCI	Sig.
Religious Behaviour	-.0705	.0159	-.1032 -.0409	*	.0393	.0866	-.1308 .2094	n.s
Non- Theistic Spirituality	-.1160	.0270	-.1717 -.0652	*	-.0249	.1369	-.2938 .2440	n.s
Theistic Spirituality	-1.7617	.3678	-2.5179 -1.0709	*	-2.3119	.1339	-6.5031 1.8793	n.s
Intrinsic Religiosity	-.5262	.1111	-.7543 -.3212	*	-.1500	.6186	-1.3650 1.0650	n.s
Personal Extrinsic Religiosity	-.5492	.1120	-.7822 -.3406	*	.0284	.6080	-1.1658 1.2227	n.s
Social-Family Extrinsic Religiosity	-.0268	.0123	-.0521 -.0042	*	-.0627	.0645	-.1894 .0640	n.s

Note:

Coef.= Coefficient effect, SE = Standard error, LLCI = 95% Lower Confidence Interval, ULCI=95% Upper Confidence Interval, n.s =not significant, * = significant at CI does not include zero

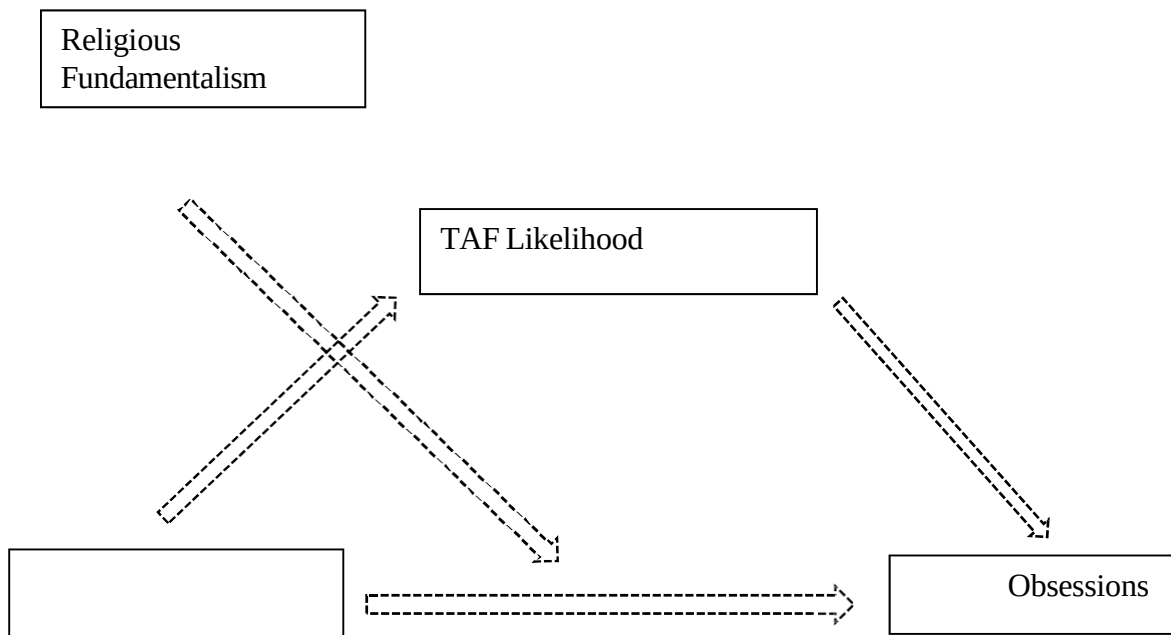


Figure 34:

Conditional Direct Effect (Moderated Mediation) Model 5 (Hayes, 2013) in the Malaysian study (N = 581)

Overall, there is no support for the direct effect of between religiosity/spirituality on the obsessions (when the TAF Likelihood in the model), which is conditional on levels of Religious Fundamentalism except for Non-Theistic Spirituality.

7.8 Conditional indirect effect - Acculturation in the UK study

Although acculturation is not the primary focus of the study (relative to aspects of religiosity and spirituality), acculturation was examined as a moderator of the relationship between religiosity/spirituality variables on obsessions through Likelihood (TAF) for two reasons. First, although several studies have not specifically investigated the role of acculturation the relationship between religiosity and OC symptoms, they have suggested that culture might play a role in the shaping of the relationship between religion and OCD (Okasha, Saad, Khalil, El Dawla & Yehia, 1994; Sica, Novara & Sanavio, 2002; Yorulmaz, Gençöz & Woody, 2009).

Second, as this study was conducted in two multicultural and multi-religious countries, namely, the UK and Malaysia, and specifically within a university community in the UK where there are a significant number of overseas students from different cultural, ethnic, and religious backgrounds (Ibrahim, 2004; Cheng, 2008; Alleyne, 2002) it may be helpful to take acculturation into account. Therefore, it is important to examine the potential influence of acculturation on the indirect effects and direct effects of religiosity/spirituality and obsessions.

Acculturation was measured using the Vancouver Index of Acculturation (VIA) (Ryder, Alden & Paulhus, 2000). The VIA was conceptually developed as a bi-dimensional construct with two related dimensions, specifically, Heritage which means cultural of birth of upbringing and Mainstream, which means the predominant cultural environment (Ryder et al., 2000). A bi-dimensional acculturation approach can provide suitable explanations for those people who have developed multiple cultural identities (Ryder et al., 2000).

As such, this scale explains the orthogonal relationship between heritage and mainstream. Based on two acculturation questions, there are four types of acculturation strategies, specifically 1) Assimilation refers to the process in which individuals lose their heritage culture and embrace the host values, behaviors, beliefs, etc., 2) Separation refers to the opposite orientation, where individuals maintain their heritage culture and reject the host one, 3) Integration alludes to feeling oriented and belonging to both cultures and 4) Marginalization means rejecting both the original and the host culture (Berry, 1997, 2005) (see Figure 35).

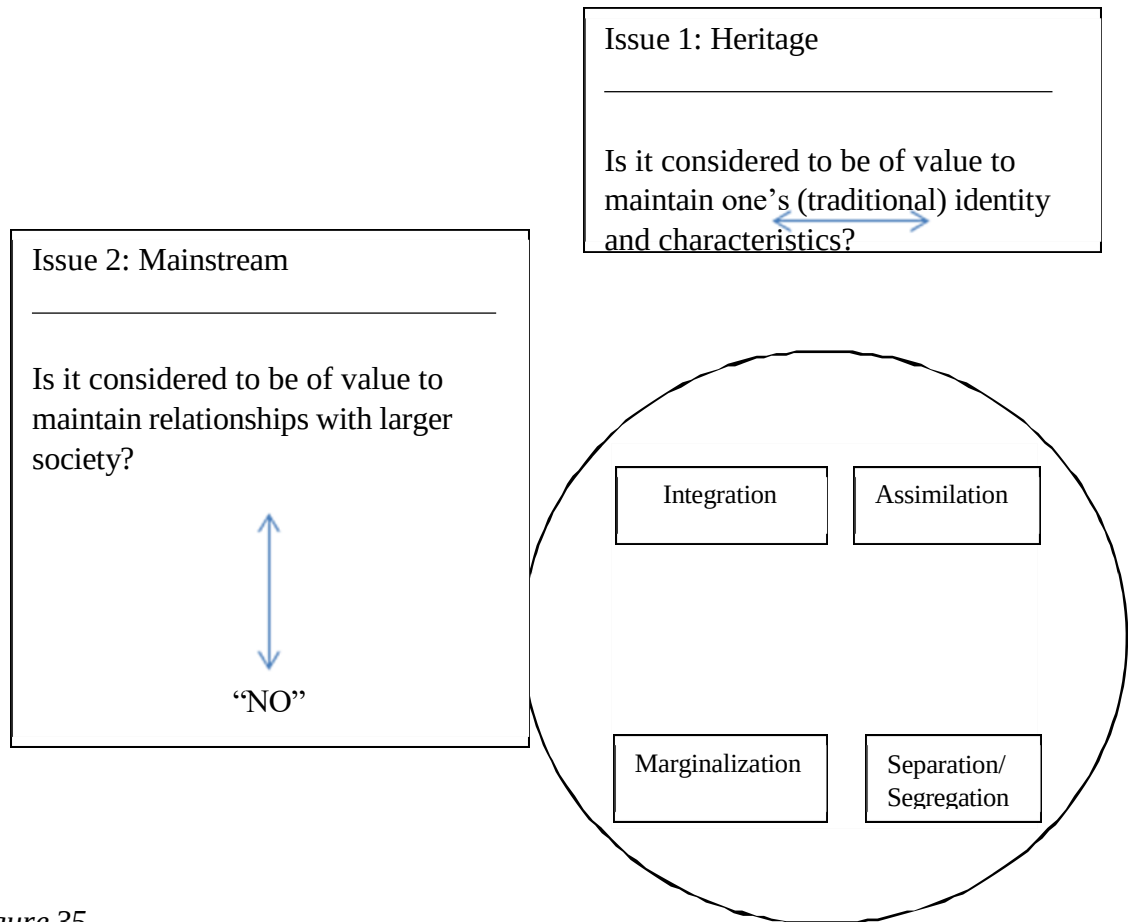


Figure 35

Adapted version of Acculturation Strategies (Berry, 1997; Berry, 2005)

Given the conceptually determined orthogonal relationship between the two dimensions, model 11 from the PROCESS (see Figure 36) is the most appropriate model as it tests multiplicative moderated mediation. The analysis using this model tests three two-way interactions, specifically, 1) the Religiosity/Spirituality variables x one's Heritage, 2) the Religiosity/Spirituality variables x one's Mainstream, 3) Heritage x one's Mainstream, and the most important, the three-way interaction, Religiosity/Spirituality variables x one's Heritage x one's Mainstream. For evidence of multiplicative moderation, which tests the key aspect of the acculturation model, the three-way interaction must be significant.

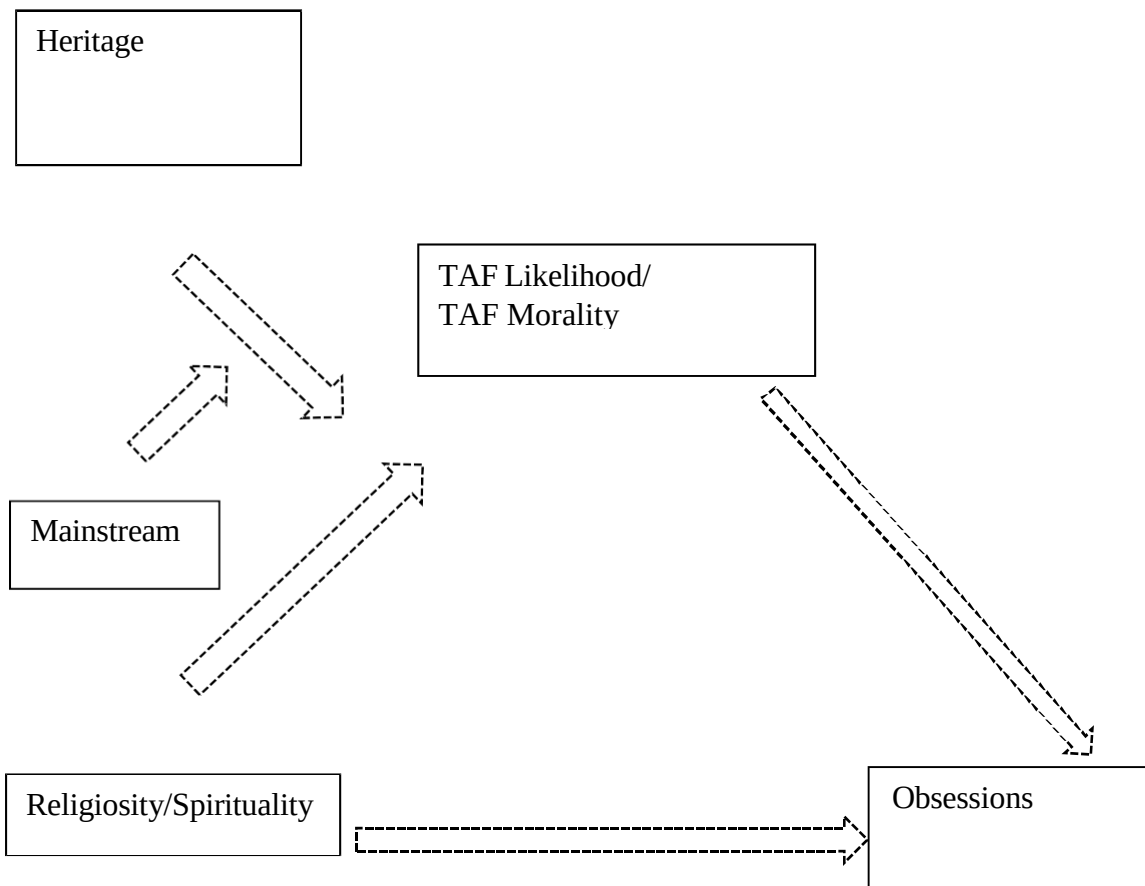


Figure 36:

Conditional Indirect Effect of religiosity/spirituality on the obsessions through TAF Likelihood/TAF Morality Model 11 (Hayes, 2013) in the UK study (N = 493) and the Malaysian study (N = 581).

Table 51

The interaction between religiosity/spirituality variables and acculturation variables for the direct effect of religiosity/spirituality variables on obsessions and the indirect effect through TAF Likelihood and TAF Morality in the UK study (N=493)

Variables/ Interaction	Interaction 1 Religiosity/Spirituality variables x Heritage				Interaction 2 Religiosity/Spirituality variables x Mainstream				Interaction 3 Heritage x Mainstream				Interaction 4 Religiosity/Spirituality variables x Heritage x mainstream			
			LLCI-				LLCI-				LLCI-				LLCI-	
	Coeff.	SE	ULCI	Sig.	Coeff.	SE	ULCI	Sig.	Coeff.	SE	ULCI	Sig.	Coeff.	SE	ULCI	Sig.
<u>Indirect effect through TAF Likelihood in model 11</u>																
RB	-.0099	.0107	-.0309	n.s	-.0192	.0120	-.0428	n.s	-.0102	.0068	-.0236	n.s	.0003	.0002	-.0001	n.s
			.0110				.0044				.0033				.0007	
NTS	.0041	.0167	-.0288	n.s	-.0057	.0177	-.0404	n.s	-.0041	.0118	-.0271	n.s	.0000	.0003	-.0006	n.s
			.0370				.0290				.0190				.0007	
TS	.0185	.0106	-.0024	n.s	.0153	.0121	-.0084	n.s	.0064	.0066	-.0066	n.s	-.0003	.0002	-.0007	n.s
			.0394				.0390				.0194				.0001	
IR	.0081	.0106	-.0127	n.s	.0042	.0123	-.0200	n.s	.0008	.0068	-.0125	n.s	-.0001	.0002	-.0005	n.s
			.0289				.0283				.0142				.0003	
PER	.0191	.0111	-.0028	n.s	.0224	.0134	-.0039	n.s	.0079	.0072	-.0062	n.s	-.0004	.0002	-.0008	n.s
			.0409				.0488				.0220				.0001	
SFER	-.0049	.0115	-.0275	n.s	-.0132	.0131	-.0389	n.s	-.0074	.0060	-.0191	n.s	.0001	.0002	.0003	n.s
			.0177				.0124				.0044				.0005	
<u>Indirect effect through TAF Morality in model 11</u>																
SFER	.0047	.0123	.0289	n.s	.0170	.0140	.0445	n.s	.0119	.0064	.0245	n.s	.0002	.0002	.0003	n.s
			.0195				.0105				.0006				.0007	

Continued from the previous page

Variables/ Interaction	Interaction 1 Religiosity/Spirituality variables x Heritage				Interaction 2 Religiosity/Spirituality variables x Mainstream				Interaction 3 Heritage x Mainstream				Interaction 4 Religiosity/Spirituality variables x Heritage x mainstream			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.
<u>Direct</u> effect with TAF Likelihood in the Model 12																
RB	.0093	.0072	-.0049 .0235	n.s	.0055	.0082	-.0105 .016	.0082	.0088	.0046	-.0003 .0180	n.s	-.0001	.0001	-.0004 .0002	n.s
NTS	-.0004	.0114	-.0229 .0220	n.s	-.0071	.0121	-.0308 .066	.0121	.0015	.0080	-.0143 .0172	n.s	.0001	.0002	-.0003 .0005	n.s
TS	.0017	.0073	-.0126 .0161	n.s	-.0009	.0083	-.0172 .054	.0083	.0056	.0045	-.0033 .0145	n.s	.0000	.0001	-.0003 .0003	n.s
IR	.0026	.0073	-.0116 .0168	n.s	-.0014	.0084	-.0180 .051	.0084	.0057	.0046	-.0034 .0148	n.s	.0000	.0001	-.0003 .0003	n.s
PER	.0012	.0077	-.0139 .0163	n.s	-.0005	.0093	-.0187 .0163	n.s	.0052	.0050	-.0046 .0149	n.s	.0000	.0002	-.0003 .0003	n.s
SFER	.0171	.0081	.0012 .0330	*	.0048	.0092	-.0133 .0229	n.s	.0096	.0092	-.0027 .0220	n.s	-.0002	.0002	-.0005 .0001	n.s
<u>Direct</u> effect with TAF Morality in the Model 12																
SFER	-.0177	.0087	-.0348 -.0006	*	-.0052	.0099	-.0246 -.014	*	-.0020	.0045	-.0110 .0069	n.s	.0002	.0002	-.0002 .0005	n.s

The upper part of Table 51 (Model 11, see details in Table 51) shows the results for the direct effects and indicates that none of the interactions were significant for any of the religiosity/spirituality variables involving the indirect effect through TAF Likelihood. Additionally, as before, we examined the influence of acculturation on the indirect effect of SFER on obsessions through TAF Morality; once again, none of the interactions was significant. Thus, there is no evidence that acculturation moderates the indirect effect.

Next, the potential moderating effect of acculturation was examined simultaneously on both the direct effect of religiosity/spirituality variables on obsessions as well as the indirect effect through TAF Likelihood. As the tests were conducted simultaneously with the indirect effects; thus, there were eight interactions, including the four interactions mentioned previously for the indirect effects and four interactions for the direct effect. Model 12 from PROCESS (see Figure 37, in orange shaded) was used.

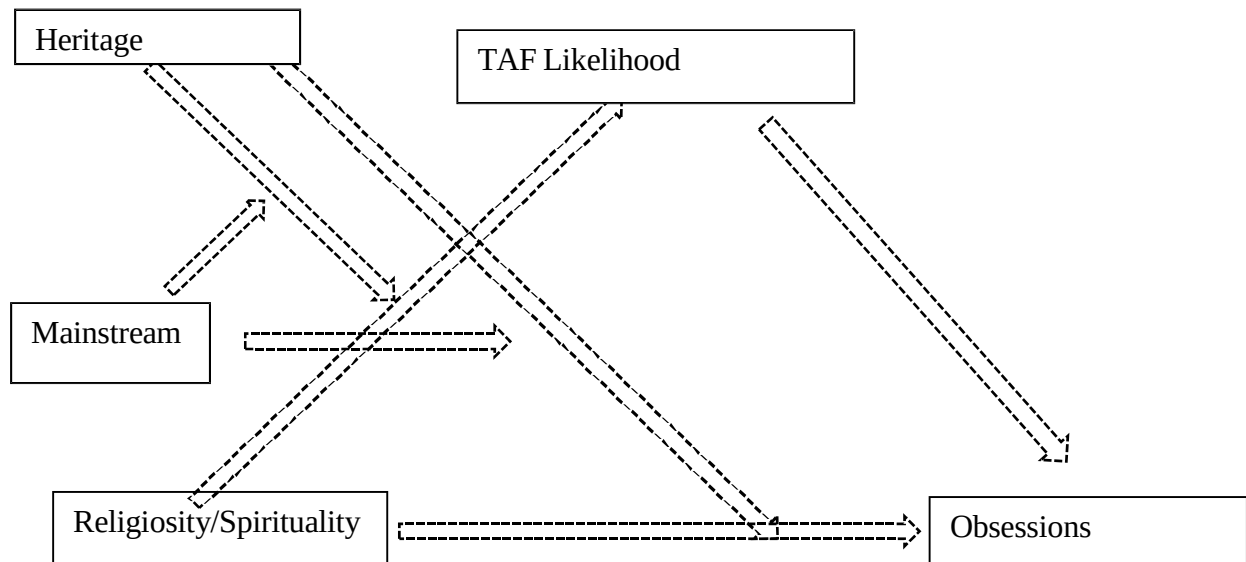


Figure 37:

Conditional Direct Effect of religiosity/spirituality on the obsessions and Indirect Effect through TAF Likelihood (Multiplicative Moderated Mediation) Model 12 (Hayes, 2013) in the UK study (N = 493) and Malaysia study (N = 581).

As can be seen in the lower part of Table 52, there were very few significant interactions. The interaction 5 was significant (SFER x Heritage) for the direct effect of SFER on obsessions (with TAF Likelihood in the model) and direct effects with TAF Likelihood in the model 12 for the Social-Family Extrinsic Religiosity.

However, in order to claim that multiplicative moderation is significant, the three-way interaction must be significant (interaction 8); therefore, the interaction was not probed. Thus, although there is some evidence that affiliation with one's heritage culture did moderate the direct effect of SFER on obsessions (with TAF Likelihood in the model), this cannot be interpreted in terms of the acculturation model.

As for the earlier analyses of conditional indirect effects, the potential moderating role of acculturation on the direct effect of SFER on obsessions with TAF Morality as the mediator. In this case, interactions 5 (SFER x Heritage) and 6 (SFER x Mainstream) were significant, but the critical three-way interaction was not significant. Thus, although there is some evidence that affiliation with one's heritage culture and with the mainstream culture did moderate the direct effect of SFER on obsessions (with TAF Morality in the model), this cannot be interpreted in terms of the acculturation model.

It is important to note that 56 interactions were tested, and only three were significant. Thus, a type I error is a real possibility. In conclusion, acculturation did not influence either the direct or the indirect relationship between religiosity/spirituality variables on obsessions through TAF on a sample of mixed religions and ethnicity in the UK.

Table 52

The interaction between religiosity/spirituality variables and acculturation variables for the direct effect of religiosity/spirituality variables on obsessions and the indirect effect through TAF Likelihood and TAF Morality in the UK study (N=493)

Variables/ Interaction	Interaction 1 Religiosity/Spirituality variables x Heritage				Interaction 2 Religiosity/Spirituality variables x Mainstream				Interaction 3 Heritage x Mainstream				Interaction 4 Religiosity/Spirituality variables x Heritage x Mainstream			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.
Indirect effect through TAF Likelihood in model 11																
RB	-.0099	.0107	-.0309 .0110	n.s	-.0192	.0120	-.0428 .0044	n.s	-.0102	.0068	-.0236 .0033	n.s	.0003	.0002	-.0001 .0007	n.s
NTS	.0041	.0167	-.0288 .0370	n.s	-.0057	.0177	-.0404 .0290	n.s	-.0041	.0118	-.0271 .0190	n.s	.0000	.0003	-.0006 .0007	n.s
TS	.0185	.0106	-.0024 .0394	n.s	.0153	.0121	-.0084 .0390	n.s	.0064	.0066	-.0066 .0194	n.s	-.0003	.0002	-.0007 .0001	n.s
IR	.0081	.0106	-.0127 .0289	n.s	.0042	.0123	-.0200 .0283	n.s	.0008	.0068	-.0125 .0142	n.s	-.0001	.0002	-.0005 .0003	n.s
PER	.0191	.0111	-.0028 .0409	n.s	.0224	.0134	-.0039 .0488	n.s	.0079	.0072	-.0062 .0220	n.s	-.0004	.0002	-.0008 .0001	n.s
SFER	-.0049	.0115	-.0275 .0177	n.s	-.0132	.0131	-.0389 .0124	n.s	-.0074	.0060	-.0191 .0044	n.s	.0001	.0002	.0003 .0005	n.s
Indirect effect through TAF Morality in model 11																
SFER	.0047	.0123	.0289 .0195	n.s	.0170	.0140	.0445 .0105	n.s	.0119	.0064	.0245 .0006	n.s	.0002	.0002	.0003 .0007	n.s

Note: This result is a summary from 10, 000 bootstrap resampling among the UK sample (N=493). Age and gender were covariated.

Continued from the previous page

Variables/ Interaction	Interaction 1				Interaction 2				Interaction 3				Interaction 4			
	Religiosity/Spirituality				Religiosity/Spirituality variables x				Heritage x Mainstream				Religiosity/Spirituality variables x Heritage x			
	variables x Heritage				Mainstream								Mainstream			
Direct effect with TAF Likelihood in the model 12																
RB	.0093	.0072	-.0049	n.s	.0055	.0082	-.0105	n.s	.0088	.0046	-.0003	n.s	-.0001	.0001	-.0004	n.s
			.0235				.0216				.0180				.0002	
NTS	-.0004	.0114	-.0229	n.s	-.0071	.0121	-.0308	n.s	.0015	.0080	-.0143	n.s	.0001	.0002	-.0003	n.s
			.0220				.0166				.0172				.0005	
TS	.0017	.0073	-.0126	n.s	-.0009	.0083	-.0172	n.s	.0056	.0045	-.0033	n.s	.0000	.0001	-.0003	n.s
			.0161				.0154				.0145				.0003	
IR	.0026	.0073	-.0116	n.s	-.0014	.0084	-.0180	n.s	.0057	.0046	-.0034	n.s	.0000	.0001	-.0003	n.s
			.0168				.0151				.0148				.0003	
PER	.0012	.0077	-.0139	n.s	-.0005	.0093	-.0187	n.s	.0052	.0050	-.0046	n.s	.0000	.0002	-.0003	n.s
			.0163				.0163				.0149				.0003	
SFER	.0171	.0081	.0012	*	.0048	.0092	-.0133	n.s	.0096	.0092	-.0027	n.s	-.0002	.0002	-.0005	n.s
			.0330				.0229				.0220				.0001	
Direct effect with TAF Morality in the Model 12																
SFER	-.0177	.0087	-.0348	*	-.0052	.0099	-.0246	*	-.0020	.0045	-.0110	n.s	.0002	.0002	-.0002	n.s

Note: This result is a summary from 10, 000 bootstrap resampling among the UK sample (N=493). Age and gender were covariated.

7.9 Conditional Indirect Effect - Acculturation in the Malaysian study

Acculturation was also examined as a moderator of the relationship between religiosity/spirituality variables through Likelihood (TAF) on obsessions for the Malaysian sample. Malaysia is one of the most multi-ethnic and multi-religious countries in South East Asia and provides a unique variety of symbols, rituals, values, and ways of life of the people in the country. As stated previously, Malaysia is comprised of three primary ethnic groups, the Malays, the Chinese, and the Indians, each with their respective cultures. This means that most people have some aspects of a specific heritage culture as well as degrees of exposure to a mainstream Malaysian culture. Malaysia is considered unique because of its diversity of races, religions, and cultures (Embong, 2001).

Malaysia is a country where religion is central to many people in their daily lives. Islam is the state religion and is followed by most Malays. Other religions such as Buddhism, Hinduism, Sikhism, Taoism, Confucianism and Christianity all have a substantial presence in the country (Cheng, 2008; Mura & Tavakoli, 2014). Interestingly, some of these religions are more likely to be followed by people of a particular heritage or ethnic origin; for instance, many Indians follow Hinduism, and almost all Malays follow Islam. In addition, because Malaysia is also recognized as an Islamic country, many people of Arab or Persian origin also live there, which makes the culture more diverse. It is, therefore, important to examine the role of acculturation on the effects of religiosity/spirituality on obsessions.

Identical analyses were conducted on the indirect effects of religiosity/spirituality variables on obsessions through TAF Likelihood. Inspection of the upper part of Table 52 showed that none of the interactions were significant, therefore there is no evidence that acculturation moderates the indirect effect.

Finally, the potential moderating effect of acculturation on the direct effect was also considered (Model 12). As can be seen in the Table 52, none of the interactions were significant, so there is no evidence of moderation (in the green shaded).

in the Malaysian sample. Overall, the acculturation did not interact with TAF or dimensions of religiosity and spirituality to influence the obsessional symptoms in a sample with mixed religions and ethnicity from Malaysia.

Table 28

Summary of 10,000 bootstrap resamples of the indirect effects of religiosity/spirituality variables on obsessions through Likelihood TAF at different levels of Acculturation among the Malaysia sample (N = 581)

Variables/ Interaction	Interaction 1 Religiosity/spirituality variables x Heritage				Interaction 2 Religiosity/spirituality variables x Mainstream				Interaction 3 Heritage x Mainstream				Interaction 4 Religiosity/spirituality variables x Heritage x Mainstream			
	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.	Coeff.	SE	LLCI- ULCI	Sig.
Indirect effect through Likelihood TAF in the model 11																
RB	-.0055	.0173	-.0395 .0284	n.s	-.0009	.0167	-.0337 .0318	n.s	.0023	.0127	-.0226 .0272	n.s	.0001	.0003	-.0005 .0008	n.s
NTS	-.0384	.0284	-.0941 .0173	n.s	-.0415	.0283	-.0971 .0140	n.s	-.0319	.0236	-.0782 .0144	n.s	.0009	.0006	-.0002 .0020	n.s
TS	.0087	.0221	-.0346 .0521	n.s	.0105	.0198	-.0283 .0493	n.s	.0160	.0186	-.0206 .0525	n.s	-.0002	.0004	-.0010 .0006	n.s
IR	-.0136	.0160	-.0451 .0179	n.s	-.0097	.0152	-.0395 .0201	n.s	-.0053	.0134	-.0317 .0210	n.s	.0003	.0003	-.0003 .0009	n.s
PER	.0057	.0154	-.0245 .0358	n.s	.0018	.0150	-.0276 .0312	n.s	.0119	.0140	-.0156 .0393	n.s	.0000	.0003	-.0006 .0005	n.s
SFER	.0027	.0154	-.0276 .0330	n.s	.0007	.0161	-.0310 .0324	n.s	.0103	.0109	-.0111 .0317	n.s	.0000	.0003	-.0006 .0006	n.s
Direct effect with Likelihood TAF in the model 12																
Interaction 5 Religiosity/Spirituality x Heritage				Interaction 6 Religiosity/Spirituality x Mainstream				Interaction 7 Heritage x Mainstream				Interaction 8 Religiosity/Spirituality x Heritage x Mainstream				
RB	-.0025	.0139	-.0299 .0248	n.s	-.0001	.0134	-.0264 .0263	n.s	-.0001	.0190	-.0202 .0199	n.s	.0000	.0003	-.0005 .0005	n.s
NTS	.0127	.0229	-.0323 .0577	n.s	.0215	.0229	-.0234 .0664	n.s	.0142	.0190	-.0232 .0516	n.s	-.0003	.0004	-.0012 .0006	n.s
TS	.0035	.0176	-.0311 .0382	n.s	.0069	.0158	-.0240 .0379	n.s	.0010	.0149	-.0282 .0302	n.s	.0000	.0003	-.0007 .0006	n.s
IR	-.0086	.0130	-.0341 .0168	n.s	-.0053	.0123	-.0294 .0168	n.s	-.0055	.0108	-.0267 .0158	n.s	.0001	.0002	-.0003 .0006	n.s
PER	-.0176	.0124	-.0418 .0067	n.s	-.0120	.0120	-.0357 .0116	n.s	-.0125	.0112	-.0346 .0096	n.s	.0003	.0002	-.0002 .0008	n.s
SFER	.0035	.0121	-.0202 .0272	n.s	-.0027	.0126	-.0274 .0221	n.s	.0005	.0085	-.0162 .0173	n.s	.0000	.0002	-.0005 .0004	n.s

Note: This result is a summary from 10, 000 bootstrap resampling among the Malaysian sample (N=493). Age and gender were covariated.

CHAPTER 8

Discussion

8.1 Introduction

There have been numerous studies on the association between religion and OCD. However, it is uncertain whether religiosity and a spirituality have a causal relationship with OCD. The lack of scales to adequately assess religiosity and spirituality among individuals may have affected the findings to date. Further, cognitive variables such as Thought Action Fusion may help explain the relationship. Therefore, the present study primarily aimed to investigate the relationship between religiosity, Thought Action Fusion (TAF) and OCD among two multicultural samples, specifically 1) in the United Kingdom and 2) Malaysia. For the purpose of the main study, a multidimensional measure of religiosity and spirituality was developed in order to be used among those who may not be formally non-religious, in addition to those who vary in their religious affiliation and practice. Multiple steps were conducted in the development of 82 items of the Newcastle Religiosity and Spirituality Scale (NSRS).

Further, preliminary analyses were conducted to test aspects of the content validity of the NSRS. Subsequently, data were collected in both countries, with 493 participants in the UK and 581 participants in Malaysia. Results of Exploratory Factor Analysis (EFA) showed consistencies in terms of factor structures in both samples with several interesting findings. All 82 items were retained and indicated that eight uni-dimensional factors could be used in both samples. Furthermore, the NSRS subscales revealed very good internal consistency.

In this chapter, evidence of the relevance, validity and reliability of the scale will be discussed. Next, the relationship between the key components of the principal study in which the religious variables, Thought Action Fusion (TAF) and OCD was investigated and several notable findings were ascertained and will be discussed. In addition, other important findings, such as the role of acculturation in the relationship of religiosity and OCD will be presented.

8.2 Highlights of the main findings on the scale

8.2.1 Why is the development of the NSRS important?

There are substantial studies exploring the link between religiosity and OCD, yet there is no consensus regarding the appropriate measurement tool for assessing religiosity and spirituality. There are several reasons why the development of NSRS was important.

First, the NSRS was developed based on a conceptual framework of religiosity and spirituality in contrast to many previous studies where religiosity and spirituality were often poorly defined and poorly measured. Measures range from unidimensional to multidimensional, and the underlying concepts have changed over time. There is a possibility that a lack of consensus of construct definition between religiosity and spirituality contribute to the unclear conceptual framework underlying many measures of both constructs. For example, several studies suggested that the lack of defined and universally accepted multidimensional measures of religiosity/spirituality has led to poor operationalization, incomparable data and finally produced inconsistent results (Shreve-Neiger & Edelstein, 2004; Agorastos et al., 2012).

Second, while developing the NSRS, both religiosity and spirituality were considered as separate and multidimensional concepts, although they relate to each other in some important ways. It is important to note that the development of NSRS may help in assessing individuals who vary in their level of religiosity and spirituality along different dimensions. For example, an individual who scores high in Non-Theistic Spirituality (NTS) but scores low in Religious Behaviour (RB) may have no formal religious affiliation and would reflect someone who describes themselves as spiritual in that they have a transcendent view of something greater than themselves.

However, they may not be religious in the sense of believing in a certain Supreme Being nor adopting the behaviours, practices, and beliefs of a specific religion. The heart of spirituality is the sense of a relationship, characterized by the belief in a Supreme Being in the case of theistic spirituality or belief in the transcendence of the self in the case of non-theistic spirituality. Both relationships are measured.

Third, many of the religiosity scales used in the study of OCD only focus on limited aspects of religiosity. For example, many studies used uni-dimensional measure of religious practices (frequency of attending religious services) (Tek & Ulug, 2001; Sica, Novara & Sanavio, 2002; Rassin & Koster, 2003, Yorulmaz, Gençöz & Woody, 2009), while others excluded other potentially important constructs, such as the motivation to do these things (aspects of religiosity). In line with many measures of religiosity, the assessment of religiosity in the NSRS starts with religious behaviour. Many scales go no further than this but the NSRS then looks at the motivations for these behaviours, i.e. the reasons why people worship, pray, etc. The definition underlying the intrinsic scale of the NSRS is consistent with many earlier scales; nevertheless, the notion of extrinsic religiosity has been further subcategorized into personal versus social and family components.

Fourth, several measures used in the study of OCD have focused on religious attitudes (e.g. Steketee, Quay & White, 1991; Abramowitz et al., 2004; Siev & Cohen, 2007), while some have been focused on both religious attitudes and religious practices (Hermesh, Masser-Kavitzky, & Gross-Isseroff, 2003). Interestingly, only a few unpublished studies have focused on other related constructs, for instance spirituality (Wright & Freeston, 2006; Ward & Freeston, 2008, Laing & Freeston, 2010), while a few have focused on Religious Fundamentalism (Inozu, et al. 2012; Witzig & Pollard, 2013) and none considered the religious orientations of Religious Fundamentalism and Quest.

Therefore, looking at these limitations in the religiosity/spirituality measures that have been used in the OCD studies, the NSRS was developed with considerations to tap into all the important aspects of religiosity/spirituality, as well as other psychological aspects of religion that may be related directly or indirectly to OCD. In addition to the better-established aspects of intrinsic religiosity and extrinsic religiosity, other aspects of religiosity/spirituality were also considered and included.

Moreover, to our knowledge, there is no study on Quest orientation in the study of OCD. While Religious Fundamentalism is the strict interpretation of authority in writings and leaders, where there is little room to doubt, whereas Quest is characterized as legitimate doubt and questioning one's approach to religion and spirituality. Moreover, some of the measures used to measure religiosity were developed specifically for the study of OCD (see Steketee et al., 1991; Yorulmaz et al., 2009; Wright & Freeston, 2008). However, the NSRS was developed not only for the purpose of examining the relationship of religiosity and OCD but also potentially to be used in other fields of psychology.

Finally, the NSRS was developed in order to be used across all religions even for what may be minority religious groups within a dominant culture. Generally, most religiosity measures have been developed for Christian samples (Tayyiba et al., 2009; Abu Raiya, H., Pargament, Mahoney & Stein, 2008; Krauss, Hamzah, Juhari, & Abdul Hamid, 2005) although some have been developed specifically for Muslim samples (see Francis, Sahin & Al-Failakawi, 2008; Salleh, Hatta, Nor, Kassim, Ismail, & Moktar, 2000; Krauss et al., 2005). Specifically, most of the previous studies investigating religiosity and OCD, have been conducted among Christian and Jewish samples (see Cohen & Rozin, 2001; Tek & Ulug, 2001; Siev & Cohen, 2007).

While there are a few studies of OCD and religiosity that have been conducted among Muslim samples (Yorulmaz et al., 2009; Inozu et al., 2012), studies on other religions, such as Hinduism and Buddhism or other religions are scarce. Obviously, religiosity scales that are specific to one religion in content are unsuitable for use in multi-religious samples.

For example, in an effort to develop a multidimensional scale suitable for use among Muslim samples, Dasti and Sitwat (2014) developed a scale that comprises the Quest scale. However, it is suggested that the Quest subscale in this scale was not applicable to be used among other religious groups as it was developed based on the operational definitions from a Muslim perspective, where quest has a specific meaning concerning greater knowledge and so strengthens one's belief rather than a questioning attitude toward truth.

Therefore, during the development of NSRS, all dimensions of religiosity and spirituality were considered and items were generated and revised based on a sensitivity to each religion or spiritual tradition. For example, the scale was modified with an additional explanation on the items regarding God. This is to allow for a broader concept of God, whether monotheistic (Judaism, Christianity, and Islam), polytheistic (e.g. Hinduism) or non-theistic (e.g. Buddhism). More importantly, to our knowledge, there is no multidimensional religiosity/spirituality scale that can be used among all religious groups in the study of OCD. Therefore, the NSRS may be used with individuals of various religions but also with degrees of spirituality, various levels of religious behaviour, varying motivations, and indeed those without formal religion.

In conclusion, it is crucial to understand each dimension of religiosity and spirituality individually and perhaps in interaction with others in order to assess the role of religiosity and spirituality in relation to OCD. Subsequently, the multidimensional nature and comprehensive coverage of the NSRS may help to capture more relevant dimensions of religiosity and spirituality and its potential and differential influences on OCD. More importantly, the NSRS may be used across religions and cultures, so as to enable the association between OCD and religion to be studied in both the United Kingdom and Malaysia

8.2.2 Reliability

In general, the findings reported in the present study support the use of the NSRS among a diverse range of religions, cultures, and countries. Preliminary inter-rater reliability on the items showed acceptable agreement on their mapping to the constructs underlying the NSRS. Additionally, the NSRS demonstrated high internal consistency for all eight subscales in both samples. The high internal consistency suggests that each set of items functions together to reliably measure each of the religiosity and spirituality constructs.

At the end of the study, the researchers were aware of the importance of test-retest reliability. However, the researchers could not perform the test-retest reliability on the original version of the NSRS due to logistics and accessibility constraints. Therefore, the researcher conducted a test-retest reliability on the NSRS Short version and it was found that NSRS-SV evident good psychometric properties and was concluded as a valid and reliable scale for measuring religious orientations for Malaysian samples. The NSRS may be advantageous to other researchers because of its relative conciseness (given the range of constructs measured), suitability for a diverse range of religions and cultures, and simple administration and scoring.

8.2.3 *Validity*

The content and construct validity of the measurement in this study was established by means of several steps. First, the constructs were defined and agreement sought. The NSRS items were carefully designed and then modified upon the discussion with two supervisors to reflect the theoretical constructs. Several inspections of the NSRS items reflect that all intended dimensions of spirituality and religiosity were represented. In addition, evidence of the content and construct validity were established through careful review by nine academic experts (five academics from Malaysia and four academics from the UK) and by eleven religious leaders from two countries (six from the UK and five from Malaysia). In addition, efforts were made to ensure that items were appropriate for young people aged 16 in both wording and content (all scales at 15 years or above according to the Flesch Reading Test, see details in Chapter 3).

As outlined in Chapter 5, the results from the Exploratory Factor Analysis (EFA) revealed five distinct factors, along with a combined factor across both samples. In the UK sample, Theistic Spirituality and Intrinsic Religiosity were merged into a single factor, while Personal Extrinsic Religiosity was identified as a separate factor. Conversely, in the Malaysian sample, Intrinsic Religiosity and Personal Extrinsic Religiosity were integrated with Theistic Spirituality, which was considered a distinct factor.

Although the merging of these subscales into one factor was expected, it is important to acknowledge that the components from these three subscales represent different aspects of an individual's relationship with the divine. The factor analyses suggest that the expression of this relationship displays unique characteristics in the UK in comparison to Malaysia. Furthermore, the factor structure of the NSRS in Malaysia may be clarified by understanding the importance of extrinsic and intrinsic religious orientations within the Malaysian context (Kamaluddin, Nasir, Sulaiman, Khairudin, & Zamani, 2017).

In the following investigation, the researchers recognized the lack of convergent and divergent validity, as well as Confirmatory Factor Analysis (CFA) for the NSRS scale. Consequently, the researchers performed these tests, which indicated that the NSRS-SV exhibited strong convergent and divergent validity, affirming its status as a valid and reliable instrument for assessing religious orientations among Malaysian individuals. The methodology of the validation study concerning convergent/divergent validity and CFA is elaborated upon in Chapter 6. The details about the process of the validation study on the convergent/divergent validity and CFA (Confirmatory Factor Analysis) were explained in the chapter 6. The CFA was executed based on the outcomes of the Exploratory Factor Analysis (EFA), yet none of the models demonstrated adequate fit. Similar to the EFA, the CFA yielded noteworthy findings, with certain results warranting emphasis. For instance, many items that exhibited double loading and poor factor loading were those revised for the short version of the NSRS (see chapter 6 for details).

Furthermore, taking into account various elements, particularly the unique characteristics of religious expression between the UK and Malaysian cohorts, alongside the observation that the Malaysian sample exhibited a greater degree of religiosity than the UK sample, it is significant that, despite the compelling and potentially interpretable convergence of items from the three scales into two factors, these factors remained conceptually consistent with the original scale. Therefore, based on these insights, it is advisable to preserve the scales in their initial design and development.

8.2.4 Suitability across religions and cultures

The NSRS was purposely developed to be suitable for both religious and non-formal religious groups. It is important to consider that different religions emphasize certain dimensions more than others. Broadly speaking, for example, Hinduism focuses more on spirituality (Sundararajan & Mukerji, 2003), whereas Islam and Judaism tend to highlight religious practices and Religious Fundamentalism more (Greenberg & Witztum, 1994; Greenberg & Shefler, 2002; Okasha et al., 1994; Okasha, 2004). Further, there are different traditions within each of the main religions that vary in their emphasis on religious and spiritual expression and practice, even before we come to an individual level. Some practices are shared at a superficial level between religions, but the meaning of and the motivation for the behaviour will differ.

Therefore, during the development of the NSRS, the items on the Religious Behaviour subscale were carefully designed to address the common characteristics of many religions: the notions of prayer or meditation, worship or ritual, reflection, giving, reading and study, pilgrimage and observance have equivalents in many, if not most, religions. Further, even item no. 1, 'I pray or meditate', reflects an activity practiced by all religions, but may also include people who may be spiritual but not belong to a formal religion. The items of the Non-Theistic Spirituality subscale were written in a way that may be relevant among non-religious individuals, in addition to still being relevant to those with a belief in a specific Supreme Being.

Furthermore, the NSRS is applicable for use across cultures and countries, as well as demonstrating sensitivity to cultural variables. Although the same religion may be practiced in different countries, this does not necessarily mean that the psychology of the behaviours is identical. Culturally, there is a substantial difference between Western and Eastern cultures in terms of behaviour, values, personalities, and their distinct conceptions of individuality (see Markus & Kitayama, 1991). In most Eastern countries, religion is central to many aspects of life, and religious education is practiced and exposed to children from an early age (Okasha et al., 1994). In contrast, in some Western countries, religion may be less important at a social and cultural level, abandoned by some, and moreover, there has been a general decline in religious practices (Altameyer, 2004; Houtman & Aupers, 2007). Within the same religion, some aspects of religiosity, such as bereavement and loss, may be different based on the sensitivity of the cultures (Wikan, 1988).

Finally, there is variation in the degree of religious tolerance in different countries, where this is formally expressed or informally. Some countries (e.g., many European countries guarantee freedom of religion, but some may vary in their official tolerance of expressions of religious behaviour (e.g., the burkha ban in France) (Hunter-Henin, 2012; Ismail, 2010). Other European countries may show relative intolerance to non-Christian religions (e.g., Eastern Europe). Some multicultural countries, for instance, Malaysia, have a formal approach to religious tolerance. Finally, some Middle Eastern countries may display little tolerance for any religion other than the official state religion. It is important to design a scale that can be used with little modification in any of these situations. For example, the NSRS has been used successfully in Saudi Arabia with only two modifications: 1) The Supreme Being is referred to as Allah, 2) the Non-Theistic Spirituality scale has been removed (Khulood Almansoor, personal communication, July 2015).

8.2.5 *Where next?*

The development of the NSRS offers a promising step in the study of the psychology of religion and can be used to examine psychological models of mental health and mental disorders. The results show that the new NSRS is psychometrically valid and reliable in two multicultural countries, specifically, the UK and Malaysia. Overall, the NSRS is an 82-item scale measuring eight distinct facets of an individual's religious life and is easily administered and scored. Although the NSRS is a relatively lengthy questionnaire, an attempt has been made by another researcher to develop a shorter version (Marram & Freeston, 2016, unpublished). Future work should focus on larger samples in multicultural and multi-religious countries and a greater number of participants each professing a specific religion in multicultural countries, as well as those who constitute a “non-religious group”.

Further, the NSRS should consider single-religion samples, from both multi-religious countries with prominent levels of religious practice and reasonable tolerance (e.g., Muslims in Malaysia), in addition to mono-religious countries with strong religious practices and low tolerance to other religions (e.g., Muslims in Saudi Arabia) (Khulood & Freeston, in progress).

Furthermore, the comparison of samples from countries that share a dominant religion, but differ in the role of the religion regarding national identity and the level of practice. For instance, comparisons could be made in Norway, where approximately 79% of the population is Christian, but where religious practice is low. In Turkey, where the government has declared that 99% of the population is Muslim, although Turkey is a secular country that offers freedom of belief, worship, and the private expression of religious ideas (Report on International Religious Freedom, 2012).

Given the numerous similarities relative to the differences observed in the results of the Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA), it is advisable to conduct additional testing of the CFA specifically on the original NSRS within the Malaysian sample. This step is crucial to ascertain whether the findings from the CFA align with those derived from the UK sample, thereby helping us to determine if there are issues related to the scale or the sample itself.

The results from these studies may suggest different perspectives and contribute new findings useful to the advancement and application of NSRS. In addition, future research on the scale is also necessary with the aim of further examining its reliability, validity, and establishing test norms, and it should be tested in the study of other fields of psychology. It is left to future research to refine the NSRS scale and establish its factor structure and psychometric properties in larger samples constituted in specific ways.

8.3 Interpretation of the results on OCD and their implications

8.3.1 Correlation among the religiosity/spirituality subscales, TAF subscales, and OC symptoms

Before the multiple regression analyses were conducted, correlation analyses were conducted on both samples. The results of the correlation revealed several consistent findings with a few differences in both samples. First, the religiosity/spirituality subscales were significantly correlated with each other with positive coefficients. Studies in OCD and religiosity did not specifically investigate the association between religiosity dimensions, as most of the previous studies on OCD and religiosity only focused on one or two aspects of religiosity, such as religious affiliation (e.g. Steketee & Quay, 1991), religious practices (e.g. Rassin & Koster, 2003) and religious affiliation and religious practices (e.g. Yorulmaz et al., 2009). However, a few studies established that high religious samples scored high in religious Religious Fundamentalism (Inozu et al., 2012a; Inozu et al., 2012b; Witzig & Pollard, 2013). More importantly, these studies were somewhat consistent with the present study in both samples, which found a positive correlation between Religious Fundamentalism and other religiosity/spirituality subscales, for instance, Intrinsic Religiosity and Theistic Spirituality (see Chapter 6 for correlational analyses).

In terms of the correlation between other religiosity/spirituality subscales, results in both samples were consistent with the previous finding regarding several religiosity dimensions, such as Intrinsic Religiosity (IR) is positively correlated with Personal Extrinsic Religiosity (PER) (Kirkpatrick, & Hood, 1990; Gorsuch, & McPherson, 1989; Gorsuch, 1983).

Second, religiosity/spirituality was positively correlated with OC symptoms in the UK study. This finding was consistent with the previous findings (e.g., Rassin & Koster, 2003; Nelson et al., 2006; Siev & Cohen, 2007). In contrast, the study in Malaysia ascertained that religiosity/spirituality was negatively correlated to OC symptoms. This means that once religiosity is higher, the obsessions are less. This finding was inconsistent with a few of the previous studies among Turkish Muslims (e.g., Yorulmaz et al., 2009; Inozu et al., 2012), however, it is possible that the inconsistent findings were due to differences in cultures, religiosity measures, and samples among the countries. This notion will be discussed further in the next section. Moreover, the negative association was in line with previous findings on the links between religiosity and mental disorders in Malaysia (e.g., Abdullah et al., 2010; Rosli, Saini, Nasrin, Bahari, Sharip, 2016).

Lastly, the association between TAF and OC symptoms was moderate and significant in the UK (TAF Likelihood x OC symptom, $r = .544$, TAF Morality x OC symptoms, $r = .421$, TAF Impulsivity x OC symptoms, $r = .469$) and in Malaysia (TAF Likelihood x OC symptom, $r = .552$, TAF Morality x OC symptoms, $r = .327$, TAF Impulsivity x OC symptoms, $r = .444$). Both samples showed somewhat similar strengths for all the TAF variables, in which TAF Likelihood appears the strongest among all three variables.

More importantly, the strengths of the correlation between TAF Likelihood and OC symptoms are consistent in both samples. Further, these findings support the evidence on the relationship between TAF and OC symptoms in Western countries (Yorulmaz et al., 2009; Williams et al., 2013; Berman et al., 2012), and non-Western countries (Yorulmaz et al., 2009; Inozu et al., 2010; Inozu et al., 2012a; Inozu et al., 2012b).

Overall, the results of the correlation obtained somewhat consistent findings in both samples. This is interesting as, despite inconsistent findings regarding the opposite direction of the coefficient correlation for the relationship between religiosity/spirituality and OC symptoms, both samples found consistent findings for the relationship between TAF and OC symptoms. This means that cognitive models of OCD are universal in both Western and non-Western countries. More importantly, these findings support findings on the cognitive models of OCD.

8.3.2 Indirect Effects

This present study investigates the mediating/indirect effect role of TAF in the relationship between religiosity/spirituality and OCD symptoms. Again, as stated before in Chapter 6, the terms mediation and indirect effect are used interchangeably. In addition, in this section, obsessions/OC symptoms are used interchangeably. The results of the study are mixed, with some results supporting previous studies, while some did not. The present study established consistent findings with a few interesting findings in the UK and Malaysia samples.

There were several important findings for the test of the indirect effect. First, the hypothesis that TAF mediates the relationship between religiosity/spirituality and obsessions was supported in both samples (in the UK and Malaysia). Specifically, we discovered that the religiosity/spirituality variables have both direct and indirect effects on obsessions through TAF Likelihood in the UK study. This means that as religiosity increases, individuals score higher on obsessions both through direct and indirect paths.

More importantly, for all except Social and Family Extrinsic Religiosity, 55 to 75% of the total effect was through the direct effect. Thus, although the indirect effect was present, it was the weaker of the two paths. This is consistent with partial mediation, and so although TAF Likelihood is one possible path from religiosity/spirituality to OC, the direct path remains important. It may be that other mediators not measured here would also partially mediate the effect and add to the model, or it may be that parts of the direct effect are causal in and of themselves. In that case, religiosity itself could cause OCD within a statistical causal model. Note that for Social and Family Extrinsic Religiosity (SFER), the indirect effect accounted for 56% of the total effect.

Importantly, the findings were consistent with previous studies that examined direct paths only (Sica et al., 2002; Rassin & Koster, 2003; Abramowitz et al., 2004; unpublished theses Wright & Freeston, 2006; Ward & Freeston, 2008; Yorulmaz, Gencoz & Woody, 2009; Inozu, Karanci & Clark, 2012a; Inozu, Karanci & Clark, 2012b; Williams et al., 2013) and those that considered indirect effects only (Rassin & Koster, 2003; unpublished theses Wright & Freeston, 2006; Ward & Freeston, 2008; Yorulmaz, Gencoz & Woody, 2009; Berman, et al., 2010; Inozu, Karanci & Clark, 2012a; Inozu, Karanci & Clark, 2012b; Williams et al., 2013). These findings contribute to the understanding of how religiosity/spirituality and obsessive symptoms relate and the extent of the role of TAF in explaining this relationship.

In contrast, in the Malaysian study, we found that none of the direct paths were significant and the total effect was largely accounted for by the indirect effects, which were significant but negative. All religiosity/spirituality variables were associated with obsessions through TAF Likelihood, but higher religiosity is associated with lower OCD. However, two religiosity/spirituality variables, primarily Theistic Spirituality (TS) and Social-Family Extrinsic Religiosity (SFER) were related to obsessions through both the direct (TS, coefficient = -1.335, SFER, coefficient = -.0630,) and indirect effects (TS, coefficient = -1.335, SFER, coefficient = -.0630, significant at confidence interval does not include zero).

It is possible that TS and SFER were directly related to fewer OC symptoms, as those who believe in religion may perceive religion as a protective factor against OC symptoms. In addition, those who believe in God and engage in religious behavior due to social and family motivations were more likely less to develop obsessions (as the direction is negative) as they think that their thoughts are less important. This is because they may think that something Higher than them (i.e., God) is more important and their thoughts are beyond their control, which may less think that their thoughts can cause actions and lead to less developing obsessions. This perception of religiosity among the Malaysian sample will be discussed further in the next paragraph. TS and SFER may have a direct correlation with reduced OC symptoms, as individuals who have faith in religion may view it as a safeguard against such symptoms.

It is possible that TS and SFER were directly related to fewer OC symptoms, as those who believe in religion may perceive religion as a protective factor against OC symptoms. This is consistent with previous research conducted in Malaysia, which has shown that religion can have a positive impact on both physical and mental well-being (Mohd Mahudin et al., 2016; Misran et al., 2021; Othman et al., 2015; Zaiton, 2017). For instance, research by Foong and his team revealed that intrinsic religiosity was correlated positively with life satisfaction in elderly individuals dealing with chronic illnesses (Foong et al., 2020). A significant number of Malaysians employ various aspects of religion, including extrinsic and intrinsic religiosity, to protect themselves and enhance their psychological well-being (Foong et al., 2020; Foong, Hamid, Ibrahim & Bagat, 2023).

For example, a study focusing on the influence of religiosity in addressing mental health issues like anxiety, depression, and stress among 170 Muslim university students (with varying levels of religiosity) revealed a significant negative relationship between religiosity, anxiety, and depression. Further analysis indicated that religiosity acts as a protective factor against depression (Misran et al., 2021). It is worth mentioning that Misran and his team (2021) employed Misran and his team (2021) utilized a 21-item self-report measure to evaluate daily religiosity. This measure included components such as avoidance of sinful acts (e.g., consulting with soothsayers, backbiting, swearing falsely in the name of God, '*riba*' (usury or interest), engagement in recommended acts by Allah (e.g., spending anything in charity, feeding neighbors, fulfilling promises, praying for parents, speaking the truth in every situation, obedience to parents, etc.), and bodily worship of Allah (e.g., observing Salat (obligatory prayers), placing requests in the court of Allah, observing at the right time, recitations of the Quran aside during the five daily obligatory prayers). The items used in the study appear to reflect extrinsic religiosity, some of which can be extended to family and social contexts, such as neighbors.

Interestingly, their findings indicated that certain components of religiosity, such as avoiding sinful acts and frequently performing recommended acts, were significantly associated with lower levels of anxiety and depression, respectively. Although it may be premature to conclude that Misran's study supports the findings of the present study, particularly regarding the finding on SFER, it suggests that there is a possibility that extrinsic religiosity with social/family motivations can be used as protective factors in developing OC symptoms.

Second, upon the significant indirect effects of religiosity/spirituality on obsessions through TAF Likelihood, as stated earlier, the patterns of the direction of the indirect effects were different. In the UK study, the effects were positive. This finding suggests that highly religious individuals, compared to those who are moderately religious and non-religious, may appraise their intrusive thoughts as being important and more likely to occur because they have thought them; thus, lead to more obsessions. In some religions, religious teaching promotes the view that thoughts, especially sinful or blasphemous thoughts are important because they are considered equivalent to actions, and these thoughts can be escalated to intrusive thoughts (Abramowitz et al., 2004).

Further, these thoughts can cause individuals to feel threatened and responsible for controlling the intrusive thoughts and engage in strategies to neutralize the thoughts. An association of a thought and a negative event can lead to the belief that the thought is significant and may have the power to cause a negative event (Tallis, 1994), which later leads to obsessions. This finding is consistent with the findings in previous studies, which noticed that higher religiosity is related to stronger TAF beliefs which lead to OC symptoms (Abramowitz et al., 2004; Berman et al., 2010; Cohen & Rozin, 2001; Rassin & Koster, 2003; Williams, et al., 2013).

In contrast, in the Malaysian study, the indirect effects were negative, which suggests that those who are highly religious are least likely to appraise TAF Likelihood, which in turn leads to fewer obsessions. The inconsistent findings as compared to the UK study may be due to several reasons,

First, most of the Malaysian sample endorses a religion (i.e., more than 95% of the sample with stated religious affiliations). The Malaysia sample is also higher in terms of expression and engagement on religious beliefs and practices, with more than 50% of the sample scoring 34 and above on Religious Behaviour (RB) items (minimum score is 11 and maximum score is 55) (see the graph of the Religious Behaviours (RB) and Theistic Spirituality (TS) in the appendices) in contrast to the UK sample where only approximately 30% scored above 34. Therefore, this means that the Malaysian sample is considered more religious in comparison to the UK sample. Hence, it is possible that religiosity/spirituality is generally more important among the Malaysian sample and the sample integrates religion into their way of thinking, and moreover, behaviour as they are expected to behave according to the norms of their religion (Mokhlis, 2006). They may exhibit a keen sense of a personal relationship with God, which increases their dependency or trust in God (Najati, 1992).

Further, they may believe that their thoughts are not under their control, and that explains why their thoughts were not appraised as leading to actions, which in turn lead to fewer obsessions.

Second, as religiosity and spirituality are important in Malaysian society across religions, regardless of the level of religiosity, mental health or mental disorders are perceived as related to a person's religious life and spirituality. For instance, in Islam, mental disorders are viewed as spiritual diseases manifested from unhealthy souls (Najati, 1992). Specifically, Abdullah and colleagues (2013) suggested that Generalised Anxiety Disorder (GAD) originates in the interference of Satan and low faith in God that leads to a separated relationship with God.

Moreover, in Buddhism, good mental health is an ideal state of well-being and mindfulness of one's spirituality and religiosity (Wallace, 2003). Thus, it is possible that individuals who are religious are more content and have a strong personal relationship with God, which may influence the perception that one's thoughts are less important, as it is determined by God. Next, this may decrease the TAF Likelihood and finally lead to fewer obsessions. Given that most of the Malaysian sample is religious, it is understandable that religiosity and spirituality may prevent them from negative mental health disorders.

Moreover, the collectivist culture (i.e., emphasis on the group rather than personal) and hierarchical orders (e.g., respect for elders, parents, authority) (see Hoestede, 2001) that have been practiced among Malaysians might also influence the findings in the study. Finally, these influences may affect the way people interpret their thoughts, in which less thinking that their thoughts are not being personal and important, as other things are more important (e.g., TAF), which may lead to fewer obsessions.

8.3.2.1 TAF Likelihood as mediator in both samples

Interestingly, when all three TAF variables were considered simultaneously, only TAF Likelihood consistently mediated the relationship between religiosity/spirituality variables on obsessions in both samples (albeit in opposite directions). Further, the results support the previous findings in which TAF Likelihood is most consistently associated with obsessions, as compared to TAF Morality (unpublished thesis from Wright & Freeston, 2006; unpublished thesis from Ward & Freeston, 2008; Rassin & Koster, 2003; Yorulmaz et al., 2009; Berman et al., 2010). Although the present study goes further than previous studies and considers the mediational relationship, this finding extends previous evidence in several correlational studies on the positive relationship between religiosity and Likelihood in non-Western samples (Abramowitz, Huppert, Cohen, Tolin & Cahill, 2002; Abramowitz et al., 2004; Rassin & Koster, 2003; Sica, Novara, & Sanavio, 2002).

In contrast, given that the majority of the sample in Malaysia was Muslim, this negative relationship is considered inconsistent with previous findings among other Muslim samples. Accordingly, previous studies suggested that TAF Morality is related more to Islam, as Islam emphasizes the doctrine and teachings, which is similar to Judaism (Yorulmaz et al., 2009; Inozu, Karanci & Clark, 2012a; Inozu, Karanci & Clark, 2012b). Although to our knowledge, there is no evidence on the relationship between religiosity and TAF among Asian samples, a few studies in a Middle-Eastern country, namely, Turkey, found contradictory findings, where TAF Morality is related to OC symptoms among Muslims. Given that a majority sample in Malaysia was Muslim, however, findings from the previous studies cannot be generalized to other samples, such as Malaysia, due to several assumptions.

First, within the same religions, it is possible to assume that the emphasis of religion in various cultures is also different. It is important to note that Turkey is not a multi-religious country like Malaysia (more than 95% of Turks are Muslim, but the country is considered a secular state) (Roudi-Fahimi, 2013).

As stated earlier in Chapter 2, Malaysia is a multi-religious country with approximately 60% Muslim, which is extremely tolerant of other religions. For example, in Malaysia, religious festivals are celebrated together irrespective of the religion. During the former Prime Minister of Malaysia, Mahathir Mohamad's rule (1997–2003), he encouraged sharing their festivals with other religious groups in an attempt to create an inclusive national identity (Camilleri, 2013). Therefore, it may be possible to assume that the expressions and engagement, and emphasis within a religion are different across countries.

In addition, Malaysia is both a multi-religious and a multi-ethnic country, and religions in the country largely relate to ethnicity, so that most Hindus are Indian, many Buddhists are Chinese, while most Muslims are Malay. The details about the relationship between racial differences and religions were discussed in detail in Chapter 6. However, not all Indians are Hindus, not all Chinese are Buddhists, etc. Further, the aboriginal people of Borneo are more likely to be Christian, follow traditional beliefs, or folk religion.

Consequently, the diversity of resulting cultures and an explicitly multi-religious sense of national identity in Malaysia may influence how individuals practice their religions (Omar & Dan, 2007). The same religions and even combinations of ethnicities may differ in their religious expression. For example, Buddhists in China or Hindus in India will be exposed to a different mix of ethnicities and religions, as well as tolerance of other religions or even any religion. The integration between ethnicity and religion in Malaysia may affect the way individuals interpret their thoughts, which are not entirely influenced by their religiosity but also by ethnicity influences (e.g., traditional beliefs, customs, values on elders) (Chuah, Hoffmann, Ramasamy, & Tan, 2016). Further, mix religiosity-ethnicity and tolerance of other religions may influence how people form their thoughts, whether significant or not, rather than morally, thoughts are equivalent to actions, which in turn leads to fewer obsessions.

8.3.2.2 Findings on Non-Theistic Spirituality in both samples

It is important to note that most of the subscales related to the NSRS either refer to religious behaviour (Religious Behaviour) and/or acknowledge the existence of a God or Supreme Being (Theistic Spirituality (TS), Intrinsic Religiosity (IR), and Personal Extrinsic Religiosity (PER). However, the Non-Theistic Spirituality (NTS) differs in that it refers neither to behaviour nor to a named God or Supreme Being. Therefore, it is interesting in that the same relationship is observed with NTS as with the other subscales, and TAF Likelihood mediated the relationship between Non-Theistic Spirituality (NTS) and obsessions in the UK study. This suggests that individuals who are strongly spiritual without a formal religion may appraise their intrusive thoughts as important and so increase the probability of the thoughts coming true. This finding is consistent with Ward and Freeston's study (2008) which found that the relationship between spirituality and OC symptoms was mediated by TAF Likelihood, not TAF Morality. However, Ward and Freeston (2008) used a different religiosity/spirituality scale and a mixed sample and therefore could not distinguish between theistic and non-theistic forms of spirituality.

Besides, irrespective of Theistic Spirituality or Non-Theistic Spirituality, it may depend on how an individual makes sense of thoughts. If the intrusive thoughts take on some significance and people react in specific ways, the cognitive model predicts that they may become obsessions. While spirituality has been increasingly acknowledged as important and is associated with positive mental health (see Elliott & Hayward, 2007; Hill & Pargament, 2003), this new finding would suggest that certain characteristics of spirituality may promote certain beliefs and are therefore potentially related to negative mental health.

As the UK study comprised 21.9% participants who defined themselves as having ‘no religion’, it is crucial to further investigate which aspects of spirituality relate to TAF beliefs that may subsequently manifest as obsessions. It may be that other characteristics are required for this to happen, such as responsibility (Abramowitz et al., 2004). Nonetheless, the present finding has added new evidence that may be relevant for non-religious but potentially spiritual people.

Interestingly, similar to the findings of the UK study, TAF Likelihood also mediated the relationship between Non-Theistic Spirituality (NTS) in the Malaysian sample, but once again in the opposite direction to the UK. The consistency of this result with the other religiosity scales in the Malaysia sample is somewhat surprising given that most of the sample is affiliated with a named religion, and so the concept of non-theistic spirituality that has grown within Western cultures may not apply (Kleinmeyer, 2004). However, as Malaysia is both a religious and multi-religious country with a greater emphasis on religious beliefs and behaviours, it is possible that the way participants responded to all the questions in the NSRS may be due to assumptions that participants made concerning the questions. For example, as the Malaysian sample comprised a larger percentage of religious groups with more than 95%, there is a possibility that they interpret the items of Non-Theistic Spirituality NTS without God being mentioned, as similar to the corresponding items of Theistic Spirituality (TS). Thus, the distinction made in the NTS scale in the Malaysian sample may simply not be noticed. However, as stated earlier, the correlation between NTS and TS was moderate ($r=.528$), which does not indicate they are being understood in the same way.

Additionally, there is a potential for shared traits between religiosity and spirituality to impact the results of the study conducted in Malaysia. For instance, since many Malaysians integrate both spiritual and religious practices into their daily lives, it is feasible that individuals who have faith in a higher power may also score highly on both the NTS and TS items (e.g., TS item '*I have a purpose I feel connected to God every time I spend time in nature*' and NTS item '*I feel connected to something greater than myself*'). There is a possibility that the religious and spiritual expression in Malaysia varies across different items, leading to higher ratings in both TS and NTS for individuals who are religious. Conversely, those who are less religious and less engaged in religious practices also exhibit high scores in TS and NTS.

Nevertheless, although in the opposite direction, findings on the indirect effects of NTS on obsessions through TAF Likelihood provided evidence that apart from religiosity, spirituality was another aspect that needs further investigations to examine the relationship with TAF and OCD both in Western and non-Western samples. Although at this point, the explanation of the inconsistent finding in the opposite directions is unknown, it is possible that other factors, such as guilt and responsibility, that were not investigated in the model, might influence the findings in Malaysia. Therefore, future studies on the roles of guilt and responsibility are needed in order to understand this complex relationship.

8.3.2.3 Additional Findings on TAF Morality in the UK study

Although TAF Morality was generally not significant when competing with TAF Likelihood, it did remain significant regarding the indirect effect from Social-Family Extrinsic Religiosity on obsessions in the UK study. This possibly suggests that the engagement in religious activities may be perceived as important from a social-family context and may influence their thoughts as significant and appraise it as equivalent to actions. Previous studies ascertained that religiosity was related to TAF Morality in Christian samples (Rassin & Koster, 2003; Siev & Cohen, 2007; Yorulmaz et al., 2009; Berman et al., 2010; Williams et al., 2013). However, previous studies were limited by a lack of a multidimensional religiosity scale and testing Likelihood and TAF Morality against each other; hence, it was unclear which religiosity variable contributes more to the observed effects between TAF Morality and OC symptoms. It is possible to assume that other factors in the cognitive understanding of OCD may also be important in influencing the relationship. For example, a sense of responsibility and resulting guilt may influence the relationship between SFER and TAF Morality, which may lead to obsessions. Thus, a further study may be essential in the future to investigate these other factors in the relationship between religiosity, TAF, and OC symptoms. To conclude, this finding on TAF Morality has provided new evidence and a better understanding of how religiosity relates to OC symptoms.

In contrast, findings in the Malaysian study showed no evidence for the mediation relationship concerning the SFER and obsessions by way of TAF Morality. Again, this finding was interesting as we assumed that in some ways, SFER would interact with TAF Morality in manifesting obsessions only in the Malaysian study. This is because traditionally, the family institution is the foundation for social development in Malaysia (Moschis, Hosie, & Vel, 2009; Zawawi, 2008; Wilson, 2014).

Thus, it is possible that an individual who has strong family social values will engage in religious behaviour that may then influence their style of thinking and embrace TAF Morality, which later leads to obsessions. However, it may be possible to indicate that the impact of globalization, urbanization, economic factors, and communication on family values has led to new values being recognized by the Malaysian people (Chee, 1973; Zawawi, 2008). It is suggested that young people in Malaysia are directly influenced by the trends of global youth culture as a result of globalization (Krauss, 2008). These new values may lead to changes in religious beliefs (Goh, 2009), their style of thinking, and moreover, their behaviour (Krauss, 2014).

Consequently, it may be possible if the recruitment of the sample focuses on rural areas, the findings would be different, seeing as in rural areas, individuals may be less exposed to modernization, and it may influence the way individuals engage in the religious behaviour, which is related more to family and social purposes. Next, individuals who hold strong values regarding family and social aspects may possibly think that their thoughts are morally equivalent to actions, which may lead to guilt, which develops into more obsessions.

8.3.2.4 *Conclusion of the findings of indirect effects in the UK and Malaysia samples*

In summary, the findings from both studies conducted in the UK and Malaysia revealed consistent results, reinforcing the notion that TAF Likelihood consistently mediated the connection between religiosity/spirituality and obsessions, despite differing directions of indirect effects. Notably, TAF Morality served as a mediator for the relationship between SFER and obsessions in the UK, but this was not observed in Malaysia. Considering Malaysia's deeply religious culture, the discrepancies in findings across the two samples may be comprehensible. Nevertheless, the analyses have highlighted the differing mediating functions of TAF Likelihood in the context of religiosity/spirituality and obsessions between a Western and a non-Western nation.

8.3.3 Conditional Indirect Effects

To further evaluate the relationship amongst these constructs (i.e., religiosity/spirituality, TAF Likelihood, TAF Morality, and obsessions), conditional indirect effects were examined. As stated earlier, we compared the mediating effects of TAF beliefs in a moderated mediation model with religiosity/spirituality subscales as the IV, Obsessions/OC symptoms as the DV, TAF as the mediating variable, and Religious Fundamentalism as a moderator. Previous studies determined that intrinsic and extrinsic religiosity are related to Religious Fundamentalism (Mora, Stavrinides & McDermut, 2014; Ellison and Musick, 1993; Karpov, 2002). Besides, several studies found that Religious Fundamentalism moderately correlated with intrinsic orientation so that people who hold fundamentalist religious beliefs are also intrinsically religious (Kirkpatrick, 1999; Wilkinson, 2004). As Religious Fundamentalism in the NSRS was operationalised as an orientation to religion, involving rigidity and strict interpretation of religious beliefs and teachings in certain religious beliefs, it may be considered as a set of beliefs about religious beliefs, teachings, and practice.

Therefore, it could potentially play a role in the escalation of how normal thoughts become intrusive thoughts by emphasising the importance of thoughts through TAF (Abramowitz et al., 2004) which in turn leads to the obsessions (Rachman, 1997; Rassin & Koster, 2003; Salkovskis, Shafran, Rachman & Freeston, 1999). Therefore, it is possible that Religious Fundamentalism variables may increase the path by which religiosity may lead to obsessions via TAF beliefs.

8.3.3.1 *Conditional Indirect Effects in the UK study*

The results of the analysis of conditional indirect effects were interesting and several findings need to be highlighted. First, the hypothesis that Religious Fundamentalism moderates the indirect effect of religiosity/spirituality on obsessions through TAF Likelihood was supported in both samples (in the UK and Malaysia), but in opposite directions. The results suggest that Religious Fundamentalism may lead to increased or decreased endorsement of TAF beliefs that are related to obsessions. In the UK study, we established that Religious Fundamentalism moderated the mediational relationship between religiosity/spirituality and OC symptoms through TAF Likelihood in a positive direction. Specifically, there were significant and positive conditional indirect effects through TAF Likelihood for Non-Theistic Spirituality (NTS) and Personal Extrinsic Religiosity (PER) at low scores of Religious Fundamentalisms (i.e., approximately less than 16), but decreasing as TAF increases. This suggests that those who are spiritual without religion or those who engage in religious activities based on their personal motivation are more likely to appraise TAF Likelihood, which produces more OC symptoms only among those who are the least fundamentalist.

In the UK sample, which is generally lower in religious practice (i.e. approximately 50% of the sample scored less than approximately 21 in Religious Behaviour, maximum scores in 55) and low in Religious Fundamentalism, where more than 50% of the sample scored 19 or below on Religious Fundamentalism (see details in Appendices), this finding seems plausible given how NTS and PER may influence an individual's cognitive appraisals.

Besides, the characteristics shared by NTS and PER may influence the findings. Accordingly, NTS is characterised by believing in something unknown and cannot be seen or is ‘magical’, whereas PER is characterised by the personal motivation of the religious behaviours. Some studies have suggested that both religiosity/spirituality and OCD are associated with superstitious as well as magical ideation (White, Joseph & Neil, 1995). For instance, in some studies, religious beliefs are considered a regression to magical or unscientific thinking (Shafianske, 1996; Propst, 1988), and magical thinking (i.e., Thought-Action Fusion) is related to OC symptoms (e.g., Bolton, Dearsley, Madronal-Luque, & Baron-Cohen, 2002; Einstein & Menzies, 2004; Bocci & Gordon, 2007). Interestingly, people with OCD have also developed complex rituals and superstitions, somewhat ‘magical’, in an attempt to reduce their levels of anxiety (Zebb & Moore, 2003; Einstein & Menzies, 2006; Ivarsson & Valdergaug, 2006).

Given the suggestions from the previous studies on the links between ‘magical’ with religiosity/spirituality and OCD, it seems possible that at low Religious Fundamentalism, individuals may hold weaker beliefs that things are determined by the Supreme being which may lead to a stronger belief that things are determined by ‘my’ thoughts. Next, this belief may increase appraisals of agency, and those who are more responsible in general may respond more to their thoughts, which later develop into more obsessions. In other words, inflated responsibility may moderate the relationship between TAF Likelihood and obsessions. If someone already believes that thoughts can cause actions, the more responsible they feel for things in general (i.e., trait responsibility), the greater the likelihood they will need to act on their thoughts and so risk becoming more obsessed.

Second, at low Religious Fundamentalism, individuals who are spiritual and engage in religious behaviour for personal reasons may hold a strong belief in the ‘magical’ or have less belief that things are determined by God which lead to over-importance on their thoughts (e.g., more TAF Likelihood) and finally turn to develop more OC symptoms. In other words, individuals who think things are determined by their thoughts may over-emphasise their thoughts (e.g., TAF Likelihood), resulting in a more inflated responsibility and thus, to relieve the distress, they try to suppress these fusion-like thoughts, which turn to OC symptoms (Altın & Gençöz, 2011). Although the present study goes further than previous studies and considers the mediational relationship at various levels of Religious Fundamentalism, this finding extends previous evidence in several correlational studies on the positive relationship between TAF and responsibility (Yorulmaz et al., 2009; O’Leary et al., 2009).

Although TAF is often triggered by inflated responsibility, it has been suggested that the reverse is also plausible, and feelings of responsibility may be triggered by TAF (Rachman, 1997; Shafran & Rachman, 2004). Interestingly, a recent study by Altın & Gençöz (2011) found that inflated responsibility mediated the relationship between TAF and OC symptoms (Altın & Gençöz, 2011). Thus, given the previous supports on the relationship between TAF and inflated responsibility, we speculate that inflated responsibility may be part of the model where inflated responsibility may mediate the relationship to obsessions (i.e., more TAF Likelihood may lead to feeling more responsibility as an act to response to their intrusive thoughts which lead to developing more obsessions).

Third, however, at high Religious Fundamentalism, there were also significant conditional indirect effects of Theistic Spirituality (TS) and Intrinsic Religiosity (IR) through TAF Likelihood (see Chapter 6 for details). More importantly, the direction of the conditional indirect effects was negative. This finding is interesting as both TS and IR were related to a personal relationship with God. It is possible that at high Religious Fundamentalism, individuals may hold a stronger belief that things are determined by a Supreme Being, which leads to less belief that things are determined by ‘my’ thought. Next, this belief may influence fewer appraisals of the agency as they may not interpret that their thoughts are important and consequently, decrease responsibility, which later produces fewer OC symptoms.

As one of the characteristics of Religious Fundamentalism is the leader that must be followed, it is possible that an individual who holds rigid religious interpretations and strictly follows religious leaders may promote a certainty in their beliefs and tend to appraise likelihood less, which create fewer OC symptoms. This assumption was consistent with previous studies, which established that perceived social support both from religious leaders and from God has been shown to predict less emotional distress and greater life satisfaction among Orthodox Jews in Israel (Lazar & Bjorck, 2008).

Further, at high Religious Fundamentalism, individuals hold strong beliefs in God and an attachment to God and can escalate positive thoughts (Epley, Akalis, Waytz, & Cacioppo, 2008; Johnson, Li, Cohen & Okun, 2013; Cohen, Hall, Koenig & Meador, 2005) which may create a sense of well-being and safety, so that even if I have negative thoughts about possible harm, God will look after me and stop dreadful things from happening; therefore, my thoughts cannot cause harm and lead to less TAF Likelihood which in turn to fewer obsessions.

Besides, it is possible that at high Religious Fundamentalism, individuals may strongly believe and be certain in their relationship with God. This belief may acknowledge that God will look after me, but if I have negative thoughts, God will make sure they won't happen. This leads to less threat and/or reduced agency of appraisals and responsibility that eventually leads to fewer obsessions.

This proposal is supported by a study by Green and Elliot (2010), which found that those who hold a strict interpretation of doctrines and teachings (i.e., Religious Fundamentalism) may also hold strict views concerning their thinking, such as that things are determined and operated by God. Further, these strict views may reduce any uncertainties about how thoughts and things operate (Green & Elliott, 2010). This belief may influence them from over-emphasizing their thoughts (e.g., less TAF Likelihood) and may reduce responsibility, which later leads to fewer OC symptoms.

Finally, although the findings are interesting both at low and high Religious Fundamentalism, inflated responsibility may be part of the relationship where depending on the levels of Religious Fundamentalism people may attribute agency and responsibility to themselves or not, there is a possibility that TAF Likelihood may trigger inflated responsibility (i.e. mediator) which lead to more OC symptoms.

While a definitive of causal relationship cannot be claimed, further studies on 1) the role of responsibility as a moderator in the relationship between the variables and 2) the roles of inflated responsibility as a mediator are needed to better understand the relationship between the variables.

8.3.3.2 *Conditional indirect effects in the Malaysia study*

Similar to the UK study, results of the moderated mediation showed that at the high scores of Religious Fundamentalism, the conditional indirect effect of religiosity on obsessions through TAF Likelihood was significant only for NTS. Based on the distribution of the Religious Fundamentalism scores, more than 50% scored over 40 and above on Religious Fundamentalism, which indicates most of the Malaysian sample strictly interpret religious writing and believe in an absolute truth (see details in the Appendices). Given the generally high levels of religious behaviour in the sample, it is not surprising that they also hold a strong belief in an absolute truth and strictly interpret the religious writing. This is consistent with previous studies in Malaysia, which found that those who are religious and spiritual also hold strong and rigid beliefs in religious writing, which strengthen their belief in God and their personal relationship with God (e.g., Abdullah et al., 2013; Krauss et al., 2005).

Moreover, some religious teachings, for instance those found in Islam, emphasise a set of comprehensive rules as a way of life (Krauss et al., 2005), following strict rules and exactness in performing religious rituals, such as in praying and ablution (i.e. cleaning the body before praying) (Okasha, 2004). These religious beliefs and teachings in Islam may in some circumstances, promote the fear of God by not following the rules properly, but with trust and hope in God, an important religious attitude in many religious teachings may protect people from developing religious obsessions or compulsions (Witzig & Pollard, 2013). For example, at high Religious Fundamentalism, an individual may hold a stronger belief in the existence of God, which may also lead to a stronger trust and hope in God. This belief may be perceived as reducing the threat and therefore fewer appraisals of the agency, which may subsequently lead to less TAF Likelihood and finally, in turn, protect from developing obsessions.

Although the present study goes further than previous studies and considers the mediational relationship at distinct levels of Religious Fundamentalism, this finding extends previous evidence in several correlational studies on the negative relationship between religiosity and OC symptoms (e.g., Assarian et al., 2004; Hermesh et al., 2003; Witzig & Pollard, 2013).

A mediational study conducted by Inozu and colleagues (2012a) identified a positive indirect relationship stemming from Religious Fundamentalism, as assessed by the Religious Fundamentalism Scale-Revised (RFS-R) (Altameyer & Hunsberger, 2004), through obsessional beliefs (such as the significance of thought control, perceived responsibility, and threat estimation) leading to obsessive-compulsive (OC) symptoms. The RFS-R represents a more comprehensive construct compared to the Religious Fundamentalism subscale of the NSRS, which consists of 10 items that evaluate concepts of ultimate truth, unchangeable interpretations, punishment, and duty. In contrast, the RFS-R includes 12 items, eight of which align with these concepts, while also incorporating ideas related to Satan or the dichotomy of Good versus Evil, the conflict between scripture and science, the perception of being 'the chosen,' and guidelines for leading a religious life. Therefore, one explanation for the discrepancies in findings may lie in the differences in the constructs being evaluated.

This research primarily examined the Muslim population in Turkey, an Islamic nation where over 95% of the populace identifies as Muslim (Pew Forum on Religious & Public Life, 2011; Roudi-Fahimi et al., 2013), similar to Malaysia. However, it is crucial to recognize that Turkey is also classified as a secular state (Oktem, 2002; Davison, 2003). Consequently, individuals in Turkey who exhibit high levels of Religious Fundamentalism may interpret survey items differently than their counterparts in Malaysia, a country characterized by its religious diversity.

In Malaysia, where religious practices of all recognized faiths hold significant social and cultural value from an early age, individuals may perceive religious teachings as guidance rather than as rigid mandates, given that such practices are commonly shared among the population. Conversely, despite Turkey's secular identity, certain political figures have increasingly embraced religious tenets, integrating a fundamentalist ideology into the nation's social and political framework, particularly in the past decade (Göle, 1997; Ayata, 1996; Gulalp, 1999; Mecham, 2004). This suggests a potential 'clash' between secularism and a burgeoning fundamentalist perspective within Turkey (e.g., the rise of a more “fundamentalist” leader).

The influences on an individual's perception of truth, interpretation, duty, and punishment within their religious framework may vary based on the age and background of the sample. Notably, the participants in the referenced study (e.g., Inozu et al., 2012a) were urban university students, categorized as either highly or lowly religious according to their self-assessments regarding the significance of religion in shaping their decisions and behaviors (p. 960). This sample included individuals from an institution dedicated to Imam training, with each subgroup constituting approximately one-third of the total participants. Both the highly religious individuals and those from the specialized religious institution exhibited elevated levels of Religious Fundamentalism.

It is plausible that the interpretations of religious texts and doctrines by students in religious training differ from those of individuals engaged in religious practices within a culturally diverse society, such as Malaysia. Conversely, the highly religious Turkish students, who are not enrolled in religious studies, likely encounter similar secular and Western influences as their less religious counterparts. The samples across both studies, including the UK cohort, are intricate and exhibit significant variations across multiple dimensions. Consequently, achieving consistent and replicable findings across these samples may prove to be highly improbable.

To our best knowledge, there are no other studies on the role of Religious Fundamentalism as a moderator in the relationship between religiosity/spirituality, TAF, and OCD in both samples. Thus, the present study provided novel findings and started to examine the complex relationships between the variables, especially when Religious Fundamentalism is considered an orientation to how people practice their religion, experience their inner spiritual world, and the underlying motivations.

8.3.4 *Conditional direct effect*

The results from the moderated mediation analyses indicated that at elevated levels (e.g., 42 and above), Religious Fundamentalism influenced the direct impact of religiosity/spirituality variables on obsessions through TAF Likelihood, specifically for TS and IR, in a positive manner. The analyses revealed significant regions for TS alone, excluding IR. In essence, at high levels of Religious Fundamentalism, spiritually inclined individuals are more inclined to report obsessive-compulsive symptoms. This observation is plausible considering that TS is defined as a personal connection with God, which may foster a fear of God (i.e., viewing God as punitive), potentially engendering feelings of guilt that compel individuals to neutralize their thoughts in an effort to restore their personal relationship with God (Inozu et al., 2012a; McIngvale et al., 2017).

Notably, in contrast to the conditional indirect effects where Religious Fundamentalism seemed to offer protection, individuals exhibiting higher levels of either TS or IR alongside greater Religious Fundamentalism are more prone to report increased OC symptoms, albeit not through TAF Likelihood. While a definitive causal link cannot be established, it is hypothesized that elements of religiosity may function differently across varying degrees of Religious Fundamentalism; these cognitive elements may encompass perceived responsibility (Abramowitz et al., 2004) and guilt (Inozu et al., 2012a; Inozu et al., 2012b). Consequently, future research should explore the influence of perceived responsibility and guilt in the context of the relationship between religiosity and OC symptoms, while separating out the influence of Religious Fundamentalism as a way of being religious.

In summary, although there are variations in the religiosity/spirituality subscales and the trends of simple slopes across both samples, several significant findings emerged that were consistent in both groups. These findings are noteworthy and contribute new insights to the research on religiosity, TAF, and OCD in both samples. The TAF Likelihood framework elucidates the connection between religiosity/spirituality and obsessive symptoms, while the concept of Religious Fundamentalism highlights that it is not merely the level of religiosity (in terms of practice, relationship, or motivation) that matters, but rather the manner in which individuals engage with their religious beliefs.

8.3.4.1 *Additional findings on the role of SFER*

As stated previously, results from correlations and mediational analyses on SFER were interesting in both studies. Given the significant indirect effect from SFER to OC symptoms through TAF Morality in the UK sample, we also investigated the influence of Religious Fundamentalism on this relationship. The results showed that although the interaction was significant and so the strength of the effect varied as a function of Religious Fundamentalism, there were no regions where the indirect effect differed from zero. Thus, there was no evidence of moderated mediation.

In addition, as SFER showed different findings compared to the other religiosity variables in both samples, as stated earlier in Chapter 6, we investigated the role of SFER as a potential moderator in both samples. This is based on the notion that Social and Family Extrinsic religiosity is an extremely different reason to engage in religious behaviour and may potentially exist in the absence of belief in God. The results revealed that although the indirect effects were significant, none of the interactions with the moderator were significant in the UK study. Similarly, results of the Malaysian study showed that neither the indirect effects nor the interactions for all religiosity/spirituality on OC symptoms were significant. Overall, this means that SFER did not influence the relationship between religiosity/spirituality on OC symptoms through TAF Likelihood in either sample.

8.3.5 *Conditional Indirect Effect-Acculturation*

As stated previously, acculturation was also examined in the relationship of religiosity/spirituality on obsessions through TAF Likelihood. Interestingly, the results showed that only one interaction out of 48 interactions was significant in the UK study, whereas no interactions were significant in the Malaysian study. This indicates that overall acculturation had little if any effect on the relationship between religiosity/spirituality and TAF Likelihood in these two multi-religious and multi-ethnicities samples. These findings were quite surprising as religion is a subset of culture and considered to be one of the essential elements that have considerable influence on people's values, attitudes, and behaviours (Belzen, 1999). Thus, acculturation may potentially influence the relationship, seeing as previous research suggested that culture might play a role in the shaping of OCD (Yorulmaz, Gencoz & Woody, 2009; Okasha et al., 1994; Greenberg & Witztum, 1996).

Previous studies suggested that culture influences the individual in the manifestation and maintenance of the obsessive symptoms, as well as the presentations of the OCD (see Okasha, 2004; Saleem & Mahmood, 2009; Sica et al., 2002). It is possible that a lack of a measure of acculturation may account for the uncertain findings in other studies. For example, some studies equate religion with culture and so concluded that culture is related to OCD (e.g., Yorulmaz et al., 2009; Sica et al., 2002). Therefore, accounting for acculturation in analyses would strengthen the evidence that any differences observed are a result of acculturation rather than of religion.

In relation to non-significant results in both samples, it is possible to assume that sample characteristics in both samples may affect the findings on acculturation. It is important to note that both samples comprised many participants who were 1) educated with a Bachelor's degree and Masters, 2) young, aged between 21 to 30 years old and 3) live in cities and urban areas. These criteria may possibly influence the way they define and express themselves to 'modern' culture rather than their cultures of origin. Accordingly, it is possible to assume that individuals who are young, educated and live in the city tend to adopt so-called oppositional identities, with a stronger identification with the majority culture rather than a weaker identification with minority cultures. For example, in modern life, young adults in Malaysia are easily influenced by exposure to other cultures, particularly from the West, through various sorts of media, such as television, films and the internet.

In addition, global media plays a significant role with respect to young Malaysians in relation to questioning tradition against modernity. They may view Western cultures as modern and liberating compared to the closed life of Malaysian culture. This is supported by a study by Krauss (2008), which suggested that young individuals in Malaysia were influenced by the trends of global youth culture and because of globalisation, it changes their attitudes, thinking, values, behaviour, and socialisation. Moreover, during the transition to modernisation, Malaysian Muslims may experience some conflicts and dilemmas as they try to balance secularisation and Islamic values (Mutalib, 1993; Mutalib, 1994). Subsequently, these influences may change their thinking, lifestyle patterns and behaviour (Chai et al., 2011).

Finally, their identity, values or beliefs in their new ‘adapted cultures’ may change the way they interact with their expression and engagement in religious beliefs and therefore, the way they make sense of their thoughts.

In conclusion, the present study has provided no evidence that culture influences the relationship of the paths between religiosity and OCD in these multicultural samples. While definitive conclusions must await further study, possible explanations for the lack of a relationship between acculturation, religiosity/spirituality, and OCD are warranted. Additionally, we speculate that the lack of sample characteristics and urban culture may affect the findings. Therefore, it is important to replicate this study with greater heterogeneous samples, as in rural areas, to further understand of its relationship. It is possible that in rural areas, individuals are less exposed to modernisation and to the West, so it may influence the way individuals interpret their thinking, which may also affect their mental health.

8.3.6 Similarities and differences between the results from the UK and Malaysia

The present study showed many similarities and a few differences between the UK and Malaysia samples. There are two aspects to the findings, specifically 1) Factor structure of NSRS and 2) Main Analyses in the present study.

8.3.6.1 Factor structures of NRSS

In terms of factor structures related to the NRSS, several important similarities were found. First, seven interpretable factors were identified for both samples. Second, of the seven, five separate factors were identical; specifically, Religious Behaviour (RB), Non-Theistic Spirituality (NTS), Social-Family Extrinsic Religiosity (SFER), Quest, and Religious Fundamentalism. However, there were three conceptually distinct factors that combined with each other differently across samples. These factors were Theistic Spirituality (TS), Intrinsic Religiosity, and Personal Extrinsic Religiosity (PER).

In the UK sample, Theistic Spirituality (TS) and Intrinsic Religiosity (IR) were combined in one factor with Personal Extrinsic Religiosity (PER) as a separate factor. In contrast, in the Malaysian sample, Intrinsic Religiosity (IR) and Personal Extrinsic Religiosity (PER) were combined with Theistic Spirituality as a separate factor. The intercorrelation matrix of the original subscales shows that these three conceptually distinct but related subscales were highly correlated in both subsamples. As mentioned earlier in Chapters 5 and 6, in the discussion, it is perhaps understandable why these factors are combined in one factor (see Chapters 5 and 6 for details). All three are about the personal relationship with a Supreme Being or God. The differences were possibly due to different ‘flavours’ of religious/spiritual expression across the samples.

In the UK study, TS and IR were combined into one factor. It is possible to assume that the culture in the UK study is more individualistic. Previous studies and surveys ascertained that the United Kingdom, the USA, and the Netherlands are consistently among the most individualist countries (see Hofstede, 2001). Consistently, according to Hofstede's cultural dimensions for the UK in 2003, with scores of 89 out of 100, the UK is the most individualistic country among other countries, such as Australia and the USA (Hofstede, 2003, <https://geert-hofstede.com/united-kingdom.html>).

The culture characterized by individualism fosters originality, self-reliance, independence, and competitiveness, while emphasizing personal freedom, self-assurance, and, crucially, prioritizing individual aspirations over collective objectives (Triandis, 1995). This cultural framework is often referred to as an 'I' or 'ME' culture. Consequently, individuals immersed in such a culture may exhibit a tendency to prioritize their personal relationship with God, potentially feeling a sense of entitlement regarding it. In this framework, Personal Extrinsic Religiosity pertains to the maintenance of one's relationship with God, focusing on pleasing God and avoiding His displeasure, which may be interpreted as fulfilling God's perceived 'needs' within the relationship. Thus, in a predominantly individualistic culture, God's 'needs' are acknowledged as related yet distinct from the individual's desires.

Conversely, in the Malaysian context, Intrinsic Religiosity and Personal Extrinsic Religiosity were observed to merge into a singular construct. This may be attributed to Malaysia's collectivist culture, which emphasizes hierarchical relationships and the importance of respecting elders and parents, thereby influencing the outcomes of the study. This observation aligns with Hofstede's cultural dimensions, which indicate that Malaysians exhibit a profound respect for authority and a willingness to submit to those in positions of power, as evidenced by a notably high-Power Distance Index (PDI) (Hofstede, 2003). Consequently, in this context, God's "needs" in the relationship are inseparable from what the individual seeks in their relationship with God.

Moreover, the cultural framework of Malaysia is predominantly collectivist rather than individualistic. For instance, Malaysians prioritize a sense of community belonging over personal welfare, with decision-making frequently reflecting group interests rather than individual perspectives (Hofstede, 2003). Given that Malaysian culture underscores the significance of hierarchical structures and collectivism, the personal relationship with God is deemed essential for deriving 'power' from the community. This cultural emphasis on hierarchy and group dynamics may shape the manner in which individuals articulate and participate in religious practices. Consequently, individuals may engage in religious activities not only to foster a connection with God but also to attain benefits such as wealth, success, or social status, despite the NSRS not currently addressing this aspect of instrumental religiosity. Thus, seeking advantages from God or evading divine disapproval serves as a means to acquire 'power' within the community.

Furthermore, for Muslims, religious engagement extends beyond mere worship to encompass their everyday interactions with others (Strawbridge et al., 1998). Therefore, it is reasonable to assert that the collectivist ethos prevalent in Malaysia may significantly influence the ways in which individuals articulate and engage with their religious beliefs and practices.

As per discussed in the chapter 6 on the CFA of the long version of NSRS, the three models tested in the CFA (i.e., (a) Model 1- an eight correlated factor (b) Model 2 – a seven correlated factor based on the UK sample as identified in EFA, and (b) Model 3- a seven correlated factors based on the Malaysia sample as identified in EFA). The results showed that, considering the inconclusive outcomes observed in models 2 and 3, it is clear that the structural framework of the Malaysia Model and the UK Model cannot be adequately elucidated through this Confirmatory Factor Analysis (CFA) (see Chapter 6 for details).

While evaluating the fit indices is essential, the interpretation of factor loadings—akin to the discourse in the Exploratory Factor Analysis (EFA) context—remains a significant aspect of the analysis. Significantly, the elimination of items from the CFA study and the revised NSRS-SV version revealed a greater number of similarities than differences. Notably, several items demonstrated a consistent pattern of factor loading across both EFA and CFA studies within the UK sample. While most of the items removed in models 1, 2, and 3 were akin to those excluded in the NSRS short version, it is important to note that not all were identical.

In conclusion, these cultural variances may affect how individuals articulate their beliefs and the reasons behind their participation in religious practices, potentially elucidating the diverse combinations observed in the three subscales during factor analyses. Consequently, all factors must be carefully evaluated, and several reasons may represent trade-offs in pursuit of an improved fit model. Nonetheless, after considering all relevant factors and justifications, and in light of the scale's intended application among both religious and non-religious populations, we will proceed with the eight correlated factors as initially proposed.

8.3.6.2 Main analyses

In terms of the result of the main analyses, both samples reported consistent findings with some minor differences. First, there was an indirect effect of religiosity/spirituality on obsessions through TAF in both samples, although in different directions. In the UK study, the results of the analysis found a positive relationship between religiosity/spirituality, TAF Likelihood and OC symptoms. This would suggest that more religious individuals are most likely to interpret that thoughts can cause actions which lead to more obsessions. The finding in the UK study is consistent with previous studies (e.g., Ward & Freeston, 2008 unpublished thesis; Rassin & Koster, 2003; Yorulmaz et al., 2009; Williams et al., 2013; Berman et al., 2010; Eremsoy & Inozu, 2016).

In contrast, in the Malaysian study, more religious individuals are less likely to interpret that thoughts can cause actions, which leads to fewer obsessions. As discussed in the previous section, the negative relationship in the mediational relationship between religiosity/spirituality on obsessions through TAF Likelihood is understandable given the way Malaysian people view religiosity. For example, in a religious country, there is a possibility that religiosity is considered a protective factor that will assist them to be less obsessed. Accordingly, as Malaysian people tend to be more religious, the degree of believing in God is strong. Hence, they believe that anything that happens is determined by God and beyond their control, which influences the way they interpret thoughts. Next, they think that they are not responsible for their thoughts, which leads to less thinking that thoughts can cause actions, which leads to fewer obsessions.

In Malaysia, a significant number of individuals link religiosity to mental health. For example, within Buddhism, mental health is connected to the concepts of 'Karma' and the practice of appropriate thoughts and actions, while in Hinduism, it pertains to one's personal connections with deities, mentors, and Brahmins (Haque 2005). Moreover, these religious convictions are regarded as vital elements that shape an individual's beliefs about mental health (refer to Sheng, 2007, for a comprehensive review). Consequently, it is reasonable to conclude that many Malaysians view religiosity as a protective factor, which may influence the outcomes of studies conducted in Malaysia. Although the current research extends to a mediational analysis, the results from the Malaysian cohort diverge from those observed in the UK and potentially other prior investigations involving non-Western populations (e.g., Yorulmaz et al., 2009, 2010; Inozu et al., 2012).

Nevertheless, the findings align with correlational studies in Malaysia that indicate a negative correlation between religiosity and mental health (e.g., Abdullah et al., 2013; Sheng, 2007; Azhar et al., 1995a; Razali et al., 1998; Razali et al., 2002; Haque & Masuan, 2002; Abdullah et al., 2013). Furthermore, it is plausible that cultural differences may impact the results of this investigation. As discussed in Chapter 2, the dichotomy between individualist and collectivist cultures can affect mental health perceptions (see Hofstede, 2001). The UK is characterized as an individualist society, while Malaysia is identified as a collectivist (see Hofstede, 2001). Given that individualism prioritizes 'ME' and 'I' perspectives, individuals may be inclined to believe that their thoughts dictate outcomes, potentially leading to an overemphasis on cognitive processes (e.g., increased TAF Likelihood), which could contribute to the manifestation of obsessive-compulsive symptoms.

On the other hand, in Malaysia, the collectivist culture prioritizes the 'OTHER' or the 'GROUP', leading individuals to potentially perceive that their thoughts are influenced by external factors rather than solely their own. This perspective may affect how they assess the significance of their thoughts, possibly resulting in a diminished emphasis on them (e.g., lower TAF Likelihood), which could contribute to a reduction in obsessive thoughts. While this hypothesis lacks empirical support at present, it is crucial to explore the cultural dimensions, particularly the individualist-collectivist spectrum, to better understand this relationship.

Furthermore, the findings from both samples indicate contrasting outcomes regarding the direct and indirect effects in the mediational analyses concerning the influence of religiosity/spirituality on obsessive-compulsive symptoms through TAF Likelihood. In the UK study, the direct effect was found to be stronger than the indirect effect, suggesting that the latter plays a lesser role in elucidating the connection between religiosity/spirituality and OCD, indicative of partial mediation. In contrast, the Malaysian study revealed that the indirect effect was both significant and more influential than the non-significant direct effect, suggesting a scenario of full mediation in this relationship.

The cultural aspects related to religion in both samples may potentially influence the results. For instance, as previously mentioned, the UK is characterized as a less religious nation, where individuals who are devout—exhibiting strong faith in God or high levels of religious participation—tend to experience a greater fear of God, often perceiving Him as punitive (Inozu et al., 2012a). This fear can lead to increased feelings of guilt (Shafran et al., 1996; Inozu et al., 2012) and a heightened sense of perceived responsibility (Abramowitz et al., 2004), which may contribute to more obsessive thoughts.

Conversely, Malaysia, being a multi-religious and devout country, sees individuals with strong religious beliefs exhibiting greater dependence on and trust in God. This reliance may shape their thought processes, leading them to regard their thoughts as less significant or predetermined by divine will, resulting in diminished feelings of responsibility and consequently fewer obsessions. Although the assumptions made in the Malaysian study lack empirical support, the notable influence of religiosity within the Malaysian context, coupled with its collectivist culture, suggests that perceived responsibility could play a role in mediating the relationship between religiosity/spirituality, TAF Likelihood, and OCD symptoms. In summary, despite the contrasting trends observed, the mediational analyses across both samples indicate that TAF Likelihood serves as a valuable framework for elucidating the connection between religiosity/spirituality and OCD. Therefore, further investigation into the roles of responsibility and guilt is essential for a more comprehensive understanding of this relationship in both contexts.

Second, in comparison to TAF Morality and TAF Likelihood, the latter demonstrates a more significant role in mediating the relationship between religiosity/spirituality and obsessions across both samples. This observation aligns with earlier research (Yorulmaz et al., 2009; Berman et al., 2010; Williams et al., 2013; Inozu et al., 2012).

Notably, an indirect effect of Social-Family Extrinsic Religiosity (SFER) on obsessions via TAF Morality was identified in the UK sample, but not in the Malaysian sample. This result is particularly intriguing, given that SFER functions distinctly from other dimensions of religiosity/spirituality, such as participation in religious activities for social and familial reasons. This specific finding regarding SFER diverges from prior studies that concentrated on different aspects of religiosity, including religious attitudes and behaviors. It is plausible that, since Christians constituted the predominant demographic in this study, individuals who partake in religious practices for social and familial motivations may perceive their thoughts as morally equivalent to actions.

Previous research involving Christian populations has indicated that religiosity is associated with obsessive-compulsive symptoms through TAF Morality (e.g., Cohen & Rozin, 2001; Rassin & Koster, 2003; Yorulmaz et al., 2009), as Christian teachings and doctrines underscore the importance of moral beliefs (Siev & Cohen, 2007; Sica et al., 2002). Furthermore, this emphasis on moral beliefs may exacerbate the focus on intrusive thoughts (e.g., TAF Morality), potentially resulting in obsessions.

In contrast, the Malaysian sample revealed that TAF Morality did not serve as a mediator in the relationship between SFER and obsessions. This was surprising, as we anticipated that TAF Morality would play a mediating role due to the collectivist nature of Malaysian culture. It is plausible that the characteristics of the urban sample influenced the outcomes observed in the Malaysian study. As previously noted, while familial and social dynamics seem to impact participation in religious activities, factors such as modernization and globalization, particularly in urban settings, may alter how individuals engage with religious practices and interpret their thoughts (Krauss et al., 2006; McGee, 1976; Hoffstaedter, 2011).

Although a definitive causal relationship cannot be established, further research examining the interplay between religiosity/spirituality variables and obsessive-compulsive symptoms through TAF variables is warranted, potentially focusing on specific populations such as Christians in the UK and Muslims in Malaysia.

Furthermore, both samples exhibited consistent results regarding the indirect effect of NTS on obsessions via TAF Likelihood. This outcome was unexpected, considering that Malaysia is more religious than the UK, with over 95% of participants identifying with a religion.

Consequently, the notion of Spirituality without God may not resonate within the Malaysian context. As previously discussed, in Malaysia, NTS items are perceived as TS, implicitly referencing a Supreme Being. This may elucidate why analyses conducted in a religious nation like Malaysia consistently demonstrated significant relationships between NTS and other religiosity/spirituality subscales and obsessions through TAF Likelihood, albeit in an unexpected direction (refer to the earlier section on Non-Theistic Spirituality for further details).

However, in the UK study, it is evident that individuals often identify as spiritual without adhering to a belief in God or organized religions. Furthermore, as previously noted, the segment of participants identifying as non-religious (21.9%) represented the second largest demographic within the sample, aligning with the findings of the 2011 Census in the UK and Wales. This census indicated that 25.1% of the population reported having no religious affiliation (Religion in England and Wales 2011, published on December 11, 2012).

Additionally, a recent survey conducted by NatCen in 2014, which explored various aspects of religious identification, revealed an increase in the proportion of individuals identifying as non-religious from 25.1% in the 2011 Census to 48.5% in 2014, according to the British Social Attitudes survey (NatCen, Lucy, 2014). NatCen serves as an independent social research institute in Britain, assisting the government with social issues. This trend of diminishing formal religious adherence and the rise of individualistic cultures may influence the findings in the UK. For instance, in cultures characterized by 'ME' and 'I' orientations, spiritually inclined individuals may misinterpret their thoughts, potentially leading to an exaggerated sense of responsibility and subsequent obsessions. Notably, the UK study's findings regarding Non-Theistic Spirituality (NTS) corroborate those of a prior investigation (see Ward & Freeston, 2008 unpublished thesis).

Fourthly, Religious Fundamentalism plays a role in moderating the indirect effects of specific religiosity and spirituality variables on obsessions via TAF across both samples, albeit in contrasting manners. In the UK study, Religious Fundamentalism influences the indirect effects of four religiosity/spirituality variables (excluding Religious Behaviour and SFER), while in the Malaysian study, it only affects one variable, notably NTS. As previously mentioned, at lower levels of Religious Fundamentalism, the indirect effects of NTS and PER on obsessive-compulsive symptoms through TAF Likelihood were found to be both significant and positive. This observation indicates that individuals with lower Religious Fundamentalism are less inclined to adhere to an absolute truth (for instance, they perceive that outcomes are not solely dictated by a higher power), which in turn leads to a greater emphasis on their thoughts, an increased sense of responsibility, and consequently, heightened obsessions.

Furthermore, at elevated levels of Religious Fundamentalism, the indirect influence of Non-Theistic Spirituality (NTS), Theistic Spirituality (TS), and Intrinsic Religiosity (IR) on obsessive-compulsive (OC) symptoms via TAF Likelihood was found to be significantly negative, mirroring the findings of the Malaysian study. These noteworthy results may indicate that Religious Fundamentalism has obstructed the impact of TAF Likelihood, potentially leading to a reduction in OC symptoms. It can be posited that specific traits associated with Religious Fundamentalism may foster a sense of stability and an absolutist perspective regarding religious convictions (Green & Elliott, 2009), which could shape individuals' worldview (for instance, perceiving events as dictated by a supreme entity), thereby engendering the belief that one's thoughts hold less significance, resulting in diminished responsibility and consequently fewer obsessions.

Notably, in the Malaysian context, at nearly the predominant level of Religious Fundamentalism, the indirect effect of NTS on OC symptoms through TAF Likelihood was also significant yet negative. This suggests that the understanding of religiosity among Malaysians might influence the outcomes observed in the current study, particularly the notion that religiosity correlates with positive mental health (Najati, 1992; Abdullah et al., 2013; Abdul Razak, 2014), and that it serves as a protective factor for mental well-being across various major religions (e.g., Islam, Buddhism, Hinduism) (Philips, 2009; Paukert et al., 2009; Tapanya, Nicki & Jarusawad, 1997; Sharf, 2015). Additionally, religiosity is often integrated into the management of mental health issues, including anxiety disorders (Azhar et al., 1995b; Razali et al., 1998; Razali et al., 2002; Haque & Masuan, 2002; Abdullah et al., 2013).

It is crucial to recognize that the slope exhibits an upward trend, indicating that at varying levels of Religious Fundamentalism, religiosity may serve as a protective factor against obsessive-compulsive (OC) symptoms. However, at extremely high levels of Religious Fundamentalism, religiosity could potentially act as a vulnerability, affecting how individuals process their thoughts, such as magnifying certain thoughts that may lead to actions, perceived responsibility, and distress, ultimately resulting in increased obsessions. Therefore, before drawing definitive conclusions regarding the protective role of Religious Fundamentalism, it is essential to conduct replication studies to gain a deeper understanding of this intricate relationship.

Furthermore, Religious Fundamentalism appears to moderate the direct impact of Theistic Spirituality (TS) and Intrinsic Religiosity (IR) on obsessions through TAF Likelihood in the UK study. As previously noted, individuals with strong beliefs in God and high levels of Religious Fundamentalism are more prone to obsessive thoughts. This correlation may stem from the rigidity and strict interpretations of religious texts, which can instill fear of God and induce guilt, thereby exacerbating OC symptoms.

Lastly, the influence of acculturation on the relationship between religiosity/spirituality and obsessions through TAF Likelihood was not observed in either sample. Although these findings were unexpected, as discussed earlier, the characteristics of the samples—predominantly young, educated, and modern individuals—may have shaped the results. The identities of these individuals may be altered by their characteristics, and the modern urban culture could also affect their thoughts and behaviors. Consequently, it is plausible that a more diverse range of sample characteristics, particularly from rural areas less affected by modernization, could yield different findings.

In summary, while there were notable differences between the samples, the similarities in the findings are likely significant. The varying results can be attributed to the distinct characteristics, religions, and cultures of the samples. Nevertheless, both samples shared commonalities, particularly in the age group, which was predominantly young and contemporary. Notably, the cognitive models of OCD exhibited similarities across both samples.

8.4 Strengths and Limitations

8.4.1 Strengths

There were some important strengths were identified in the present study. First, the results of the present study set a new direction for future research in the area of religiosity/spirituality/TAF and religiosity/spirituality/OCD. It is interesting to see that the results of the UK study were consistent with some of the previous studies, but the results in the Malaysian study were somewhat inconsistent with a few previous studies. But given that there is a limited study on religiosity and OC symptoms in non-Western samples, the study in Malaysia has provided new evidence on the role of religiosity in TAF and obsessions.

Second, as the multidimensional religiosity measure of NSRS could be used in a diverse range of religions and cultures, it has led to future research on different homogeneous and heterogeneous samples. For example, future studies investigate the NSRS in other samples with the same religion from various countries such as Saudi Arabia (an Islamic mono-religious country), Indonesia (a multi-religious country), and other Western countries (see details in Chapter 8). The findings in the future study will contribute to explaining the differentiation in the interaction of religion with the culture. Additionally, the NSRS was adapted into *Bahasa Melayu*, and proven to have excellent psychometric properties in both samples. By adapting the NRSS into *Bahasa Melayu*, the current study presented a valuable measure that can be potentially used in Malaysian studies in many areas of psychology and mental health.

Third, Religious Fundamentalism has been less researched in relation to religiosity aspects and OC beliefs so far, and the present findings found consistent findings with an interesting finding for both samples. It is undeniable that future research is warranted to investigate how the constructs associate with other aspects of religiosity and cognitive models of OCD before a definitive conclusion is made. Thus, this aspect of religiosity seems important in understanding how they interact with other aspects of religiosity as well as the OC symptoms.

Fourth, the most important strength of the present study is the investigation of the inter-relationship between important factors of OCD, such as TAF beliefs (TAF Morality, TAF Likelihood, and Impulsive TAF), religiosity, and the cultural aspects. As stated before, the inconsistent finding in the OCD and religiosity study might be due to several reasons, and one of them is how religiosity has been measured. Thus, with a new multidimensional religiosity measure, the findings in the present study provided further support to the understanding of the cognitive models of OCD and other factors such as religiosity and culture. As such, the significant role of TAF Likelihood as a moderator in defining the relationship between religious aspects and OC symptoms is supported in the present study. In addition, to our best knowledge, there is no study on the cognitive models of OCD and its relationship with religiosity in Malaysia. Thus, the findings of the present study provided evidence on an understanding of the cognitive models of OCD and other factors such as religiosity and culture, not only in Western countries but also the non-Western countries.

Fifth, although there are many studies on the predictors of OC symptoms all around the world, to our knowledge, there have been relatively few studies presenting an integrated model for the association between religiosity, TAF, and OC symptoms and acculturation aspects. Therefore, by examining the relationships of the predictors of OC symptoms, it is considered to be a valuable contribution to the study of OCD. Additionally, both unique and combined contributions of variables were examined at the same time, which provided the chance to see their relationship through which each factor influences OC symptoms. In addition, the results of the present study have set new directions for future research in the area of the religiosity-TAF-OCD relationship. It suggests the need for identifying and including new potential predictors alongside cognitive beliefs such as inflated responsibility and guilt in future religiosity-OCD research models in order to get more accurate results and a better understanding of the relationship. Moreover, the present study also insinuates the need for adopting a more rigorous approach to the recruitment of participants for the different religiosity groups.

Sixth, the present study is one of the first studies to use acculturation aspects as a moderator in analyses involving the relationship of religiosity, TAF, and OCD. Although the present study did not find evidence supporting the role of acculturation in the escalation of intrusive thoughts, this study has provided some support for the relationship between religiosity and TAF and OC symptoms. Thus, given the inconsistent findings, an additional study focused on both urban and rural areas is needed on the topic to further investigate the relationship.

Lastly, despite several inconsistent findings that may vary due to different cultures, the present study in both samples suggested that the cognitive model of OCD may be universal. Subsequent studies may be warranted in order to increase our understanding of cognitive models of OCD and other vulnerability aspects of OCD.

8.4.2 Limitations

Despite the comprehensive measurement of constructs and strong evidence of patterns of association between religiosity/spirituality, TAF, and OC symptoms, there are several important limitations in the present study. Several limitations to this study need to be acknowledged.

8.4.3 Sample and Recruitment

There were several limitations with regard to sample and recruitment. First, the demographic data in both samples in the present study showed that the samples in this study were limited in the diversity of education, socioeconomic and age group. For example, in Malaysia, about 80% participants have recruited through paper and pencil method among university students in Kuala Lumpur, Malaysia. Similarly, a study in the UK also recruited the majority of sample among university students through the internet. This is because study in the UK used research participation scheme among psychology students. As most of the participants in both samples were students enrolled in psychology courses, these findings may not readily be generalizable to individuals with no academic knowledge of psychology.

Second, both samples were composed of majority university students drawn among those who were living in the big and central cities in respective countries. Thus, this brings the issue of representativeness of the samples. These factors in the main study might function differently in samples living in other parts of the country with various demographical characteristics. Thus, it would be interesting to replicate the present study in distinct cultural settings. The study with more representative samples from all age groups will facilitate our understanding of these factors. Furthermore, the use of general community samples would also have the benefit of increased external validity and generalizability.

Third, it is crucial to acknowledge that the current research utilized non-clinical samples. Furthermore, earlier investigations have indicated that obsessive-compulsive symptoms exist on a continuum, ranging from nonclinical (normal) intrusive thoughts and rituals to clinical obsessions and compulsions. While this continuum supports the rationale for employing a non-clinical sample in the present study, the validity of the findings would be enhanced through replication with clinical samples. Conducting a similar study with clinical populations could potentially reinforce the conclusions drawn from the current research.

Additionally, it is important to consider that certain subscales within the NRSS scale may be interpreted differently across varying levels of religiosity, suggesting that the NSRS should be revised to include further contextual information. For instance, as previously noted, there is a possibility that Non-Theistic Spirituality (NTS) may be perceived similarly to Theistic Spirituality (TS) due to the higher religiosity of the Malaysian sample.

Moreover, the inclusion of a new measure of NSRS could potentially impact the findings of this study. In the Malaysian context, participants were given the option to respond in either Bahasa Melayu or English, and all measures underwent a thorough back-translation process to ensure their applicability in both Malaysia and the UK. Therefore, it is plausible that the measures employed may have influenced the results.

Finally, the acculturation measure utilized in this study may not effectively elucidate how acculturation impacts the relationship between religiosity and OC symptoms. This is not necessarily due to the acculturation scale itself, but rather the potential appropriateness and influence of an individualist-collectivistic scale in clarifying this relationship.

8.4.4 *Others*

Another constraint pertained to the study's design. Since the current research was a cross-sectional study rather than an experimental one, there are inherent limitations regarding the causal inferences that can be drawn.

Furthermore, while this study concentrated on religiosity/spirituality, TAF, and OC symptoms, it did not account for other vulnerability factors such as guilt and cognitive elements like perceived responsibility, which are closely associated with TAF and religiosity. These two factors, guilt and inflated responsibility, are regarded as significant components that may affect the findings of this study. Therefore, additional research examining the roles of guilt and responsibility is essential for a more comprehensive understanding of their relationship.

Chapter 9

Conclusion

9.1 Direction of future research

Drawing from the findings and acknowledging the limitations, several recommendations can be proposed for future research, alongside implications for the comprehension of Obsessive-Compulsive Disorder (OCD). There exist numerous avenues for enhancement and potential trajectories that subsequent studies might pursue to further enrich our understanding in this domain. To tackle the challenges related to generalizability, future research should adopt a more targeted sampling strategy, focusing on distinctly mono-religious groups with minimal denominational variation (e.g., Saudi Arabia, Poland, Iran), largely mono-religious populations with diverse denominations (e.g., Israel, Brazil, Rwanda), multi-religious cohorts (e.g., Lebanon, Indonesia, Singapore), and groups with the least religious affiliation or those identifying as non-religious (e.g., France, Germany, Australia, Sweden). This preliminary classification is informed by the Report on International Religious Freedom (US Department of State, 2012), which details the religious composition of various countries based on the most reliable data available. Such investigations could facilitate an examination of the factor structure of the NSRS across nations that differ in terms of mono-versus multi-religious contexts, mono- versus multi-denominational affiliations, and varying levels of religious commitment (including atheism), as well as the impact of cultural dimensions (e.g., individualism versus collectivism).

Additionally, exploring the interplay between different facets of religiosity and cognitive frameworks of OCD may yield a more nuanced understanding of how religiosity influences these cognitive models.

Secondly, future research should aim to encompass a broader spectrum of variability concerning sample characteristics, including age, education, and socioeconomic status. For instance, to gain a deeper understanding of religiosity and spirituality in Malaysia, it would be beneficial to recruit samples that more accurately reflect the ethnic, religious, urban versus rural, and modern versus traditional cultural diversity. While Malaysia is generally regarded as a religious nation, certain regions, such as Kelantan and Terengganu, are characterized by more traditional, religious, and mono-religious (Muslim) attributes, exhibiting less outward engagement (Anwar, 2004; Neo, 2006; Stark, 2004).

Conversely, urban centers like Kuala Lumpur and more modern, Western-influenced states such as Johor Bharu and Pulau Pinang are noted for being less traditional and more multi-religious (Hoffstaedter, 2011; Siong, 2008). These regions are crucial not only for exploring the connections between religiosity/spirituality, cognitive beliefs, and obsessive-compulsive disorder (OCD) but also for examining the impact of acculturation within this demographic. Most clinical studies on depression in Malaysia have predominantly utilized samples from urban locales like Kuala Lumpur and Selangor (Yee & Lin, 2011), which are likely the most modern and Western-influenced areas of the country. In addition to the need for greater variability in both mainstream (modern) and traditional Malaysian cultures, there may also be significant distinctions in individualistic versus collectivistic tendencies.

Third, to comprehend the interplay between religiosity and factors potentially associated with obsessive-compulsive (OC) symptoms within the framework of the cognitive model of obsessive-compulsive disorder (OCD), it is essential to examine additional cognitive elements frequently linked to OCD, such as heightened feelings of responsibility and guilt. Prior research has indicated a correlation between increased religiosity and elevated guilt among individuals with OCD (Steketee, Quay & White, 1991).

Furthermore, it has been posited that inflated responsibility could mediate the relationship between religiosity and OCD (see Abramowitz et al., 2004). Consequently, in light of these findings, we propose to explore: 1) the influence of responsibility and guilt on the connection between religiosity and OC symptoms (i.e., indirect effects), 2) Religious Fundamentalism as a potential moderator in the pathway of Religiosity→Responsibility→Guilt→OC, 3) the role of Thought-Action Fusion (TAF) Likelihood as a moderator in the relationship between Religiosity and Responsibility, and 4) alternatively, the function of responsibility as a moderator in the indirect pathway from religiosity to OC symptoms via TAF. Thus, forthcoming research investigating these variables would enhance the comprehension of cognitive models pertaining to OCD.

Furthermore, as previously mentioned, acculturation did not appear to affect the relationship between religiosity/spirituality and OC symptoms through TAF in either sample. The impact of the acculturation measure on the current study's results remains uncertain; however, we propose that the sample composition may present a limitation in this context. It is noteworthy that the participants in this study were predominantly young, educated individuals residing in urban environments, which may render them more aligned with contemporary identity constructs and less connected to their heritage identity. Moreover, we utilized the Vancouver Index of Acculturation Revised (VIA-R), originally developed for examining immigrants in North American cities, although we adapted the scale for application in the UK and Malaysia within a largely non-migrant context.

The items from the mainstream and heritage subscales, as well as the underlying constructs, may not have been appropriate or sufficiently sensitive for application in the predominantly urban, contemporary multicultural samples characterized by a significant proportion of non-migrants, as observed in this study. While the VIA-R has been utilized among various multicultural populations in the United States (Ryder et al., 2000), its items may inadequately address essential elements of Malaysian culture, thereby failing to capture cultural identity within the Malaysian cohort.

As previously noted, Malaysia is a multicultural nation comprising three primary ethnic groups: Malays, Chinese, and Indians (Ibrahim, 2004; Goh et al., 2009; Selvarajah & Meyer, 2008; Cheng, 2008). Few countries globally explicitly recognize fundamental cultural components across diverse ethnicities and religions. For instance, religious and cultural festivals from all communities are commemorated. Thaipusam, a Hindu festival, is celebrated to express gratitude to one of their deities, Lord Murugan, a son of Shiva (Kasim, 2011). This festival is observed by all and is designated as a statutory holiday for all Malaysians. In Islam, Maulud Nabi marks the celebration of the Prophet Muhammad's birthday and is recognized as a national holiday (Zakaria, 2011). The Buddhist tradition celebrates the Buddha's birthday as a national holiday (Brahmagunabhorn et al., 2011). Christmas is also acknowledged as a national holiday within the Christian tradition. Additionally, Malaysian nationalism is reflected in the celebration of Independence Day and the birthday of the Yang di Pertuan Agong of Malaysia (the King's leader), both of which are recognized as federal public holidays by all Malaysians (Ishak & Shuhaimi, 2010).

While certain elements contribute to a collective culture among Malaysians, transcending ethnic and religious boundaries, particularly in terms of social interactions, behaviors, and entertainment, other elements may not be as universally embraced. Ethnicity and religion in Malaysia could potentially shape educational experiences based on language, which in turn might influence the prominence of specific cultural aspects. For instance, Malaysia has historically implemented socio-economic segregation along ethnic lines in education, as evidenced by the existence of Chinese, Indian, and Malay language schools tailored to different ethnic groups (Raman & Sua, 2010).

Additionally, economic activities may also reflect ethnic divisions, particularly in rural areas where Malays and Indians predominantly engage in agricultural work on plantations, while Chinese individuals are more likely to be involved in mining and business ventures in urban settings (Sudha, 1997). These dynamics have not been thoroughly examined in existing research. Consequently, future investigations should address this gap by incorporating elements that more accurately reflect what is deemed traditional and mainstream within the Malaysian cultural landscape.

Alternatively, it may be beneficial to explore the more fundamental distinctions between cultures. This study examined the interplay between religiosity/spirituality, TAF, and OCD across two distinct cultural samples (the UK and Malaysia), which exemplify the contrasting dimensions of collectivism and individualism. Therefore, it would be prudent to investigate how these cultural dimensions influence the relationship between religiosity/spirituality and OCD. For instance, the Cultural Orientation Scale (Triandis et al., 1990) assesses four tendencies related to collectivism and individualism by juxtaposing hierarchy against equality and individualism against collectivism, resulting in the categories of 1) Vertical Collectivism, 2) Vertical Individualism, 3) Horizontal Collectivism, and 4) Horizontal Individualism. The items within this scale reflect cultural attributes across both dimensions; for example, Horizontal Individualism includes items such as 'I prefer to rely on myself rather than others' and 'I seldom depend on others,' while Vertical Individualism features items like 'It is crucial for me to outperform others' and 'Winning is paramount.'

In contrast, Horizontal Collectivism encompasses items such as 'I take pride when a coworker is recognized' and 'The welfare of my colleagues is significant to me,' whereas Vertical Collectivism includes items like 'Parents and children should remain together as much as possible' and 'I have a responsibility to care for my family, even at the expense of my own desires.' Numerous studies have employed the Individualism-Collectivism Scale and have demonstrated that both individualistic and collectivistic cultures highlight different cultural and personality emphases (e.g., Matsumoto et al., 1999; Markus & Kitayama, 1991; Triandis, 2001). This scale may effectively capture the critical differences between collectivism and individualism, thereby enhancing our understanding of how these cultural dimensions influence individuals' interpretations of their thoughts, which may be related to obsessive behaviors.

In conclusion, the participants in these studies were sourced from nonclinical populations. While cognitive-behavioral therapy (CBT) conceptualizes obsessive-compulsive disorder (OCD) as existing on a continuum, it is crucial to validate these findings within clinical populations, despite the potential difficulties in recruiting such groups. Therefore, it is essential to conduct replications of the study utilizing clinical samples, exploring additional vulnerability factors within cognitive models of OCD (such as guilt and inflated responsibility), and employing diverse methodologies across various cultural settings, which should include both homogeneous and heterogeneous samples from different religions and countries, as integral components of a comprehensive research agenda.

9.2 Implications for understanding OCD in Malaysia

This study contributes to the understanding of Obsessive-Compulsive Disorder (OCD) within the Malaysian context. The existing literature has notable gaps, including a lack of data on OCD prevalence, insufficient valid and reliable assessment tools for OCD and Thought Action Fusion (TAF), and a dearth of empirical research from Malaysia that addresses cognitive models of OCD. Consequently, this study seeks to initiate an exploration of cognitive models of OCD and assess their applicability. While it has made significant preliminary contributions to the understanding of OCD in Malaysia, it is important to note that questions regarding prevalence remain unanswered due to the use of convenience sampling.

Regarding the cognitive model of OCD, the findings offer some support for theoretical and empirical claims that TAF Likelihood correlates with OCD in the anticipated manner (i.e., increased TAF associated with heightened OCD symptoms), and that TAF mediates the influence of religiosity/spirituality on obsessions. However, the results also indicate that the relationship is not entirely as expected. The initial finding that links elevated TAF to increased symptoms suggests a degree of universality in cognitive models of OCD, while the second finding, which highlights the protective influence of religiosity/spirituality, implies that these models cannot be universally applied without consideration of cultural context. These results align with the research conducted by Yorulmaz et al. (2009), reinforcing the notion that the relationship between religiosity/spirituality and cognitive dimensions of OCD may vary across different religious and cultural backgrounds.

Interestingly, the current research reveals significant consistencies between studies conducted in the UK and Malaysia regarding the interplay of religiosity/spirituality and cognitive dimensions of Obsessive-Compulsive Disorder (OCD). Notably, this investigation has identified two key findings: 1) a positive correlation between TAF and OCD, and 2) the moderating role of Religious Fundamentalism on the relationship between TAF and OCD in both the UK and Malaysia. Furthermore, TAF Likelihood consistently mediates the influence of religiosity/spirituality on obsessive thoughts in both populations, albeit in contrasting directions—positive in the UK and negative in Malaysia. While further replication is essential for drawing definitive conclusions, this study offers compelling evidence linking religiosity/spirituality and cognitive frameworks of OCD across both nations.

Additionally, as religiosity/spirituality is explored as a multidimensional construct, a more nuanced examination of each dimension's relationship with TAF and OCD is warranted. The findings suggest that specific dimensions of religiosity/spirituality, particularly Religious Fundamentalism in the Malaysian context, may serve as protective factors against the emergence of obsessive thoughts, as indicated by the direct and indirect effects of religiosity/spirituality on obsessions mediated by TAF Likelihood.

Given that these outcomes may stem from cultural influences and the characteristics of the sample, it is imperative for subsequent research to replicate these results across diverse groups with unique traits, such as Malaysian Muslims, Malaysian Hindus, and Malaysian Christians. This approach will aid in disentangling the complex interplay of culture and religion within a multi-ethnic and multi-religious context. Such investigations could clarify whether, for a significant number of Malaysians, religiosity and spirituality are perceived as beneficial and functional in the context of mental health treatment.

Furthermore, as discussed in Chapter 2, mental health issues continue to be stigmatized in Malaysian society, irrespective of religious affiliation, although this perception is gradually evolving (Crabtree & Chong, 2000; Hanafiah & Van Bortel, 2015). Additionally, the comprehension of mental health and illness in Malaysia is influenced by ethnic and religious diversity (Edman & Koon, 2000; Haque, 2005), as well as the impact of Western psychiatric models and popular culture. While some Malaysians interpret positive mental health disorders as indicative of their religiosity or spirituality, others adopt a Western viewpoint that dissociates negative mental health from religious considerations (see Razali & Najib, 2000).

Consequently, given the pluralistic nature of mental health beliefs among Malaysians (Edman & Koon, 2000; Razali & Najib, 2000), it is premature to generalize these findings regarding the understanding of OCD as a universal perspective on mental health in Malaysia. Therefore, future research should strive to incorporate measures of mental health understanding among distinct groups, such as Malay Muslims, Chinese Buddhists, Chinese Christians, and Indian Hindus, to refine their perceptions of mental health in relation to their religious beliefs, thereby elucidating the connection between religious factors and mental health.

The current research has established a connection between religiosity/spirituality and obsessive thoughts, prompting considerations for therapeutic approaches. In Malaysia, religious practices have been integrated into the treatment of mental health issues, particularly among ethnic Malays, with some evidence suggesting effectiveness in addressing anxiety disorders (Azhar, Varma, & Dharap, 1995b; Razali, Aminah, & Khan, 2002), depression (Azhar & Varma, 1995b), and grief (Azhar, Varma, & Dharap, 1995a) when compared to individuals receiving only supportive psychotherapy and pharmacological interventions. From an Islamic perspective, obsessive-compulsive disorder (OCD) is interpreted as intrusive thoughts or 'was was' believed to be instigated by 'Satan', often linked to individuals perceived as lacking in spirituality (Abdullah et al., 2013). However, the precise relationship between religiosity, spirituality, and OCD remains ambiguous (Haque & Masuan, 2002). Consequently, the application of religious principles may differ in the context of obsessions as opposed to other mental health conditions such as anxiety disorders, depression, and grief.

9.3 Potential clinical implications

The current research has revealed multiple potential clinical implications. Initially, the results from the UK reinforce earlier correlational studies that explored the relationship between religiosity/spirituality and obsessive-compulsive (OC) symptoms (e.g., Steketee et al., 1991; Sica et al., 2002; Rassin et al., 2001), as well as the connection between Thought-Action Fusion (TAF) and OC symptoms (e.g., Rassin & Koster, 2003; Yorulmaz et al., 2009; Siev & Cohen, 2007). In contrast, the findings from Malaysia present novel insights. This investigation has further advanced the cognitive model of obsessive-compulsive disorder (OCD) by enhancing the understanding that a combination of religiosity/spirituality, TAF Likelihood, and possibly Religious Fundamentalism may influence the manifestation of obsessive thoughts, with variations likely occurring due to cultural differences. Although the results regarding religiosity/spirituality were intricate, particularly concerning their role as either risk or protective factors for OC symptoms, both studies affirm the positive correlation between TAF and OC symptoms. This indicates that the cognitive model of OCD may possess a degree of universality across the two populations studied. Nevertheless, these findings necessitate replication, the establishment of temporal precedence, and the implementation of experimental designs before any causal claims can be substantiated.

Furthermore, this study has underscored the potentially intricate interactions among religiosity/spirituality, TAF, and OCD. It implies that therapists should explore TAF and consider how these beliefs are interpreted within the individual's unique religious and cultural framework, rather than presuming a potentially harmful relationship as part of OCD mediated through Thought-Action Fusion. Assessing levels of religiosity/spirituality, along with specific cultural, religious, or personal beliefs and their connections to TAF Likelihood among individuals experiencing obsessions, will be crucial.

In addition to recognizing the elements of religiosity and spirituality that may exacerbate obsessive-compulsive disorder (OCD) through the framework of TAF, there are potential broader implications for OCD treatment. This entails pinpointing specific religious or spiritual beliefs and practices that could adversely affect the clinical presentation, while distinguishing them from those that foster a positive sense of well-being. Consequently, it may be necessary to encourage or train therapists to explore these dimensions, enhancing not only their sensitivity to ethnicity, culture, and religion but also their competence and confidence in engaging in potentially intricate discussions. This process may be complex, necessitating the involvement of religious leaders who are receptive to psychological interpretations of distress, although identifying appropriate individuals may pose challenges. Further research is warranted to investigate the efficacy of religiously integrated psychotherapy for individuals with OCD.

Previous studies have indicated that the integration of religiosity and spirituality with cognitive behavioral therapy has yielded positive outcomes for patients experiencing religious obsessions (e.g., Besiroglu et al., 2012; Bonchek & Greenberg, 2009; Bhugra & Osbourne, 2004). As previously mentioned, religious psychotherapy has been applied in clinical contexts for patients with anxiety disorders (Azhar, Varma, & Dharap, 1995b; Razali, Aminah, & Khan, 2002), depression (Azhar & Varma, 1995b), and bereavement (Azhar, Varma & Dharap, 1995a), as well as for anxiety and depression (Razali, Hasanah, Aminah, & Subramaniam, 1998). However, it is crucial for these studies to mitigate the allegiance effects identified in reviews of faith-based intervention research (e.g., Anderson, Heywood-Everett, Siddiqi, Wright, Meredith & McMillan, 2015).

In addition to the NSRS, the measures for TAF and obsessive symptoms were translated and adapted into Bahasa Melayu, while a measure of acculturation was revised accordingly. In this study, over 90% of participants opted to complete the questionnaires in English, likely due to the recruitment of university students and professionals, such as university members and religious organization affiliates. English serves as a second language and is predominantly used in Malaysian universities and colleges. However, adapting the measures to Bahasa Melayu is crucial, as it is more commonly utilized in clinical settings. The measures exhibited good reliability across both samples and could be applicable in clinical environments, although their effectiveness warrants further investigation.

The development of the NSRS represents a significant advancement in this study, as it will aid in evaluating religious beliefs and practices among OCD patients in future research. A more concise version of the NSRS, developed from additional samples (Marram & Freeston, 2016, unpublished thesis), may be better suited for clinical use. Furthermore, the content of the OCD and acculturation measures may require reassessment, with potential additions regarding the impact of education on language and economic factors, as these elements may resonate with what is considered traditional or mainstream in the Malaysian context.

Furthermore, as previously mentioned, the current research supports the existence of a positive correlation between TAF and OCD across both studies. It appears that TAF Likelihood may contribute to the onset or persistence of OCD symptoms, thereby suggesting the potential for developing targeted behavioral and cognitive interventions for OCD patients, particularly concerning TAF. For instance, previous authors have proposed that psycho-education regarding TAF could alleviate anxiety and reduce the endorsement of TAF-related beliefs (Zucker, Craske, Barrios, & Holguin, 2002). Their intervention aimed to normalize intrusive thoughts and clarify the distinction between thoughts and events, as well as between thoughts and moral judgments. However, the durability of psycho-education's effects remains uncertain due to the absence of follow-up assessments on TAF levels (Zucker et al., 2002).

Furthermore, TAF beliefs warrant greater emphasis within cognitive behavioral therapy (CBT) frameworks. Prior research has indicated that treatments focusing on TAF can be integrated into CBT interventions (Whittal & McLean, 2002; Freeston & Ladouceur, 1993). For example, Whittal and McLean (2002) conducted a study involving OCD patients, which included an immediate evaluation of the appraisal process as part of one treatment approach, illustrating the relationship between appraisals, emotions, and behaviors. In their findings, TAF Likelihood was identified as a significant appraisal. They also proposed the implementation of behavioral experiments to contest TAF Likelihood appraisals. For instance, patients could be encouraged to repeatedly contemplate scenarios with a low threat level (e.g., envisioning the loss of keys) and reflect on the potential outcomes stemming from these thoughts (i.e., the consequences associated with low-threat thoughts).

The absence of the anticipated event, despite the patient's beliefs, indicates that thoughts do not possess the influence that patients often ascribe to them (i.e., thoughts are not equivalent to actions). This process is reiterated by prompting patients to contemplate thoughts ranging from low to high threat potential (e.g., envisioning the loss of keys versus the death of a loved one in a car accident) and the potential outcomes or consequences associated with these thoughts (i.e., feared outcomes). As patients equate thoughts with actions, they will hierarchically assess their intrusive thoughts and juxtapose them with the consequences they anticipate may arise (refer to Whittal & McLean, 2002). Nonetheless, the extent to which individuals from diverse cultural backgrounds will participate in this process remains uncertain, particularly if the concept of Thought-Action Fusion (TAF) is intertwined with widely accepted cultural or religious beliefs.

It has been posited that integrating religious elements into Exposure and Response Prevention (ERP) can be particularly beneficial for patients with religious obsessions (Abramowitz, 2001; Deacon & 2008; Huppert, Siev, & Kushner, 2007). For instance, ERP can be tailored to address religious obsessions (Huppert, Siev, & Kushner, 2007; Huppert & Siev, 2010) by involving religious leaders who are receptive to psychological interpretations of distress in the ERP process.

However, several scholars have suggested that for effective treatment, mental health practitioners who choose to incorporate religious interventions into their clinical practice should arm themselves with pertinent religious knowledge and/or maintain ongoing communication with religious authorities for guidance and support throughout the treatment process (Besiroglu et al., 2012; Greenberg & Huppert, 2010; Huppert et al., 2007).

In conclusion, a critical takeaway from this study is that assumptions regarding the nature of relationships within the model should not be generalized for all patients; rather, it is essential to understand how the model functions at an individual level, influenced by factors such as ethnicity, religion, and personal experiences.

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Appendix A

Ethical Approval from the Newcastle Ethical Committee, Newcastle University, for the UK and Malaysia studies



09 May 2012

Siti Alias
Institute of Neuroscience
Henry Wellcome Building

Faculty of Medical Sciences

Newcastle University
The Medical School
Framlington Place
Newcastle upon Tyne
NE2 4HH United Kingdom
Professor Michael Whitaker
FIBiol FMed Sci
Dean of Research & Innovation

FACULTY OF MEDICAL SCIENCES: ETHICS COMMITTEE

Dear Siti

Title: Religiosity and Thought Action Fusion (TAF) in OCD
Application No: 00516/2012
Start date to end date: April 2009 – November 2013

On behalf of the Faculty of Medical Sciences Ethics Committee, I am writing to confirm that the ethical aspects of your proposal have been considered and your study has been given ethical approval.

The approval is limited to this project: **00516/2012**. If you wish for a further approval to extend this project, please submit a re-application to the FMS Ethics Committee and this will be considered.

During the course of your research project you may find it necessary to revise your protocol. Substantial changes in methodology, or changes that impact on the interface between the researcher and the participants must be considered by the FMS Ethics Committee, prior to implementation.*

At the close of your research project, please report any adverse events that have occurred and the actions that were taken to the FMS Ethics Committee.*

Best wishes,

Yours sincerely

A handwritten signature in blue ink, appearing to read "M. Holbrough".

Marjorie Holbrough
On behalf of Faculty Ethics Committee

cc.
Professor Michael Whitaker, Dean of Research & Innovation
Ms Lois Neal, Assistant Registrar (Research Strategy)

*Please refer to the latest guidance available on the internal Newcastle Biomedicine web-site.

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The University of Newcastle upon Tyne trading as Newcastle University



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Appendix B:

Ethical approval from the National Medical Research Register in Malaysia for the Malaysian study



PEJABAT TIMBALAN KETUA PENGARAH KESIHATAN
OFFICE OF THE DEPUTY DIRECTOR-GENERAL OF HEALTH
(PENYELIDIKAN & SOKONGAN TEKNIKAL)
(RESEARCH & TECHNICAL SUPPORT)
KEMENTERIAN KESIHATAN MALAYSIA
MINISTRY OF HEALTH MALAYSIA
Aras 12, Blok E7, Parsel E, Presint 1
Level 12, Block E7, Parcel E, Precint 1
Pusat Pentadbiran Kerajaan Persekutuan
Federal Government Administrative Centre
62590 PUTRAJAYA

Tel. : 03-88832543
Faks : 03-88895184

JAWATANKUASA ETIKA & PENYELIDIKAN
PERUBATAN
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 Kuala Lumpur

Ruj. Kami : (2) dlm.KKM/NIHSEC/08/0804/P12-110
Tarikh : 23 Februari 2012

Puan Siti Hazlina Binti Alias
Institut Neurosains
Universiti Newcastle

Puan,

NMRR-11-993-10075

Religiosity and Thought Action Fusion (TAF) in OCD -Western and Eastern

Dengan hormatnya perkara di atas adalah dirujuk.

2. Jawatankuasa Etika & Penyelidikan Perubatan (JEPP), Kementerian Kesihatan Malaysia (KKM) mengambil maklum bahawa projek tersebut adalah untuk memenuhi keperluan akademik Program PhD Universiti Newcastle.

3. Sehubungan dengan ini, dimaklumkan bahawa pihak JEPP KKM tiada halangan, dari segi etika, ke atas pelaksanaan projek tersebut. JEPP mengambil maklum bahawa kajian ini tidak mempunyai intervensi klinikal ke atas subjek dan hanya melibatkan borang soal selidik untuk mengumpul data kajian. Segala rekod dan data pegawai adalah SULIT dan hanya digunakan untuk tujuan kajian dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi. Kebenaran daripada Pengarah Hospital/ Kesihatan Negeri di mana kajian akan dijalankan mesti diperolehi terlebih dahulu sebelum kajian dijalankan. Tuan perlu akur dan mematuhi keputusan tersebut.

4. Laporan tamat kajian dan sebarang penerbitan dari kajian ini hendaklah dikemukakan kepada Jawatankuasa Etika & Penyelidikan Perubatan selepas tamatnya projek ini.

Sekian terima kasih.

BERKHIDMAT UNTUK NEGARA

Saya yang menurut perintah,

(DATO' DR CHANG KIAN MENG)
Pengerusi
Jawatankuasa Etika & Penyelidikan Perubatan
Kementerian Kesihatan Malaysia



**PEJABAT TIMBALAN KETUA PENGARAH KESIHATAN
OFFICE OF THE DEPUTY DIRECTOR-GENERAL OF HEALTH
(PENYELIDIKAN & SOKONGAN TEKNIKAL)**

**(RESEARCH & TECHNICAL SUPPORT)
KEMENTERIAN KESIHATAN MALAYSIA
MINISTRY OF HEALTH MALAYSIA**

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**JAWATANKUASA ETIKA & PENYELIDIKAN
PERUBATAN
KEMENTERIAN KESIHATAN MALAYSIA**
dfc InstJtit Pengurusan Kesihatan

Kami: (2) dlm.KKM/NIHSEC/08/0804/ P12-110

Tarikh : 23 February 2012

Ms Siti Hazlina Binti Alias
Neuroscience Institute
Newcastle University

Mdm,

NMRR-11-993-10075

Religiosity and Thought Action Fusion (TAF) in OCO -Western and Eastern

With reference to your application, the Medical Research & Ethics Committee (MREC) of the Ministry of Health (MOH) Malaysia takes note this project has no clinical intervention and only involves questionnaires session.

The MREC has no objection from the ethical aspects to the conduct of this study and hope that the findings of this study can be shared and made known to the Ministry of Health Malaysia.

You are requested to submit end of project report and a copy of any publication arising from this project to the MREC.

Thank you.

Yours sincerely,

(DAPURANG KIAN MENG)

Chairman

Medical Research & Ethics Committee
Ministry of Health Malaysia

Appendix C

Summary of arrangements for providing information about the study and obtaining consent

Procedure /Criteria	Setting	Arrangement	Information sheet/consents	Participation
1) <u>Paper and pencil procedure</u> recruited in classes or courses	a) School Children (16 years old and above)	seek access through first, head teacher and then second, individual teacher	<u>Time 1:</u> -Information sheet and consent forms to: - Students - Parents/guardian <u>Time 2:</u> -Obtaining consent a) Parental opt-out b) Student opt-in -Distribution of questionnaires	- Completion of questionnaires in group setting (class) - Debrief
	b) College or university students(18 years old and above)	seek access through first, head or school/programme director and then second, individual lecturer	<u>Time 1:</u> -Information sheet to: - Students <u>Time 2:</u> -Obtaining consent - Individual opt-in - Distribution of questionnaires	- Completion of questionnaires in group setting (class) - Debrief
2) <u>Internet based procedure</u> recruited through e-	a) General university news link on university website	The general university news link or newspaper will be used as to advertise the study to the	<u>Time 1:</u>	- Completion of questionnaires through website (internet) - Debrief

mail and internet There are three routes:	(18 years old and above)	students and staffs through a brief advert.	-Link to website with information about the study <u>Time 2:</u> - Link to web to consent page (individual opt-in) and questionnaires (Qualtrics website)	through web page
	b) Members of college or university communities (18 years old and above)	An e-mail will be sent to head of school/ individual lecturer seeking access to students through e- distribution by the college/university	<u>Time 1:</u> -An email with study information will be distributed to members of college or university communities. <u>Time 2:</u> - Link to web to consent page (individual opt-in) and questionnaires (Qualtrics website)	- Completion of questionnaires through website (internet) - Debrief through web page
	c) Targeted groups students (18 years old and above)	An e-mail will be sent to identified president/secretary/repr esentatives of the groups or organizations seeking access to students through e-distribution by the college/university	<u>Time 1:</u> -An e-mail with study information will be distributed to students.	- Completion of questionnaires through website (internet) - Debrief through web page
			<u>Time 2:</u> - link to web to consent page Link to web to consent page (individual opt-in) and questionnaires (Qualtrics website)	

Appendix D

Summary of recruitment procedure, inclusion/exclusion criteria and incentives for participation

Recruitment/ Criteria	Recruitment (recruited through classes in secondary schools)	Recruitment (recruited through classes in colleges or universities)	Recruitment (recruited through e-mail or internet)
Recruitment strategy	- Schools will be contacted via letter to head teacher to invite and seek agreement to access students in classes. - Invitation letter will also include full information about the study and a copy of information sheet to parents and a copy of both consents (parental opt-out and student opt-in). - Once they agree to let their students participate, the main researcher and the individual teacher will arrange a suitable time where students will first be approached and informed about the study and second date (normally at least a week later) when consent and data collection will take place.	- An invitation letter with study information will be sent to head of school/programme director to invite and seek access to students in lectures. - Invitation letter will also include full information about the study. - Once they agree to let their students participate, the main researcher and the individual lecturer will arrange a suitable time where students will first be approached and informed about the study and second date (normally at least a week later) when consent and data collection will take place. - On the first occasion, information sheets and consent forms will be distributed to	- Members of college and university communities will be recruited through e-mail and internet. - There are three ways to access students and members of the university community a) <u>General university news link on university website</u> - General university news link on university website will be used as to advertise the study. - Those interested in finding out more about the study will be guided to a website link that contains the study information.
	Schools will be contacted via letter to head teacher to invite and seek	An invitation letter with study	Members of college and university communities will be recruited through e-mail and

	agreement to access students in classes. • Invitation letter will also include full information about the study and a copy of information sheet to parents and a copy of both consents (parental opt-out and student opt-in). • Once they agree to let their students participate, the main researcher and the individual teacher will arrange a suitable time where students will first be approached and informed about the study and second date (normally at least a week later) when consent and data collection will take place.	information will be sent to head of school/programme director to invite and seek access to students in lectures. • Invitation letter will also include full information about the study. • Once they agree to let their students participate, the main researcher and the individual lecturer will arrange a suitable time where students will first be approached and informed about the study and second date (normally at least a week later) when consent and data collection will take place. • On the first occasion, information sheets and consent forms will be distributed to	internet. • There are three ways to access students and members of the university community b) <u>General university news link on university website</u> - General university news link on university website will be used as to advertise the study. - Those interested in finding out more about the study will be guided to a website link that contains the study information.

	• On the first occasion, information sheets and consent forms will be distributed to students by the main researcher in the presence of the teacher. • On the second occasion, prior to data collection, the information about the study will be described again to the participants and opt-in consent forms will be redistributed (if required). • Both consent forms (parental opt-out and student opt-in) will then be sought. • Questionnaires will then be distributed to all participants. • All the participants will be assured that participation will be voluntary and they will be given the option of accepting or refusing to participate with no adverse consequences. • Participants will be provided with instructions how to complete the questionnaires (6 questionnaires). • Post participation debrief will	students by the main researcher in the presence of the lecturer. • On the second occasion, prior to data collection, the information about the study will be described again to the participants and opt-in consent forms will be redistributed (if required). • Consent form will then be sought through individual opt-in. • Questionnaires will then be distributed to all participants. • All the participants will be assured that participation will be voluntary and they will be given the option of accepting or refusing to participate with no adverse consequences. • Participants will be provided with instructions how to complete the questionnaires (6 questionnaires). • Post participation debrief will be provided	- Then, if they wish to participate, will be guided to a further link to consent web page and questionnaires (Qualtrics website). - Post participation debrief will be provided through web page. b) <u>Invitation letter to head of school or administrator</u> - Invitation letter will be sent to head of school or administrator to seek access to students through e-distribution by the school/university. - Once they agree, an e-mail with study information will be sent to head of school/administrator. - Then, an e-mail about the study will be distributed to the members of the college or university communities on behalf of the investigator by a staff member (lecturer or administrator). - Those who wish to participate will be guided to a further link to consent web page and questionnaires (Qualtrics website).

	be provided		

			- Post participation debrief will be provided through web page. c) <u>Invitation letter to student targeted groups/organizations representatives.</u> - Invitation letter will be sent to representatives of student groups/organizations to seek access to members of the group or organization. - Once they agree, an e-mail with study information will be sent to the representative of the group/organization. - Then, an e-mail about the study will be distributed to the members of targeted group/organization on behalf of the researcher by a representative of the group/organization. - Those who wish to participate will be guided to a further link to consent web page and questionnaires (Qualtrics website). - Post participation debrief will be provided through web page.

Inclusion/ Exclusion criteria	• Participants will be recruited among school students (year 12 and 13) aged 16 years and above. • Participants will only be included if they have the ability to give written informed consent. • Participants will not be excluded if they present with symptoms of OCD and/or depression.	• Participants will be recruited among college/university students that aged 18 years and above. • Participants will only be included if they have the ability to give written informed consent. • Participants will not be excluded if they present with symptoms of OCD and/or depression.	• Participants will be recruited among college/university students and members of the college/university communities aged 18 years and above. • Participants will only be included if they have the ability to indicate consent by online procedures. • Participants will not be excluded if they present with symptoms of OCD and/or depression
Incentives for participation	• School students will be offered a talk about an aspect of psychology or career opportunities in psychology as arranged with individual teacher.	• College and university students will be invited to enter in a prize draw (3 prizes of vouchers).	• People who participate through the web-based portal will be invited to enter in a prize draw (3 prizes of vouchers).

Appendix E

Responses from the Religious Leaders in Malaysia

No.	Religion	Position	Comments	Actions
.	Islam	Contacted most of the Lecturers of Islamic Studies in three of main university in Malaysia and one Islamic University in Malaysia. -Contacted four of the Islamic states department in Malaysia.	a) Would the item make sense to people within your religious community? The questions and the items have some merits and the people in my religious community would be able to answer them. Please take note of my suggestions. b) Would they be able to answer it? The people in my religious community would be able to answer them sincerely as there are no items that are against our belief system. c) Is the wording likely to be acceptable to them?	

		-Contacted four of State Islamic Religious Leaders -Dr. Saodah Wok -Associate Professor International Islamic University of Malaysia –Department of Islamic Revealed Knowledge and Human Sciences.	The wordings are simple and I believe that my religious community would be finding the wordings acceptable.	
2.	Christian	Dr. Rev. Tan Kim Sai.	<u>Item of Spirituality:</u> - All Items of Spiritually are okay.	

		-Pastor of the Presbyterian Church in Malaysia	Comment: Item no. 5- I believe that ultimate truth cannot be expressed by words or concepts- Comment: I would like to add the word 'fully'--...cannot be <u>fully</u>... <u>Item of Theistic Spirituality:</u> - All Items are okay. - Item no. 9 I believe that God is the only truth. Comment: I would prefer to say: ...God is the <u>ultimate</u> Truth. <u>Item of Religious Behavior</u> - Item of Religious Behavior are okay. - Item no.6- I make a special effort to visit sacred places (pilgrimage). Comment: for Reformed/ Evangelical Christianity, the so-called 'pilgrimage' is something dispensable, as our heart is the 'Temple/ Kaabah' of the Holy Spirit who dwells there-in. However, 'pilgrimage' can still be taken and can be a blessing, in the right perspective and spirit. <u>Item of Intrinsic Religiosity:</u> - Item of Intrinsic Religiosity are okay. - Item no. 10- I make a special effort to visit sacred places (pilgrimage) to be closer to God. Comment: except for point 10 which is relative, as implied above. <u>Item of Extrinsic Religiosity:</u> - Item of Extrinsic Religiosity---Personal context are okay. - Item no. 10.	

			Comment: except for point 10, as implied above. <u>Item of Family Context:</u> - All items of Family Context - broadly, contextually, and relatively speaking, these statements could be okay, for instance, for a young person in a traditionally Christian family. - But for a mature Christian, it is one's personal relationship with God that really matters. - And for many of us from non-Christian background, these components of extrinsic religiosity may result in tension and even conflict with family members instead. <u>Item of Intrinsic Religiosity:</u> - Item of Intrinsic Religiosity are okay. - Item no. 10- I make a special effort to visit sacred places (pilgrimage) to be closer to God. Comment: except for point 10 which is relative, as implied above. <u>Item of Extrinsic Religiosity:</u> - Item of Extrinsic Religiosity---Personal context are okay. - Item no. 10. Comment: except for point 10, as implied above. <u>Item of Family Context:</u> - All items of Family Context - broadly, contextually, and relatively speaking, these statements could be okay, for instance, for a young person in a traditionally Christian family. - But for a mature Christian, it is one's personal relationship with God that really matters. - And for many of us from non-Christian background, these components of extrinsic religiosity may result in tension and even conflict with family members instead.	

			<u>Item of Social Context:</u> - All items of Social Context- broadly speaking, are okay, but even more qualified/ relativized / diluted as given for the Family Context, especially in urban setting. <u>Item of Religious Fundamentalism:</u> - Item no. 1. Very broadly speaking are okay. BUT with strong emphasis that it is not organized Christianity as a whole, but the core of the Evangelical faith which upholds Jesus Christ as the Only Lord and Savior for the whole human race (Jn. 14:6, Acts 4:12, 2 Co. 4:5). True Christianity is CHRIST. - Item no. 2- is okay. PROVIDED it is Bible-based, properly Interpreted, Understood, Implied and Applied. - Item no. Point 3- is okay, IF it means the fundamental Evangelical truth vis-à-vis the Deity, Saviorhood and Lordship of Christ. - Item no. 4- is okay. IF it refers to the 66 books of the Bible. - Item no. 5- is okay. But within the parameter of Evangelical commitment, there is no offence with God if sometimes doubts/ questions arise due to human limitation. Item no. 6- is okay. IF it means the Evangelical faith in Christ comprising His Incarnation, Redemptive Death, Glorious Resurrection, and Triumphant Second Coming. BUT it is to be 'at all cost' WITHOUT any deception or violence. There have been/ are/ will be weaknesses, failures and even sins in Christian institutions which should be judged rather than defended.	

			- Item no. 7- is okay. IF it means the God Man Jesus Christ, our Supreme Leader. As for human leaders, even if it is any Pope or Archbishop, we shall follow them only discreetly as far as they follow Christ. - Also, the word 'exactly' needs to be qualified in that it should be in terms of spirit and principle, and may not be in a literal/ legalistic manner. - Item no. 8- is okay. IF it is something explicitly idolatrous and immoral, and manifestly prohibited by God. However, our 'intolerance' shall never be expressed in any offensive, violent ways. - Item no. 9- is okay. IF it is something illegal/ immoral and violent like burning churches and murdering Christians. However, no Christians should take the laws into own hands to do the	

			- Item no. 6- is okay. IF it means the Evangelical faith in Christ comprising His Incarnation, Redemptive Death, Glorious Resurrection, and Triumphant Second Coming. BUT it is to be 'at all cost' WITHOUT any deception or violence. There have been/ are/ will be weaknesses, failures and even sins in Christian institutions which should be judged rather than defended. - Item no. 7- is okay. IF it means the God Man Jesus Christ, our Supreme Leader. As for human leaders, even if it is any Pope or Archbishop, we shall follow them only discreetly as far as they follow Christ. - Also, the word 'exactly' needs to be qualified in that it should be in terms of spirit and principle, and may not be in a literal/ legalistic manner. - Item no. 8- is okay. IF it is something explicitly idolatrous and immoral, and manifestly prohibited by God. However, our 'intolerance' shall never be expressed in any offensive, violent ways. - Item no. 9- is okay. IF it is something illegal/ immoral and violent like burning churches and murdering Christians. However, no Christians should take the laws into own hands to do the	

			punishment, but let it be taken up by the judicial institution of the society concerned. And there should be no personal revenge/ punishment by Christians. We will leave all retribution to God as the ultimate Judge. - Item no. 10- is okay. IF it means JESUS CHRIST as the one and only God-given Lord and Savior for the whole human race. Apart from that, no matter in philosophy, theology or Biblical interpretation (not to mention other fields of knowledge like social and physical sciences), there are ample rooms for differences in interpretation. <u>Item of Quest:</u> - Item no 1 - NO; IF it means fundamental beliefs in Christ. - Item no 2- is okay. IF Existence here encompasses the cosmic, visible as well as invisible realms. - Item no 3- is okay , as implied in the statement above, only that Existence as mentioned in these questions is undefined and blur. - Item no 4- NO; Faith, Hope, and Love instead is the PATH of my spiritual journey, although doubts could be PARTS of my mundane, realistic and practical living. - Item no 5- is okay. BUT God has revealed Himself above all in and through Christ Jesus. - Item no 6- is okay, with the realization that humans are much limited in time and space to attain full knowledge of the	

		-includes of Catholic Bishops Conference of Malaysia, the Council of Churches of Malaysia and the National Evangelical Christian Fellowship.		

	Buddhism	Sukhi Hontu Pang Hock Huat Honorary General Secretary Buddhist Missionary Society Malaysia	- First of all, the opinion expressed is my <u>personal</u> view that Buddhist in general does not have this concept of GOD. - We worship as a mark of respect to our Ultimate Teacher the Lord BUDDHA and his teachings. - Whatever we do or practise is in accordance to his teachings. Therefore, in the context of your questionnaires relating to GOD may not be applicable from my understanding of Buddhism. - Generally, the questionnaires are appropriate <u>except</u> for Items 2 (Theistic Spirituality), 4 (Intrinsic religiosity) and certain parts of items 5 (Extrinsic Religiosity) & 6 (Religious Fundamentalism). Please note that I do not consider Lord Buddha as GOD nor Deities and Bodhisatvas who are highly compassionate beings in the higher realms of existence. - Please note that I belong to the school of Theravada Sect (the original teachings of the Buddha). There are many other Sects such as the Mahayana(Chinese), Zen(Japanese), Vjyarana (Tibetan) etc.	

5.		Dr. Alvin Ng Lai Oon, Diptych member of Buddhist Mental Health Association	- The word of 'rules'- Buddhism don't really have rules but more to guidelines. There's no fixed punishments for 'wrongdoing' due to belief in karma that is not based on a fixed rule. - The word of 'God' - May apply to Christianity, Islam, Judaism, Hinduism and other theistic religions but not Buddhism and Taoism, which don't mention or discuss a creator God in their tenets. So, this construct may not apply to a Buddhist or Taoist respondent. - The word of 'Pray' - Buddhist don't really pray. It's more of a self-reliant religion where followers look inwards at personal experiences for truth rather than to a creator God. So there's no actual fear of a God's punishment or disapproval, as the belief stems more from cause and effect of karma, where there's no fixed rule of consequences to actions.	
6.	Hinduism	Recommended by Prof Madya Dr. Siva	- All items are well planned & structured.	-sent the second email for
		(Senior Lecturer of Indian Studies in university Sains Malaysia) - a person who experts in Hinduism -Nathan		further clarifications (feedback and position in Hinduism Organizations)

		Hindu Sanggam Organizations	-	-sent emails to states representatives of Hindu Sanggam organizations. -there was no response.
				-Called Hindu Sanggam Kuala Lumpur – talked to executive secretary – they received emails but most of the leaders are on holiday until 6 th Jan 2012. -they asked to call again and give times till 10 th Jan 2012.
		Mamandram Organization	-	-sent emails to secretary, president,
				web master, information service of Mamandram organizations.

		Lembah Pantai Hindu youth Organization	-	-Called the admin of the organization but they asked to call again but there was no response after second attempts.
7.	Sikhim	Dr Jasbir Singh Secretary of Sikh	d) Would the item make sense to people within your religious community? e) Would they be able to answer it? f) Is the wording likely to be acceptable to them?	
		Naujawan Sabha Malaysia	I have gone through the questions and they make sense. They will not create inconvenience and our leaders will be able to answer them with ease	

Note: the responses from the religious leader and academicians were copied and compiled.

Appendix F

Responses from Religious Leaders in the United Kingdom

No.	Religion	Position	Comments	Actions
1.	Christian	Bill Clegg Emeritus Professor Chaplaincy and Staff Christian Group (Newcastle University) - local preacher recognized by the Baptist Union of Great Britain	g) Would the item make sense to people within your religious community? I have looked through your list of statements regarding spirituality and religiosity. In my opinion, most Christians I know would be able to understand what you are asking and could give an appropriate answer, subject to the points I make below; I am sure you would receive a range of answers from Christians of different traditions, backgrounds and experiences! I can not answer for those belonging to other faiths. h) Would they be able to answer it?	

			If you want a simple yes/no answer to each statement, and then I think you will be in difficulty. I myself, and I'm sure many others, would want to answer "it all depends...". In order to retain the style of your approach, I think you will need to offer a range of responses from "strongly agree" to "strongly disagree" - I would say a spectrum of 5 or 7 possibilities. In each case there should also be a neutral answer or perhaps you could call it a "non-answer" - something like "don't know" or "not applicable" or "not relevant". If you do it that way, you are likely to get more sensible and useful responses than asking for a simple yes/no. If I were asked to answer with yes/no, I reckon I would get quite frustrated and would give up, so you wouldn't get any answers at all. With a range of responses possible for each point, I would be prepared to have a go.	

			i) Is the wording likely to be acceptable to them?	
2.		Mia Fox -Catholic Chaplain -Newcastle University & Northumbria University	- It all looks good to me. - I am a non-ordained minister in the Catholic Church employed as a Chaplain but I am only speaking for myself and not my religion.	-Sent an email – for further clarifications. -still waiting for the response

3.	Jewish	Rabbi Ian D. Morris Sinai Synagogue	a) Would the item make sense to people within your religious community? b) Would they be able to answer it? c) Is the wording likely to be acceptable to them? - Speaking from my personal perspective as a Progressive Jew (but not speaking "for" Progressive Judaism...) - I don't think this instrument quite touches my relationship to Judaism. - I put it down feeling that it largely (but not totally... Eg. 6b) Assumed that "religiosity & spirituality" could only be defined in non-rationalist language and that there is no intersection between rational world views and religious world views. - I come from a position where I exist in that intersection, rather than squarely within one or the other. And, for the record, I regard that as a "Religious & Spiritual" position. - I fully accept, however, that my own personal insanities (ahem... I meant "belief systems"...) do not represent the totality of Jewish thinking, and that many (?most?) Jews would have no problem with the language you use. - My bottom line, then, is that I feel that the dimension of Progressive Modern religious streams are missing here, and that everything is couched in old style, traditionalist terms.	

4.	Islam	Mohammad Al-Moaily President of Newcastle University Islamic Society	<u>Item of Spirituality:</u> - All Items of Spiritually (PASSED) - Item no. 5 (I believe that ultimate truth cannot be expressed by words or concepts) - Comment: This item may need more explanation. If you mean, for instance, (words) confirming the existence and description of God, these are expressed (in words) in the Quran. - Item no. 7 (I believe that everything is connected) Comment: You may need to explain the connection... (e.g. connected to..) <u>Item of Theistic Spirituality:</u> Definition of Theistic Spirituality (.....This ultimate truth and reality is manifested in a deity or deities) - Comment: You may need to delete 'or deities' in the form to be sent to Muslims, as they believe in one God. - Item no. 9 (I believe that God is the only truth). Comment: Do you mean: (the God I worship is the only God worthy of worship?) because there are other unarguable truths, such as death. <u>Item of Religious Behavior</u> - Item of Religious Behavior---(PASSED). - <u>Item of Intrinsic Religiosity:</u> - Item of Intrinsic Religiosity---(PASSED) - Item no. 5 (I give money, time or goods to my religious community to do God's work).Comment: I suggest changing it to (to do things recommended by God). <u>Item of Extrinsic Religiosity:</u> - All items of Personal Context – PASSED Definition of Theistic Spirituality (.....This ultimate truth and reality is manifested in a deity or deities) - Comment: You may need to delete	

			'or deities' in the form to be sent to Muslims, as they believe in one God. - Item no. 9 (I believe that God is the only truth). Comment: Do you mean: (the God I worship is the only God worthy of worship?) because there are other unarguable truths, such as death. <u>Item of Religious Behavior</u> - Item of Religious Behavior---(PASSED). - <u>Item of Intrinsic Religiosity:</u> - Item of Intrinsic Religiosity---(PASSED) - Item no. 5 (I give money, time or goods to my religious community to do God's work).Comment: I suggest changing it to (to do things recommended by God). <u>Item of Extrinsic Religiosity:</u> - All items of Personal Context – PASSED <u>Item of Religious Fundamentalism:</u> - Item no. 1 (There is only one truth, and that is my religion). Comment: Do you mean: (the God I worship is the only God worthy of worship?) because there are other unarguable truths, such as death. <u>Item of Quest:</u> - All items of Quest – PASSED a) Would the item make sense to people within your religious community? With very few exceptions, all the items make sense (see the comments in the attached file) b) Would they be able to answer it? Hopefully yes.	

			I suggest adding a scale to some items. For example going to worship places (rarely-often-always)... c) Is the wording likely to be acceptable to them? Yes!	
5.	Hinduism	Krishna Temple Radha Mohan das Bhaktivedanta Manor Communications Secretary	Items of Spirituality Item no.5 We do not agree that "the ultimate truth cannot be expressed by words or concepts". Although the ultimate truth is certainly beyond our comprehension, the whole point of spiritual/religious practice is that the Truth can be accessed, including via words and concept <u>Items of Theistic Spirituality</u> Item no.10 I think it's a little pretentious to say that I have a personal relationship with God, Better to say that members are trying to develop it. <u>Items of Religious behaviour</u> I think you could add something like "I associate with other members of the same faith at social gatherings, meetings and at informal events" <u>Items of Intrinsic Religiosity</u> Item no. 9 Better to say that "I <i>endeavour/my goal</i> is to make everything in my life to be in union with God..." <u>Items of Extrinsic religiosity</u> Item no. 1	5.

			This doesn't apply so much to us because we should not pray for personal motives or materialistic things. Item no. 4 & 11 For us Krishna is not feared but only loved. However we do believe everyone is in some way accountable for their actions and a spiritual life will avoid 'bad karma' in the future, including in future lives. <u>Items of Family context and social context</u> These statements obviously will depend on individuals and their circumstances. <u>Items of Items of Religious fundamentalism</u> We would disagree with ALL the statements made here because the philosophy of our movement is non-sectarian. In this list we only agree with Item no. 4 and some would be ok with Item no. 7.	
6.	Buddhism	Reverend Sujatin Johnson is a chaplain with the Order of Amida Buddha.	-Buddhism is a non-theistic religion, therefore any sections or questions that refer to 'God' would not be relevant to Buddhists i.e. all of sections 2, 4, 5. -All of section 6a would be felt to be, at best - irrelevant and at worst - offensive.	-Sent third email through University Chaplaincy and Amida Newcastle (Gosforth) -called University Chaplaincy – no response
7.	Sikhism	Priest Sukhjinder Singh	-all items are applicable except the words of 'Meditate' and 'religious text' are not suitable	

Note: the responses from the religious leader and academicians were copied and compiled.

AppendixG

Responses from the Academicians both Malaysia and United Kingdom

No.	Academician	Comments on Face Validity	Comments on the Wording, Idioms, simplicity	Actions
1.	Dr. Mardiana Mohamad Assistant Professor Department of Psychology Kulliyah of Islamic Revealed Knowledge and Human Sciences International Islamic University Malaysia.	We would appreciate comments on the following: a) Does the item map onto the dimension it is listed under? Yes, but for the spirituality dimension, religion such as Islam would also emphasize faith or Iman in describing spirituality which is not covered here. For instance, strong belief in the existence of the Day of Judgement and Predestination (Qada' & Qadar) will definitely influence the way individuals live his life. b) Would the item be able to be answered by people from a range of religions or faith groups? I think so. But I hope you also refer this scale to Comparative Religions experts. c) Is the wording likely to be acceptable to people from a range of religions or faith groups? Ok. But be careful when you use the word 'fundamentalism'. It brings some negative ideas. Be cautious about social desirability or skewedness of results for certain culture and religions. Please check. d) If the item is unlikely to be suitable or if it could cause offense in a specific religion or faith group, please could you indicate which.	- Spirituality Item no. 5 - I believe that ultimate truth cannot be expressed by words or concepts. Certain religion e.g. Islam has a reference about the ultimate truth (Al Quran) - Spirituality Item no. 7 - I believe that everything is connected. (not clear)	

2.	Dr. Steven Eric Krauss @ Abd. Lateef Research Fellow Psychologist Institute for Social Science Studies (IPSAS) Universiti Putra Malaysia	- I have gone through the items and made comments. I think you're on the right track but I still have some problem with your intrinsic-personal-extrinsic scales. I still don't really understand the difference between them. <u>Item of Spirituality:</u> - Item no.2 (When I am in nature, I feel in touch with something greater than myself) Comment: Why only when in nature? I think you can delete this part. - Item no. 9 (I feel connected to something greater than myself) Comment: I think this is redundant with #2 <u>Item of Theistic Spirituality:</u> - Item no. 3 (I feel connected to God every time I spend time in nature) Comment: Again, not sure what the significance is of limiting it to when in nature only. - Item no. 4 (I desire to be in union with God) Comment: This language could be perceived as a bit too extreme for some. <u>Item of Religious Behavior</u> - Item no.7 (I go to religious places)	-You can change the intrinsic items to read something like this: a) I pray for God's sake alone without any expectation of reward. b) I visit sacred places for God's sake alone without any expectation of reward.etc. -I think this wording helps to differentiate between the intrinsic and personal extrinsic better than saying close to God.	

		Comment: Not sure what 'religious places' are. I think #6 is sufficient - Item no.9 (I follow the rules of my religion when I practice my religion)- Comment: Delete. #10 (I apply the rules of my religion in many aspects of my everyday life) is sufficient. - Item no. 11 (I observe and participate in the festivals of my religion) Comment: Consider changing this part to 'religious festivals' <u>Item of Intrinsic Religiosity:</u> - Definition of the construct (.....and so is an end unto itself) Comment: The items seem to have an end which is living closer to God. - Item no. 9 (Everything I do in my everyday life is to be in union with God) Comment: Again, this language could be problematic. <u>Item of Extrinsic Religiosity:</u> - Definition of the construct (..... outcomes) Comment: But isn't 'closeness to God' a positive outcome? The previous section all spoke about closeness to God. To me that is definitely a positive outcome. I don't see the difference		

		between the intrinsic section and the personal-extrinsic section. - Item no. 1 (I pray because I feel God answers my prayer). Comment: Is this not a manifestation of 'closeness to God?' Anything done for God's sake is an attempt to be closer to God in my opinion. - Item no.2 (I pray to avoid God's disapproval) Comment: People pray for different reasons/things. Some prayers are in the form of 'connection' or 'meditation', some are in the form of supplication. Both, however, can lead one to be closer to God as long as they are sincere in nature. So I don't see how these items are extrinsic in nature. - Item no.3 (I read sacred writings to find comfort) Comment: How is this extrinsic to oneself? Comfort is within... - Item no.5 (When I am in difficulty, I pray to God for aid) Comment: Again, I don't see the extrinsic nature of this item. - Item no. 12 (I go to religious place to please God) Comment: How is this different than the previous section? <u>Item of Family Context:</u> - All items of Family Context - Okay		

		<u>Item of Social Context:</u> - Item no. 5 (I practice my religion to get rewards or favours from my community). - Comment: Be careful of socially desirable responding with these items. <u>Item of Religious Fundamentalism:</u> - Item no. 2 (I believe that the rules in the sacred writings of my religion must be followed exactly). - Comment 1: I would remove this part. Comment 2: I would change this to 'literally'. Following rules does not make one a fundamentalist. - Item no. Point 3 (The teachings of my religion should not be questioned. - Comment: I would change this to 'should never be questioned' - Item no. 4 (I believe sacred writings of my religion are the word of God) - Comment: I don't agree that this necessarily makes one a fundamentalist. - Item no. 5 (A true believer never doubts the word of God)- Comment: I don't agree that this necessarily makes one a fundamentalist. - Item no. 8 Other religious points of view cannot be tolerated)		

		- Comment: I think this type of item captures the spirit of fundamentalism <u>Item of Quest:</u> - All items of Quest - Okay		
3.	Alvin Ng Lai Oon, DPsych -Associate Professor of Clinical Psychology in National University of Malaysia	- The word of 'rules'- Buddhism don't really have rules but more to guidelines. There's no fixed punishments for 'wrongdoing' due to belief in karma that is not based on a fixed rule. - the word of 'God' - May apply to Christianity, Islam, Judaism, Hinduism and other theistic religions but not Buddhism and Taoism, which don't mention or discuss a creator God in their tenets. - So this construct may not apply to a Buddhist or Taoist respondent.		

4.	Dr. Ramli Musa, Psychiatrist Associate Professor Islamic International University of Malaysia -Well acknowledged with psychological instruments	- It is quite challenging to draw a scale which well validated to various communities especially on religiosity. - At the beginning to validate on 2 major religions (Islam & Christian) will be a good starting effort. - Looking at the draft, the scale has the strength as it covers broad aspects of religiosity; fundamental, intrinsic, extrinsic, theistic, behaviour, etc. However I would like to suggest items should consist of both positive and negative statements. - With all positive statements it would make respondents to achieve correct scores without much understanding and effort. - The scoring should also has a wide Likert scale such as strongly agree, agree, unsure etc.		

5.	Dr. Saodah Wok -Associate Professor International Islamic University of Malaysia – Department of Islamic Revealed Knowledge and Human Sciences.	Religious Behaviour Limit to 10 best items for ease in data analysis Intrinsic Religiosity Limit to 10 best items for ease in data analysis Extrinsic Religiosity: Personal context Limit to 10 best items for ease in data analysis Items of Extrinsic Religiosity: Family & Social context - Add five more items to make it 10 for better reflection of the concept Religious Fundamentalism All are okay except item no. 8 –change to “Other religious points of view cannot be tolerated if they are against the teaching of my religion”. Item no. 10- change to “There is only one truth but subject to various interpretations provided they are not against the teaching of my religion” Quest Okay except for item 1 & 4 - add ‘for search of truth’. Add two more questions for consistency		

6.	Dr. Johannes Honekopp Northumbria University	-Extrinsic Religiosity Personal Item no. 3 -I read sacred writings to find comfort. Comment: Comfort does not strike me as extrinsic. Religious Fundamentalism Item no. 4 b- I believe sacred writings of my religion are the word of God. Comment: it does not strike me as being about Religious Fundamentalism. Probably all Christians I know would endorse this item, and I wouldn't consider any of them even close to Religious Fundamentalism. Just strikes me as part and parcel of all revealed religion.		
7.	Dr. Rob Waller Psychiatrist Mind & Soul Organization	See attachment Overall they all map onto the right constructs and applicable to all religions.		
8.	Dr. Daniel Nettle Reader in Institute of Neuroscience, Newcastle University.	"I have a strong sense of meaning in my life." Comment: I wonder if this is too general; there could be sources of meaning other than spirituality, e.g. political commitment, ambition, money, etc. "I believe in God" Comment: What about polytheistic religions? Should these items say 'God or Gods'? "I pray or meditate" Comment: There are traditions of meditation which are done purely for health reasons and which do not constitute religious behaviour. Maybe 'I pray or otherwise communicate with my God or gods' "I follow the rules of my religion when I practice my religion" Comment: I would delete the 'when I practice my religion'	-they all map onto the right dimension, and all are acceptable and usable for a wide number of groups.	

9.	Dr. Efstathia Tzemou Teaching Fellow School of psychology, Newcastle University.	-A general comment on the word of the word of God... (I am not sure how it is understood by people of religions of multiple deities) - "When I am in nature, I feel in touch with something greater than myself." - 'nature' - not sure - "I believe that some kind of force underlies the universe." - (this could be interpreted as natural force) the material', the universe, or instead of connected to God, the general connectedness, etc..) - Items of Extrinsic religiosity Personal - (When handed out to participants it would be not clear, for the intrinsic scale to follow the extrinsic. I have a fear that participants will play down extrinsic motives after having been reminded of intrinsic motives.) - Items of Extrinsic Religiosity Social & Family - (when it comes to the avoidance on negative consequences, I feel that more people will relate to the items if they are framed as threats. i.e. instead of '= 'I practice my religion to be accepted by my family.' Change to 'I practice my religion because if I do not, I will be rejected by my family'.		

10.	Dr. Nicolas Gibson Psychology of Religion	No response		
11.	Anthony Morgan Psychologist, Member of Newcastle Philosophical Society	No response		-

Note: the responses from the religious leader and academicians were copied and compiled.

Appendix H

Invitation letter for Internet Procedure (the UK and Malaysia samples)



- 1) Invitation letter to participate in the study in both samples (the UK and Malaysia) for internet procedure

Dear Sir/Madam,

I am a PhD student at Institute of Neuroscience, Newcastle University, United Kingdom. I am currently conducting a study and the main purpose of this study is to investigate how religion may affect one of ways that people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder (OCD) symptoms.

I would be very grateful if you could take 20 to 30 minutes to fill out a survey on this topic. You can either complete this survey through paper and pencil or through online. The survey is completely anonymous, however, and cannot be linked to you in any way.

If you are willing to help, please follow the link below.

If you choose to complete the survey through online, please follow this link.

http://nclpsych.eu.qualtrics.com/SE/?SID=SV_efEBgQfeX77o1us

OR

Sign the consent form provided and complete the questionnaires.

As for reward, you will be offered to enter prize draw, if you wish to participate, please provide an e-mail contact details in the column on the last page of this questionnaires. Your e-mail address will be kept separate from the rest of the information you provide.

We are trying to catch as wide of participant as possible for this study because it possibly offers a broader range of people, particularly a range of religious groups and cultures. Thus, I would appreciate if you could circulate this link to your members or organizations or mailing lists you are a member of that would be great!

Thank you for your attention.

Yours sincerely,

Siti Hzlina Alias
PhD Student Institute of Neuroscience,
Henry Wellcome Building Newcastle University, Framlington Place
Newcastle upon Tyne,
NE2 4HH.
Email: s.h.alias@ncl.ac.uk

- 2) Invitation letter to gatekeeper of targeted group or organization (Internet procedure)



Dear Sir/Madam,

Invitation to participate in the study

I am a PhD student at Newcastle University, United Kingdom. The main purpose of my study is to investigate how religion may affect one of ways that people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder (OCD) symptoms. This study together with future studies will help us understand similarities and differences in these processes in different religions and cultures.

Therefore, I would like to invite your members of group/organization to participate in this study. The reason why I choose your group/organization is because of their characteristics, particularly their religious affiliation and levels of religiosity, i.e., the extent to which they practice their religion. For your information, as well as your group/organization, I will be inviting people from other groups/organizations in the area with different interests and affiliations that so that across a range of groups, we can construct a diverse sample. The details of my study are below:

Title	: Religiosity and Thought Action Fusion (TAF) in
OCD Name of Supervisor	: Professor Mark Freeston
Name of Co-Supervisor	: Dr. Patrick Rosenkranz

Please find a copy of the information sheet attached. If you agree to circulate this information to your members to invite their participation, please reply to this email and I will provide you with an invitation to them that I would ask you to circulate on my behalf. Alternatively, I can provide you with the same letter on printed sheets for circulation by hand with the web link indicated.

People who are potentially interested in participating in the study will be guided to click an additional website link that contains the consent form. Once they have consented, participants who agree to participate in the study will be directed to a protected website that contains the questionnaires. Participants who wish may enter in a draw for a small financial reward

Participation involves completing six questionnaires that have been selected or developed so that they can provide the information required in as few questions as possible. The questionnaires are: 1) a short questionnaire asking about age, gender and education, 2) how they interpret their unwanted, upsetting thoughts that are experienced by almost everyone from time to time, 3) their religious affiliation and practices (if any), 4) obsessive-compulsive like behaviors, 5) their degree of identification with Malaysian or other cultures; and 6) their current experience of feelings of sadness, stress and anxiety. The time taken to complete the questionnaires will take between 20 and 40 minutes. Their answers will be confidential and they can decide at any time if they want to continue or to stop with no adverse consequences. This study is completely voluntary and if they decide not to take part, they are free to do so.

Any identifying information about your members of group/organization will be completely confidential and separated from the study data as explained in the attached information sheet. A debriefing web page will be provided to all participants after they complete all the questionnaires. The study (has/will have) received approval from the Newcastle University Ethics committee and National Medical Research of Malaysia committee and will be conducted under supervision.

I thank you for your cooperation. I have included my e-mail and address. I am planning to follow this letter up with an e-mail in the coming weeks, to assess interest and any further questions that you may have. Thank you for your attention.

Yours sincerely,

Siti Hazlina Alias

(MSc in Clinical Psychology, National University of Malaysia)

PhD Student

Institute of Neuroscience, Henry Wellcome Building
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.
Email address : s.h.alias@ncl.ac.uk

Enclosed:

1) Participant Information Sheet

Appendix I

Invitation letter to participate in the study in both samples (the UK and Malaysia) for Paper and pencil procedure

- 1) Invitation letter to head of department of College and University



To whom it may concern:

Dear Sir/Madam,

Invitation to students to participate in the study

I am a PhD student at Newcastle University. The main purpose of my study is to investigate how religion may affect one of ways that people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder (OCD) symptoms. This study together with future studies will help us understand similarities and differences in these processes in different religions and cultures.

I would like to invite your students to participate in this study. The reason why I choose your college is because it possibly offers a broader range of people, particularly a range of religious groups and cultures. Furthermore, young persons are often engaged in thought and reflection about thoughts. Therefore, we expect that students might suitable to be invited in this study. For your information, as well as your college/university, I will be inviting students from other colleges/universities in the local area that may possibly take part in this study. The details of my study are below:

Title	: Religiosity and Thought Action Fusion (TAF) in OCD
Name of Supervisor	: Professor Mark Freeston
Name of Co-Supervisor	: Dr. Patrick Rosenkranz

Participation involves completing six questionnaires that have been selected or developed so that they can provide the information required in as few questions as possible. The questionnaires are: 1) a short questionnaire asking about age, gender and education, 2) how they interpret their unwanted, upsetting thoughts that are experienced by almost everyone from time to time, 3) their religious affiliation and practices (if any), 4) obsessive-compulsive like

behaviors, 5) their degree of identification with Malaysian or other cultures; and 6) their current experience of feelings of sadness, stress and anxiety. The time taken to complete the questionnaires will take between 20 and 40 minutes. Their answers will be private and the students can decide at any time if they want to continue or to stop with no adverse consequences. The timing of the sessions will be carefully arranged with individual lecturers to minimize disruption to class activities. This study is completely voluntary and if your students decide not to take part, they are free to do so.

Any identifying information about your students will be completely confidential and separated from the study data as explained in the attached information sheet. A debriefing sheet will be provided to all participants. The study (has/will have) received approval from the Newcastle University Ethics committee and National Medical Research of Malaysia committee and will be conducted under supervision.

I have enclosed an information sheet with the details about the study that will be given to the potential participants. Please feel free to read this information sheet and contact me if you would like to know any further information. In addition, I have provided a copy of opt-in form for students.

I thank you for your cooperation. I have included my e-mail and address. I am planning to follow this letter up with a phone call in the coming weeks, to assess interest and any questions that you may have. Thank you for your attention.

Yours sincerely,

Siti Hazlina Alias

(MSc in Clinical Psychology, National University of Malaysia)

PhD Student

Institute of Neuroscience, Henry Wellcome Building
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.
Email address : s.h.alias@ncl.ac.uk

Enclosed :

- a) Participant Information Sheet
- b) A copy of participant consent form (Individual opt-in)

- 2) Invitation letter to gatekeeper of university (Internet based procedure)



To whom it may concern:

Dear Sir/Madam,

Invitation to students to participate in the study

I am a PhD student at Newcastle University. The main purpose of my study is to investigate how religion may affect one of ways that people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder (OCD) symptoms. This study together with future studies will help us understand similarities and differences in these processes in different religions and cultures.

Therefore, I would like to invite your members of university communities to participate in this study. The reason why I choose your university because it offers broader range of people such as diverse religious groups and cultures, different age groups, levels of education, etc. For your information, as well as your university, I will be inviting people from other universities in the local area that may possibly take part in this study. The details of my study are below:

Title	: Religiosity and Thought Action Fusion (TAF) in OCD
Name of Supervisor	: Professor Mark Freeston
Name of Co-Supervisor	: Dr. Patrick Rosenkranz

Please find a copy of the information sheet attached. If you agree to circulate this information to your members of university communities to invite their participation, please reply to this email and I will provide you with an invitation to them that I would ask you to circulate on my behalf. Alternatively, I can provide you with the same letter on printed sheets for circulation by hand with the web link indicated.

People who are potentially interested in participating in the study will be guided to click an additional website link that contains the consent form. Once they have consented, participants who agree to participate in the study will be directed to a protected website that contains the questionnaires. Participants who wish may enter in a draw for a small financial reward.

Participation involves completing six questionnaires that have been selected or developed so that they can provide the information required in as few questions as possible. The questionnaires are: 1) a short questionnaire asking about age, gender and education, 2) how they interpret their unwanted, upsetting thoughts that are experienced by almost everyone from time to time, 3) their religious affiliation and practices (if any), 4) obsessive-compulsive like behaviors, 5) their degree of identification with Malaysian or other cultures; and 6) their current experience of feelings of sadness, stress and anxiety. The time taken to complete the questionnaires will take between 20 and 40 minutes. Their answers will be confidential and they can decide at any time if they want to continue or to stop with no adverse consequences. This study is completely voluntary and if they decide not to take part, they are free to do so.

Any identifying information about your members of university communities will be completely confidential and separated from the study data as explained in the attached information sheet. A debriefing web page will be provided to all participants after they complete all the questionnaires. The study (has/will have) received approval from the Newcastle University Ethics committee and National Medical Research of Malaysia committee and will be conducted under supervision.

I thank you for your cooperation. I have included my e-mail and address. I am planning to follow this letter up with an e-mail in the coming weeks, to assess interest and any further questions that you may have. Thank you for your attention.

Yours sincerely,

Siti Hazlina Alias

(MSc in Clinical Psychology, National University of Malaysia)

PhD Student

Institute of Neuroscience, Henry Wellcome Building
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.
Email address : s.h.alias@ncl.ac.uk

Enclosed:

1) Participant Information Sheet

2) Invitation letter to gatekeeper of targeted group or organization (Internet based procedure)



To whom it may concern:

Dear Sir/Madam,

Invitation to participate in the study

I am a PhD student at Newcastle University, United Kingdom. The main purpose of my study is to investigate how religion may affect one of ways that people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder (OCD) symptoms. This study together with future studies will help us understand similarities and differences in these processes in different religions and cultures.

Therefore, I would like to invite your members of group/organization to participate in this study. The reason why I choose your group/organization is because of their characteristics, particularly their religious affiliation and levels of religiosity, i.e., the extent to which they practice their religion. For your information, as well as your group/organization, I will be inviting people from other groups/organizations in the area with different interests and affiliations that so that across a range of groups, we can construct a diverse sample. The details of my study are below:

Title	: <i>Religiosity and Thought Action Fusion (TAF) in OCD</i>
Name of Supervisor	: <i>Professor Mark Freeston</i>
Name of Co-Supervisor	: <i>Dr. Patrick Rosenkranz</i>

Please find a copy of the information sheet attached. If you agree to circulate this information to your members to invite their participation, please reply to this email and I will provide you with an invitation to them that I would ask you to circulate on my behalf. Alternatively, I can provide you with the same letter on printed sheets for circulation by hand with the web link indicated.

People who are potentially interested in participating in the study will be guided to click an additional website link that contains the consent form. Once they have consented, participants who agree to participate in the study will be directed to a protected website that contains the questionnaires. Participants who wish may enter in a draw for a small financial reward.

Participation involves completing six questionnaires that have been selected or developed so that they can provide the information required in as few questions as possible. The questionnaires are: 1) a short questionnaire asking about age, gender and education, 2) how they interpret their unwanted, upsetting thoughts that are experienced by almost everyone from time to time, 3) their religious affiliation and practices (if any), 4) obsessive-compulsive like behaviors, 5) their degree of identification with Malaysian or other cultures; and 6) their current experience of feelings of sadness, stress and anxiety. The time taken to complete the questionnaires will take between 20 and 40 minutes. Their answers will be confidential and they can decide at any time if they want to continue or to stop with no adverse consequences. This study is completely voluntary and if they decide not to take part, they are free to do so.

Any identifying information about your members of group/organization will be completely confidential and separated from the study data as explained in the attached information sheet. A debriefing web page will be provided to all participants after they complete all the questionnaires. The study (has/will have) received approval from the Newcastle University Ethics committee and National Medical Research of Malaysia committee and will be conducted under supervision.

I thank you for your cooperation. I have included my e-mail and address. I am planning to follow this letter up with an e-mail in the coming weeks, to assess interest and any further questions that you may have. Thank you for your attention.

Yours sincerely,

Siti Hazlina Alias

(MSc in Clinical Psychology, National University of Malaysia)

PhD Student

Institute of Neuroscience, Henry Wellcome Building
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.

Email address : s.h.alias@ncl.ac.uk

Enclosed:

1) Participant Information Sheet

Appendix J

A set of questionnaires includes Participant Consent Form and Debriefing Sheet for the UK study both internet and paper and pencil procedures.

Participant Consent Form



Title of study: Religiosity and Thought Action Fusion in Obsessive Compulsive Disorder

Name of Researcher : Siti Hazlina Alias

Participant Information Number: _____

College/University: _____

PLEASE FILL OUT ALL OF THIS SHEET YOURSELF. PLEASE READ THE FOLLOWING STATEMENTS. TICK EACH BOX TO SHOW THAT YOU UNDERSTAND AND CONSENT TO EACH STATEMENT. SIGN YOUR NAME BELOW ONLY IF YOU AGREE TO TAKE PART AND YOU FULLY UNDERSTAND YOUR RIGHTS. YOUR SIGNATURE IS REQUIRED TO TAKE PART.

	Yes	No
1. I confirm that I have read and understood the information about the study.	☐	☐
2. I confirm that I have been given the opportunity to ask questions.	☐	☐

3. I confirm that I have been given the opportunity to discuss this with my parents if I wish.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
4. I confirm that I have had enough time to decide whether I want to take part in this study.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
5. I understand that this study has been reviewed by and approved by the Newcastle University Research Ethics Committee and National Medical Research of Ethic Committee in Malaysia.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
6. I understand that I am free to take part. I am also free to stop at any time without giving reasons. If I stop me studies will not be affected.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
7. I have been given the contact details of the researcher and other organizations.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
	Yes No
8. I confirm that confidentiality has been clearly explained to me (e.g. my name won't be used, etc.).	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
9. I confirm that the use of the information I provide has been clearly explained to me (e.g. the results will be shared with other researcher)	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
10. I understand that I can contact the researcher if I am upset by the study. I can contact the researcher if I would like to have more information.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>
11. I agree to take part in the study.	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/>

Signature of Participants

Date

Participant Information Sheet



Title of study:

Religiosity and Thought Action Fusion (TAF) in Obsessive Compulsive Disorder (OCD)

You are invited to take part in this study. Before you decide it is important for you to understand why the study is being done and what it will involve. Please take time to read the following information carefully. Please discuss it with your parents if you wish to do so. Please ask us if it is not clear. Please take time to decide whether or not you wish to take part.

WHAT IS THE PURPOSE OF THIS STUDY?

The main purpose of this study is to find out how religion may affect how people make sense of unwanted thoughts that pop into their minds. These thoughts are like those in Obsessive Compulsive Disorder (OCD).

We are only interested in investigating how these things are related to one another. We are NOT interested in any specific individual.

WHAT IS OBSESSIVE COMPULSIVE DISORDER?

OCD is an anxiety disorder. People with OCD may have obsessions, compulsions or more commonly both. Obsessions are thoughts or ideas that come into their mind even when they do not want them. Common themes are a fear of germs or a fear about harming others. These thoughts often feel inappropriate or unpleasant. Compulsions are behaviours that people feel they have to do, even when they do not want to. Examples include washing hands, cleaning, checking and etc. The reason for doing them is to prevent or to reduce the anxiety or distress related to obsessions. Often people try to stop themselves from doing these things. However, they may feel frustrated or worried unless they can perform that behaviour.

Many people in the general population have some similar thoughts and behaviours. These do not cause distress or get in the way of everyday life. But, when someone's obsessions and compulsions get in the way of some aspect of everyday life, we would then say that they have OCD.

WHY IS THIS STUDY IMPORTANT?

The causes of OCD are unknown. However, research suggests that the way of people make sense of their thoughts may be important. Religious beliefs may mean that people make sense of their thoughts in a particular way. Some studies have looked at the link between religion and OCD. Others have looked at how people make sense of their thoughts and OCD. Few studies have looked at both at the same time. It is also important to look at a range of religious beliefs. This study will help us understand more about this important aspect of OCD.

DOES THIS STUDY HAVE ETHICAL APPROVAL?

Yes, the Ethics Committee of Newcastle University has approved this study.

WHY I HAVE BEEN CHOSEN?

You may be wondering why you have been chosen to take part in this study. We know that people who do not have OCD can help us understand it. This is because the thoughts and behaviours vary from none at all, to a little bit, to a bit more and, in a few cases, to a lot. This means that similar thoughts and behaviours occur in people who do not have OCD. For example, many people can have the thought “I may have left the oven on”. This can lead to checking the oven is off to keep things safe. These are similar to the types of thoughts and behaviours in OCD. So, people who do not have OCD can help us understand because of the similarities.

WHAT WILL HAPPEN IF I DO NOT WANT TO CARRY ON WITH THE STUDY?

Taking part in this study is entirely voluntary. You can stop at any time. You don’t have to give a reason. Nothing will happen if you stop. If you do stop, we will not use your answers.

WHAT WILL I HAVE TO DO?

- a) If you decide that you would like to take part, you will be asked to complete six questionnaires.
 - 1. A short questionnaire asking about your age, gender and education,
 - 2. One asking you how you make sense of your unwanted, upsetting thoughts,
 - 3. One about your religious beliefs and practices,
 - 4. One about obsessive-compulsive like behaviours,
 - 5. One asking you how much you identify with British or other cultures and
 - 6. One asking you about feelings of sadness, stress and anxiety.

The time taken to complete the questionnaires will take between 20 and 40 minutes.

- b) If you don’t want to take part in this study, you do not have to give any reason.
- c) If you change your mind, tell us that you have done so.

WHAT ARE THE BENEFITS OF TAKING PART?

There are no direct benefits to you. You can have the satisfaction of helping us understand OCD better.

WHAT ARE THE POSSIBLE RISKS?

- a) There are no serious risks.
- b) When (filling out questionnaires) you might come across a question that you find unpleasant, or upsetting. For instance, some of the questions may cause you to think about how upset you are feeling.
- c) You may feel that you have performed poorly on a test. It is important to note that for all questionnaires that we are asking, there are no right or wrong answers. Therefore, you do not need to worry about your performance.
- d) You will be asked to provide some confidential information about yourself.

WHAT WILL HAPPEN IF I BECOME UPSET?

It is unlikely that you will feel upset or embarrassed. But, if you have any questions, a researcher will answer them and respond to any concerns. If you do get upset, or if the questionnaires make you think about things you would like to discuss further, we will give you a telephone contact and email address. This will direct you to appropriate sources of further help. We can also provide you with links to different organizations for more information.

CONFIDENTIALITY

All the information you give us will be confidential and anonymous. It will only be used for research purposes. All the consent forms will be kept separate from the questionnaires. They will be stored separately in locked cabinets. The information will also be stored securely on a computer and can only be accessed by the research team.

WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?

The results of the study will be written up for a University exam. The results will also be shared with other researchers and people interested in OCD at scientific meetings and in scientific journals. The information we collect from all the people taking part will be combined together, and it will not be possible to identify any particular person.

CONTACT INFORMATION

We hope you are able and willing to take part in our study. If you have any questions, please contact the researcher at the following address:

Many thanks for your interest in this study.

Siti Hazlina Alias

PhD Student

Institute of Neuroscience, Henry Wellcome Building
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.

Email address : s.h.alias@ncl.ac.uk

Under the supervision of:

Prof Mark Freeston: Professor of Clinical Psychology, Newcastle University

Dr Patrick Rosenkranz: Lecturer, School of Psychology, Newcastle University

Thank you for taking the time to read this information sheet.

DEMOGRAPHIC DATA

Please read the questions below and answer each of them (writes the answers or tick the appropriate box).

College/University/Workplace:

1. Participation Number:

2. **What is your age?**

3. What is your gender

Male

Male	
Female	

4. What is your education level?

Less than high school		Other vocational / work-related qualifications	
High school diploma		Foreign qualifications	
Bachelor's degree		Professional qualifications (for example teaching, nursing, accountancy)	
Master's degree			
Doctoral			

5. What is your religion?

No religion		Islam	
Christian (including Church of England, Catholic, Protestant and all other Christian denominations)		Jewish	
Buddhism		Sikhism	
Hinduism			
Any other religion, write in			

6. What is your ethnic group?

A.	White	D.	Black/ African/ Caribbean/ Black British
	English/Welsh/Scottish/Northern Irish/British		African
	Irish		Caribbean
	Gypsy or Irish Traveler		Any other Black / African / Caribbean background, write in _____
	Any other White background, write in _____		
B.	Mixed / multiple ethnic groups	E.	Other ethnic group
	White and Black Caribbean		Arab
	White and Black African		Any other ethnic group, write in _____
	White and Asian		
	Any other Mixed / multiple ethnic background, write in _____		
C.	Asian / Asian British		
	Indian		

	Pakistani	
	Bangladeshi	
	Chinese	
	Any other Asian background, write in _____	

STUDENT THOUGHT ACTION FUSION QUESTIONNAIRE (STAF-Q)

Please read each of the following statements carefully and rate how much you agree or disagree with each of them. Please circle one of the numbers to the right of each question to indicate your degree of agreement or disagreement.

The rating scale is as follows:

Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
0	1	2	3	4

1.	If I wish harm on someone it is almost as bad as doing harm.	0	1	2	3	4
2.	Suddenly without any reason you have the thought that you will be hit by a car. Having this thought increases the risk that you will be hit by a car.	0	1	2	3	4
3.	Thinking of making an extremely critical remark to a friend is almost as unacceptable to me as actually saying it.	0	1	2	3	4
4.	Suddenly without any reason you have the thought that you are going to jump in front of a train/car/bus. Having this thought increases the risk that you will jump in front of a train/car/bus.	0	1	2	3	4
5.	Suddenly without any reason you have the thought that others will say bad things about you behind your back. Having this thought increases the risk that others will say bad things about you behind your back.	0	1	2	3	4
6.	Having a blasphemous thought is almost as sinful as a blasphemous action.	0	1	2	3	4
7.	Suddenly without any reason you have the thought you have caught a very rare and potentially lethal tropical disease. Having this thought increases the risk that you will catch this rare tropical disease.	0	1	2	3	4
8.	Thinking about swearing at someone else is almost as unacceptable to me as actually swearing.	0	1	2	3	4
9.	Suddenly without any reason you have the thought that you are going to hurt yourself with a sharp or burning object. Having this thought increases the risk that you will hurt yourself with a sharp or burning object.	0	1	2	3	4
10.	Having violent thoughts is almost as unacceptable to me as violent acts.	0	1	2	3	4

11.	Suddenly without any reason you have the thought that your father loses his job and that there are financial problems at home. Having this thought increases the risk that your father really will lose his job.	0	1	2	3	4
12.	If I think about making an obscene gesture to someone else, it is almost as bad as doing it.	0	1	2	3	4
13.	Suddenly without any reason you have the thought that you are going to say something really insulting to a teacher. Having this thought increases the risk that you will say something insulting to a teacher.	0	1	2	3	4
14.	Suddenly without any reason you have the thought that your friend being in a car accident. Having this thought increases the risk that your friend really will have a car accident.	0	1	2	3	4
15.	If I have a jealous thought it is almost the same as making a jealous remark.	0	1	2	3	4
16.	Suddenly without any reason you have the thought that your mother is dying. Having this thought increases the risk that your mother really is going to die sometime soon.	0	1	2	3	4
17.	Suddenly without any reason you have the thought that you are going to tell a lie about someone. Having this thought increases the risk that you will tell a lie about someone.	0	1	2	3	4
18.	It is possible for me to cause something bad to happen to other people just by thinking about it.	0	1	2	3	4
19.	Thinking of cheating in a personal relationship is almost as immoral to me as actually cheating.	0	1	2	3	4
20.	Suddenly without any reason you have the thought that you are going to be robbed. Having this thought increases the risk that you will be robbed.	0	1	2	3	4

OBSESSIVE-COMPULSIVE INVENTORY– SHORT VERSION (OCI-SV)

The following statements refer to experiences that many people in their everyday lives. Circle the number that best describes HOW MUCH that experience has DISTRESSED or BOTHERED you during the PAST MONTH. The numbers refer to the following verbal labels:

0 = Not at all 1 = A little 2 = Moderately 3 = A lot 4 = Extremely

1.	I have saved up so many things that they get in the	0	1	2	3	4
2.	I check things more often than necessary	0	1	2	3	4
3.	I get upset if objects are not arranged properly	0	1	2	3	4
4.	I feel compelled to count while I am doing things	0	1	2	3	4
5.	I find it difficult to touch an object when I know it has been touched by strangers or certain people.	0	1	2	3	4
6.	I find it difficult to control my own thoughts.	0	1	2	3	4
7.	I collect things I don't need.	0	1	2	3	4
8.	I repeatedly check doors, windows, drawers, etc.	0	1	2	3	4
9.	I get upset if others change the way I have arranged things.	0	1	2	3	4
10.	I feel I have to repeat certain numbers.	0	1	2	3	4
11.	I sometimes have to wash or clean myself simply because I feel contaminated.	0	1	2	3	4
12.	I am upset by unpleasant thoughts that come into my mind against my will.	0	1	2	3	4
13.	I avoid throwing things away because I am afraid I might need them later.	0	1	2	3	4
14.	I repeatedly check gas and water taps and light switches after turning them off.	0	1	2	3	4
15.	I need things to be arranged in a particular order.	0	1	2	3	4
16.	I feel that there are good and bad numbers.	0	1	2	3	4
17.	I wash my hands more often and longer than necessary.	0	1	2	3	4
18.	I frequently get nasty thoughts and have difficulty in getting rid of them.	0	1	2	3	4
19.	Unpleasant thoughts come into my mind against my will and I cannot get rid of them.	0	1	2	3	4

20.	I have thoughts of hurting someone and not knowing it.	0	1	2	3	4
21.	I have thoughts I might want to harm myself or others.	0	1	2	3	4
22.	I am afraid of impulsivity doing embarrassing or harmful things.	0	1	2	3	4
23.	I get upset at the sight of knives, scissors and other sharp objects in case I lose control with them.	0	1	2	3	4

VANCOUVER INDEX OF ACCULTURATION REVISED (VIA-R)

Please answer each question carefully as possible by circling one of the numbers to the below of each question to indicate your degree of agreement or disagreement.

Many of these questions will refer to your heritage culture, meaning the culture that has influenced you most (other than British culture). It may be the culture of your birth, the culture in which you have been raised, or another culture that forms part of your background.

If you do not feel that you have been influenced by any other culture, please try to identify a culture that may have had an impact on previous generations of your family.

Please write your heritage culture in the space provide. (_____)

Use the following key to help guide your answers.

1 2 3 4 5 6 7 8 9

I often participate in my heritage cultural traditions

Strongly Disagree		Disagree		Neutral/Depend		AgreStrongly Agree	
1	2	3	4	5	6	7	8 9

I often participate in mainstream British cultural traditions

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I would be willing to marry a person from my heritage culture.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I would be willing to marry a British person.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I enjoy social activities with people from the same heritage culture as myself.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I enjoy social activities with typical British.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I am comfortable working with people of the same heritage culture as myself.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I am comfortable working typical British people.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I enjoy entertainment (e.g., movies, music) from the heritage culture.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I enjoy British entertainment (e.g., movies, music).

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I often behave in ways that are typical of my heritage culture.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I often behave in ways that are ‘typically British’

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

It is important for me to maintain or develop the practices of my heritage culture.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

It is important for me to maintain or develop British cultural practices.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I believe in the values of my heritage culture.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree

1 2 3 4 5 6 7 8 9

I believe in mainstream British values.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I enjoy the jokes and humour of my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I enjoy typical British jokes and humour.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I am interested in having friends from my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I am interested in having British friends.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

DEPRESSION, ANXIETY, STRESS SCALE (DASS-21)

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There is no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0	Did not apply to me at all
1	Applied to me to some degree, or some of the time
2	Applied to me to a considerable degree, or a good part of time
3	Applied to me very much, or most of the time

1.	I found it hard to wind down.	
2.	I was aware of dryness of my mouth.	
3.	I couldn't seem to experience any positive feeling at all.	
4.	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	
5.	I found it difficult to work up the initiative to do things.	
6.	I tended to over-react to situations.	
7.	I experienced trembling (e.g., in the hands).	
8.	I felt that I was using a lot of nervous energy	
9.	I was worried about situations in which I might panic and make a fool of myself.	
10.	I felt that I had nothing to look forward to	
11.	I found myself getting agitated	
12.	I found it difficult to relax.	
13.	I felt down-hearted and blue	
14.	I was intolerant of anything that kept me from getting on with what I was doing.	
15.	I felt I was close to panic.	
16.	I was unable to become enthusiastic about anything.	
17.	I felt I wasn't worth much as a person.	
18.	I felt that I was rather touchy.	
19.	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	
20.	I felt scared without any good reason.	
21.	I felt that life was meaningless.	

NEWCASTLE SCALE OF RELIGION AND SPIRITUALITY

This questionnaire is addressed to people of different faiths.

For the purposes of this questionnaire by God we mean, the one God, the Gods, or the Being that you believe in.

If you wish, please tell us to whom you will be referring when answering this questionnaire:

.....

For Questions 1-11

For each statement, please circle the number that best describes your usual religious practice.

Interpret the scale numbers as shown below:

1	2	3	4	5
Never	Occasionally/a few year or less	Monthly	Weekly	Daily or More

1.	I pray or meditate.	1	2	3	4	5
2.	I take part in worship or religious rituals.	1	2	3	4	5
3.	I spend time reflecting on aspects of my religion	1	2	3	4	5
4.	I give money, time or goods to my religious community or to causes that it supports	1	2	3	4	5
5.	I read religious texts or writings.	1	2	3	4	5
6.	I make a special effort to visit sacred places (pilgrimage	1	2	3	4	5
7.	I go to religious places.	1	2	3	4	5
8.	I take part in religious study.	1	2	3	4	5
10.	I practice my religion according to its rule.	1	2	3	4	5
11.	I am guided by my religion in many aspects of my everyday life.	1	2	3	4	5
12.	I observe and participate in the festivals of my religion.	1	2	3	4	5
1.	I pray or meditate.	1	2	3	4	5

For Questions 13-82

For each statement, please circle the number that best indicates how much you agree or Disagree

Interpret the scale numbers as shown below:

1	2	3	4	5
Strongly	Slightly	Neither Agree	Slightly	Strongly
Disagree	Disagree	Nor Disagree	Agree	Agree

12.	I believe that there is a purpose to the universe.	1	2	3	4	5
13.	When I am in nature, I feel in touch with something greater than myself.	1	2	3	4	5
14.	I believe that some kind of force underlies the universe.	1	2	3	4	5
15.	I believe that something exists beyond our natural perception or senses.	1	2	3	4	5
16.	I believe that ultimate truth cannot be fully expressed by words or concepts.	1	2	3	4	5
17.	I believe an ultimate truth to the universe can be found.	1	2	3	4	5
18.	I believe that everything is connected.	1	2	3	4	5
19.	I have a strong sense of meaning in my life.	1	2	3	4	5
20.	I feel connected to something greater than myself.	1	2	3	4	5
21.	I believe in a spiritual realm beyond the material universe.	1	2	3	4	5
22.	I believe in God.	1	2	3	4	5
23.	I believe God gives purpose to my life.	1	2	3	4	5
24.	I feel connected to God every time I spend time in nature.	1	2	3	4	5
25.	I desire to be in union with God.	1	2	3	4	5
26.	I believe I can connect with God in many ways.	1	2	3	4	5
27.	I believe God is everywhere.	1	2	3	4	5
28.	I believe God watches over me.	1	2	3	4	5
29.	I believe that God gives meaning to my life.	1	2	3	4	5
30.	I believe that God is the ultimate truth.	1	2	3	4	5
31.	I have a personal relationship with God.	1	2	3	4	5
32.	I pray or meditate to feel connected with God.					

33.	I take part in worship to feel connected with God.					
34.	I go to religious places to feel closer to God.					
35.	I spend time reflecting on aspects of my religion to be closer to God.					
36.	I give money, time or goods to my religious community to do God's work.					
37.	I follow the rules of my religion because that is God's will.					
38.	I read religious texts to be closer to God.	1	2	3	4	5
39.	I take part in religious study to feel connected with God.	1	2	3	4	5
40.	Everything I do in my everyday life is to seek union with God.	1	2	3	4	5
41.	I make a special effort to visit sacred places (pilgrimage) to be closer to God.	1	2	3	4	5
42.	I observe and participate in the festivals of my religion to be closer to God.	1	2	3	4	5
43.	I pray because I feel God answers my prayer.	1	2	3	4	5
44.	I pray to avoid God's disapproval.	1	2	3	4	5
45.	I read sacred writings to find comfort.	1	2	3	4	5
46.	I follow the rules of my religion to avoid God's punishment/bad Karma.	1	2	3	4	5
47.	When I am in difficulty, I pray to God for aid.	1	2	3	4	5
48.	I make special efforts to visit sacred places (pilgrimage), so God will reward me.	1	2	3	4	5
49.	I give money, time or goods to my religious community because God will approve of me.	1	2	3	4	5
50.	I take part in religious study as I know God will approve of me.	1	2	3	4	5
51.	I observe and participate in the festivals of my religion, so God will look favourably on me	1	2	3	4	5

52.	I seek comfort in following rules of my religion.	1	2	3	4	5
53.	I take part in worship or religious rituals to avoid God's displeasure/bad Karma.	1	2	3	4	5
54.	I go to religious places to please God.	1	2	3	4	5
55.	I practice my religion to be accepted by my family.	1	2	3	4	5
56.	I practice my religion because if I do not, my family will disapprove me.	1	2	3	4	5
57.	I practice my religion to feel closer to my family.	1	2	3	4	5
58.	I practice my religion to show respect to my family.	1	2	3	4	5
59.	I practice my religion to get rewards or favours from my family.	1	2	3	4	5
60.	I practice my religion to be accepted by my community.	1	2	3	4	5
61.	I practice my religion because if I do not my community will disapprove me.	1	2	3	4	5
62.	I practice my religion to feel closer to my community.	1	2	3	4	5
63.	I practice my religion to show respect to my community.	1	2	3	4	5
64.	I practice my religion to get rewards or favours from my community.	1	2	3	4	5
65.	There is only one truth, and that is my religion	1	2	3	4	5
66.	I believe that the rules in the sacred writings of my religion must be followed exactly.	1	2	3	4	5
67.	The teachings of my religion should never be questioned.	1	2	3	4	5
68.	I believe sacred writings of my religion are the only true word of God.	1	2	3	4	5
69.	A true believer never doubts the word of God.	1	2	3	4	5

70.	Defending my religion at all costs is my sacred duty.	1	2	3	4	5
71.	I must always follow the guidance of my religious leaders without question.	1	2	3	4	5
72.	Other religious points of view cannot be tolerated.	1	2	3	4	5
73.	Those who offend my religion should be punished.	1	2	3	4	5
74.	My religion holds the ultimate truth and there is no room for interpretation.	1	2	3	4	5
75.	I often question my beliefs.	1	2	3	4	5
76.	I believe that one should never stop searching for the truth about existence.	1	2	3	4	5
77.	Understanding existence is a whole life's journey.	1	2	3	4	5
78.	Doubt is part of my spiritual journey.	1	2	3	4	5
79.	There may be many ways to find the truth about existence.	1	2	3	4	5
80.	I question my understanding of the spiritual realms.	1	2	3	4	5
81.	I constantly try to find the purpose to this universe	1	2	3	4	5
82.	Doubt is part of my search for truth.	1	2	3	4	5

Debriefing sheet



Title of study:

Religiosity and Thought Action Fusion (TAF) in Obsessive Compulsive Disorder (OCD)

I greatly appreciate your contribution by taking part in this study. Your participation in this study will help us understand the nature of Obsessive Compulsive Disorder and its relationship to intrusive thoughts, beliefs about thoughts and some aspects of religion. The following provides further information on the study. Although some information was given before, if we had provided too much it may have influenced the answers that you gave. However, it is a responsibility of researcher to inform people about the study they participated in.

WHAT WAS INVESTIGATED?

The study investigated how religion may affect how people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder OCD, a form of anxiety that affects 1-2% of the population.

This study asked members of the general population in the Malaysia from a range of backgrounds to complete six questionnaires about, 1) a short questionnaire asking about age, gender and education (Demographic Data) 2) how they interpret their unwanted, upsetting thoughts (The Student Thought-Action Fusion Questionnaire (STAF-Q)), 3) their religious affiliation and practices (Religiosity and Spirituality Scale, 4) obsessive-compulsive like behaviours (The Obsessive Compulsive Inventory-Short Version (OCI-SV)), 5) their degree of identification with Malaysian or other cultures (Vancouver Index of Acculturation Revised (VIA-R)); and 6) their current experience of feelings of sadness, stress and anxiety (Depression, Anxiety, Stress Scale (DASS-21)).

WHY WAS I CHOSEN?

Previous studies have shown that people who do not have OCD are appropriate for studying various aspects of it because they may have similar thoughts and behaviours. A few people will have none at all; many will have a little bit, some a bit more, and in a few cases a lot. When people have a lot and this causes upset or distress, then we may consider this to be OCD. This means that many features OCD occur in people who do not have the condition. Thus, people who do not have OCD but who share some of the thoughts and behaviours can help to improve our understanding of this condition because the same processes are involved.

WHAT WE WILL DO WITH THE INFORMATION YOU PROVIDED?

The information that you provided will be held confidentially and anonymously. We will put the information from a number of different groups of people together so we will have a wider range of different experiences. The information will then be analysed as a group to look at the relationship between religion, ways of thinking, and OCD-like behaviours. All the consent forms and any participant identifying information will be separated from the questionnaires and will be stored in locked cabinets. All the digital information will be stored electronically on a specific server that will be protected with a password and only accessible to the research team.

CONTACT DETAILS OF MAIN RESEARCHER.

If you have further questions regarding the study, please contact main researcher on the details provided below.

Siti Hazlina Alias

PhD in Clinical Psychology Institute
of Neuroscience Henry Wellcome
Building

University of Newcastle Upon Tyne Email:
s.h.alias@ncl.ac.uk

CONTACT FOR FURTHER INFORMATION

If you have any further questions or enquiries, these are links to websites that contain helpful information

- A national OCD charity:
www.ocdaction.org.uk
- NHS advice about obsessive-compulsive disorder:
<http://guidance.nice.org.uk/CG31/PublicInfo/pdf/English>
- Malaysian Society of Clinical Psychology
mscp.info@gmail.com
- Malaysian Psychiatric Association
<http://www.psychiatry-malaysia.org/article.php?aid=1182>

If you want to discuss further, or have concerns about what you have read, please contact your General Practitioner*. They will be able to refer you to appropriate help.

** Depending where participants are recruited, other contacts may be added such as school counsellors, student wellbeing services, etc.*

Thank you very much for your participation.

Appendix K

A set of Questionnaires with Participation Information Sheet, Consent Form and Debriefing sheet for Malaysia study for English version (both Internet and Paper and Pencil Procedure)

Participant Consent Form



Title of study: Religiosity and Thought Action Fusion in Obsessive Compulsive Disorder

Name of Researcher : Siti Hazlina Alias

Participant Information Number: _____

College/University: _____

PLEASE FILL OUT ALL OF THIS SHEET YOURSELF. PLEASE READ THE FOLLOWING STATEMENTS. TICK EACH BOX TO SHOW THAT YOU UNDERSTAND AND CONSENT TO EACH STATEMENT. SIGN YOUR NAME BELOW ONLY IF YOU AGREE TO TAKE PART AND YOU FULLY UNDERSTAND YOUR RIGHTS. YOUR SIGNATURE IS REQUIRED TO TAKE PART.

Yes No

1. I confirm that I have read and understood the information
2. about the study.

☐	☐

3. I confirm that I have been given the opportunity to ask questions.

☐	☐

4. I confirm that I have been given the opportunity
5. to discuss this with my parents if I wish.

☐	☐

6. I confirm that I have had enough time to decide whether	☐	☐
7. I want to take part in this study.		
8. I understand that this study has been reviewed by and approved	☐	☐
9. by the Newcastle University Research Ethics Committee and		
10. National Medical Research of Ethic Committee in Malaysia.		
11. I understand that I am free to take part.	☐	☐
12. I am also free to stop at any time without giving reasons.		
13. If I stop me studies will not be affected.		
14. I have been given the contact details of the researcher and other	☐	☐
15. organizations.		
16. I confirm that confidentiality has been clearly explained to me	☐	☐
17. (e.g. my name won't be used, etc.).		
18. I confirm that the use of the information I provide has been clearly	☐	☐
19. explained to me (e.g. the results will be shared with other researcher)		
20. I understand that I can contact the researcher if I am upset by the study.	☐	☐
21. I can contact the researcher if I would like to have more information.		
	☐	☐
22. I agree to take part in the study.		

Signature of Participants

Date

Participant Information Sheet



Title of study:

Religiosity and Thought Action Fusion (TAF) in Obsessive Compulsive Disorder (OCD)

You are invited to take part in this study. Before you decide it is important for you to understand why the study is being done and what it will involve. Please take time to read the following information carefully. Please discuss it with your parents if you wish to do so. Please ask us if it is not clear. Please take time to decide whether or not you wish to take part.

WHAT IS THE PURPOSE OF THIS STUDY?

The main purpose of this study is to find out how religion may affect how people make sense of unwanted thoughts that pop into their minds. These thoughts are like those in Obsessive Compulsive Disorder (OCD).

We are only interested in investigating how these things are related to one another. We are NOT interested in any specific individual.

WHAT IS OBSESSIVE COMPULSIVE DISORDER?

OCD is an anxiety disorder. People with OCD may have obsessions, compulsions or more commonly both. Obsessions are thoughts or ideas that come into their mind even when they do not want them. Common themes are a fear of germs or a fear about harming others. These thoughts often feel inappropriate or unpleasant. Compulsions are behaviours that people feel they have to do, even when they do not want to. Examples include washing hands, cleaning, checking and etc. The reason for doing them is to prevent or to reduce the anxiety or distress related to obsessions. Often people try to stop themselves from doing these things. However, they may feel frustrated or worried unless they can perform that behaviour.

Many people in the general population have some similar thoughts and behaviours. These do not cause distress or get in the way of everyday life. But, when someone's obsessions and compulsions get in the way of some aspect of everyday life, we would then say that they have OCD.

WHY IS THIS STUDY IMPORTANT?

The causes of OCD are unknown. However, research suggests that the way of people make sense of their thoughts may be important. Religious beliefs may mean that people make sense of their thoughts in a particular way. Some studies have looked at the link between religion and OCD. Others have looked at how people make sense of their thoughts and OCD. Few studies have looked at both at the same time. It is also important to look at a range of religious beliefs. This study will help us understand more about this important aspect of OCD.

DOES THIS STUDY HAVE ETHICAL APPROVAL?

Yes, the Ethics Committee of Newcastle University has approved this study.

WHY I HAVE BEEN CHOSEN?

You may be wondering why you have been chosen to take part in this study. We know that people who do not have OCD can help us understand it. This is because the thoughts and behaviours vary from none at all, to a little bit, to a bit more and, in a few cases, to a lot. This means that similar thoughts and behaviours occur in people who do not have OCD. For example, many people can have the thought “I may have left the oven on”. This can lead to checking the oven is off to keep things safe. These are similar to the types of thoughts and behaviours in OCD. So, people who do not have OCD can help us understand because of the similarities.

WHAT WILL HAPPEN IF I DO NOT WANT TO CARRY ON WITH THE STUDY?

Taking part in this study is entirely voluntary. You can stop at any time. You don’t have to give a reason. Nothing will happen if you stop. If you do stop, we will not use your answers.

WHAT WILL I HAVE TO DO?

d) If you decide that you would like to take part, you will be asked to complete six questionnaires.

7. A short questionnaire asking about your age, gender and education,
8. One asking you how you make sense of your unwanted, upsetting thoughts,
9. One about your religious beliefs and practices,
10. One about obsessive-compulsive like behaviours,
11. One asking you how much you identify with British or other cultures and
12. One asking you about feelings of sadness, stress and anxiety.

The time taken to complete the questionnaires will take between 20 and 40 minutes.

- e) If you don’t want to take part in this study, you do not have to give any reason.
- f) If you change your mind, tell us that you have done so.

WHAT ARE THE BENEFITS OF TAKING PART?

There are no direct benefits to you. You can have the satisfaction of helping us understand OCD better.

WHAT ARE THE POSSIBLE RISKS?

- e) There are no serious risks.
- f) When (filling out questionnaires) you might come across a question that you find unpleasant, or upsetting. For instance, some of the questions may cause you to think about how upset you are feeling.
- g) You may feel that you have performed poorly on a test. It is important to note that for all questionnaires that we are asking, there are no right or wrong answers. Therefore, you do not need to worry about your performance.
- h) You will be asked to provide some confidential information about yourself.

WHAT WILL HAPPEN IF I BECOME UPSET?

It is unlikely that you will feel upset or embarrassed. But, if you have any questions, a researcher will answer them and respond to any concerns. If you do get upset, or if the questionnaires make you think about things you would like to discuss further, we will give you a telephone contact and email address. This will direct you to appropriate sources of further help. We can also provide you with links to different organizations for more information.

CONFIDENTIALITY

All the information you give us will be confidential and anonymous. It will only be used for research purposes. All the consent forms will be kept separate from the questionnaires. They will be stored separately in locked cabinets. The information will also be stored securely on a computer and can only be accessed by the research team.

WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?

The results of the study will be written up for a University exam. The results will also be shared with other researchers and people interested in OCD at scientific meetings and in scientific journals. The information we collect from all the people taking part will be combined together, and it will not be possible to identify any particular person.

CONTACT INFORMATION

We hope you are able and willing to take part in our study. If you have any questions, please contact the researcher at the following address:

Many thanks for your interest in this study.

Siti Hazlina Alias

PhD Student

Institute of Neuroscience, Henry Wellcome Building,
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.

Email address : s.h.alias@ncl.ac.uk

Under the supervision of:

Prof Mark Freeston: Professor of Clinical Psychology, Newcastle University

Dr Patrick Rosenkranz: Lecturer, School of Psychology, Newcastle University

Thank you for taking the time to read this information sheet.

DEMOGRAPHIC DATA

Please read the questions below and answer each of them (write the answers or tick the appropriate box).
College/University/Workplace:

1. Participation Number:

2. What is your age?

3. What is your gender

Male	
Female	

4. What is your education level?

Less than high school

Other vocational / work-related
qualifications

High school diploma

Foreign qualifications

Bachelor's degree

Professional qualifications (for
example teaching, nursing,
accountancy)

Master's degree

Doctoral

5. What is your religion?

Islam

Taoism

Christian
(including Catholic, Protestant and all
other Christian denominations)

Confusionism

Buddhism

Tribal/Folk

Hinduism

Other traditional Chinese
religion

Sikhism

No religion

Any other religion, please specify

6. What is your ethnic group?

Orang Asli Semenanjung
Bumiputera Sabah Bumiputera
Sarawak Chinese
Indian

☐☐☐

Other Asian group,
Please specify _____

☐

European

Please specify _____

☐

Other nationality

Please specify _____

☐

STUDENT THOUGHT ACTION FUSION QUESTIONNAIRE (STAF-Q)

Please read each of the following statements carefully and rate how much you agree or disagree with each of them. Please circle one of the numbers to the right of each question to indicate your degree of agreement or disagreement.

The rating scale is as follows:

Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
0	1	2	3	4

1.	If I wish harm on someone it is almost as bad as doing harm.	0	1	2	3	4
2.	Suddenly without any reason you have the thought that you will be hit by a car. Having this thought increases the risk that you will be hit by a car.	0	1	2	3	4
3.	Thinking of making an extremely critical remark to a friend is almost as unacceptable to me as actually saying it.	0	1	2	3	4
4.	Suddenly without any reason you have the thought that you are going to jump in front of a train/car/bus. Having this thought increases the risk that you will jump in front of a train/car/bus.	0	1	2	3	4
5.	Suddenly without any reason you have the thought that others will say bad things about you behind your back. Having this thought increases the risk that others will say bad things about you behind your back.	0	1	2	3	4
6.	Having a blasphemous thought is almost as sinful as a blasphemous action.	0	1	2	3	4
7.	Suddenly without any reason you have the thought you have caught a very rare and potentially lethal tropical disease. Having this thought increases the risk that you will catch this rare tropical disease.	0	1	2	3	4
8.	Thinking about swearing at someone else is almost as unacceptable to me as actually swearing.	0	1	2	3	4

9.	Suddenly without any reason you have the thought that you are going to hurt yourself with a sharp or burning object. Having this thought increases the risk that you will hurt yourself with a sharp or burning object.	0	1	2	3	4
10.	Having violent thoughts is almost as unacceptable to me as violent acts.	0	1	2	3	4

11.	Suddenly without any reason you have the thought that your father loses his job and that there are financial problems at home. Having this thought increases the risk that your father really will lose his job.	0	1	2	3	4
12.	If I think about making an obscene gesture to someone else, it is almost as bad as doing it.	0	1	2	3	4
13.	Suddenly without any reason you have the thought that you are going to say something really insulting to a teacher. Having this thought increases the risk that you will say something insulting to a teacher.	0	1	2	3	4
14.	Suddenly without any reason you have the thought that your friend being in a car accident. Having this thought increases the risk that your friend really will have a car accident.	0	1	2	3	4
15.	If I have a jealous thought it is almost the same as making a jealous remark.	0	1	2	3	4
16.	Suddenly without any reason you have the thought that your mother is dying. Having this thought increases the risk that your mother really is going to die sometime soon.	0	1	2	3	4
17.	Suddenly without any reason you have the thought that you are going to tell a lie about someone. Having this thought increases the risk that you will tell a lie about someone.	0	1	2	3	4
18.	It is possible for me to cause something bad to happen to other people just by thinking about it.	0	1	2	3	4
19.	Thinking of cheating in a personal relationship is almost as immoral to me as actually cheating.	0	1	2	3	4
20.	Suddenly without any reason you have the thought that you are going to be robbed. Having this thought increases the risk that you will be robbed.	0	1	2	3	4

OBSESSIVE-COMPULSIVE INVENTORY– SHORT VERSION (OCI-SV)

The following statements refer to experiences that many people in their everyday lives. Circle the number that best describes HOW MUCH that experience has DISTRESSED or BOTHERED you during the PAST MONTH. The numbers refer to the following verbal labels:

0 = Not at all 1 = A little 2 = Moderately 3 = A lot 4 = Extremely

1.	I have saved up so many things that they get in the	0	1	2	3	4
2.	I check things more often than necessary	0	1	2	3	4
3.	I get upset if objects are not arranged properly	0	1	2	3	4
4.	I feel compelled to count while I am doing things	0	1	2	3	4
5.	I find it difficult to touch an object when I know it has been touched by strangers or certain people.	0	1	2	3	4
6.	I find it difficult to control my own thoughts.	0	1	2	3	4
7.	I collect things I don't need.	0	1	2	3	4
8.	I repeatedly check doors, windows, drawers, etc.	0	1	2	3	4
9.	I get upset if others change the way I have arranged things.	0	1	2	3	4
10.	I feel I have to repeat certain numbers.	0	1	2	3	4
11.	I sometimes have to wash or clean myself simply because I feel contaminated.	0	1	2	3	4
12.	I am upset by unpleasant thoughts that come into my mind against my will.	0	1	2	3	4
13.	I avoid throwing things away because I am afraid I might need them later.	0	1	2	3	4

14.	I repeatedly check gas and water taps and light switches after turning them off.	0	1	2	3	4
15.	I need things to be arranged in a particular order.	0	1	2	3	4
16.	I feel that there are good and bad numbers.	0	1	2	3	4
17.	I wash my hands more often and longer than necessary.	0	1	2	3	4
18.	I frequently get nasty thoughts and have difficulty in getting rid of them.	0	1	2	3	4

19.	Unpleasant thoughts come into my mind against my will and I cannot get rid of them.	0	1	2	3	4
20.	I have thoughts of hurting someone and not knowing it.	0	1	2	3	4
21.	I have thoughts I might want to harm myself or others.	0	1	2	3	4
22.	I am afraid of impulsivity doing embarrassing or harmful things.	0	1	2	3	4
23.	I get upset at the sight of knives, scissors and other sharp objects in case I lose control with them.	0	1	2	3	4

VANCOUVER INDEX OF ACCULTURATION REVISED (VIA-R)

Please answer each question carefully as possible by circling one of the numbers to the below of each question to indicate your degree of agreement or disagreement.

Many of these questions will refer to your heritage culture, meaning the culture that has influenced you most (other than Malaysian culture). It may be the culture of your birth, the culture in which you have been raised, or another culture that forms part of your background.

If you do not feel that you have been influenced by any other culture, please try to identify a culture that may have had an impact on previous generations of your family.

Please write your heritage culture in the space provide. (_____)

Please write your heritage culture in the space provide. (_____)

Use the following key to help guide your answers.

Disagree

Neutral/
depen

Agree

Strongly
Agree

1 2 3 4 5 6 7 8 9

I often participate in my heritage cultural traditions

Strongly Disagree		Disagree		Neutral/Depend			AgreStrongly Agree	
1	2	3	4	5	6	7	8	9

I often participate in mainstream Malaysian cultural traditions

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I would be willing to marry a person from my heritage culture.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I would be willing to marry a Malaysian person.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I enjoy social activities with people from the same heritage culture as myself.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I enjoy social activities with typical Malaysian .

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree	
1	2	3	4	5	6	7	8	9	

I am comfortable working with people of the same heritage culture as myself.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree
1	2	3	4	5	6	7	8	9

I am comfortable working typical Malaysian people.

Strongly Disagree		Disagree		Neutral/Depend		Agree		Strongly Agree	
1	2	3	4	5	6	7	8	9	

I enjoy entertainment (e.g., movies, music) from the heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I enjoy Malaysian entertainment (e.g., movies, music).

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I often behave in ways that are typical of my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I often behave in ways that are ‘typically Malaysian’

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

It is important for me to maintain or develop the practices of my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

It is important for me to maintain or develop Malaysian cultural practices.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I believe in the values of my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I believe in mainstream Malaysian values.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I enjoy the jokes and humour of my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree

1 2 3 4 5 6 7 8 9

I enjoy typical Malaysian jokes and humour.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree
1	2	3	4	5

I am interested in having friends from my heritage culture.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree
1	2	3	4	5

I am interested in having Malaysian friends.

Strongly Disagree	Disagree	Neutral/Depend	Agree	Strongly Agree
1	2	3	4	5

- a) The following statements refer to the language you speak in everyday life. Please read each of the following statements carefully and choose the answer that suits you the best.

Use the following key to help guide your answers.

Never	Sometimes	Often	Most of the time	All the time
0	1	2	3	4

I talk in Malay

Never	Sometimes	Often	Most of the time	All the time
0	1	2	3	4

I talk in my heritage language(s)

Never	Sometimes	Often	Most of the time	All the time
0	1	2	3	4

I talk in English

Never	Sometimes	Often	Most of the time	All the time
0	1	2	3	4

I talk in other languages

Never	Sometimes	Often	Most of the time	All the time
0	1	2	3	4

DEPRESSION, ANXIETY, STRESS SCALE (DASS-21)

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There is no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0** Did not apply to me at all
- 1** Applied to me to some degree, or some of the time
- 2** Applied to me to a considerable degree, or a good part of time
- 3** Applied to me very much, or most of the time

1.	I found it hard to wind down.	0	1	2	3
2.	I was aware of dryness of my mouth.	0	1	2	3
3.	I couldn't seem to experience any positive feeling at all.	0	1	2	3
4.	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	0	1	2	3
5.	I found it difficult to work up the initiative to do things.	0	1	2	3
6.	I tended to over-react to situations.	0	1	2	3
7.	I experienced trembling (e.g., in the hands).	0	1	2	3
8.	I felt that I was using a lot of nervous energy	0	1	2	3
9.	I was worried about situations in which I might panic and make a fool of myself.	0	1	2	3
10.	I felt that I had nothing to look forward to	0	1	2	3
11.	I found myself getting agitated	0	1	2	3
12.	I found it difficult to relax.	0	1	2	3
13.	I felt down-hearted and blue	0	1	2	3
14.	I was intolerant of anything that kept me from getting on with what I was doing.	0	1	2	3
15.	I felt I was close to panic.	0	1	2	3
16.	I was unable to become enthusiastic about anything.	0	1	2	3
17.	I felt I wasn't worth much as a person.	0	1	2	3
18.	I felt that I was rather touchy.	0	1	2	3
19.	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	0	1	2	3
20.	I felt scared without any good reason.	0	1	2	3
21.	I felt that life was meaningless.	0	1	2	3

NEWCASTLE SCALE OF RELIGION AND SPIRITUALITY

This questionnaire is addressed to people of different faiths.

For the purposes of this questionnaire by God we mean, the one God, the Gods, or the Being that you believe in.

If you wish, please tell us to whom you will be referring when answering this questionnaire:

.....

For Questions 1-11

For each statement, please circle the number that best describes your usual religious practice.

Interpret the scale numbers as shown below:

1	2	3	4	5
Never	Occasionally/a few year or less	Monthly	Weekly	Daily or More

1.	I pray or meditate.	1	2	3	4	5
2.	I take part in worship or religious rituals.	1	2	3	4	5
3.	I spend time reflecting on aspects of my religion	1	2	3	4	5
4.	I give money, time or goods to my religious community or to causes that it supports	1	2	3	4	5
5.	I read religious texts or writings.	1	2	3	4	5
6.	I make a special effort to visit sacred places (pilgrimage	1	2	3	4	5
7.	I go to religious places.	1	2	3	4	5
8.	I take part in religious study.	1	2	3	4	5
10.	I practice my religion according to its rule.	1	2	3	4	5

11.	I am guided by my religion in many aspects of my everyday life.	1	2	3	4	5
12.	I observe and participate in the festivals of my religion.	1	2	3	4	5
1.	I pray or meditate.	1	2	3	4	5

For Questions 13-82

For each statement, please circle the number that best indicates how much you agree or Disagree

Interpret the scale numbers as shown below:

1	2	3	4	5
Strongly	Slightly	Neither Agree	Slightly	Strongly
Disagree	Disagree	Nor Disagree	Agree	Agree

12.	I believe that there is a purpose to the universe.	1	2	3	4	5
13.	When I am in nature, I feel in touch with something greater than myself.	1	2	3	4	5
14.	I believe that some kind of force underlies the universe.	1	2	3	4	5
15.	I believe that something exists beyond our natural perception or senses.	1	2	3	4	5
16.	I believe that ultimate truth cannot be fully expressed by words or concepts.	1	2	3	4	5
17.	I believe an ultimate truth to the universe can be found.	1	2	3	4	5
18.	I believe that everything is connected.	1	2	3	4	5
19.	I have a strong sense of meaning in my life.	1	2	3	4	5
20.	I feel connected to something greater than	1	2	3	4	5

	myself.					
21.	I believe in a spiritual realm beyond the material universe.	1	2	3	4	5
22.	I believe in God.	1	2	3	4	5
23.	I believe God gives purpose to my life.	1	2	3	4	5
24.	I feel connected to God every time I spend time in nature.	1	2	3	4	5
25.	I desire to be in union with God.	1	2	3	4	5
26.	I believe I can connect with God in many ways.	1	2	3	4	5
27.	I believe God is everywhere.	1	2	3	4	5
28.	I believe God watches over me.	1	2	3	4	5
29.	I believe that God gives meaning to my life.	1	2	3	4	5
30.	I believe that God is the ultimate truth.	1	2	3	4	5
31.	I have a personal relationship with God.	1	2	3	4	5
32.	I pray or meditate to feel connected with God.					

33.	I take part in worship to feel connected with God.					
34.	I go to religious places to feel closer to God.					
35.	I spend time reflecting on aspects of my religion to be closer to God.					
36.	I give money, time or goods to my religious community to do God's work.					
37.	I follow the rules of my religion because that is God's will.					
38.	I read religious texts to be closer to God.	1	2	3	4	5
39.	I take part in religious study to feel connected with God.	1	2	3	4	5

40.	Everything I do in my everyday life is to seek union with God.	1	2	3	4	5
41.	I make a special effort to visit sacred places (pilgrimage) to be closer to God.	1	2	3	4	5
42.	I observe and participate in the festivals of my religion to be closer to God.	1	2	3	4	5
43.	I pray because I feel God answers my prayer.	1	2	3	4	5
44.	I pray to avoid God's disapproval.	1	2	3	4	5
45.	I read sacred writings to find comfort.	1	2	3	4	5
46.	I follow the rules of my religion to avoid God's punishment/bad Karma.	1	2	3	4	5
47.	When I am in difficulty, I pray to God for aid.	1	2	3	4	5
48.	I make special efforts to visit sacred places (pilgrimage), so God will reward me.	1	2	3	4	5
49.	I give money, time or goods to my religious community because God will approve of me.	1	2	3	4	5
50.	I take part in religious study as I know God will approve of me.	1	2	3	4	5
51.	I observe and participate in the festivals of my religion, so God will look favourably on me	1	2	3	4	5

52.	I seek comfort in following rules of my religion.	1	2	3	4	5
53.	I take part in worship or religious rituals to avoid God's displeasure/bad Karma.	1	2	3	4	5
54.	I go to religious places to please God.	1	2	3	4	5
55.	I practice my religion to be accepted by my family.	1	2	3	4	5

56.	I practice my religion because if I do not, my family will disapprove me.	1	2	3	4	5
57.	I practice my religion to feel closer to my family.	1	2	3	4	5
58.	I practice my religion to show respect to my family.	1	2	3	4	5
59.	I practice my religion to get rewards or favours from my family.	1	2	3	4	5
60.	I practice my religion to be accepted by my community.	1	2	3	4	5
61.	I practice my religion because if I do not my community will disapprove me.	1	2	3	4	5
62.	I practice my religion to feel closer to my community.	1	2	3	4	5
63.	I practice my religion to show respect to my community.	1	2	3	4	5
64.	I practice my religion to get rewards or favours from my community.	1	2	3	4	5
65.	There is only one truth, and that is my religion	1	2	3	4	5
66.	I believe that the rules in the sacred writings of my religion must be followed exactly.	1	2	3	4	5
67.	The teachings of my religion should never be questioned.	1	2	3	4	5
68.	I believe sacred writings of my religion are the only true word of God.	1	2	3	4	5
69.	A true believer never doubts the word of God.	1	2	3	4	5

70.	Defending my religion at all costs is my sacred duty.	1	2	3	4	5
71.	I must always follow the guidance of my religious leaders without question.	1	2	3	4	5

72.	Other religious points of view cannot be tolerated.	1	2	3	4	5
73.	Those who offend my religion should be punished.	1	2	3	4	5
74.	My religion holds the ultimate truth and there is no room for interpretation.	1	2	3	4	5
75.	I often question my beliefs.	1	2	3	4	5
76.	I believe that one should never stop searching for the truth about existence.	1	2	3	4	5
77.	Understanding existence is a whole life's journey.	1	2	3	4	5
78.	Doubt is part of my spiritual journey.	1	2	3	4	5
79.	There may be many ways to find the truth about existence.	1	2	3	4	5
80.	I question my understanding of the spiritual realms.	1	2	3	4	5
81.	I constantly try to find the purpose to this universe	1	2	3	4	5
82.	Doubt is part of my search for truth.	1	2	3	4	5

Debriefing sheet



Title of study:

Religiosity and Thought Action Fusion (TAF) in Obsessive Compulsive Disorder (OCD)

I greatly appreciate your contribution by taking part in this study. Your participation in this study will help us understand the nature of Obsessive Compulsive Disorder and its relationship to intrusive thoughts, beliefs about thoughts and some aspects of religion. The following provides further information on the study. Although some information was given before, if we had provided too much it may have influenced the answers that you gave. However, it is a responsibility of researcher to inform people about the study they participated in.

WHAT WAS INVESTIGATED?

The study investigated how religion may affect how people interpret unwanted intrusive thoughts that are linked to Obsessive Compulsive Disorder OCD, a form of anxiety that affects 1-2% of the population.

This study asked members of the general population in the Malaysia from a range of backgrounds to complete six questionnaires about, 1) a short questionnaire asking about age, gender and education (Demographic Data) 2) how they interpret their unwanted, upsetting thoughts (The Student Thought-Action Fusion Questionnaire (STAF-Q)), 3) their religious affiliation and practices (Religiosity and Spirituality Scale, 4) obsessive-compulsive like behaviours (The Obsessive Compulsive Inventory-Short Version (OCI-SV)), 5) their degree of identification with Malaysian or other cultures (Vancouver Index of Acculturation Revised (VIA-R)); and 6) their current experience of feelings of sadness, stress and anxiety (Depression, Anxiety, Stress Scale (DASS-21)).

WHY WAS I CHOSEN?

Previous studies have shown that people who do not have OCD are appropriate for studying various aspects of it because they may have similar thoughts and behaviours. A few people will have none at all; many will have a little bit, some a bit more, and in a few cases a lot. When people have a lot and this causes upset or distress, then we may consider this to be OCD. This means that many features OCD occur in people who do not have the condition. Thus, people who do not have OCD but who share some of the thoughts and behaviours can help to improve our understanding of this condition because the same processes are involved.

WHAT WE WILL DO WITH THE INFORMATION YOU PROVIDED?

The information that you provided will be held confidentially and anonymously. We will put the information from a number of different groups of people together so we will have a wider range of different experiences. The information will then be analysed as a group to look at the relationship between religion, ways of thinking, and OCD-like behaviours. All the consent forms and any participant identifying information will be separated from the questionnaires and will be stored in locked cabinets. All the digital information will be stored electronically on a specific server that will be protected with a password and only accessible to the research team.

CONTACT DETAILS OF MAIN RESEARCHER.

If you have further questions regarding the study, please contact main researcher on the details provided below.

Siti Hazlina Alias

PhD in Clinical Psychology
Institute of Neuroscience
Henry Wellcome Building

University of Newcastle Upon Tyne

Email: s.h.alias@ncl.ac.uk

CONTACT FOR FURTHER INFORMATION

If you have any further questions or enquiries, these are links to websites that contain helpful information

- A national OCD charity:
www.ocdaction.org.uk
- NHS advice about obsessive-compulsive disorder:
<http://guidance.nice.org.uk/CG31/PublicInfo/pdf/English>
- Malaysian Society of Clinical Psychology
mscp.info@gmail.com
- Malaysian Psychiatric Association
<http://www.psychiatry-malaysia.org/article.php?aid=1182>

If you want to discuss further, or have concerns about what you have read, please contact your General Practitioner*. They will be able to refer you to appropriate help.

** Depending where participants are recruited, other contacts may be added such as school counsellors, student wellbeing services, etc.*

Thank you very much for your participation.

Appendix L

A set of Questionnaires with Participation Information Sheet, Consent Form and Debriefing sheet for Malaysia study for Bahasa Melayu version (both Internet and Paper and Pencil Procedure)



Kepada sesiapa yang berkenaan,

Terima kasih kerana bersetuju untuk mengambil bahagian dalam soal selidik kami. Kajian ini bertujuan untuk mengetahui bagaimana agama boleh mempengaruhi salah satu cara manusia mentafsir pemikiran yang tidak diingini yang timbul dalam minda mereka. Fikiran ini adalah seperti yang wujud dalam Kecelaruhan Obsesif Kompulsif (*Obsessive Compulsive Disorder* atau OCD).

Saya akan amat berterima kasih jika anda boleh mengambil masa antara 20 hingga 40 minit untuk melengkapkan borang soal selidik mengenai topik ini. Anda boleh melengkapkan soal selidik ini samada melalui kertas dan pensil atau melalui laman web khas.

Jika anda bersedia untuk membantu, sila tandatangani borang persetujuan dan lengkapkan soal selidik ini.

Anda juga boleh memilih untuk melengkapkan soal selidik ini melalui pautan laman web ini: Sebagai ganjaran, anda ditawarkan untuk memasuki cabutan bertuah. Jika anda ingin menyertainya, sila berikan butiran e-mel anda pada ruang yang telah disediakan pada helaian terakhir soal selidik ini. Amalat e-mel anda akan disimpan berasingan daripada maklumat lain yang anda berikan dan hanya digunakan bagi tujuan kajian ini sahaja.

Kami memerlukan ramai pesertadaripada pelbagai kaum, agama dan budaya. Oleh itu, saya amat menghargai jika anda boleh membantu mengedarkan maklumat ini kepada rakan, atau ahli dalam organisasi anda.

Terima kasih atas perhatian anda.

Yang benar,

Siti Hazlina Alias
Pelajar PhD,
Institut Neurosains,

Henry Wellcome Building Newcastle University,
Framlington Place Newcastle upon Tyne,

NE2 4HH.

BORANG PERSETUJUAN PESERTA



Tajuk Kajian : ***“Religiosity and Thought Action Fusion in Obsessive Compulsive Disorder”***

Nama Penyelidik : **Siti Hazlina Alias**

Nombor Peserta : _____

Nama Kolej/Universiti:

Sila lengkapkan kesemua helaan boring soal selidik ini. Sila baca kenyataan-kenyataan berikut.

SILA TANDATANGAN HANYA SEKIRANYA ANDA BERSETUJU UNTUK MENGAMBIL BAHAGIAN DAN ANDA MEMAHAMI SEPENUHNYA HAK ANDA.

1. Saya mengesahkan bahawa saya telah membaca dan memahami maklumat tentang kajian ini.
2. Saya mengesahkan bahawa saya telah diberikan peluang untuk bertanya soalan.
3. Saya mengesahkan bahawa saya diberikan masa secukupnya untuk membuat keputusan berhubung dengan penyertaan saya dalam kajian ini.
4. Saya memahami bahawa kajian ini telah diteliti dan diluluskan oleh Jawatankuasa Etika Penyelidikan Newcastle University dan Penyelidikan Perubatan Negara Malaysia.
5. Saya memahami bahawa saya bebas untuk mengambil bahagian.
6. Saya juga bebas untuk menarik diri pada bila-bila masa tanpa memberikan sebab. Jika saya menarik diri, kajian ini tidak akan terjejas.
7. Saya telah diberikan butiran hubungan penyelidik dan organisasi lain.
8. Saya mengesahkan bahawa perkara berhubung dengan kerahsiaan telah diterangkan dengan jelas kepada saya (contohnya, nama saya tidak akan didedahkan, dan lain- lain.).
9. Saya mengesahkan bahawa saya telah diberikan penerangan yang jelas tentang penggunaan maklumat yang saya berikan (contohnya, hasil kajian akan dikongsi bersama dengan penyelidik yang lain)
10. Saya memahami bahawa saya boleh menghubungi penyelidik berkenaan sekiranya kajian ini menyebabkan perasaan saya terganggu.
11. Saya boleh menghubungi penyelidik berkenaan jika saya ingin mendapatkan lebih banyak maklumat.
12. Saya bersetuju untuk mengambil bahagian dalam kajian ini.

Tandatangan _____ Tarikh _____

Terima kasih

PENERANGAN UNTUK PESERTA



Anda dipelawa untuk mengambil bahagian dalam kajian ini. Sebelum berbuat demikian, penting bagi anda memahami tujuan kajian ini dan perkara yang terlibat. Ambil masa untuk membaca maklumat berikut dengan teliti. Berbincanglah dengan ibu bapa anda jika anda mahu. Sila tanya kami jika maklumat kurang jelas. Ambil masa untuk membuat keputusan sama ada anda mahu mengambil bahagian atau tidak.

APAKAH TUJUAN KAJIAN INI?

Tujuan utama kajian ini adalah untuk mengetahui bagaimana agama boleh mempengaruhi cara manusia mentafsir fikiran yang tidak diingini yang timbul dalam minda mereka. Fikiran ini adalah seperti yang wujud dalam Kecelaruhan Obsesif Kompulsif (Obsessive Compulsive Disorder atau OCD).

Kami hanya berminat untuk menyelidik bagaimana perkara ini berhubung kait antara satu sama lain. Kami TIDAK berminat terhadap mana-mana individu tertentu.

APAKAH ITU KECELARUAN OBSESIF KOMPULSIF?

OCD ialah kecelaruhan keresahan. Orang yang mengalami OCD mungkin mengalami obsesi, kompulsi atau lebih lazim, kedua-duanya sekali. Obsesi adalah fikiran atau idea yang timbul dalam minda seseorang meskipun dia tidak menginginkannya. Contoh yang biasa ialah takut akan kuman atau pun takut kalau-kalau diri mencederakan orang lain. Pemikiran seumpama ini biasanya dirasakan tidak wajar atau tidak menyenangkan. Kompulsi adalah tingkah laku yang membuatkan seseorang berasa perlu melakukan sesuatu perkara meskipun mereka tidak mahu melakukannya. Contohnya, termasuk membasuh tangan, mencuci, membuat pemeriksaan dan sebagainya. Sebab perkara ini dilakukan adalah untuk mengelak atau untuk mengurangkan keresahan atau kerisauan yang berkait dengan obsesi. Biasanya, seseorang itu cuba menahan diri daripada melakukan perbuatan ini. Bagaimanapun, dia akan berasa kecewa atau bimbang sekiranya dia tidak memenuhi tingkah laku demikian.

Dalam kalangan penduduk, ramai yang mempunyai fikiran dan tingkah laku yang serupa. Keadaan ini tidak menimbulkan kerisauan atau mengganggu perjalanan kehidupan harian. Tetapi, apabila obsesi dan kompulsi seseorang itu mengganggu aspek tertentu dalam kehidupan hariannya, maka dia dikatakan mengalami OCD.

MENGAPAKAH KAJIAN INI PENTING?

Punca OCD masih tidak diketahui. Namun begitu, hasil penyelidikan menunjukkan bahawa cara manusia mentafsir fikiran mereka itu mungkin penting. Kepercayaan agama

mungkin mempengaruhi manusia dalam mentafsir fikiran mereka dengan cara yang tertentu. Beberapa kajian terdahulu telah mengkaji hubungan antara agama dengan OCD. Kajian yang lain pula telah mengkaji hubungan antara cara manusia mentafsir fikiran mereka dan OCD. Walaubagaimanapun, tidak banyak kajian yang mengkaji kedua-dua aspek ini iaitu kepercayaan agama dan cara manusia mentafsir fikiran mereka sekali gus. Jenis kepercayaan agama juga penting dalam kajian ini. Oleh itu, melalui kajian ini, ia akan dapat membantu kami mendapatkan pemahaman yang lebih baik tentang aspek-aspek yang penting dalam menyebabkan seseorang memperoleh OCD.

ADAKAH KAJIAN INI MENDAPAT KELULUSAN ETIKA?

Ya, Jawatankuasa Etika Newcastle University dan Penyelidikan Perubatan Negara Malaysia telah meluluskan kajian ini.

MENGAPAKAH SAYA DIPILIH?

Anda mungkin tertanya-tanya sebab anda dipilih untuk mengambil bahagian dalam kajian ini. Kami percaya bahawa orang yang tidak mengalami OCD dapat membantu kami untuk memahami masalah ini. Ini kerana, cara manusia mentafsir fikiran dan tingkah laku seumpama ini yang mana boleh mempengaruhi seseorang mengalami OCD adalah berbeza-beza. Ada yang tiada langsung hinggalah kepada sedikit, lebih sedikit dan dalam beberapa kes, banyak sekali. Dengan kata lain, fikiran dan tingkah laku yang serupa juga wujud dalam diri orang yang tidak mengalami OCD. Sebagai contoh, ramai orang boleh terfikir “Aku mungkin membiarkan ketuhar terpasang tadi.” Hal ini boleh menyebabkan seseorang itu pergi memeriksa sama ada ketuhar ditutup bagi memastikan keadaan selamat. Perbuatan ini sama dengan jenis fikiran dan tingkah laku dalam OCD. Oleh itu, orang yang tidak mengalami OCD boleh membantu kami memahami keadaan ini disebabkan adanya persamaan tersebut.

APAKAH YANG AKAN BERLAKU JIKA SAYA TIDAK MAHU MENERUSKAN PENYERTAAN DALAM KAJIAN INI?

Penyertaan dalam kajian ini adalah secara sukarela. Anda boleh menarik diri pada bila-bila masa. Anda tidak perlu menyatakan sebabnya. Tiada apa yang akan berlaku jika anda berhenti. Jika anda menarik diri, jawapan anda tidak diambil kira.

APAKAH YANG SAYA PERLU LAKUKAN?

Jika anda bersetuju untuk mengambil bahagian, anda akan diminta melengkapkan enam set soal selidik. Antaranya:

- a) Soal selidik ringkas yang bertanya tentang umur, jantina dan tahap pendidikan anda, agama dan kumpulan etnik.
- b) Soal selidik yang bertanya tentang bagaimana anda mentafsir fikiran tidak diingini yang mengganggu perasaan,
- c) Soal selidik tentang kepercayaan dan amalan agama anda,
- d) Soal selidik tentang tingkah laku seakan obsesif kompulsif,
- e) Soal selidik yang bertanya tentang sejauh mana anda mengaitkan diri dengan budaya

Malaysia atau budaya lain, dan

f) Soal selidik yang bertanya tentang kesedihan, tekanan dan keresahan yang anda alami. Masa yang diambil untuk melengkapkan soal selidik itu adalah antara 20 hingga 40 minit.

Jika anda tidak mahu mengambil bahagian dalam kajian ini, anda tidak perlu memberikan sebarang sebab.

Jika anda mengubah fikiran, maklumkan kepada kami.

APAKAH MANFAAT MENYERTAI KAJIAN INI?

Kajian ini tidak member manfaat secara langsung kepada anda. Walaubagaimanapun, dengan melibatkan diri anda dalam soal selidik ini, secara tidak langsung, anda akan memperolehi kepuasan dengan membantu kami memahami OCD dengan lebih baik.

APAKAH RISIKO YANG MUNGKIN TIMBUL?

Tiada risiko serius.

Ketika menjawab soal selidik, anda mungkin akan menemui soalan yang anda dapati tidak menyenangkan atau mengganggu perasaan anda. Sebagai contoh, ada soalan yang mungkin menyebabkan anda berfikir tentang sejauh mana anda berasa terganggu.

Anda mungkin berasa bahawa anda gagal melakukan yang terbaik dalam sesuatu ujian. Kami ingin mengingatkan anda bahawa semua soal selidik yang ditanya tidak mempunyai jawapan yang betul atau salah. Oleh itu, jangan risau tentang prestasi anda.

Anda akan diminta memberikan maklumat sulit yang tertentu tentang diri anda.

BAGAIMANAKAH KALAU SAYA BERASA TERGANGGU?

Anda tidak akan berasa terganggu atau malu sepanjang penglibatan dalam soal selidik ini. Bagaimanapun, jika anda mempunyai sebarang soalan, penyelidik akan menjawabnya dan memberikan pandangan tentang sebarang kebimbangan yang timbul. Jika anda benar-benar berasa terganggu atau jika soal selidik itu membuatkan anda terfikir tentang perkara yang memerlukan perbincangan lanjut, kami akan memberikan nombor telefon dan alamat e-mel yang boleh membantu anda. Kami juga akan memberikan nama organisasi lain yang boleh memberikan maklumat lanjut kepada anda.

KERAHSIAAN

Segala maklumat yang anda berikan kepada kami adalah rahsia dan tanpa identiti. Maklumat itu hanya akan digunakan untuk tujuan penyelidikan. Semua borang persetujuan peserta akan diasingkan daripada soal selidik. Kedua-duanya akan disimpan secara berasingan di dalam kabinet yang berkunci. Maklumat itu juga akan disimpan dengan selamat dalam komputer dan akan hanya boleh dibuka oleh pasukan penyelidik yang berkenaan.

APAKAH YANG AKAN BERLAKU KEPADA HASIL KAJIAN PENYELIDIKAN INI?

Hasil kajian ini akan ditulis untuk tujuan peperiksaan Universiti. Hasil tersebut juga akan dikongsi bersama penyelidik lain dan pihak yang berminat dalam OCD pada sesi pertemuan ahli sains dan dalam jurnal sains. Maklumat yang kami peroleh daripada semua individu yang mengambil bahagian akan digabungkan sekali, justeru identiti seseorang itu tidak akan diketahui langsung.

ALAMAT DAN TELEFON PENYELIDIK

Kami berharap anda dapat dan bersedia untuk mengambil bahagian dalam kajian ini. Jika ada sebarang pertanyaan, sila hubungi penyelidik melalui alamat berikut:

Kami mengucapkan ribuan terima kasih atas minat anda terhadap kajian ini.

Di bawah penyeliaan:

Prof Mark Freeston: Professor of Clinical Psychology, Newcastle University, United Kingdom.

Dr Patrick Rosenkranz: Lecturer, School of Psychology, Newcastle University, United Kingdom.

Collaborator (Malaysia): Dr. Salina Abdul Aziz, Head of Department of Psychiatry, Department of Psychiatry and Mental Health, Hospital Kuala Lumpur.

Terima kasih kerana sudi meluangkan masa untuk membaca maklumat yang diberikan ini.

BUTIRAN PERIBADI

Sila baca soalan-soalan di bawah dan menjawab setiap seorang daripada mereka (menulis jawapan dan tandakan dalam kotak yang sesuai).

1. Berapakah umur anda?
2. Apakah jantina anda? Lelaki ☐ Perempuan ☐
3. Apakah tahap pendidikan anda?
 - a) Sijil Pelaran Malaysia ☐
 - b) Sijil/ Diploma
 - c) Ijazah Sarjana Muda ☐
 - d) Sarjana Muda ☐
 - e) Doktor Falsafah ☐
 - f) Kelayakan profesional (sebagai contoh: pengajaran, kejururawatan, perakaunan) ☐
 - g) Vokasional / kelayakan lain-lain yang berkaitan dengan teknikal ☐
 - h) Kelayakan asing/luar negara yang lain

4. Apakah agama anda?

Islam		Agama Puak/Nenek Moyang	
Kristian ((termasuk Katolik, Protestan dan semua denominasi Kristian yang lain)		Agama tradisi Cina yang lain	
Buddha		Tiada Agama	
Hindu		Agama-agama lain, sila nyatakan	
Sikh			
Taoisme			
Konfucianisme			

5. Apakah kumpulan Etnik anda?

Melayu	
Orang Asli Semenanjung	
Bumiputera Sabah	
Bumiputera Sarawak	
Cina	
India	
Negara Asia yang lain, Sila nyatakkn, _____	
Negara Eropah yang lain, sila nyatakan_____	
Negara-negara lain, sila nyatakan_____	

STUDENT THOUGHT ACTION FUSION QUESTIONNAIRE (STAF-Q)

Sila baca setiap kenyataan berikut dengan teliti dan pilih salah satu jawapan yang disediakan bagi menyatakan sejauh mana anda BERSETUJU atau TIDAK BERSETUJU dengan setiap pernyataan tersebut.

Skala jawapan adalah seperti berikut:

Amat Tidak Bersetuju	Tidak Bersetuju	Tidak Berasa Setuju atau Tidak Bersetuju	Bersetuju	Amat Bersetuju.
0	1	2	3	4

Jika saya berharap seseorang itu ditimpa musibah maka ia hampir sama buruknya dengan mencederakan orang itu.					
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa anda akan dilanggar kereta. Wujudnya fikiran sebegini menambahkan risiko bahawa anda akan dilanggar kereta.	1	2	3	4	5
Memikirkan untuk mengkritik seseorang kawan secara keterlaluan hampir sama buruknya dengan melakukan perbuatan itu.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa anda hendak melompat di hadapan kereta api/kereta/bas. Wujudnya fikiran sebegini menambahkan risiko bahawa anda akan melompat di hadapan kereta api/kereta/bas.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa orang lain akan mengata tentang diri anda di belakang anda. Wujudnya fikiran sebegini menambahkan risiko bahawa orang lain akan mengata tentang diri anda di belakang anda.	1	2	3	4	5
Menyimpan fikiran yang menghina Tuhan atau agama adalah berdosa dan ini hampir sama dengan perbuatan itu sendiri.	1	2	3	4	5

Tiba-tiba dengan tidak semena-mena, timbul dalam pikiran anda bahawa anda mendapat penyakit tropika yang sangat jarang berlaku tetapi boleh membawa maut.	1	2	3	4	5

Timbulnya fikiran sebegini menambahkan risiko bahawa anda akan terkena penyakit tropika itu .					
Memikirkan untuk menyumpah seseorang hampir sama buruknya dengan melakukan perbuatan itu.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa anda hendak mencederakan diri dengan benda tajam atau benda terbakar. Timbulnya fikiran sebegini menambahkan risiko bahawa anda akan mencederakan diri dengan benda tajam atau benda terbakar.	1	2	3	4	5
Memikirkan untuk melakukan keganasan hampir sama buruknya dengan melakukan perbuatan itu.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa bapa anda hilang pekerjaan, maka masalah kewangan menimpa keluarga anda. Timbulnya fikiran sebegini menambahkan risiko bahawa bapa anda benar-benar akan hilang pekerjaan.	1	2	3	4	5
Jika saya memikirkan hendak menunjukkan isyarat lucah kepada seseorang, maka itu hampir sama buruknya seperti melakukan perbuatan itu sendiri.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa anda hendak mengatakan sesuatu yang benar-benar menghina kepada seorang guru. Timbulnya fikiran sebegini menambahkan risiko bahawa anda akan berkata sesuatu yang menghina kepada seorang guru.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa kawan anda terbabit dalam kemalangan kereta. Timbulnya fikiran sebegini menambahkan risiko bahawa kawan anda itu benar-benar akan terbabit dalam kemalangan kereta.	1	2	3	4	5

Jika rasa cemburu timbul dalam pikiran, maka itu hampir sama buruknya seperti menghamburkan kata-kata yang bersifat cemburu.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam pikiran anda bahawa ibu anda akan mati. Timbulnya fikiran sebegini menambahkan risiko bahawa ibu anda itu benar-benar akan mati tidak lama lagi.	1	2	3	4	5

Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran bahawa anda akan bercakap bohong tentang seseorang. Timbulnya fikiran sebegini menambahkan risiko bahawa anda akan berbohong tentang seseorang.	1	2	3	4	5
Tidak mustahil bagi saya untuk menyebabkan sesuatu yang buruk menimpa orang lain dengan hanya memikirkan hal itu.	1	2	3	4	5
Memikirkan untuk berbohong dalam sesuatu hubungan peribadi adalah tidak bermoral dan ini hampir sama dengan melakukan perbuatan itu.	1	2	3	4	5
Tiba-tiba dengan tidak semena-mena, timbul dalam fikiran anda bahawa anda akan dirompak. Timbulnya fikiran sebegini menambahkan risiko bahawa anda akan dirompak.	1	2	3	4	5

Kenyataan berikut merujuk kepada pengalaman-pengalaman yang biasa dialami oleh ramai individu dalam kehidupan seharian mereka. Sila baca setiap pernyataan tersebut dengan teliti dan pilih salah satu jawapan yang terbaik menerangkan pengalaman yang anda alami sepanjang **BULAN YANG LALU** daripada pilihan jawapan yang disediakan. Skala jawapan adalah seperti berikut:

- 0** **Tidak langsung menggambarkan keadaan saya**
1 **Sedikit atau jarang-jarang menggambarkan keadaan saya.**
2 **Banyak atau kerap kali menggambarkan keadaan saya.**
- 3** **Sangat banyak atau sangat kerap menggambarkan keadaan saya**
4 **Terlalu banyak menggambarkan keadaan saya**

1.	Saya menyimpan begitu banyak benda sehingga menyusahkan saya.	0	1	2	3	4
2.	Saya memeriksa sesuatu itu lebih kerap daripada yang sepatutnya.	0	1	2	3	4
3.	Saya berasa terganggu kalau benda tidak disusun dengan betul.	0	1	2	3	4
4.	Saya berasa terdorong untuk mengira ketika melakukan sesuatu perkara.	0	1	2	3	4
5.	Saya berasa sukar untuk menyentuh sesuatu benda apabila saya tahu bahawa ia telah disentuh oleh seseorang atau orang tertentu.	0	1	2	3	4
6.	Saya berasa sukar untuk mengawal fikiran saya sendiri.	0	1	2	3	4
7.	Saya mengumpul benda yang saya tidak perlukan.	0	1	2	3	4
8.	Saya berulang kali memeriksa pintu, tingkap, laci dan sebagainya.	0	1	2	3	4
9.	Saya berasa terganggu kalau orang lain mengubah kedudukan benda yang saya susun.	0	1	2	3	4
10.	Saya rasa saya perlu mengulang angka yang tertentu.	0	1	2	3	4
11.	Kadang kala saya perlu membersihkan diri semata-mata disebabkan saya berasa terkena pencemaran.	0	1	2	3	4
12.	Saya berasa terganggu disebabkan fikiran tidak menyenangkan yang timbul dalam minda saya tanpa saya ingini.	0	1	2	3	4

13.	Saya mengelak membuang sesuatu benda kerana saya bimbang kalau-kalau saya memerlukannya di kemudian hari.	0	1	2	3	4
14.	Saya berulang kali memeriksa gas dan paip air serta suis lampu selepas menutupnya.	0	1	2	3	4
15.	Saya mahukan sesuatu itu disusun mengikut cara tertentu.	0	1	2	3	4
16.	Saya berasa bahawa adanya angka bertuah dan angka sial.	0	1	2	3	4
17.	Saya membasuh tangan lebih kerap dan lebih lama daripada yang sepatutnya.	0	1	2	3	4
18.	Saya kerap kali didatangi fikiran jahat dan berasa sukar untuk mengikisnya.	0	1	2	3	4
19.	Fikiran tidak menyenangkan timbul dalam minda saya tanpa saya ingini dan saya tidak dapat mengikisnya.	0	1	2	3	4
20.	Saya terfikir untuk mencederakan seseorang dan saya tidak mengetahuinya.	0	1	2	3	4
21.	Saya terfikir hendak memudaratkan diri sendiri atau orang lain.	0	1	2	3	4
22.	Saya berasa bimbang didatangi desakan hati untuk melakukan sesuatu yang memalukan atau memudaratkan.	0	1	2	3	4
23.	Saya berasa terganggu apabila melihat pisau, gunting dan benda tajam yang lain sebab saya bimbang kalau-kalau saya menyalahgunakannya.	0	1	2	3	4

VANCOUVER INDEX OF ACCULTURATION REVISED (VIA-R)

Banyak daripada soalan berikut merujuk budaya warisan anda, iaitu budaya yang paling kuat mempengaruhi anda selain budaya Malaysia yang dikongsi bersama dan yang tidak asing kepada semua yang hidup di negara ini. Budaya warisan ini mungkin merupakan budaya yang melingkungi kelahiran anda, budaya yang melingkungi waku anda dibesarkan, ataupun budaya lain yang membentuk sebahagian daripada latar belakang anda.

Jika anda mengamalkan beberapa budaya sedemikian, maka pilih satu yang paling kuat mempengaruhi anda (contohnya, budaya Melayu, Cina, India, Barat). Jika anda merasakan bahawa anda tidak dipengaruhi oleh mana-mana budaya lain, cuba kenal pasti budaya yang mungkin memberikan kesan besar terhadap generasi keluarga anda yang terdahulu.

Sebagai contoh, anda mungkin asalnya orang Cina, India atau Melayu. Walaupun budaya anda mungkin merupakan budaya sesebuah daerah yang tertentu. Walaupun anda mungkin menganggap diri anda orang Melayu kampung atau Melayu bandar. Walaupun anda mungkin menganggap diri anda kuat dipengaruhi oleh budaya Barat. Jika anda atau keluarga anda berasal dari negara lain, maka anda bolehlah menganggap bahawa budaya negara itu adalah budaya anda.

Maka, _____ budaya _____ warisan _____ anda
ialah _____

(Sila nyatakan budaya warisan anda pada ruang yang disediakan).

Sila jawab setiap soalan sebaik mungkin dengan memilih satu daripada angka yang tertera di bawah setiap soalan untuk menunjukkan sejauh mana anda bersetuju atau tidak bersetuju.

Guna petunjuk berikut bagi membantu anda menjawab soalan.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya sering melibatkan diri dalam tradisi kebudayaan yang saya warisi.

Amat tidak setuju		Tidak setuju		Neutral		Setuju	
Amat setuju							
1	2	3	4	5	6	7	8

9

Saya sering melibatkan diri dalam tradisi kebudayaan Malaysia daripada pelbagai latar belakang

Amat tidak setuju		Tidak setuju		Neutral		Setuju	
Amat setuju							
1	2	3	4	5	6	7	8

9

Saya bersedia untuk berkahwin dengan orang yang budaya warisannya sama dengan yang saya warisi.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya bersedia untuk berkahwin dengan mana-mana orang Malaysia tanpa mengira latar belakangnya.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya menggemari aktiviti sosial bersama dengan orang yang budaya warisannya sama dengan yang saya warisi.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya menggemari aktiviti sosial bersama dengan mana-mana orang Malaysia tanpa mengira latar belakang mereka.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya berasa selesa bekerja dengan orang yang budaya warisannya sama dengan yang saya warisi.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya berasa selesa bekerja dengan mana-mana orang Malaysia tanpa mengira latar belakang mereka

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya menggemari hiburan (contohnya, filem, muzik) daripada budaya warisan saya.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya menggemari hiburan (contohnya, filem, muzik) daripada pelbagai latar budaya seperti

mana yang digemari oleh orang Malaysia yang lain.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Tingkah laku saya sering kali menyamai tingkah laku lazim yang wujud dalam budaya

warisan saya.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Tingkah laku saya sering kali menyamai tingkah laku lazim yang ada pada orang Malaysia.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Penting bagi saya memelihara atau memupuk amalan budaya warisan saya.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Penting bagi saya memelihara atau memupuk amalan budaya yang dikongsi bersama oleh seluruh rakyat Malaysia.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya percaya kepada nilai budaya warisan saya.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya percaya kepada nilai Malaysia yang dikongsi bersama oleh semua rakyat Malaysia.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya suka lawak jenaka daripada budaya warisan saya.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya suka lawak jenaka yang biasa dikongsi bersama oleh semua rakyat Malaysia.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya berminat untuk berkawan dengan orang yang budaya warisannya sama dengan yang saya warisi.

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Saya berminat untuk berkawan dengan mana-mana orang Malaysia tanpa mengira latar belakang mereka

Amat tidak setuju		Tidak setuju		Neutral		Setuju		Amat setuju
1	2	3	4	5	6	7	8	9

Kenyataan berikut merujuk bahasa percakapan anda dalam kehidupan harian. Sila baca setiap kenyataan itu dengan teliti dan kemudian pilih jawapan yang paling sesuai.

0= Tidak pernah 1 = Kadang kala 2 = Sering kali 3 = Hampir sepanjang masa 4 = Sepanjang masa

Saya bercakap dalam bahasa Melayu. 0 1 2 3 4

Saya bercakap dalam bahasa yang saya warisi. 0 1 2 3 4

Saya bercakap dalam bahasa Inggeris. 0 1 2 3 4

Saya bercakap dalam bahasa lain. 0 1 2 3 4

DEPRESSION, ANXIETY, STRESS SCALE (DASS-21)

Sila baca setiap kenyataan di bawah dan bulatkan pada nombor 0,1,2 atau 3 bagi menggambarkan keadaan anda sepanjang minggu yang lalu. Tiada jawapan yang betul atau salah. Jangan mengambil masa yang terlalu lama untuk menjawab mana-mana kenyataan.

Skala pemarkahan adalah seperti berikut:

- 0- Tidak langsung** menggambarkan keadaan saya
- 1- Sedikit atau jarang-jarang** menggambarkan keadaan saya.
- 2- Banyak atau kerap kali** menggambarkan keadaan saya.
- 3- Sangat banyak atau sangat kerap** menggambarkan keadaan saya

1	Saya dapati diri saya sukar ditenteramkan	0	1	2	3
2	Saya sedar mulut saya terasa kering	0	1	2	3
3	Saya tidak dapat mengalami perasaan positif sama sekali	0	1	2	3
4	Saya mengalami kesukaran bernafas (contohnya pernafasan tercungap- cungap walaupun tidak melakukan senaman fizikal)	0	1	2	3
5	Saya sukar untuk mendapatkan semangat bagi melakukan sesuatu perkara	0	1	2	3
6	Saya cenderung untuk bertindak keterlaluan dalam sesuatu keadaan	0	1	2	3
7	Saya rasa menggeletar (contohnya pada tangan)	0	1	2	3
8	Saya rasa saya menggunakan banyak tenaga dalam keadaan cemas	0	1	2	3
9	Saya bimbang keadaan di mana saya mungkin menjadi panik dan melakukan perkara yang membodohkan diri sendiri	0	1	2	3
10	Saya rasa saya tidak mempunyai apa-apa untuk diharapkan	0	1	2	3
11	Saya dapati diri saya semakin gelisah	0	1	2	3
12	Saya rasa sukar untuk relaks	0	1	2	3
13	Saya rasa sedih dan murung	0	1	2	3
14	Saya tidak dapat menahan sabar dengan perkara yang menghalang saya meneruskan apa yang saya lakukan	0	1	2	3
15	Saya rasa hampir-hampir menjadi panik/cemas	0	1	2	3
16	Saya tidak bersemangat dengan apa jua yang saya lakukan.	0	1	2	3
17	Saya tidak begitu berharga sebagai seorang individu	0	1	2	3
18	Saya rasa yang saya mudah tersentuh	0	1	2	3
19	Saya sedar tindakbalas jantung saya walaupun tidak melakukan aktiviti fizikal (contohnya kadar denyutan jantung bertambah, atau denyutan jantung berkurangan)	0	1	2	3
20	Saya berasa takut tanpa sebab yang munasabah	0	1	2	3
21	Saya rasa hidup ini tidak bermakna	0	1	2	3

NEWCASTLE SCALE OF RELIGION AND SPIRITUALITY

Soal selidik ini ditujukan kepada pelbagai manusia yang mempunyai kepercayaan yang berbeza-beza. Dengan itu, bagi tujuan soal selidik ini, Tuhan yang kami maksudkan ialah Tuhan yang esa, Tuhan-tuhan, atau Entiti Kewujudan yang anda percaya. Ianya bergantung kepada kepercayaan anda.

Anda juga boleh memaklumkan kepada kami tentang siapa yang anda rujuk ketika menjawab soal selidik:

Untuk Soalan 1-11

Bagi setiap kenyataan, sila tandakan pilihan jawapan yang TERBAIK bagi menggambarkan amalan keagamaan yang lazim bagi anda lakukan mengikut kepercayaan agama anda.

Skala jawapan adalah seperti yang ditunjukkan di bawah:

Tidak pernah	Kadang kala/Beberapa kali setahun atau kurang	Setiap bulan	Setiap minggu	Setiap hari atau lebih
1	2	3	4	5

1.	Saya sembahyang/solat atau bermeditasi.	1	2	3	4	5
2.	Saya mengambil bahagian dalam ibadat atau upacara keagamaan.	1	2	3	4	5
3.	Saya menghabiskan masa merenung pelbagai aspek dalam agama saya.	1	2	3	4	5
4.	Saya menyumbangkan wang, masa atau harta benda kepada komuniti agama saya atau kepada perjuangan yang ia sokong.	1	2	3	4	5
5.	Saya membaca kitab agama atau tulisan keagamaan.	1	2	3	4	5
6.	Saya berusaha bersungguh-sungguh untuk mengunjungi tempat suci (ziarah).	1	2	3	4	5
7.	Saya mengunjungi tempat-tempat keagamaan.	1	2	3	4	5
8.	Saya mengambil bahagian dalam pengajian agama.	1	2	3	4	5
9.	Saya mengamalkan agama mengikut hukum-hukumnya.	1	2	3	4	5
10.	Saya berpandukan agama saya dalam banyak aspek kehidupan harian saya.	1	2	3	4	5
11.	Saya menyambut dan mengambil bahagian dalam perayaan- perayaan dalam agama saya.	1	2	3	4	5

Soalan 12-82

Bagi setiap kenyataan, sila bulatkan angka yang paling baik menggambarkan sejauh mana anda bersetuju atau tidak bersetuju.

Tafsirkan angka skala seperti yang ditunjukkan di bawah:

Amat Tidak Bersetuju	Sedikit Tidak Bersetuju	Tidak Berasa Setuju atau Tidak Bersetuju	Agak Bersetuju	Amat Bersetuju.
1	2	3	4	5

12.	Saya percaya bahawa penciptaan alam ini ada tujuannya.	1	2	3	4	5
13.	Ketika saya berada di tengah-tengah alam semula jadi, saya merasakan bahawa saya berhubungan dengan sesuatu yang lebih berkuasa daripada diri saya.	1	2	3	4	5
14.	Saya percaya bahawa wujudnya kuasa tertentu di sebalik alam semesta ini.	1	2	3	4	5
15.	Saya percaya bahawa wujudnya sesuatu yang berada di luar pancaindera atau persepsi semula jadi kita.	1	2	3	4	5
16.	Saya percaya bahawa kebenaran hakiki itu tidak dapat digambarkan sepenuhnya melalui kata-kata atau konsep.	1	2	3	4	5
17.	Saya percaya bahawa kebenaran hakiki bagi alam ini boleh diketahui.	1	2	3	4	5
18.	Saya percaya bahawa setiap sesuatu itu berhubungan antara satu sama lain.	1	2	3	4	5
19.	Saya amat menyedari maksud tujuan dalam kehidupan saya.	1	2	3	4	5
20.	Saya merasakan bahawa saya mempunyai hubungan dengan sesuatu yang lebih hebat daripada diri saya.	1	2	3	4	5
21.	Saya percaya kepada alam rohani yang mengatasi alam nyata ini.	1	2	3	4	5
22.	Saya percaya kepada Tuhan.	1	2	3	4	5
23.	Saya percaya bahawa Tuhan memberikan tujuan dalam hidup saya	1	2	3	4	5
24.	Saya berasa bahawa saya mempunyai hubungan dengan Tuhan setiap kali saya berada di tengah-tengah alam semula jadi.	1	2	3	4	5
25.	Saya berkeinginan mendekatkan diri dengan Tuhan.	1	2	3	4	5
26.	Saya percaya bahawa saya dapat berhubung dengan Tuhan melalui banyak cara.	1	2	3	4	5

27.	Saya percaya bahawa Tuhan ada di mana-mana.	1	2	3	4	5
28.	Saya percaya bahawa Tuhan memerhatikan saya.					
29.	Saya percaya bahawa Tuhan memberikan makna kepada hidup saya.					
30.	Saya percaya bahawa Tuhan itu kebenaran yang hakiki.					
31.	Saya mempunyai hubungan peribadi dengan Tuhan.					

32.	Saya sembahyang/solat atau bermeditasi supaya dapat merasakan perhubungan dengan Tuhan.	1	2	3	4	5
33.	Saya mengambil bahagian dalam ibadat supaya dapat merasakan perhubungan dengan Tuhan.	1	2	3	4	5
44.	Saya mengunjungi tempat keagamaan untuk lebih merapatkan diri dengan Tuhan.	1	2	3	4	5
35.	Saya menghabiskan masa merenung pelbagai aspek dalam agama saya untuk lebih merapatkan diri dengan Tuhan.	1	2	3	4	5
36.	Saya menyumbangkan wang, masa atau harta benda kepada komuniti agama saya untuk menunaikan kewajipan Tuhan.	1	2	3	4	5
37.	Saya mentaati hukum agama saya kerana itu kehendak Tuhan.	1	2	3	4	5
38.	Saya membaca kitab agama untuk lebih merapatkan diri dengan Tuhan.	1	2	3	4	5
39.	Saya mengambil bahagian dalam pengajian agama supaya dapat merasakan perhubungan dengan Tuhan.	1	2	3	4	5
40.	Setiap perkara yang saya lakukan dalam kehidupan harian adalah untuk mendekatkan diri dengan Tuhan.	1	2	3	4	5
41.	Saya berusaha bersungguh-sungguh untuk mengunjungi tempat suci (ziarah) untuk lebih merapatkan diri dengan Tuhan.	1	2	3	4	5
42.	Saya menyambut dan mengambil bahagian dalam perayaan- perayaan dalam agama saya untuk lebih merapatkan diri dengan Tuhan.	1	2	3	4	5
43.	Saya sembahyang/solat/meditasi kerana saya berasa bahawa Tuhan memakbulkan doa saya.	1	2	3	4	5
44.	Saya sembahyang/solat/meditasi untuk menghindari kemurkaan Tuhan.	1	2	3	4	5
45.	Saya membaca kitab suci agama saya bagi mendapatkan ketenangan.	1	2	3	4	5
46.	Saya mentaati hukum agama saya untuk mengelakkan hukuman Tuhan/Karma tidak baik.	1	2	3	4	5

47.	Ketika saya dalam kesusahan, saya berdoa meminta pertolongan Tuhan.	1	2	3	4	5
48.	Saya berusaha bersungguh-sungguh untuk mengunjungi tempat suci (ziarah) supaya saya beroleh ganjaran daripada Tuhan.	1	2	3	4	5
49.	Saya menyumbangkan wang, masa atau harta benda kepada komuniti agama saya kerana Tuhan akan meredai tindakan saya.	1	2	3	4	5
50.	Saya mengambil bahagian dalam pengajian agama kerana saya tahu bahawa Tuhan akan meredai tindakan saya.	1	2	3	4	5
51.	Saya menyambut dan mengambil bahagian dalam perayaan-perayaan dalam agama saya supaya Tuhan akan mengasihi saya.	1	2	3	4	5
52.	Saya mencari ketenangan dengan mentaati hukum agama saya.	1	2	3	4	5
53.	Saya mengambil bahagian dalam ibadat atau upacara keagamaan untuk mengelakkan kemurkaan Tuhan/Karma tidak baik.	1	2	3	4	5
54.	Saya mengunjungi tempat keagamaan kerana itu sesuatu yang disukai oleh Tuhan.	1	2	3	4	5

55.	Saya mempraktikkan agama saya supaya keluarga menerima saya.	1	2	3	4	5
56.	Saya mempraktikkan agama saya kerana jika tidak, saya tidak akan disenangi oleh keluarga.	1	2	3	4	5
57.	Saya mempraktikkan agama saya untuk lebih merapatkan diri dengan keluarga saya.	1	2	3	4	5
58.	Saya mempraktikkan agama saya untuk menunjukkan rasa hormat kepada keluarga saya.	1	2	3	4	5
59.	Saya mempraktikkan agama saya untuk mendapatkan ganjaran atau sokongan daripada keluarga saya.	1	2	3	4	5
60.	Saya mempraktikkan agama saya supaya saya diterima oleh komuniti saya.	1	2	3	4	5
61.	Saya mempraktikkan agama saya kerana jika tidak, saya tidak akan disenangi oleh komuniti saya.	1	2	3	4	5
62.	Saya mempraktikkan agama saya untuk lebih merapatkan diri dengan komuniti saya.	1	2	3	4	5
63.	Saya mempraktikkan agama saya untuk menunjukkan rasa hormat kepada komuniti saya.	1	2	3	4	5
64.	Saya mempraktikkan agama saya untuk mendapatkan ganjaran atau sokongan daripada komuniti saya.	1	2	3	4	5

65.	Kebenaran itu hanya satu, dan ia adalah agama saya	1	2	3	4	5
66.	Saya percaya bahawa hukum yang tertulis dalam kitab suci agama saya wajib ditaati dengan sebenar-benarnya.	1	2	3	4	5
67.	Ajaran agama saya tidak patut sekali-kali dipersoalkan.	1	2	3	4	5
68.	Saya percaya bahawa kitab suci agama saya adalah satu- satunya kata-kata Tuhan yang hakiki.	1	2	3	4	5
69.	Orang yang beriman tidak sekali-kali meragui kata-kata Tuhan.	1	2	3	4	5
70.	Mempertahankan agama saya dengan apa cara sekalipun menjadi kewajipan suci saya.	1	2	3	4	5
71.	Saya wajib mengikuti ajaran daripada pemimpin agama saya tanpa mempersoalkannya.	1	2	3	4	5
72.	Pandangan agama lain tidak boleh diterima.	1	2	3	4	5
73.	Mereka yang menyinggung agama saya harus dihukum.	1	2	3	4	5
74.	Agama saya mengandungi kebenaran hakiki dan tiada ruang untuk pentafsiran.	1	2	3	4	5
		1	2	3	4	5
75.	Saya sering mempersoalkan kepercayaan saya.	1	2	3	4	5
76.	Saya percaya bahawa seseorang itu tidak harus sekali-kali berhenti daripada mencari hakikat sebenar tentang kewujudan	1	2	3	4	5
77.	Memahami sesuatu kewujudan itu adalah perjalanan hidup seluruhnya.	1	2	3	4	5
78.	Memahami sesuatu kewujudan itu adalah perjalanan hidup seluruhnya.	1	2	3	4	5
79.	Mungkin terdapat banyak cara untuk mengetahui hakikat sebenar tentang sesuatu kewujudan.	1	2	3	4	5

80.	Saya mempersoalkan pemahaman saya tentang alam rohani.	1	2	3	4	5
81.	Saya sentiasa cuba mencari tujuan alam ini dicipta.	1	2	3	4	5
82.	Keraguan itu sebahagian daripada pencarian saya untuk menemui hakikat.	1	2	3	4	5

TAKLIMAT RINGKAS



Saya amat menghargai sumbangan anda dengan mengambil bahagian dalam kajian ini. Penyertaan anda dalam kajian ini akan membantu kami memahami ciri Kecelaruan Obsesif Kompulsif dan hubung kaitnya dengan fikiran intrusif, kepercayaan tentang fikiran dan beberapa aspek keagamaan. Perkara berikut memberikan maklumat lanjut tentang kajian ini.

Walaupun ada maklumat tertentu yang diberikan sebelum ini, tetapi jika diberikan terlalu banyak, ia mungkin mempengaruhi jawapan yang anda berikan. Bagaimanapun, penyelidik bertanggungjawab untuk memberikan penerangan kepada anda tentang kajian ini.

APAKAH YANG DISELIDIKI?

Kajian ini menyelidiki bagaimana agama boleh mempengaruhi cara individu mentafsir pemikiran intrusif tidak diingini yang berkait dengan Kecelaruan Obsesif Kompulsif (OCD), yakni sejenis keresahan yang dihadapi oleh 1-2% daripada penduduk.

Kajian ini meminta anggota masyarakat umum di Malaysia yang terdiri daripada pelbagai latar belakang untuk menjawab enam set soal selidik: 1) soal selidik ringkas yang bertanya tentang umur, jantina dan tahap pendidikan (Data Demografi) 2) cara mereka mentafsir pemikiran yang tidak diingini yang mengganggu perasaan (Soal Selidik Gabungan Fikiran-Tindakan Pelajar (STAF-Q)), 3) hubungan dan amalan keagamaan mereka (Skala Ketaatan dan Kerohanian, 4) tingkah laku seakan obsesif kompulsif (Inventori Obsesif Kompulsif-Versi Singkat (OCI-SV)), 5) darjah perkaitan rapat mereka dengan budaya Malaysia atau budaya yang lain (Indeks Akulturasi Vancouver Semakan Semula (VIA-R)); dan 6) kesedihan, tekanan dan keresahan yang dirasakan oleh mereka ketika ini (Skala Kemurungan, Keresahan, Tekanan (DASS-21)).

MENGAPAKAH SAYA DIPILIH?

Kajian terdahulu menunjukkan bahawa orang yang tidak mengalami OCD adalah sesuai untuk kajian pelbagai aspek OCD kerana mereka mungkin memiliki fikiran dan tingkah laku yang serupa. Segelintir orang tidak memilikinya langsung; ramai orang memilikinya sedikit, sesetengah orang mempunyai lebih sedikit, dan dalam beberapa kes, banyak sekali. Apabila seseorang itu memilikinya dengan banyak sekali dan mengakibatkan dia berasa terganggu dan risau, maka ini mungkin dianggap OCD. Maknanya, banyak ciri OCD juga wujud pada orang yang tidak mengalami keadaan tersebut. Oleh itu, orang yang tidak mengalami OCD tetapi memiliki fikiran dan tingkah laku yang serupa, dapat membantu meningkatkan pemahaman kami tentang keadaan ini disebabkan proses yang sama terlibat.

APAKAH YANG KAMI LAKUKAN DENGAN MAKLUMAT YANG ANDA BERIKAN?

Maklumat yang anda berikan itu dianggap rahsia dan tanpa identiti. Maklumat yang diperolehi daripada beberapa kumpulan yang berbeza akan digabungkan sekali supaya kami mendapat pelbagai bentuk pengalaman yang berlainan. Maklumat itu kemudiannya akan dianalisis sebagai satu kumpulan untuk meneliti hubungan kait antara agama, cara pemikiran dan tingkah laku yang seakan-akan OCD. Semua borang persetujuan dan sebarang maklumat pengenalan peserta akan diasingkan daripada soal selidik dan akan disimpan di dalam kabinet yang berkunci. Segala maklumat dalam bentuk digital akan disimpan secara elektronik dalam pelayan khas yang memerlukan kata laluan dan hanya dapat dibuka oleh pasukan penyelidik yang berkenaan sahaja.

ALAMAT DAN TELEFON PENYELIDIK UTAMA

Untuk pertanyaan lanjut tentang kajian ini, sila hubungi penyelidik utama melalui alamat dan nombor talian yang diberikan di bawah.

PIHAK UNTUK DIHUBUNGI BAGI MENDAPATKAN MAKLUMAT LANJUT

Jika anda mempunyai sebarang soalan atau pertanyaan lanjut, berikut ialah pautan laman web yang mengandungi maklumat yang berguna:

- www.ocdaction.org.uk
- nasihat NHS tentang gangguan obsesif-kompulsif-
<http://guidance.nice.org.uk/CG31/PublicInfo/pdf/English>
- Persatuan Psikologi Klinikal Malaysia -mscp.info@gmail.com
- Persatuan Psikiatri Malaysia
<http://www.psychiatry-malaysia.org/article.php?aid=1182>

Jika anda mahukan perbincangan lanjut atau mempunyai kemusykilan tentang perkara yang anda baca, sila hubungi pegawai perubatan berhampiran di tempat anda.

Jika anda berminat untuk memasuki cabutan hadiah, sila berikan butiran e-mel:

TERIMA KASIH ATAS PENYERTAAN ANDA.

Appendix M

Data management for paper and pencil data of data in the UK and Malaysia studies

In this data set, there are a few types of missing values found, and it is divided into several different types of reasons, namely 1) Missing data due to errors in the implementation of the study, in researchers' error, such as omitted question, and 2) Missing data at random.

First, missing data is attributed to researcher's error. In the UK study, there was a researcher's error in the absence of one of the demographic data, which was the question on religious affiliation leading to one hundred and thirty-six (136) (0.35%) participants did not specify their religious affiliation. However, in order to sort out the absence of the religious affiliations, two independent reviewers were chosen in order to code the religious affiliations independently by making a judgment on the one of the questions of the Newcastle Scale of Religion and Spirituality ("Please tell us to whom you will be referring God"). Then, the discussion was made on the religious affiliation of the respondents based on the judgments from the reviewers. From the judgements by the independent reviewers, there were only forty-one (41) responses had been achieved, and eventually the religious affiliation was well completed.

However, there were ninety-five (95) participants who were not able to be coded with any religious affiliations or any groups.

Therefore, in order to sort out this problem, one code was included, namely "can not be coded". This code is meant for those responses that were unable to be coded by the independent reviewers due to several reasons, such 1) the respondents did not complete the early question of whom God was referring to; and 2) the ambiguous responses by respondents that led to no judgment were made by reviewers. Consequently, there were only forty-one (41) responses that were successfully coded whereas ninety-five (95) responses were coded as "can not be coded".

In Malaysia study, there was no missing data due to researcher' error. Thus, all the information about religious affiliations was obtained.

Lastly, the missing data at random. In this UK study, there were fourteen (14) missing data found (0.01%) of all 178 variables. From all the missing data found, there were four cases of missing data found on the demographic data. First, there was one case of missing data on the gender specification found and second, there were two cases on the age. Lastly, there was one case of missing data found on the education. On the other hand, there were nine cases of missing data found on the scales. First, there were four cases of missing data found on the scale of Student Thought Action Fusion (STAF). Second, there were four cases of missing data on the scale of Obsessive-Compulsive Inventory Short Version (OCI-SV). Lastly, there were two cases of missing data found on the scale of Newcastle Scale of Religion and Spirituality. Apparently, there was no missing data on the scale of VIR and DASS -21. All the missing data were replaced by using random number proportional replacement, so the frequency distribution within the sample is maintained. As such, a random number generator (www.random.org) was used in order to address the out of range values. Statistical analyses were conducted with Statistics Package for Social Sciences (SPSS) Program, version of 19.

Similarly, in Malaysia study, there was approximately 0.01% of missing data among all 581 participants in Malaysia. In addition, there were three missing data found on the on the scale of Newcastle Scale of Religion and Spirituality. All the missing data were replaced by using random number proportional replacement, so the frequency distribution within the sample is maintained. As such, a random number generator (www.random.org) was used in order to address the out of range values.

Data Distributions

In order to determine whether obsessions symptoms could be predicted from Likelihood Thought Action Fusion (TAF) after controlling for the age and gender, multiple regression analysis was applied. In addition, the data was also examined in order to check the violation of assumptions and so, to test the fits of the model. From the results, suggested that TAF Likelihood significantly predicted obsessions scores, ($b = .46$, $CI = 0.39$ to 0.53) when controlling age and gender. TAF Likelihood also explained a significant proportion of variance in obsessions scores, $R^2 = .37$, $F(3, 489) = 72.13$, $p < .005$. Overall, the model accounted for 37.0% of the variance in OC symptoms and was a significant fit of the data ($F(3, 489) = 72.13$, $p < .005$).

In term of the fits of the model, there were several considerations were examined. First was the normality of the data. Result from output revealed that the histogram looked reasonably normally distributed (with no outliers) indicating that the normality of errors assumption has probably been met. Furthermore, the normal P–P plot verified that the dashed line did not deviate much from the straight line. Apart from that, examination of casewise diagnostics, including Mahalanobis distance, Cook's distance, Df beta values, and centered leverage values suggested that there were no cases exerting undue influence on the model. Second was the residual. The residuals were examined by checking the values standardized residuals from the output and the results indicated there were no possible outliers in the data. Third, as for homoscedasticity and independence of errors, the scatterplot of ZPRED vs. ZRESID showed a fairly random pattern and so indicated no violation of the independence of errors assumption. In addition, the Durbin–Watson statistic also fell within Field's recommended boundaries of 1–3 (Field, 2009), which suggested that errors were reasonably independent. Lastly, in term of multicollinearity, the output revealed that the tolerance was

greater than .10 (.909), and the variance inflation factor (VIF) was less than 10 (1.10) indicating no multicollinearity in the data. Therefore, in all, several assumptions have been met and so the model for the TAF Likelihood as predictor to OC symptoms was fit and reliable

Assumptions of Normality

Prior to the analyses, the distributions for each of the scales and subscales were examined in order to ensure they met assumptions of normality. In order to examine the normality of variables, a number of approaches were used using Explore command (SPSS Version 19) to examine the descriptive analysis for all the variables, namely visual examination of plots (histograms, box-plots, stem and leaf plots, and Q-Q plots), inspection of skew and kurtosis statistics, and examination of outliers. Although there are tests of normality (Shapiro-Wilk's W test and Kolmogorov-Smirnov D test, especially for large samples), they were not used here because these tests were sensitive with a larger sample ($N > 300$) as they are likely to be significant even skew and kurtosis are not too different from normal (Field, 2009).

Data distributions in Malaysia and United Kingdom

There are several rules of thumb that can help determine whether a variable deviates from normal from the first rule based on simple examination of absolute skew (ideally between -0.80 and 0.80; closer to 0.00 is better) and kurtosis (closer to 3.0 in most software packages, closer to 0.00 in SPSS is better) (Orr, Sackett, & DuBois, 1991). A second rule of thumb is that the values between ± 2 skew and kurtosis are acceptable in many cases (Pallant, 2001). Other researchers indicate that skew should be within the range +2 to -2 whereas kurtosis value should be within range +3 to -3 (Garson, 2012). Despite all these rules, interpreting skewness and kurtosis value depends on the degree of stringency applied to the study (Garson, 2008). On balance, value of skew between +1 to -1 and value of kurtosis

between +2 to -2 were used this study in order to determine the approximation to the normal distributions.

Table 32 shows the mean, standard deviation, skew/kurtosis, outliers and extreme outliers among Malaysian sample. As can be seen in the Table 1, the results of the output suggest that there were a number of variables with positively and negatively skewed. Taken with the skew and kurtosis statistics, STAF-Q subscales, OCI-SV subscales, DASS-21 subscales and Social Family Extrinsic Religiosity were reasonably normally distributed. Nevertheless, there was a slight negative skew in Morality TAF (-0.26, SE = 0.10) and also a slight negative kurtosis in TAF Impulsivity (-0.25, SE = 0.20) and TAF Likelihood (-0.40, SE = 0.20), which together with skew values of (0.29, SE = 0.10) and (0.20, SE = 0.10). Note that these values are all within the acceptable limits for even the most stringent criteria. Nevertheless, the values for all these variables are within the range that reasonably normally distributed.

On the other hand, there were several subscales of the Newcastle Scale of Religiosity and Spirituality showed greater levels of skew and/or kurtosis. For example, Theistic Spirituality showed high kurtosis (6.90, SE = 0.20) indicating that the central peak of distribution was higher and the left tail was longer with high negative skew (-2.48, SE 0.10). In addition, Non-Theistic Spirituality and Intrinsic Religiosity were highly skewed (Non-Theistic Spirituality, skew = -1.25, SE = 0.10; Intrinsic Religiosity skew = 1.53, SE = 0.10) which indicates there the left tail was longer and most of the distribution is at the right. Looking at these values, the variables were reasonably not normally distributed.

Apart from skew/kurtosis, inspection from the boxplots of the variables also identified outliers within several variables. The mild outliers can be identified through the boxplots with the marked of circle (o) whereas extreme outliers are marked with asterisks (*). As can be seen from the Table 1, with the exception of DASS-21 subscales, TAF Likelihood and TAF

Impulsivity, inspection of the distributions of the variables using boxplots revealed a number of outliers (seven outliers in Morality TAF, one outlier in obsessing scale, for outlier in OCV-SV). Inspection on the subscales revealed that there was no extreme outlier found on all of these subscales.

On the other hand, for the Newcastle Scale of Religiosity and Spirituality, with the exception of Social and Family Extrinsic Religiosity, outliers were found for all remaining subscales (five outliers for Religious Behaviour, seven outliers for Non-Theistic Spirituality, eleven outliers for Theistic Spirituality, ten outliers for Intrinsic Religiosity, eleven outliers for Personal Extrinsic Religiosity, seven outliers for Religious Fundamentalism and four outliers for Quest). In addition, inspection visual inspection on the boxplots revealed extreme outliers were found in the two subscales in which Non-Theistic Spirituality (twenty-one extreme outliers) and Theistic Spirituality (twelve extreme outliers).

Table 32: Means, Standard Deviations, Skew, Kurtosis and Number of Outliers and Extreme Outliers for Each of the Scales and Subscales for the Malaysian sample (N=581)

Measure	Sub-scale	Mean	SD	Skew	Kurtosis	Outliers ¹	Extreme outliers ²
STAF-Q	Morality TAF	18.73	6.28	-0.26	0.13	7	0
	TAF Likelihood	14.92	6.93	0.20	-0.40	0	0
	TAF Impulsivity	7.03	3.58	0.29	-0.25	0	0
OCI-SV	OCI scale	34.49	12.90	0.09	-0.28	1	0
	Obsessing scale	13.69	6.46	0.06	-0.32	1	0
DASS-21	Stress	10.79	4.92	0.13	-0.46	0	0
	Depression	8.03	4.57	0.20	-0.76	0	0
	Anxiety	9.44	4.41	0.03	-0.51	0	0
NSRS	Religious Behaviour	40.70	9.62	-0.79	-1.23	5	
	Non-Theistic Spirituality	43.31	6.66	-1.25	-0.32	6	2
	Theistic Spirituality	46.25	7.17	-2.48	-1.46	11	21
	Intrinsic Religiosity	46.16	9.72	-1.53	-1.47	10	0
	Personal Extrinsic Religiosity	48.48	11.60	-1.31	-1.22	7	0
	Social Family Extrinsic Religiosity	25.51	12.58	0.30	-0.44	0	0
	Religious Fundamentalism	39.75	9.22	-0.80	-0.87	16	0
	Quest	27.25	6.49	-0.17	-0.65	4	0

Winsorizing and Data Transformations

From the tests of skew and kurtosis, it showed that the statistics values of skew and kurtosis for several variables indicate non-normality. Inspection of the variables revealed that skew/kurtosis was often accompanied by outliers and extreme outliers in which may have contributed to the degree of skew. As parametric tests assume that data is normally distributed (Murphy & Davidshofer, 2001), therefore sequential strategies were used. First, winsorizing was applied purposely to deal with all outliers (to start with or extreme outliers only) by replacing the outliers (mild values or with extreme values) with the values that closest to second larger or smaller value. Then, after the data was winsorized, if the outliers remained, then, transformations were applied to the data in order to ensure the data were distributed as closely to normal as possible. In this transformation, each of the variables was transformed using logarithm, square root and inverse in order to examine the shape of data distributions. A constant of 1 to 10 was used on all variables to account for zero values. Before the data being transformed, all the variables negatively skewed were reflected before being transformed. After being reflected and transformed, the resulting variable was then re-reflected to ensure high scores retained the same interpretation. The results for final transformations for all the variables were presented in Table 34.

In this study, all the variables were winsorized first and transformed and the distributions of the variables were examined from the post-winsorizing and post transforming and compared with the pre-winsorized and pre-transformed data. As can be seen in the Table 3, six of the variables' distributions did not improve using both of the strategies, and therefore the non-transformed data were used in the analysis. All of these variables had lower skew with nearly zero and therefore, the values were within the approximation to the normal distributions.

On the other hand, for ten variables, the results showed that the skew/kurtosis for seven variables was reduced after being winsorized and transformed such as Religious Behaviour and Non-Theistic Spirituality. As can be seen in Table 3, all ten variables showed reduced skew with nearly zero except for Theistic Spirituality with the skew value was nearly 1 (0.84, SE = 0.10). Although a slightly higher value of skew, however, considering the high value before being transformed (-1.25, SE = 0.10), the post-transformed value was substantially reduced. In addition, three out of sixteen variables showed that of the variables's distributions only improved by using winsorizing with the values nearly zero and did not improve using any of the transformations and therefore the winsorized data were used in the analysis. For example, the value of skew for OCI scale was reduced from -0.28 to 0.09 after being winsorized only. Despite all these results, nevertheless, the values of the skew and kurtosis were within the range of what is considered a reasonable approximation to the normal curve and were used in the next analyses.

Table 34: Final Transformations, Skew and Kurtosis for each of the scales and subscales for the Malaysian sample (N=581)

Variable	Winsorizing	Final Transformation Applied	Skew	Kurtosis
Morality TAF	Winsorizing only	Non-Transformed	-0.21	0.00
TAF Likelihood	Non-Winsorized	Non-Transformed	0.20	-0.40
TAF Impulsivity	Non-Winsorized	Non-Transformed	0.29	-0.25
OCI Total 18 items	Winsorizing only	Non-Transformed	0.09	-0.29
OCI Obsession (3+5 additional items)	Winsorizing only	Non-Transformed	0.04	-0.35
DASS-21 Stress	Non-Winsorized	Non-Transformed	0.13	-0.46
DASS-21 Depression	Non-Winsorized	Non-Transformed	0.20	-0.76
DASS-21 Anxiety	Non-Winsorized	Non-Transformed	0.03	-0.51
Religious Behaviour	Winsorizing	Square Root (1)*	0.03	-0.37
Non-Theistic Spirituality	Winsorizing	Square Root (5)*	-0.48	-0.67
Theistic Spirituality	Winsorizing	Log (3)*	0.84	-0.74
Intrinsic Religiosity	Winsorizing	Square Root (1)*	-0.48	-0.65
Personal Extrinsic Religiosity	Winsorizing	Square Root (1)*	-0.34	-.0.70
Social Family Extrinsic Religiosity	Non-Winsorized	Non-Transformed	0.30	-1.09
Religious Fundamentalism	Winsorizing	Square Root (1)*	0.27	-0.59
Quest	Winsorizing	Square Root (5)*	0.40	-0.04

For United Kingdom sample, the same procedures with Malaysian sample were applied in order to deal with outliers and thus, reducing the skew and or kurtosis. All the variables were winsorized, and then transformed except for five variables (DASS-21 Stress, DASS-21 Depression, Theistic Spirituality and Intrinsic Religiosity). For these variables, the non-winsorized and non-transformed values were used for the analysis because the values of skew and kurtosis were within the range of what is considered a reasonable approximation to the normal curve.

On the other hand, for the remaining variables, the results showed that the skewness for TAF Impulsivity was reduced from 0.63 to 0.19 after being winsorized and transformed with square root with constant 5 whereas the value of skew for Religious Behaviour was reduced from 0.44 to 0.03 after being transformed with Logarithm with constant 1. In contrast, four variables showed that the variables's distributions improved using winsorizing only and did not improve using any of the transformations and therefore the winsorized data were used in the analysis. For example, the skew of Obsessing scale was reduced from 0.31 to 0.24 after being winsorized only. The results for final transformations for all the variables were presented in Table 35.

In contrast, despite reduced values after being transformed, values for two variables (Social Family Extrinsic Religiosity, skew= 0.77, SE = 0.11; Religious Fundamentalism, skew=0.62, SE = 0.11) did not improve using any of the transformations and therefore the non-transformed data were used in the analysis. Although the values showed slightly high skew with nearly 1, however, the values were within the range that considered closely to normal distributions. As sum, the values for all the variables were within the range of what is considered a reasonable approximation to the normal curve and were used for the next analyses.

Table 35: Final Transformations, Skew and Kurtosis for each of the scales and subscales for the United Kingdom sample (N=493)

Variable	Winsorizing	Final Transformation Applied	Skew	Kurtosis
Morality TAF	Non-Winsorized	Non-Transformed	0.13	-0.60
TAF Likelihood	Winsorizing only	Non-Transformed	-0.31	0.42
TAF Impulsivity	Winsorizing	Transformed Square Root (5)*	0.19	-0.78
OCI Total 18 items	Winsorizing only	Non-Transformed	-0.01	-0.08
OCI Obsession (3+5 additional items)	Winsorizing only	Non-Transformed	0.24	0.12
DASS-21 Stress	Non-Winsorized	Non-Transformed	-0.23	-0.18
DASS-21 Depression	Non-Winsorized	Non-Transformed	-0.07	-0.28
DASS-21 Anxiety	Winsorizing only	Non-Transformed	-0.04	0.00
Heritage (VIA-R)	Winsorizing	Square Root (3)*	0.22	-0.45
Mainstream (VIA-R)	Winsorizing	Square Root (3)*	0.13	-0.18
Religious Behaviour	Non-Winsorized	Transformed with Log (1)*	0.03	-1.45
Non-Theistic Spirituality	Non-Winsorized	Non-Transformed	-0.56	-0.32
Theistic Spirituality	Non-Winsorized	Non-Transformed	-0.17	-1.46
Intrinsic Religiosity	Non-Winsorized	Non-Transformed	0.09	-1.47
Personal Extrinsic Religiosity	Non-Winsorized	Non-Transformed	0.27	-1.22
Social Family Extrinsic Religiosity	Non-Winsorized	Non-Transformed	0.77	-0.44
Religious Fundamentalism	Non-Winsorized	Non-Transformed	0.62	-0.87
Quest	Non-Winsorized	Non-Transformed	-0.35	-0.65

Appendix O

Inter-factors correlation matrix of the NSRS in the UK sample and Malaysian samples

INTER-FACTORS CORRELATION MATRIX OF THE NSRS IN THE UK SAMPLE
(N=493)

	IR+PER	NTS	Q	RB	RF	TS
NTS	0.559					
Q	-0.424	-0.408				
RB	0.421	0.243	-0.022			
RF	0.795	0.457	-0.393	0.423		
TS	0.486	0.336	-0.115	0.254	0.459	
NTS	0.405	0.403	-0.050	0.239	0.429	0.293

Note: Theistic Spirituality =TS, Non-Theistic Spirituality = NTS, Religious Behaviour = RB, Personal Extrinsic Religiosity = PER, Social Family Extrinsic Religiosity = SFER, Religious Fundamentalism = RF and Quest = Q

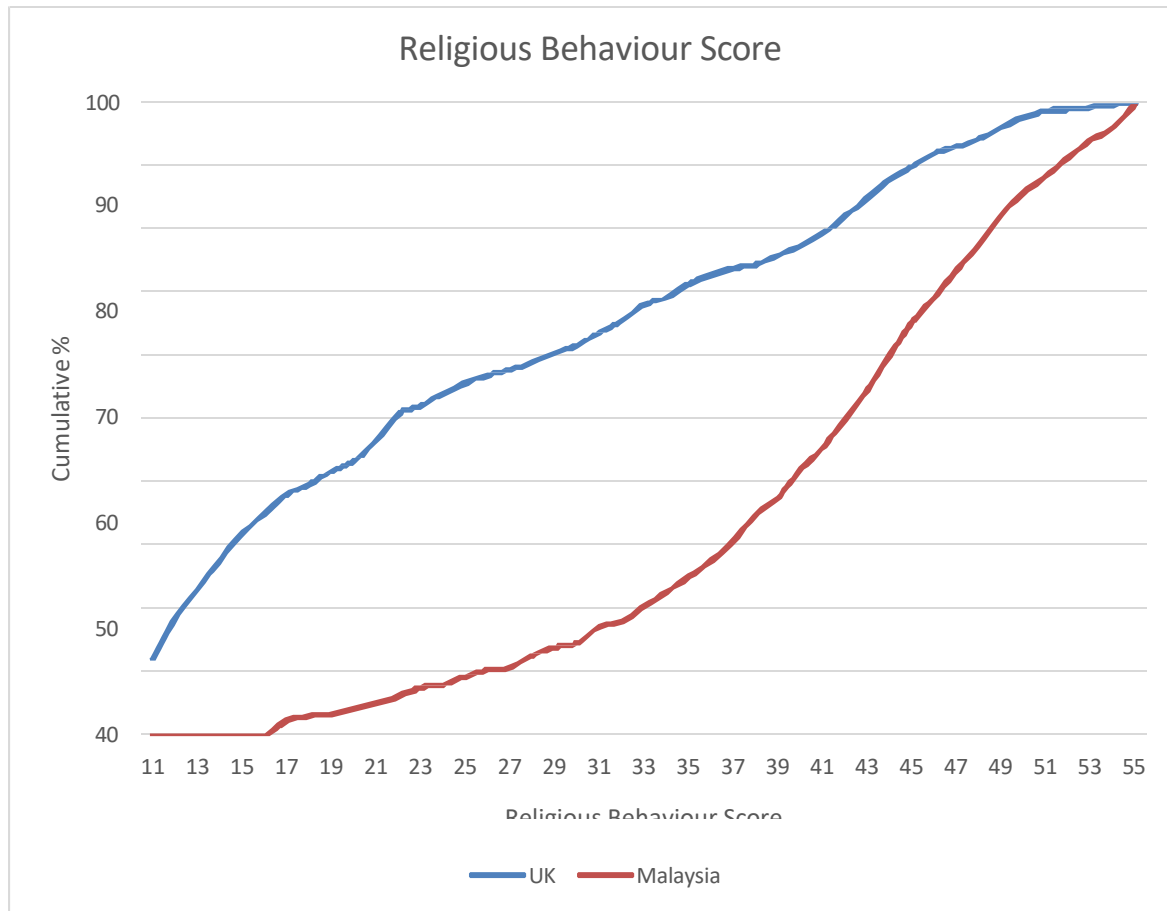
INTER-FACTORS CORRELATION MATRIX OF THE NSRS IN MALAYSIAN SAMPLE
(N=581)

	TS+IR	RF	SFER	Q	NTS	PER
RF	0.673					
SFER	-0.038	-0.207				
Q	-0.127	-0.191	-0.109			
NTS	0.649	0.513	-0.070	0.042		
PER	0.216	0.253	-0.251	-0.061	0.274	
RB	0.282	0.347	-0.125	-0.066	0.279	0.078

Note: Theistic Spirituality =TS, Non-Theistic Spirituality = NTS, Religious Behaviour = RB, Personal Extrinsic Religiosity = PER, Social Family Extrinsic Religiosity = SFER, Religious Fundamentalism = RF and Quest = Q

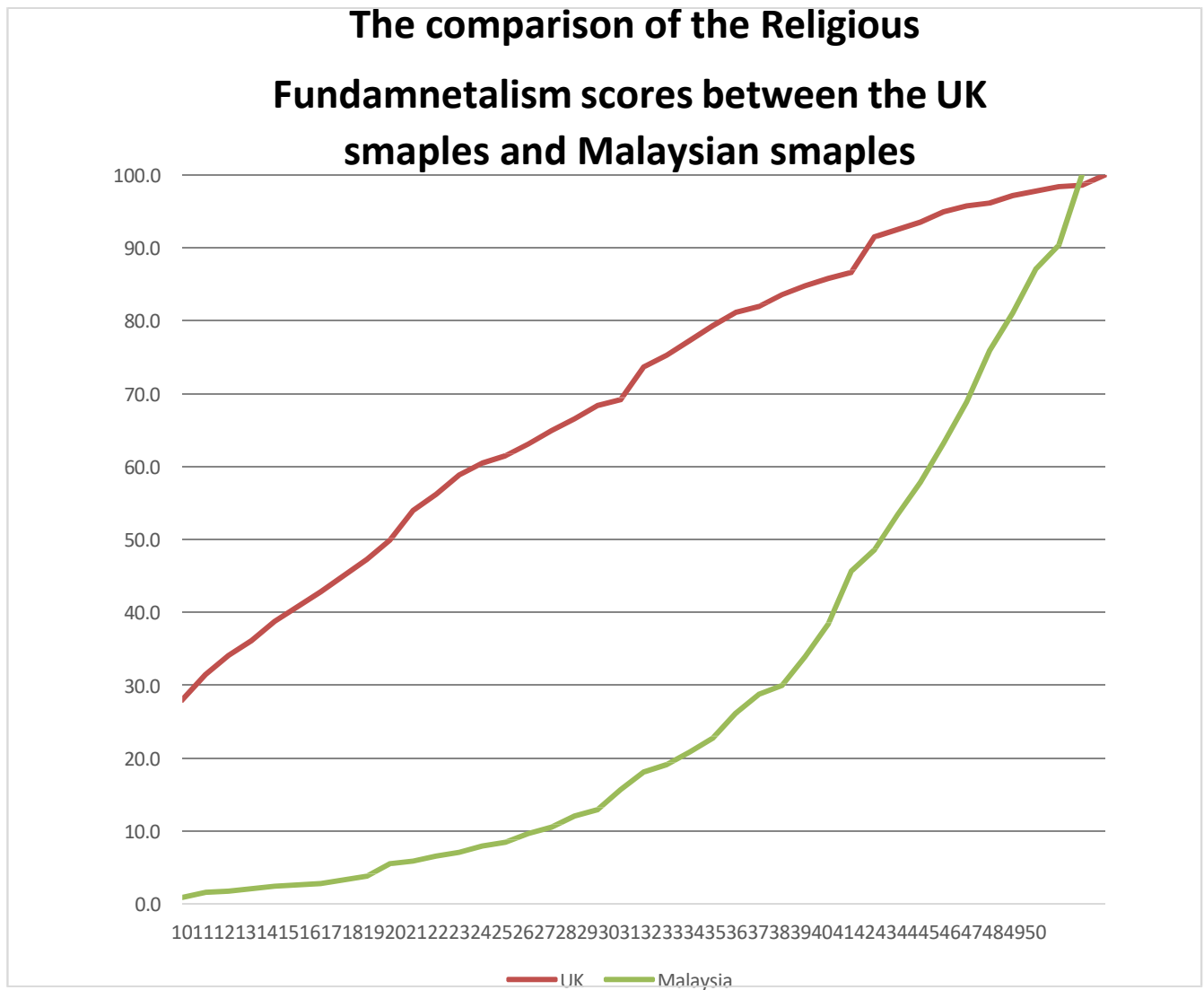
Appendix P:

The comparison of the Religious Behaviour scores between the UK samples and Malaysian samples



Appendix Q

Figure 26: The comparison of the Religious Fundamentalism scores between the UK samples and Malaysian samples



The comparison of the Religious Fundamentalism scores between the UK samples and Malaysian samples

Appendix R– Questionnaire Pack for Convergent and Divergent Validity

DEMOGRAPHIC DATA

Please read the questions below and answer each of them (writes the answers or tick the appropriate box).

College/University/Workplace: _____

Participation Number: _____

1. What is your age?

2. What is your sex?

Female	☐
Male	☐
Other	☐
Prefer not to say	☐

a) What is your education level?

Less than high school	☐
High school diploma	☐
Bachelor's degree	☐
Master's degree	☐
Doctorate	☐
Professional qualifications (for example teaching, nursing, accountancy)	☐
Other vocational / work-related qualifications	☐
Overseas qualifications	☐

b) What is your religion?

Christianity (including Church of England, Catholic, Protestant and all other Christianity denominations).	
Buddhism Hinduism	
Judaism	
Islam	
Sikhism	
No religion	
Atheism	
Agnosticism	
Any other religion, write in _____	

c) What is your ethnic group?

A.	White	
	English/Welsh/Scottish/Northern Irish/British	
	Irish	
	Gypsy or Irish Traveler	
	Any other White background, write in _____	
B.	Mixed / multiple ethnic groups	
	White and Black Caribbean	
	White and Black African	
	White and Asian	
	Any other Mixed / multiple ethnic background, write in _____	
C.	Asian / Asian British	
	Indian	
	Pakistani	
	Bangladeshi	
	Chinese	
	Any other Asian background, write in _____	
D.	Black/ African/ Caribbean/ Black British	
	African	
	Caribbean	
	Any other Black / African / Caribbean background, write in _____	
E.	Other ethnic group	
	Arab	
	Any other ethnic group, write in _____	

NEWCASTLE SCALE OF RELIGION AND SPIRITUALITY – SHORT VERSION

Alias, S. H. B., Rosenkranz, P, Morley, C., Marram, B., & Freeston, M. H. (2013).

This questionnaire is addressed to people of different faiths.

For the purposes of this questionnaire by God we mean, the one God, the Gods, or the Being that you believe in.

If you wish, please tell us to whom you will be referring when answering this questionnaire:

.....

*Note that the term “sacred writings” refers to the holy writings of your religion, such as the Bible, Quran, or Torah.

For each of the following statements, please indicate the option that best describes your usual religious practice.

Interpret the scale numbers as shown below:

1	2	3	4	5
Never	Occasionally/ few times a year or less	Monthly	Weekly	Daily or more

1.	I pray or meditate.	1	2	3	4	5
2.	I take part in worship or religious rituals.	1	2	3	4	5
3.	I spend time reflecting on aspects of my religion.	1	2	3	4	5
4.	I give money, time, or goods to my religious community or to causes that it supports.	1	2	3	4	5
5.	I read religious texts or writings.	1	2	3	4	5
6.	I go to religious places.	1	2	3	4	5
7.	I take part in religious study.	1	2	3	4	5
8.	I observe and participate in the festivals of my religion.	1	2	3	4	5

For each statement, please circle the number that best indicates how much you agree or disagree.

Interpret the scale numbers as shown below:

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Strongly Agree

9.	I take part in worship or religious rituals to avoid God's displeasure.	1	2	3	4	5
10.	The teachings of my religion should never be questioned.	1	2	3	4	5
11.	I practice my religion so that bad things do not happen to me.	1	2	3	4	5
12.	I believe that God is the ultimate truth.	1	2	3	4	5
13.	I often question my beliefs.	1	2	3	4	5
14.	I take part in religious study as I know God will approve of me.	1	2	3	4	5
15.	I believe sacred writings of my religion are the only true word of God.	1	2	3	4	5
16.	I practice my religion so that good things happen to my family	1	2	3	4	5

17.	I believe God watches over me.	1	2	3	4	5
18.	I practice my religion so that bad things do not happen to my family.	1	2	3	4	5
19.	I believe that everything is connected.	1	2	3	4	5
20.	I give money, time, or goods to my religious community because God will approve of me.	1	2	3	4	5
20.	I go to religious places to feel closer to God.	1	2	3	4	5
21.	I believe that the rules in the sacred writings of my religion must be followed exactly.	1	2	3	4	5
22.	I constantly try to find the purpose to this universe.	1	2	3	4	5
23.	I pray so that bad things do not happen to me.	1	2	3	4	5
24.	I take part in worship to feel connected with God.	1	2	3	4	5
25.	I feel connected to something greater than myself.	1	2	3	4	5

26.	I pray so that good things do not happen to me.	1	2	3	4	5
27.	Doubt is part of my search for truth.	1	2	3	4	5
28.	I pray to avoid God's disapproval.	1	2	3	4	5
29.	I practice my religion to show respect to my family or community.	1	2	3	4	5
30.	I take part in religious study to feel connected with God.	1	2	3	4	5
32.	Promoting my religion at all costs is my sacred duty.	1	2	3	4	5
33.	I pray so that bad things do not happen to my family.	1	2	3	4	5
34.	I believe in God.	1	2	3	4	5
35.	I give money, time, or goods to my religious community to do God's work.	1	2	3	4	5
36.	I go to religious places to please God.	1	2	3	4	5
37.	Understanding existence is a whole life's journey.	1	2	3	4	5
38.	I believe in a spiritual realm beyond the material universe.	1	2	3	4	5
39.	I observe and participate in the festivals of my religion, to please God.	1	2	3	4	5
40.	I pray or meditate to feel connected with God.	1	2	3	4	5
41.	I pray so that good things happen to my family.	1	2	3	4	5
42.	I believe that God gives meaning to my life.	1	2	3	4	5
43.	I follow the rules of my religion to avoid God's disapproval.	1	2	3	4	5
44.	I believe that there is a purpose to the universe.	1	2	3	4	5
45.	I practice my religion because if I do not, my family or community will disapprove of me.	1	2	3	4	5
46.	There may be many ways to find the truth about existence.	1	2	3	4	5
47.	A true believer never doubts the word of God.	1	2	3	4	5
48.	I read religious texts to be closer to God.	1	2	3	4	5
49.	When I am in difficulty, I pray to God for comfort.	1	2	3	4	5
50.	I observe and participate in the festivals of my religion to be closer to God.	1	2	3	4	5
51.	I believe God is everywhere.	1	2	3	4	5
52.	When I am in nature, I feel in touch with something greater than myself.	1	2	3	4	5

53.	Doubt is part of my spiritual journey.	1	2	3	4	5
54.	I practice my religion so that good things happen to me.	1	2	3	4	5
55.	I practice my religion to get rewards or favours from my family or	1	2	3	4	5

	community.					
56.	My religion holds the ultimate truth and there is no room for interpretation.	1	2	3	4	5
57.	I practice my religion to be accepted by my family or community.	1	2	3	4	5
58.	I believe that one should never stop searching for the truth about existence.	1	2	3	4	5
59.	I practice my religion to feel closer to my family or community.	1	2	3	4	5
60.	I believe that something exists beyond our natural perception or senses.	1	2	3	4	5
61.	I question my understanding of the spiritual realms.	1	2	3	4	5
62.	I must always follow the guidance of my religious leaders without question.	1	2	3	4	5
63.	I believe an ultimate truth to the universe can be found.	1	2	3	4	5
64.	I spend time reflecting on aspects of my religion to be closer to God.	1	2	3	4	5
65.	There is only one truth, and that is my religion.	1	2	3	4	5

UNIVERSALITY SCALE SUBSCALE (SPIRITUAL TRANSCENDENCE SCALE),
Piedmont, (1999)

Please respond to each of the items below by circling the one number that most closely describes the extent to which you agree or disagree with the statement.

1	ongly Disagree
2	sagree
3	utral
4	ree
5	ongly Agree

1.	I feel that on a higher level all of us share a common bond.	1	2	3	4	5
2.	All life is interconnected.	1	2	3	4	5
3.	There is a higher plane of consciousness or spirituality that binds all people.	1	2	3	4	5
4.	Although individual people may be difficult, I feel an emotional bond with all of humanity.	1	2	3	4	5
5.	I believe that there is a larger meaning to life.	1	2	3	4	5
6.	I believe that death is a doorway to another plane of existence.	1	2	3	4	5
7.	I believe there is a larger plan to life.	1	2	3	4	5
8.	There is an order to the universe that transcends human thinking.	1	2	3	4	5
9.	I believe that on some level my life is intimately tied to all of humankind.	1	2	3	4	5

The Spiritual Transcendence Index, Seidlitz, Abernethy, Duberstein, Evinger, Chang & Lewis, (2002)

Please respond to each of the items below by ticking the one number that most closely describes the extent to which you agree or disagree with the statement.

1 = strongly disagree 2 = disagree 3 = slightly disagree 4 = slightly agree 5 = agree 6 = strongly agree

1.	My spirituality gives me a feeling of fulfillment.	1	2	3	4	5	6
2.	I maintain an inner awareness of God's presence in my life.	1	2	3	4	5	6
3.	Even when I experience problems, I can find a spiritual peace within.	1	2	3	4	5	6
4.	I try to strengthen my relationship with God.	1	2	3	4	5	6
5.	Maintaining my spirituality is a priority for me.	1	2	3	4	5	6
6.	God helps me to rise above my immediate circumstances.	1	2	3	4	5	6
7.	My spirituality helps me to understand my life's purpose.	1	2	3	4	5	6
8.	I experience a deep communion with God.	1	2	3	4	5	6

The Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ; Plante & Boccaccini, 1997)

Please respond to each of the items below by ticking the one number that most closely describes the extent to which you agree or disagree with the statement.

1 = strongly disagree 2 = disagree 3 = Agree 4 = strongly agree

1.	My religious faith is extremely important to me.	1	2	3	4
2.	I pray daily.	1	2	3	4
3.	I look to my faith as a source of inspiration.	1	2	3	4
4.	I look to my faith as providing meaning and purpose in my life.	1	2	3	4
5.	I consider myself active in my faith or church/mosque/temple/synagogue.	1	2	3	4
6.	My faith is an important part of who I am as a person.	1	2	3	4
7.	My relationship with God is extremely important to me.	1	2	3	4
8.	I enjoy being around others who share my faith.	1	2	3	4
9.	I look to my faith as a source of comfort.	1	2	3	4
10.	My faith impacts many of my decisions.	1	2	3	4

The Religious Commitment Inventory-10 (RCI-10) Worthington, McCullough, Berry, Ripley, Bursley, (2003)

Instructions:

Read each of the following statements. Using the scale to the right, CIRCLE the response that best describes how true each statement is for you.

1 = not at all true of me, 2 = somewhat true of me, 3 = moderately true of me, 4 = mostly true of me, or 5 = totally true of me.

1.	I often read books and magazines about my faith.	1	2	3	4	5
2.	I make financial contributions to my religious organization.	1	2	3	4	5
3.	I spend time trying to grow in understanding of my faith.	1	2	3	4	5
4.	Religion is especially important to me because it answers many questions about the meaning of life.	1	2	3	4	5
5.	My religious beliefs lie behind my whole approach to life.	1	2	3	4	5
6.	I enjoy spending time with others of my religious affiliation.	1	2	3	4	5
7.	Religious beliefs influence all my dealings in life.	1	2	3	4	5
8.	It is important to me to spend periods of time in private religious thought and reflection.	1	2	3	4	5
9.	I enjoy working in the activities of my religious affiliation.	1	2	3	4	5
10.	I keep well informed about my local religious group and have some influence in its decisions.	1	2	3	4	5

Intrinsic sub-scale of the Age Universal Religious Orientation Scale, Revised Version

Please respond to each of the items below by circling the one number that most closely describes the extent to which you agree or disagree with the statement.

1. It is important to me to spend time in private thought and prayer.

	1 Strongly Disagree
	2 Disagree
	3 Neutral
	4 Agree
	5 Strongly Agree

2. I would prefer to go to church/mosque/temple/synagogue or any religious place to pray.

	1 a few times a year or less
	2 once every month or two
	3 two or three times a month
	4 about once a week
	5 more than once a week

3. I have often had a strong sense of my God's (or Supreme Being's) presence.

	1 Strongly Disagree
	2 Disagree
	3 Neutral
	4 Agree
	5 Strongly Agree

4. I try hard to live all my life according to my religious beliefs.

	1 Strongly Disagree
	2 Disagree
	3 Neutral
	4 Agree
	5 Strongly Agree

5. My religion is important because it answers many questions about the meaning of life.

	1 Strongly Disagree
	2 Disagree
	3 Neutral
	4 Agree
	5 Strongly Agree

6. I would rather join a group to study our religious texts than a social group in my faith community.

☐	ongly Disagree
☐	sagree
☐	ree
☐	ongly Agree

7. My whole approach to life is based on my religion.

☐	ongly Disagree
☐	sagree
☐	ree
☐	ongly Agree

8. Prayers I say when I'm alone are as important to me as those I say in our special place of worship (e.g., church/mosque/temple/synagogue) or any religious place.

☐	ongly Disagree
☐	sagree
☐	ree
☐	ongly Agree

Extrinsic Personal and Extrinsic Social subscales Age Universal Religious Orientation Scale, Revised Version

Please respond to each of the items below by circling the one number that most closely describes the extent to which you agree or disagree with the statement.

1. I enjoy reading about my religion.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

2. I go to church/mosque/temple/synagogue because it helps me to make friends.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

3. It doesn't much matter what I believe so long as I am good.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

4. Sometimes I have to ignore my religious beliefs because of what people might think of me.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

5. I pray mainly to gain relief and protection.

	strongly disagree
	d to disagree
	not sure
	d to agree
	strongly agree

6. What religion offers me most is comfort in times of trouble and sorrow.

	strongly disagree
	d to disagree
	not sure
	d to agree
	strongly agree

7. Prayer is for peace and or happiness.

	strongly disagree
	d to disagree
	not sure
	d to agree
	strongly agree

8. Although I am religious, I don't let it affect my daily life.

	strongly disagree
	d to disagree
	not sure
	d to agree
	strongly agree

9. I go to church/mosque/temple/synagogue mostly to spend time with my friends.

	strongly disagree
	d to disagree
	not sure
	d to agree
	strongly agree

10. I go to church mainly because I enjoy seeing people I know there.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

11. I pray mainly because I have been taught to pray.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

12. Although I believe in my religion, many other things are more important in life.

☐	strongly disagree
☐	d to disagree
☐	not sure
☐	d to agree
☐	strongly agree

Religious Fundamentalism Scale Revised Scale, Altemeyer & Hunsberger, (2004)

Please respond to each of the items below by circling the one number that most closely describes the extent to which you agree or disagree with the statement.

*Note that the term God refers to the one God, the Gods, or the Supreme Being that you believe in.

*Note that the term “sacred writings” refers to the holy writings of your religion, such as the Bible, Quran, or Torah.

1. My God (or Supreme Being) has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed

	ongly Disagree
	sagree
	ree
	ongly Agree

2. No single book of religious teachings contains all the intrinsic, fundamental truths about life.

	ongly Disagree
	sagree
	ree
	ongly Agree

3. The basic cause of evil is Satan or evil spirits who are the enemy of God (or Supreme Being).

	ongly Disagree
	sagree
	ree
	ongly Agree

4. It is more important to be a good person than to believe in a specific God (or Supreme Being) and the right religion.

	ongly Disagree
	sagree
	ree
	ongly Agree

5. There is a particular set of religious teachings in this world that are so true, you can't go any “deeper” because they are the basic, bedrock message that my God (or Supreme Being) has given humanity.

	ongly Disagree
	sagree
	ree
	ongly Agree

6. When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by my God (or Supreme Being); and the rest, who will not.

	ongly Disagree
	sagree
	ree
	ongly Agree

7. Sacred writings may contain general truths, but they should NOT be considered completely, literally true from beginning to end.

	ongly Disagree
	sagree
	ree
	ongly Agree

8. To lead the best, most meaningful life, one must belong to the one, fundamentally true religion.

	ongly Disagree
	sagree
	ree
	ongly Agree

9. There really is no such thing as Satan or evil spirits who tempt us; it is just the name that people give to their own bad impulses.

	ongly Disagree
	sagree
	ree
	ongly Agree

10. Whenever science and sacred writings conflict, science is probably right.

	ongly Disagree

	sagree
	ree
	ongly Agree

11. The fundamentals of my God's (or the Supreme Being's) religion should never be tampered with, or compromised by others' beliefs.

	ongly Disagree
	sagree
	ree
	ongly Agree

12. All of the religions in the world have flaws and wrong teachings. There is no perfectly true, right religion.

	ongly Disagree
	sagree
	ree
	ongly Agree

Quest Religious Orientation Scale, Batson & Schoenrade, (1991)

Please indicate to what extent you agree or disagree with the following statements.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

1. I was not very interested in religion until I began to ask questions about the meaning and purpose of my life.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

2. I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

3. My life experiences have led me to rethink my religious convictions.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

4. My God (or Supreme Being) wasn't very important for me until I began to ask questions about the meaning of my own life.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

5. It might be said that I value my religious doubts and uncertainties.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

6. For me, doubting is an important part of what it means to be religious.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

7. I find religious doubts upsetting.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

8. Questions are far more central to my religious experience than are answers.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

9. As I grow and change, I expect my religion also to grow and change.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

10. I am constantly questioning my religious beliefs.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

11. I do not expect my religious convictions to change in the next few years.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

12. There are many religious issues on which my views are still changing.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Moderately Agree	Agree	Strongly Agree

Appendix S– Invitation to participate in the through online



Dear Sir/Madam,

I am a PhD student at Newcastle University, United Kingdom and currently, I am conducting a study. For my study, I have developed a questionnaire to measure various aspects of religious behaviour and beliefs. One of the special features of this questionnaire is that it can be used across all major world religions and so is suitable for multi-cultural and multi-ethnic societies. The questionnaire will be useful for researchers and practitioners trying to understand how people's religious and spiritual life may affect other aspects of their life and well-being.

I would like to invite you to participate in this study. Participation in this study may allow you an opportunity to reflect on your own religious and spiritual experiences. The reason why I choose you because it offers broader range of people such as diverse religious groups and cultures, different age groups, levels of education, etc.

I would be very grateful if you could take 20 to 30 minutes to fill out an online survey on this topic. The survey is completely anonymous, however, and cannot be linked to you in any way.

If you are willing to help, please follow the link below.

http://nclpsych.eu.qualtrics.com/jfe/form/SV_3t9tG9CRlujmKfr

We are trying to catch as wide of participant as possible for this study because it possibly offers a broader range of people, particularly a range of religious groups and cultures. So, if you could forward this link to other organizations or mailing lists you are a member of, that would be great!

Any help is greatly appreciated!

Thank you for your attention.

Yours sincerely,

Siti Hazlina Alias

(MSc in Clinical Psychology, National University of Malaysia)

PhD Student

Institute of Neuroscience, Henry Wellcome Building, Newcastle University,

Appendix T

Participant Information Sheet



Title of study:

The convergent and divergent study of Newcastle Scale of Religion and Spirituality (NSRS)

You are invited to take part in this study. Before you decide it is important for you to understand why the study is being done and what it will involve. Please take time to read the following information carefully. Please ask us if it is not clear. Please take time to decide whether or not you wish to take part.

PURPOSE OF THIS STUDY

For my project, I have developed a questionnaire to measure various aspects of religious behaviour and beliefs. One of the special features of this questionnaire is that it can be used across all major world religions and so is suitable for multi-cultural and multi-ethnic societies. In addition, the purpose of this study is to validate a religiosity and spirituality scale. I hope that, with your assistance, this study will add something new and contribute some useful ideas to the field in which it is conducted.

ELIGIBILITY

In order to participate in the study, you must be aged 16 and above.

ETHICAL APPROVAL

Yes, the Ethics Committee of Newcastle University has approved this study.

PARTICIPANT RESPONSIBILITIES

By checking the icon below that states, “I have read and understand the above, and I agree to participate in this study,” you are giving consent to participate in the study.

Most questions are designed to investigate various aspects of religious beliefs and practices, in general.

Please recognize your participation is completely voluntary and you may withdraw from the study at any time.

You may wish to stop or not participate in the study at any time. Completion of the survey is expected to take 20-30 minutes.

RESULTS OF THE STUDY

The results of the study will be written up for a University exam. The results will also be shared with other researchers and people interested in religiosity and spirituality at scientific meetings and in scientific journals. The information we collect from all the people taking part will be combined together, and it will not be possible to identify any particular person.

EXPECTED BENEFITS AND POTENTIAL RISKS

Results from this study will contribute to the understanding of various aspects of religious beliefs, attitudes and practices. The scale developed will serve as a useful tool for vocational researchers and practitioners. Participation in this study may allow you an opportunity to reflect on your own religious and spiritual experiences. The overall expected risks associated with this study are very minimal.

The potential risks to the study include some at least slight discomfort when answering the survey questions. Please understand that your participation is completely voluntary and you can stop at any time.

CONFIDENTIAL

Information produced by this study will be completely confidential. Except for some general demographic questions, I will not ask your name or any sensitive identifying information.

Any data used for publication will be in aggregate form, meaning that the data will be in summary form and no identifying information will be released without your specific permission.

CONTACT INFORMATION

We hope you are able and willing to take part in our study. If you fail to respond to those items properly, your response won't be included in the data analysis. If you have any questions, comments or concerns about this study, we would be happy to speak with you.

Thank you very much interest and response to the survey. Your contribution to this study is greatly appreciated.

If you have any questions, please contact the researcher at the following address:

Siti Hazlina Alias

PhD Student

Institute of Neuroscience, Henry Wellcome Building
Newcastle University, Framlington Place

Newcastle upon Tyne, NE2 4HH.

Email address : s.h.alias@ncl.ac.uk

Under the supervision of:

Prof Mark Freeston: Professor of Clinical Psychology, Newcastle University

Dr Patrick Rosenkranz: Lecturer, School of Psychology, Newcastle University

Thank you for taking the time to read this information sheet.

Your participation is much appreciated.

Debriefing sheet



**Newcastle
University**



The Institute of Neuroscience

Title of study:

**The convergent and divergent study of Newcastle Scale of
Religion and Spirituality (NSRS)**

I greatly appreciate your contribution by taking part in this study. Your participation in this study will help us to examine the construct validity of Newcastle Scale of Religion and Spirituality (NSRS) specifically to test the convergent and divergent validity.

The aims of this study were to gather information about various aspects of religious beliefs, attitudes and practices. I hope that this will help us to examine the validity of the NSRS by looking at other religiosity/spirituality scales.

The information that you provided will be held confidentially and anonymously. We will put the information from a number of different groups of people together so we will have a wider range of different experiences. The information will then be analyzed as a group to look at the relationship between various aspects of religiosity/spirituality and importantly the relationship between NSRS and other religiosity/spirituality scales. All the consent forms and any participant identifying information will be separated from the questionnaires and will be stored in locked cabinets. All the digital information will be stored electronically on a specific server that will be protected with a password and only accessible to the research team.

If you are interested in completing a follow-up part of this study in approximately 1-2 months, please consider the following:

- If you agree to be contacted about the next study, we will ask you to provide us with an email. You are under no obligation to do so.

- We will store your email address securely and separately from your responses to this current survey.

- We will not share your email with anyone.
- In approximately 1, we will send an invitation to you for your consideration along with information about the new study. You will be under no obligation to participate.
- We will send a single reminder approximately one week later. If you do not wish to participate, you may simply ignore the invitation and reminder.
- If you wish your email address to be removed from our list, you can contact us at any time by emailing:

s.h.alias@newcastle.ac.uk

- In all cases, we will remove your email from any list by 31st March 2019

Please read and tick the following statement to confirm that you consent to taking part in the follow-up study.

- ☐ I agree to be contacted about the future research in approximately 1months
- ☐ I do not agree to be contacted about the future research in approximately 1 months

If you have further questions regarding the study, please contact main researcher on the details provided below.

Siti Hazlina Alias

PhD in
Clinical
Psycholog
y Institute
of
Neuroscie
nce Henry
Wellcome
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Newcastle Upon
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Thank you for your time and effort in taking part in the study.