Drinking, illicit drug use, stress and other lifestyle variables in medical students and doctors

Thesis submitted for the degree of
Doctor of Philosophy
at the
University of Newcastle upon Tyne

Dorothy Newbury-Birch
2001

Table of contents

List of tables

CHAPTER 4

CHAPTER 5

CHAPTER 6

CHAPTER 7

List of figures

CHAPTER 1

CHAPTER 4

CHAPTER 7

Abbreviations

BCS	British Crime Survey
BMA	British Medical Association
EPQ	Eysenck Personality Questionnaire
GHQ	General Health Questionnaire
GHS	General Household Survey
HAD	Hospital Anxiety and Depression (HAD) scale
LSD	Lysergic Acid Diethylamide
OSI	Occupational Stress Indicator
PRHO	Pre-registration house officer
SD	Standard deviation
SEM	Standard error of the mean
UK	United Kingdom
USA	United States of America

Candidate's declaration

I certify that this thesis is my own work and has not been submitted for any degree other than that of Doctor of Philosophy at the University of Newcastle upon Tyne.

D. Newbury Birch

Dorothy Newbury-Birch
5th February, 2001

Publications
Some of the work described in this thesis has been published or submitted for publication:

Papers:
Newbury-Birch D, Walshaw D, Kamali F. 2001. Drink and Drugs: From medical students to doctors. *Drug and Alcohol Dependence.* IN PRESS.
Newbury-Birch D, Kamali F. 2001. Psychological stress, anxiety, depression, job satisfaction and personality characteristics in pre-registration house officers. *Postgraduate Medical Journal.* 77:109-111.
Newbury-Birch D, White M, Kamali F. 2000. Factors influencing alcohol and illicit drug use amongst medical students. Drug and Alcohol Dependence. 59(2):125-130.
Birch D, Ashton H, Kamali F. 1998. Junior doctors and stress (authors reply) *Lancet.* 352:1780-1781.
Birch D, Ashton H, Kamali F. 1998. Alcohol drinking, illicit drug use and stress in junior house officers in north-east England. *Lancet.* 352:785-786.

Abstracts:
Birch D, Kamali F. 1999. Alcohol and illicit drug use in medical students and junior doctors at Newcastle University: a longitudinal study. *British Journal of Clinical Pharmacology.* 47(5):582.
Birch D, Kamali F. 1999. Job satisfaction and stress in pre-registration house officers in the north east of England. *British Journal of Clinical Pharmacology.* 47(5):600-601.
Birch D, Ashton H, Kelly P, Kamali F. 1999. Current lifestyles of junior doctors in the north east of England. *Alcohol and Alcoholism.* 34(1):93.
Birch D, Ashton H, Kelly P, Kamali F. 1998. Alcohol and illicit drug use in junior hospital doctors in the north-east of England. *British Journal of Clinical Pharmacology.* 46(3):278-279.
Birch D, White M, Kamali F. 1998. Alcohol, illicit drug use and lifestyle variables in a cohort of first year medical students at Newcastle University. *British Journal of Clinical Pharmacology.* 46(3):301.

Acknowledgements

Firstly, I would like to thank all the students, dentists and doctors who completed the 2700 questionnaires, and all the people who helped arrange meetings and lectures with them. Without their co-operation this thesis would never have been completed. The first year of my research project was funded by the Catherine Cookson Trust and the remaining two years by the British Medical Association (Joan Dawkins Fellowship for research into young people and alcohol) for which I am very grateful.

I also thank my supervisor Dr. Farhad Kamali. He gave me the chance and saw the potential in me and for that I will always be truly grateful. Without his help, support, friendship and "red ink" I would never have been able to get through the last 3 years.

Thanks are also given to Dr. David Walshaw from the Department of Statistics at the University of Newcastle who gave invaluable advice regarding statistics and who always positively answered my plea of 'can I just ask you a question?'

I am also grateful to all my buddies at the Wolfson Unit of Clinical Pharmacology, including Alan, Pete, Marilyn, Anne and Kim who welcomed me as a social scientist into their scientific lives and kept my feet planted firmly on the ground. I will miss Tima, Jane and Helen more than words can say - we really were the four musketeers. Especially Helen, whose support and encouragement have meant the world to me. Life will seem strange without Helen sitting at the next desk to me!

I must thank my mentor Mr. Ivan Hill who really is a true teacher and who is always there for me. Also all the people who at a moment's notice would help out with childcare for me. My deepest thanks and love go especially to Linda Potter who has become a second mum to my children over the last 3 years.

Last and by no means least my love goes to my husband, Mark, and children, Jennifer and Stephanie, who I dedicate this thesis to - their support and love has been never ending and I love them all dearly.

Abstract

Lifestyles, including alcohol consumption and illicit drug use in medical students were assessed using a self-completion questionnaire.

Eight cohorts of second year medical students were assessed consecutively between 1993-2000. The proportion of medical students in each cohort drinking excessively increased during this period. Illicit drug use stayed fairly stable with approximately half of each year group reporting having experimented with illicit drugs.

Lifestyles in medical students were assessed in the second and final year of studies and one year after graduation. Alcohol consumption and illicit drug use had significantly increased over the 4 year period of the study. Two cohorts of medical and dental students were also compared in a similar study design. Although alcohol consumption in dental students was more than their medical student counterparts during the second year of the studies, it decreased one year after graduation. Illicit drug use was higher in medics than in dentists at all three time points.

Nearly half of the fresher medical students reported to have been drinking excessively and using illicit drugs before beginning university life. Personality characteristics of the students were found to be related to their alcohol and illicit drug use.

A significant proportion of pre-registration house officers suffered from stress and anxiety with more women than men having anxiety scores within the clinically significant range. Job satisfaction was low, with more pre-registration house officers being dissatisfied with the organisational processes of their jobs. Personality was significantly related to stress, anxiety, depression and job satisfaction.

Education on alcohol and illicit drugs for young people may be needed at a much earlier age. Dealing with the problems of drink, drugs and stress among medical students and doctors may require a holistic approach which considers both the culture of medical education and work conditions.

CHAPTER 1

Introduction

1.1 INTRODUCTION

Gupta, (1996) states "The health of an individual is due, in part at least, to [his/her] own lifestyle and behaviour." For many drinking alcohol is an accepted and pleasurable part of social life (Plant and Plant, 1992; Pavis, 1997) but the long term misuse of alcohol can have consequences on a person's health, including heart disease and liver cirrhosis (Anderson et al., 1993; Department of Health, 1993; Paton, 1994). It is estimated that up to 40,000 people a year in the UK die prematurely as a consequence of excessive alcohol use (Royal College of General Practitioners, 1986; Raistrick et al., 1999). Apart from the potential damage to health, excessive use of alcohol has also been reported to increase the risk of road traffic accidents, unsafe sex and violence (Anon., 1995; Kellner et al., 1996; Health Education Authority, 1996; Quigley and Marlatt, 1996; Pavis, 1997). The use of illicit drugs has also been linked with suicide (Oyefeso et al., 1999), drownings (Gomez et al., 1992) and car accidents (Barbone et al., 1998). It is perceived that excessive use of alcohol and experimentation with illicit drugs, in many ways, is associated with youthful behaviours and that such behaviours are abandoned by many as they become older and are later in positions of responsibility.

This chapter provides an overview of alcohol, illicit drug use and smoking in the general population and in university students, including medical students at Newcastle University. The problem of stress and stress in medical students and doctors is reviewed. The nature of some of the more common drugs used in the UK are also described.

1.2 GENERAL POPULATION SURVEYS

The following information on alcohol and smoking in the general population is taken from the General Household Survey (GHS), an annual national survey that is carried out by the Social Survey Division of the Office for National Statistics. The survey sample consists of around 10,000 households in Great Britain. Interviews are conducted with everyone in the household who is aged over 16 (around 18,000 adults). The GHS covers a wide variety of areas including income, housing, education, drinking, smoking and health. The British Crime Survey (BCS) is a biennial survey which provides information on crime levels and analysis of specific crimes. The survey sample for the British Crime Survey consists of around 15,000 individuals.

1.2.1 Alcohol consumption in the general population

It has been found that although drinking less than 21 units of alcohol per week for men and 14 units per week for women is unlikely to damage health, sustained alcohol consumption in excess of these levels is likely to lead to increasing health risks (Royal College of Physicians, 1995). Alcohol consumption in excess of 50 units per week for men and 35 units per week for women is considered to be hazardous to health (Royal College of Physicians, 1995). Less stringent levels of alcohol consumption were introduced by the government in 1995 (Department of Health, 1995). These new limits consisted of daily benchmarks of 3-4 units per day for men and 2-3 units per day for women.

The government White Paper, 'Saving Lives: Our Healthier Nation' (1998) has identified key areas in which it believes major improvements in health can be achieved. These include action on alcohol (Department of Health, 1999). A national alcohol strategy is to be implemented because the targets set out in the white paper of 1992, 'The Health of the Nation', have not been met. These targets were to reduce the proportion of men and women drinking more than the recommended limits of 21 units/week for men and 14 units/week for women to 18% (men) and 7% (women) by the year 2005 (Department of Health, 1993). The 1998 GHS shows that half way through the target time set by the Department of Health, 26% of men and 15% of women are still exceeding the recommended limits for alcohol consumption (table 1.1). Furthermore there has been a steady increase in the numbers of young men and women drinking above the sensible limits for alcohol consumption.

Table 1.1: Alcohol consumption risk levels in the general population

	1990		1992		1994		1996		1998	
	M	W	M	W	M	W	M	W	M	W
Non-drinker	6%	12%	6%	12%	7%	14%	7%	13%	8%	14%
Low	67%	77%	68%	77%	66%	73%	66%	73%	65%	72%
Med-high	20%	9%	21%	10%	21%	11%	21%	12%	20%	13%
Hazardous	8%	2%	2%	2%	6%	2%	6%	2%	6%	2%

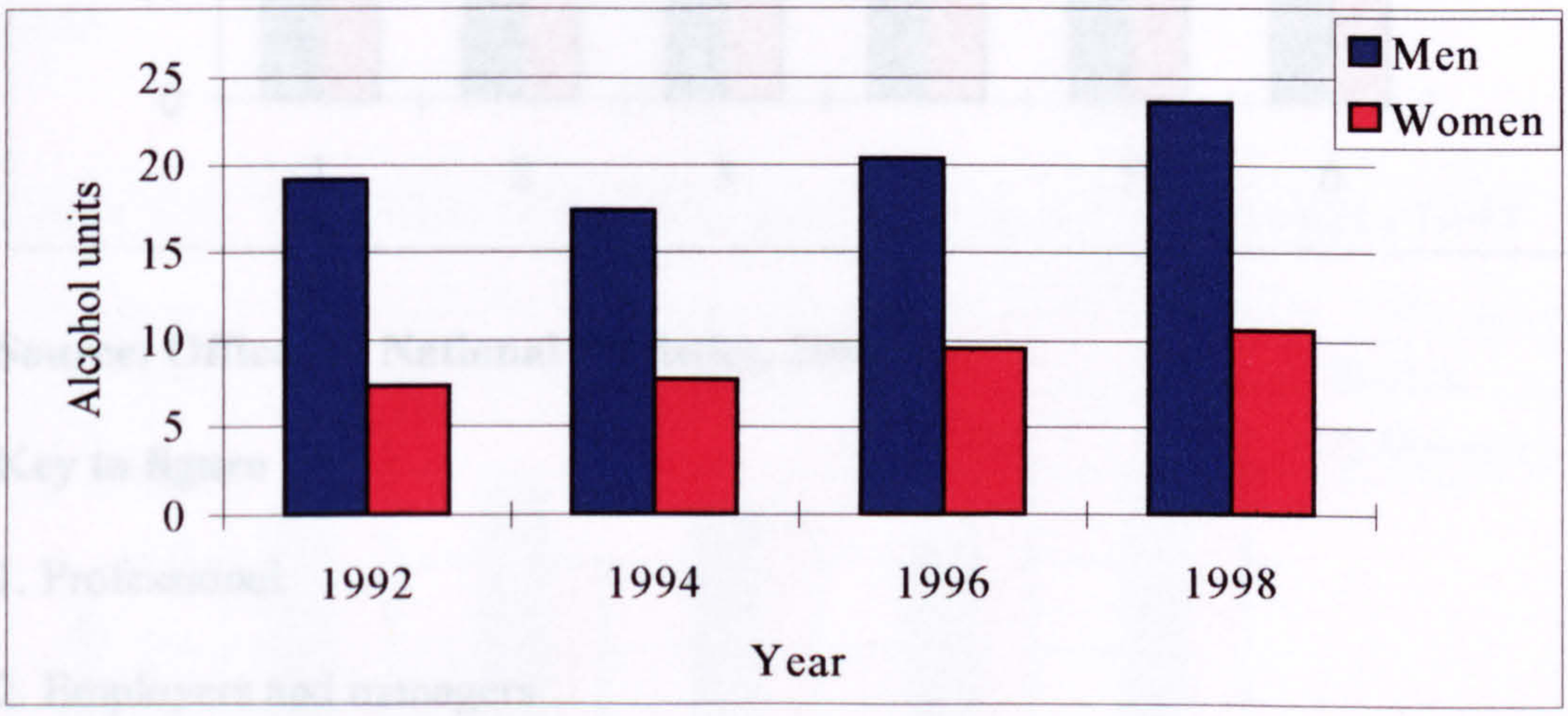
Source: 1998 General Household Survey

1.2.1.1 Alcohol Consumption in young people

For young people between the age of 16-24, the percentage exceeding recommended limits of alcohol consumption had risen from 31% of men in 1990 to 36% in 1998 and from 16% of women in 1990 to 25% in 1998 (Office for National Statistics, 2000).

Mean weekly alcohol consumption for young people aged between 16 and 24 has also increased from 19.1 units per week for men in 1992 to 23.6 units/week in 1998 and from 7.3 unit per week for women in 1992 to 10.6 units/week in 1998 (figure 1.1).

Figure: 1.1: Mean weekly alcohol consumption 1992-1998 (16-24 year olds)



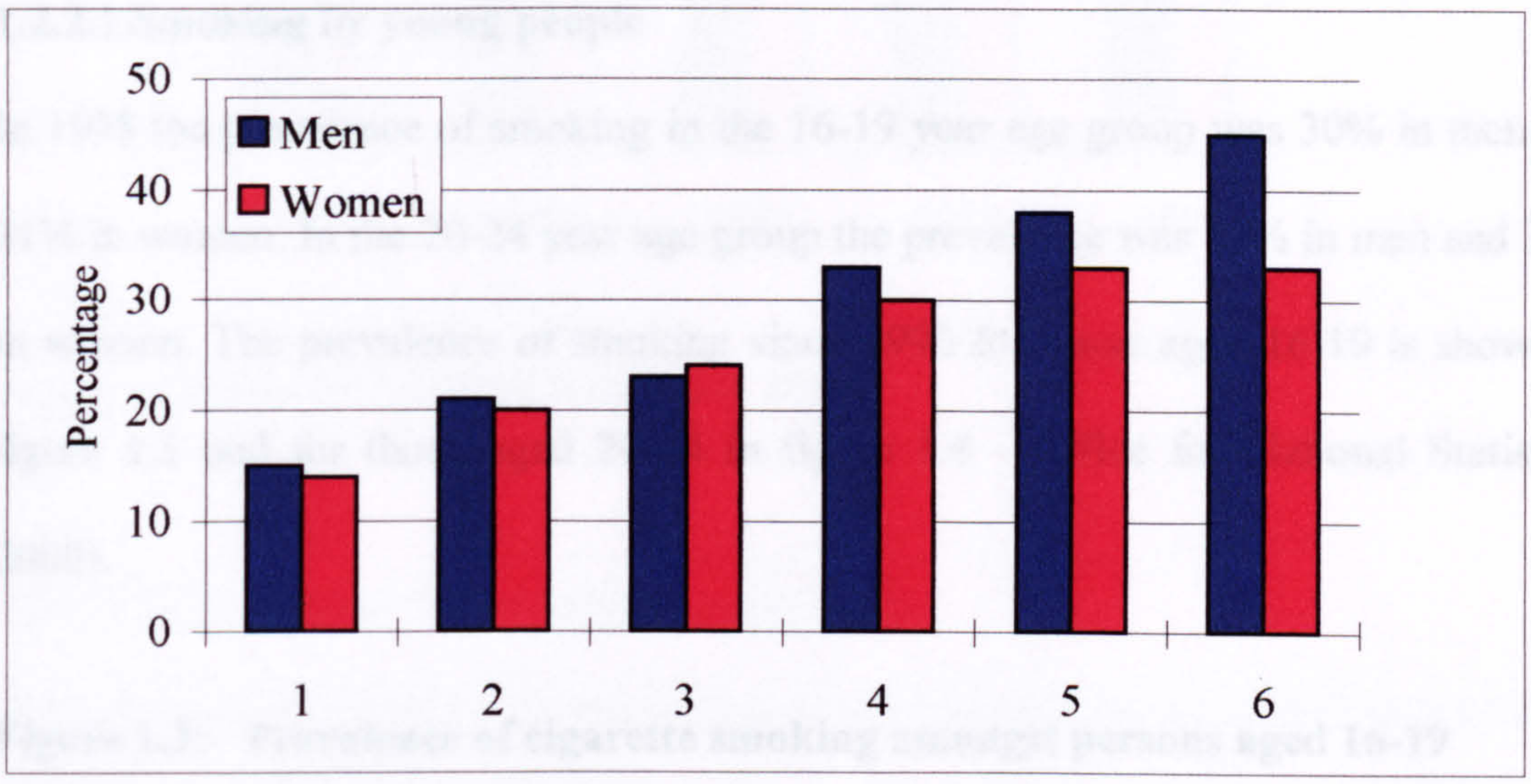
Source: Office for National Statistics, 2000.

1.2.2 Smoking in the general population

During the 1980s there was a decline in the proportion of both men and women who smoked from 42% of men and 37% of women in 1980 to 31% of men and 29% of women in 1990, but this decline has levelled out during the 1990s; in 1998, 28% of men and 26% of women were current smokers (Office for National Statistics, 2000).

There are socio-economic differences in smoking with the highest prevalence of smokers being amongst the semi-skilled and unskilled manual workers, and the lowest amongst professional workers (figure 1.2).

Figure 1.2: Prevalence of cigarette smoking by socio-economic group (1998)



Source: Office for National Statistics, 2000

Key to figure 1.2:

1. Professional

2. Employers and managers

3. Intermediate and junior non-manual

4. Skilled manual and own account non-professional

5. Semi-skilled manual and personal service

6. Unskilled manual

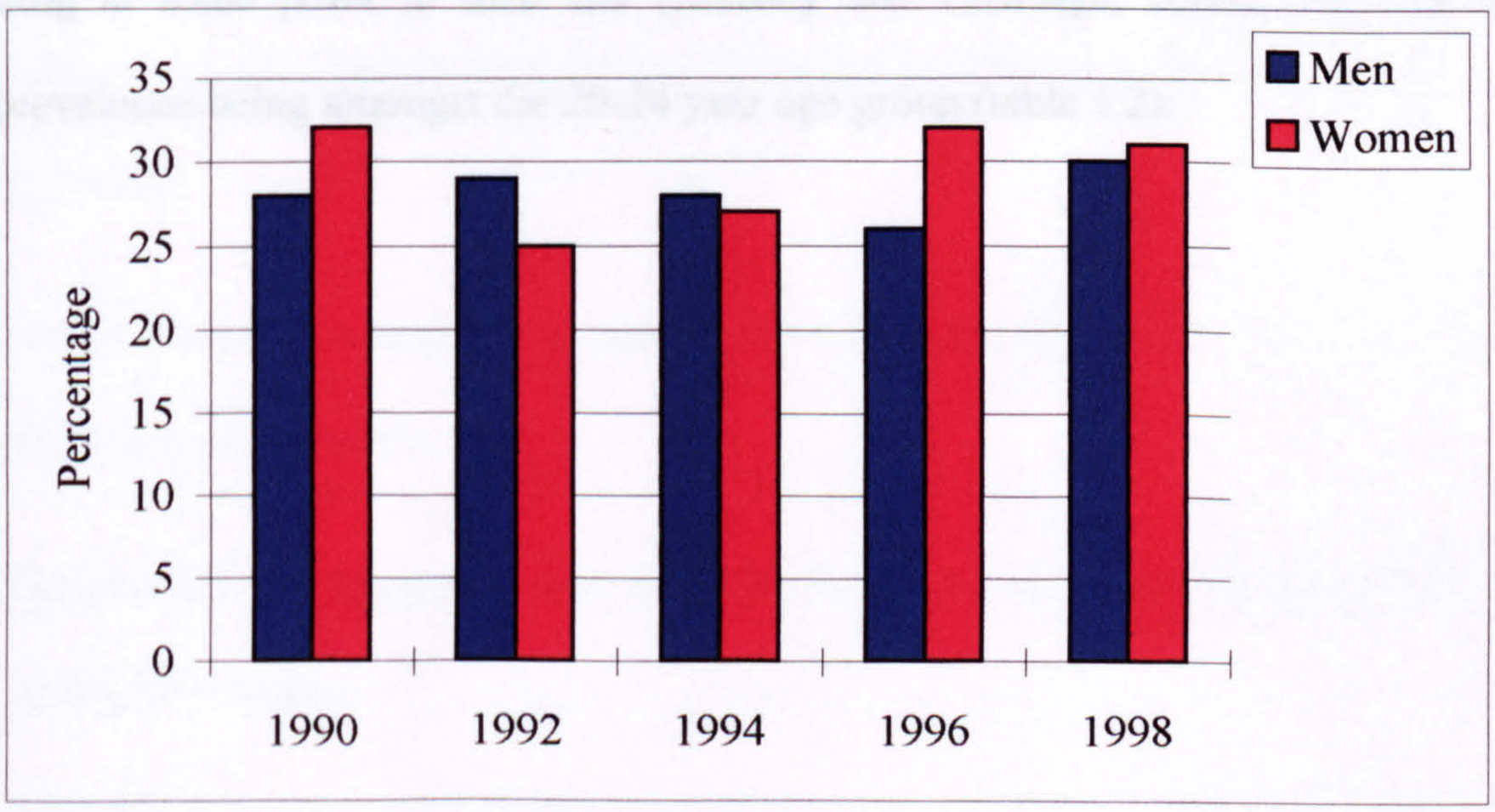
One target of 'Our Healthier Nation' (Department of Health, 1999) white paper is to reduce the prevalence of cigarette smoking. The government white paper 'smoking

kills' sets out the targets of 'Our Healthier Nation'. These include reducing smoking by both men and women aged 16 and over in all social classes from 28% to 24% or less by the year 2010; with a fall to 26% by the year 2005. This is seen as necessary because of the link between disease and tobacco smoking.

1.2.2.1 Smoking by young people

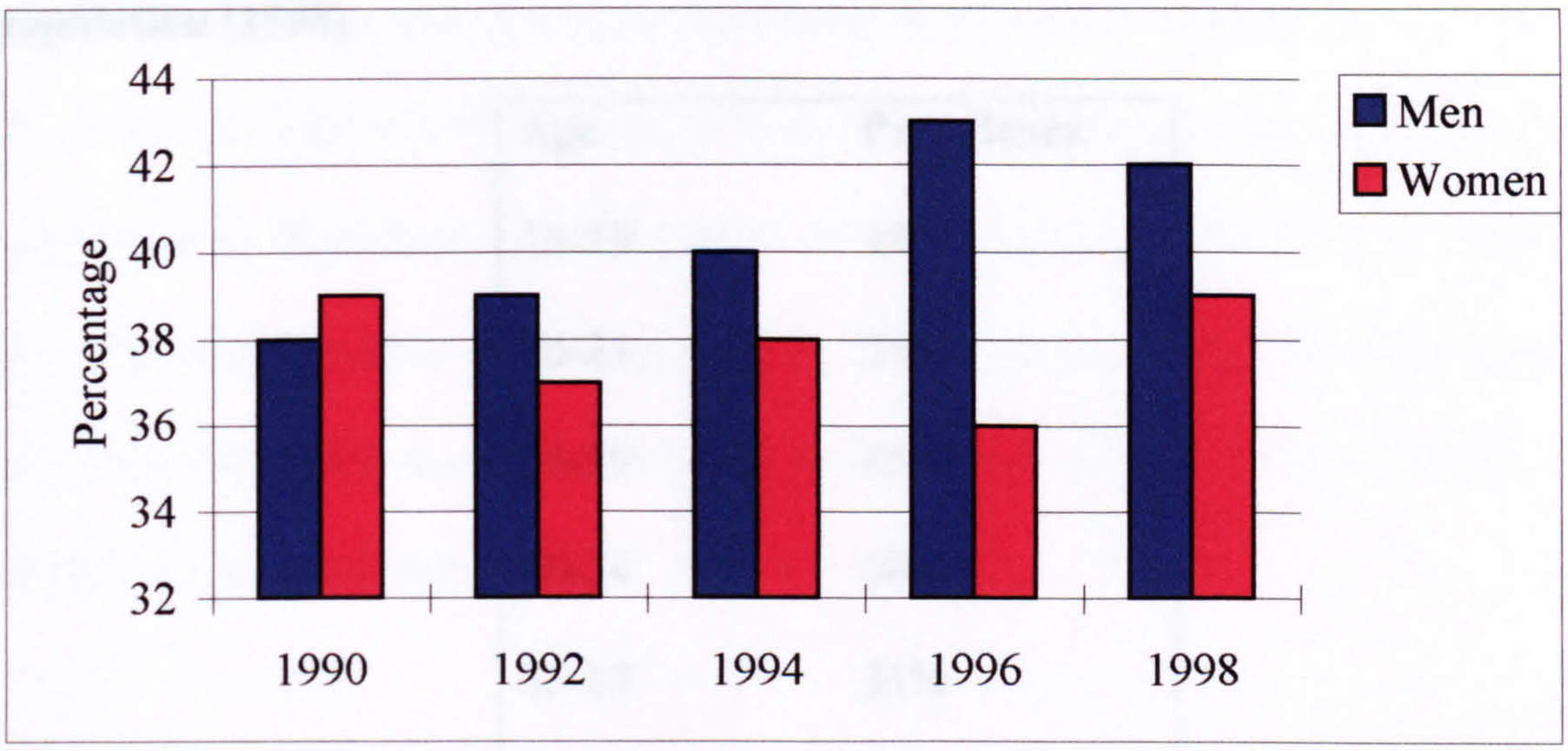
In 1998 the prevalence of smoking in the 16-19 year age group was 30% in men and 31% in women. In the 20-24 year age group the prevalence was 42% in men and 39% in women. The prevalence of smoking since 1990 for those aged 16-19 is shown in figure 1.3 and for those aged 20-24 in figure 1.4 (Office for National Statistics, 2000).

Figure 1.3: Prevalence of cigarette smoking amongst persons aged 16-19



Source: Office for National Statistics, 2000

Figure 1.4: Prevalence of cigarette smoking amongst persons aged 20-24



Source: Office for National Statistics, 2000

1.2.3 Illicit drug use in the general population

It is estimated that 32% of the population of the UK have experimented with an illicit drug at some point in their life (Ramsey and Partridge, 2000), with the highest prevalence being amongst the 20-24 year age group (table 1.2).

Table 1.2: Prevalence of experimentation of illicit drugs by age in the general population (1998)

Age	Prevalence
16-19	49%
20-24	55%
25-29	45%
30-34	38%
35-39	31%
40-44	25%
45-59	18%

Source: British Crime Survey, 2000

There is increasing concern the use of illicit drugs amongst young people in the general population (Cabinet Office, 1999). The ten year strategy for 'Tackling Drugs to Build a Better Britain' was launched in 1998 with four main elements. These are:

Young People - to help young people resist drug misuse in order to achieve their full potential in society;

Communities - to protect our communities from drug-related anti-social and criminal behaviour;

Treatment - to enable people with drug problems to overcome them and live healthy and crime-free lives;

Availability - to stifle the availability of illegal drugs on our streets (Cabinet Office 1999).

1.2.3.1 Illicit drug use by young people

Whilst 32% of the population have experimented with illicit drugs at some point, 40% of 16-19 year olds and 47% of 20-24 year olds have experimented with cannabis at some time in their lives and 28% of 16-19 year olds and 26% of 20-24 year olds reported using it within the last year (table 1.3). The percentage of 20-24 year olds who have used illicit drugs has increased from 44% in 1994 to 55% in 1998 (Ramsey and Partridge, 2000) (table 1.4).

Table 1.3: Prevalence of lifetime use and use in the last year of illicit drugs by 16-24 year olds in the general population (1998)

	Lifetime use		**Used in the last year**	
	16-19	**20-24**	**16-19**	**20-24**
Cannabis	40%	47%	28%	26%
LSD	10%	13%	2%	3%
Cocaine	3%	9%	1%	5%
Ecstasy	8%	12%	4%	6%
Magic Mushrooms	9%	12%	4%	3%
Amyl/Butyl nitrate	16%	17%	4%	5%
Temazepam/Diazepam	4%	3%	2%	1%
Opioids	1%	1%	0	0
Steroids	1%	1%	1%	0

Source: British Crime Survey, 2000

Table 1.4: Percentages of 16-29 year olds who have used any illicit drug (1994-1998)

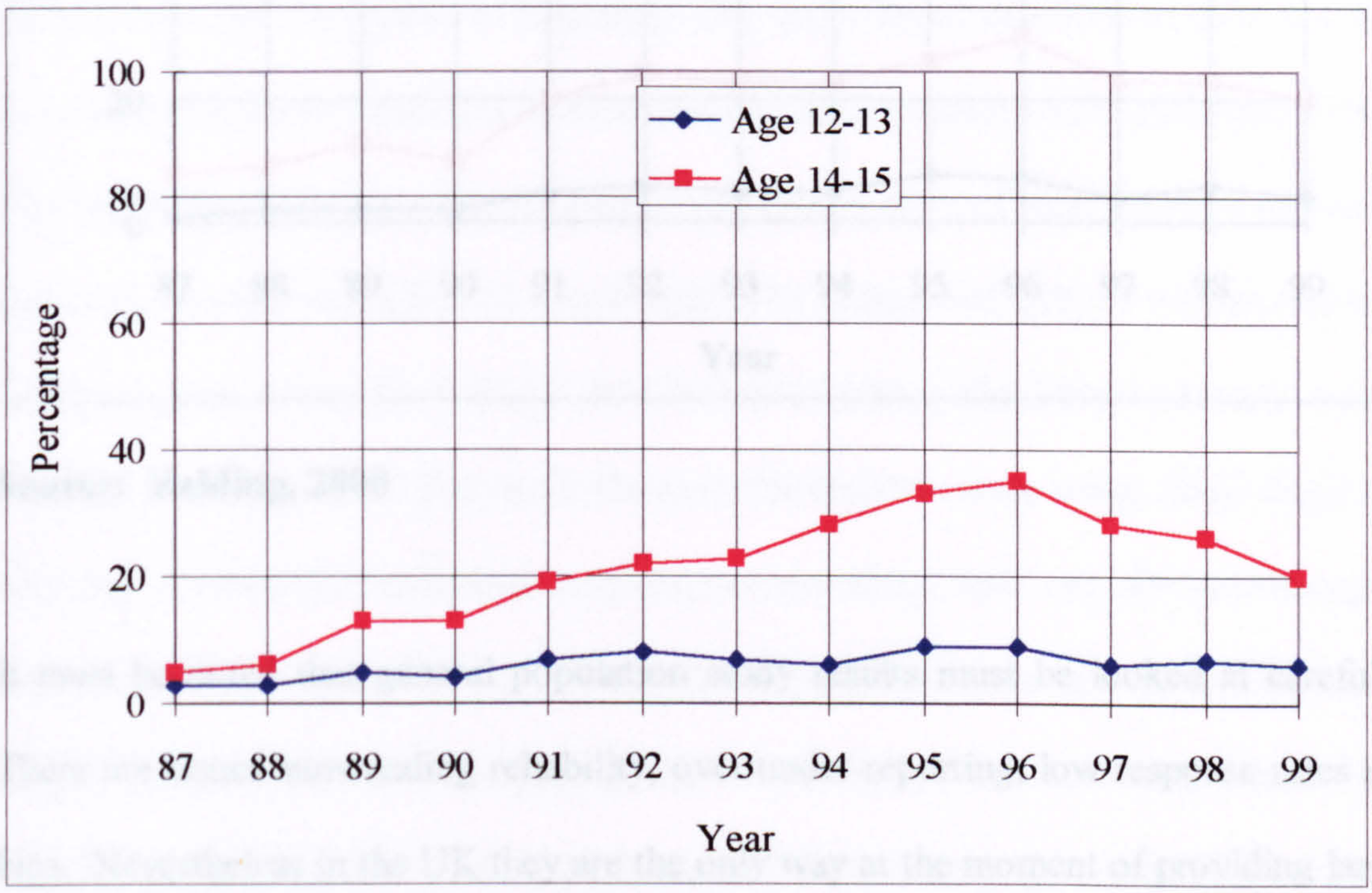
	Used ever/lifetime		
	1994	**1996**	**1998**
Age group			
16-19	46%	45%	49%
20-24	44%	49%	55%
25-29	39%	41%	45%
All 16-29	43%	45%	49%

Source: British Crime Survey, 2000

The results of the general population surveys, and others (Anon., 1995; Reid, 1996; Hughes, 1997) show that the number of young people who drink, smoke and use drugs is alarmingly high. Miller and Plant (1996) surveyed a stratified cluster sample of 7722 pupils aged 15 to 16 years old in 70 secondary schools in the UK in 1995 and found similar results to those found by the General Household Survey. The survey was one of the most detailed of its type in adolescents to have been conducted in the United Kingdom and covered the whole country. Their results showed that almost all pupils had drunk alcohol, 36% had smoked cigarettes in the past 30 days and 42% had at some time used illicit drugs, mainly cannabis. Balding's latest publication in an ongoing study of illicit drug use amongst young people surveyed 40,229 UK school children and found that 21% of 14-15 year olds have tried an illicit drug at some point; 39% knew where to obtain an illegal drug; 58% were fairly sure that they know a drug user and 44% had been offered an illegal drug at some point (Balding, 2000).

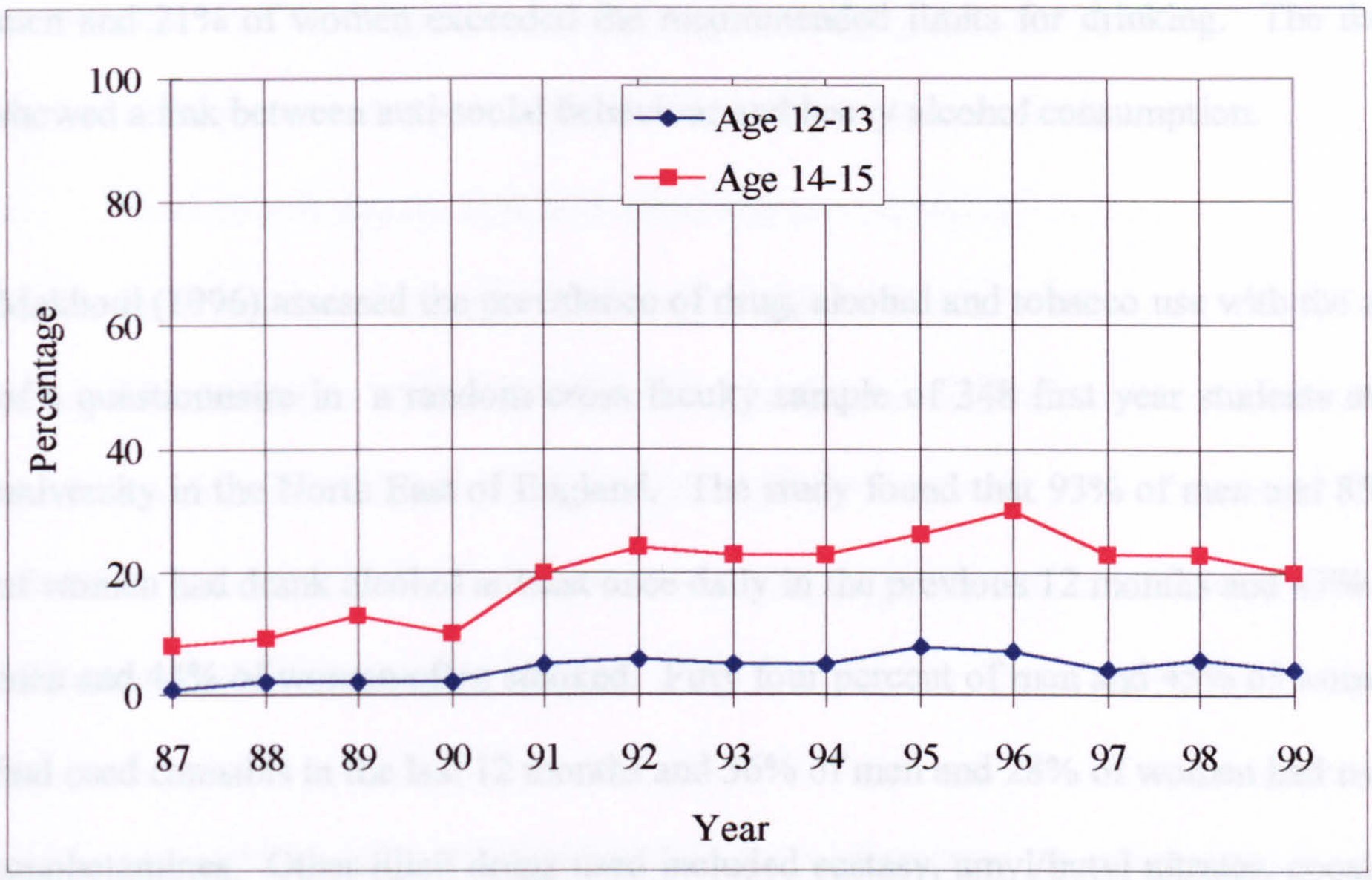
The report further shows that although illicit drug use amongst young people had been rising steadily from 1987 to 1996, there was a levelling off and possibly a downturn in the use of illicit drugs by young people during this period (Balding, 2000; Plant and Miller, 2000) (figures 1.5 and 1.6).

Figure 1.5: Illicit drug use in young men 1987-1999



Source: Balding, 2000

Figure 1.6: Illicit drug use in young women 1987-1999



Source: Balding, 2000

It must be noted that general population study results must be looked at carefully. There are issues surrounding reliability, over/under reporting, low response rates and bias. Nevertheless in the UK they are the only way at the moment of providing large-scale information regarding lifestyle issues in the general population.

1.3 ALCOHOL AND ILLICIT DRUG USE IN UNIVERSITY STUDENTS

It has been suggested the student life at university undergoes a significant transition, influenced by newly found independence both financially and personally. Alcohol and illicit drug use is seen as part of the transition (West al., 1990). West et al (1990) used an anonymous written questionnaire with a randomly selected sample of undergraduates at a London University course; the survey included all the three

undergraduate degree years with a response rate of 68%. Results showed that 38% of men and 21% of women exceeded the recommended limits for drinking. The data showed a link between anti-social behaviour and heavy alcohol consumption.

Makhoul (1996) assessed the prevalence of drug, alcohol and tobacco use with the aid of a questionnaire in a random cross faculty sample of 348 first year students at a university in the North East of England. The study found that 93% of men and 85% of women had drank alcohol at least once daily in the previous 12 months and 47% of men and 44% of women often smoked. Fifty four percent of men and 45% of women had used cannabis in the last 12 months and 36% of men and 28% of women had used amphetamines. Other illicit drugs used included ecstasy, amyl/butyl nitrates, cocaine and magic mushrooms. The study showed that students were using illicit drugs and drinking alcohol for hedonism and sensation-seeking and not for psychological reasons. Humphrey and Mccarthy (1998) surveyed lifestyles in a stratified random sample of 1,963 students studying at the University of the Newcastle Upon Tyne. Results showed that 26% of the sample smoked at least one cigarette per day, and that a higher proportion of female students (28%) smoked than male students (25%). Humphrey and Mccarthy also found that a high percentage of the sample (44% men and 45% women) drank more than the recommended limits of 21 units/week for men and 14/units/week for women which was considerably more than the 38% of men and 21% of women in the study carried out by West et al. A study carried out in Sheffield University found a higher proportion of men (63%) and women (58%) were drinking over the recommended limits. The results showed that 23% of men and 13% of

women scored sufficiently on the CAGE questionnaire to indicate problems with alcohol use. The CAGE questionnaire comprises of 4 questions:

1. Have you ever felt you ought to **C**ut down on your drinking?

2. Have people **A**nnoyed you by criticising your drinking?

3. Have you ever felt bad or **G**uilty about your drinking?

4. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (an 'Eye-opener')?

A total of 2 or more positive answers on the CAGE questionnaire indicates a positive history of alcoholism (Hanny, 1998).

1.4 ALCOHOL AND ILLICIT DRUG USE IN MEDICAL STUDENTS

Evidence shows that the use of alcohol and illicit drug use by medical students does not differ markedly from other student groups, despite their (supposedly) greater knowledge of the potential hazards of alcohol and illicit drugs (Collier and Beales, 1989; Webb et al., 1998). Although there have been many cross-sectional studies carried out in the USA looking at alcohol and illicit drug use by medical students (Kory, 1984; Maddux, 1986; Clark et al., 1987; Forney et al., 1988; Schwartz et al., 1990; Baldwin et al., 1991; Grafton, 1991; Kuzel et al., 1991; Najem et al., 1995; Croen et al., 1997), there have been relatively few such studies conducted in the UK.

The largest study of medical students in the USA examined substance use amongst medical students in 23 medical schools across the USA (Baldwin et al., 1991); 2046 students were surveyed (response rate 67%). An anonymous questionnaire was used and lifetime use of alcohol was reported by 98% and of cannabis 66%; tobacco 55%;

cocaine 33%; amphetamines 23%; LSD 12% and heroin 1%. Ninety percent of students had used the reported substances prior to beginning medical school. Current use of alcohol was reported by 88%; cannabis 10%; tobacco 10%; cocaine 3%; amphetamines 0.3%. No students were 'current' users of heroin. The authors conclude that medical students' life time use of alcohol and illicit drugs did not differ significantly from those of the general population and that current use of these substances was less than in the general population. Except in the case of amphetamines and cocaine, most students had first used alcohol or illicit drugs during high school. Baldwin and colleagues, along with other researchers in the field (Baldwin et al., 1991; Clark et al., 1987; Forney et al., 1988; Schwartz et al., 1990; Kuzel et al., 1991; Croen et al., 1997) have called for better policies and procedures for managing the problem of excessive alcohol and illicit drug use in medical students.

In the UK, Collier and Beales (1989) study of 260 medical students (134 men and 126 women) at St. Bartholemew's Hospital medical school found that the mean weekly alcohol consumption was 20.5 units for men and 14.6 units for women. They proposed that medical students are probably drinking more that the general population and that this shows an interesting paradox in that students have a high awareness of the recommended limits of alcohol and yet are still consuming excessive amounts of it. They further suggest that some medical students are compromising their own health and academic performance through excessive drinking. File and colleagues (1994) surveyed 774 medical and dental students from UMDS and University College and Middlesex Hospitals medical school, using a questionnaire comprising of 35

questions related to exercise, smoking, diet, general health and alcohol. The results showed ethnic differences in alcohol use, with one-third of male non-Asian students in years 1-3, and 59% in year 5 drinking above recommended limits and 12-26% of non-Asian female students drinking above recommended limits. They also found that in all year groups most Asian students were drinking within recommended limits (File et al., 1994). Ghodse and Howse (1994) used an anonymous questionnaire when evaluating medical students from 13 medical schools in England, Scotland and Wales. All 22 medical schools in the UK were originally contacted with 9 refusing to take part. They achieved a total response rate of 68%, and found that 17% of respondents exceeded weekly limits for sensible drinking. Recreational drugs had been used by 27% of the cohort and 9% of it were current users of illicit drugs. Engs and Teijlingen (1997) investigated the patterns of alcohol, tobacco and cannabis use in post-secondary health professional students (medical, nursing, education and psychology) in Scotland. The results showed that, unlike the study by Collier and Beales, fewer medical students than those studying nursing, education or psychology drank excessively and that medical students were less likely to smoke tobacco or use cannabis. They conclude that the differences may be down to underlying social class differences between the disciplines. File et al. (1994) argues that although most medical students are sensible in their alcohol use, a significant minority develop, or persist in, a pattern of behaviour of alcohol use that is potentially harmful.

There have been two longitudinal studies of alcohol or substance use carried out in the USA. Croen et al., (1997) surveyed a cohort of medical students in their first and third year at medical school. Results showed that most students had drank alcohol in

the previous year; 92% of the first year and 95% of the third year. Cannabis was the illicit drug most often used with 29% in the first year and 22% in the third year reported having experimented with cannabis. They found that most students reported a decrease rather than an increase in the use of a substance since entering medical school. Clark et al. (1987) surveyed a single cohort of medical students at six time points through medical school, from the very first day at medical school until a few months before graduation. Twenty seven percent of students met the criteria for alcohol abuse at the first assessment compared to 32% at the final assessment. The overall findings showed that the alcohol consumption of men declined steadily during medical school whilst for women it stayed fairly consistent. The authors suggest that the intervention/treatment programmes offered to students should consist of three measures. Firstly, the programmes should be directed at all students, not only those who appear to have alcohol problems. Secondly, programs should consist of self-report surveys of alcohol use and thirdly, that the results of these surveys should be shared with the students whilst still at medical school, with the belief that medical students will identify better with information given to them which refers directly to themselves and their classmates. To date there have been no longitudinal studies carried out in the UK looking at alcohol and illicit drug use in medical students.

Geographic, cultural, social and educational differences as well as differences in methodology do limit the comparison of USA data to UK studies.

1.5 ALCOHOL AND ILLICIT DRUG USE IN DOCTORS

It is true that behaviour and lifestyles in the general public are, and will be influenced in part by medical advice. However, it appears that doctors themselves are pursuing unhealthy lifestyles by drinking excessive amounts of alcohol and even experimenting with illicit drugs (Brooke et al., 1993; BMA, 1998). Doctors also frequently act as role models for society and unhealthy lifestyles in such individuals may give inappropriate messages to their patients. Table 1.5 shows that male doctors have a 341 mortality ratio (the average occupation has a ratio of 100).

Table 1.5: Occupations with high rates of liver cirrhosis mortality, 1979-80 and 1982-90

Occupation	Mortality Ratio
Men	233
Lawyers	341
Doctors	198
Literary and artistic	265
Sea Farers	383
Publicans and bar staff	171
Caterers	182
Armed forces	140
Cooks and kitchen porters	144
Dockers and Goods porters	144
Women	
Literary and artistic	215
Publicans and bar staff	378
Hairdressers	211

Source: Office of Population Censuses and Surveys, 1995

Adshead and Clare (1986) suggest that the evidence for excessive drinking among doctors is persuasive and that doctors may under-diagnose alcohol problems in middle-class and professional patients because the patients resemble themselves closely. Clare (1990) further suggests that the prevalence of alcohol problems in the medical profession is of concern. The most recent government report published by

the BMA (1998) "The Misuse of Alcohol and other Drugs by Doctors" states that approximately 1 in 15 doctors in the United Kingdom may suffer from some sort of dependence to alcohol or drugs or both. The report suggests that abuse is not confined to either gender or any one sector of the medical profession but is also found in general practice, hospital medicine and in the private sector. The review of the literature by Esmail (1997) relating to alcoholism and doctors, states that alcoholism is an affliction affecting many doctors and has many negative consequences, both for the individual and society at large. There have been calls for compulsory medical tests for doctors in order to identify early warning signs of alcohol problems (Christie, 1997) and has even been advocated by medical students themselves (BMA, 2000).

A study of 170 PRHOs found that approximately 20% of the sample reported occasional or frequent bouts of heavy drinking, with 7% reporting use of recreational drugs (Firth, 1987). This compares to 10% of doctors drinking heavily in an American study of 500 physicians in the 1980s (McAuliffe al., 1984). Brooke and colleagues identified that the most common pathways for doctors who have a dependence to alcohol and/or drugs were personality and anxiety and depression (Brooke et al., 1993).

1.6 PREVIOUS SURVEYS IN MEDICAL STUDENTS' LIFESTYLES AT NEWCASTLE UNIVERSITY

The very first study of student lifestyles at Newcastle University was carried out by Golding et al (1983). They surveyed 178 (110 men and 68 women) randomly selected students from the different faculties; students were recruited from college

refectories, bars, library and departmental coffee areas. The students' lifestyles were evaluated, using a questionnaire which consisted of the Eysenck Personality Questionnaire, the Zuckerman Sensation Seeking Scale and information on drinking, drug-taking and cigarette smoking. The study also investigated the relationship between personality and behavioural variables and smoking. Golding et al found that cigarette smokers were characterised by significantly having higher P (Psychoticism) and low L (Lie scale) scores on the Eysenck Personality Questionnaire, high SS (sensation seeking scale) scores on the Zuckerman Sensation Seeking Scale, elevated alcohol, tea and coffee consumption, greater usage of cannabis and other drugs and to have more smokers as close friends. One-third of the sample were reported to be regular smokers. Later, Golding and Cornish (1987) surveyed a sample of 215 medical students (119 men and 96 women) in 1983 and 1984 at Newcastle University and compared them to 145 non-medical students (77 men and 68 women). The students completed a personality test and a lifestyles questionnaire as part of a practical class in pharmacology. Golding and Cornish found that 21% of medical students and 47% of non-medical students reported experience with cannabis and 3% of medical students and 24% of non-medical students reported having used other illicit drugs, including magic mushrooms, LSD, amphetamines and cocaine.

The next study of Newcastle University medical students' lifestyles was carried out a decade later in 1993/1994 by Ashton and Kamali. The study design was similar to that by Golding and Cornish on medical students at Newcastle University in 1983/1984. Personality characteristics and lifestyle variables were assessed in two cohorts of second year medical students as part of a pyschopharmarmocology 'teach

in' in 1993 and 1994 (Ashton and Kamali, 1995). The sample included 186 medical students (77 men and 109 women). Measures included the Eysenck Personality Questionnaire, the Hospital Anxiety and Depression scale, and a questionnaire concerning consumption of alcohol, tobacco, cannabis and other illicit drugs and other lifestyle variables. The 1993/1994 study showed high levels of alcohol use, with 32% of men and 21% of women drinking over the recommended limits (Health Education Authority, 1992). The reported prevalence of current cigarette smoking (defined as more than one cigarette per day) was 12% in men and 30% in women. Experience of cannabis (ever used) was reported by 54% of men and 46% of women, a large increase since the 1983/1984 survey carried out by Golding and Cornish (1987), wherein only 26% of male and 15% of female medical students reported having ever used cannabis. Other illicit drugs, including amphetamines, amyl nitrate, LSD, Ecstasy, magic mushrooms, cocaine and opioids, had been taken by 22% of the sample, compared with only 3% in 1983/1984. The 1993/94 survey also showed high levels of anxiety: 39% of students had anxiety ratings within the clinically significant range. There were no significant correlations between any of the personality variables and either alcohol consumption or cannabis use.

In order to determine whether alcohol and drug consumption differed between different university students, a nation-wide cross-faculty study was carried out in 1995/1996 by Webb and colleagues. In this study 3699 second year students in ten UK universities were surveyed using the same lifestyles questionnaire as that used in 1993/94 by Ashton and Kamali (1995). They found that medical students did not differ markedly in their drinking and drug taking habits from many other students

groups, despite their (supposedly) greater knowledge of the potential hazards of alcohol and other drugs (Webb et al., 1996). The study showed that many university students had high levels of alcohol consumption, with 61% of men and 48% of women exceeding the recommended limits (Health Education Authority, 1992). The frequency of current smoking was 26% in men and 25% in women. The use of illicit drugs, particularly cannabis, was shown to be widespread, with 60% of men and 55% of women using cannabis. The most commonly used illicit drugs, after cannabis, were amphetamines (19%), LSD (18%), and magic mushrooms (16%). The results showed a highly significant association between cannabis use and the consumption of alcohol, tobacco and other illicit drugs. The main reason given for using illicit drugs was 'pleasure' (75% of men, 72% of women).

Of the medical students surveyed, 48% of men and 38% of women who drank exceeded recommended limits of alcohol consumption and 54% of men and 40% of women had experimented with illicit drugs. It is important to note that although medical students' levels of alcohol were lower than those students who studied biological science, sociology, law and physics, levels were very similar to those students studying mathematics, engineering and veterinary science. Similarly in the case of illicit drugs, although the use of illicit drugs was higher amongst arts and social science students, the medical students' use differed little from those studying mathematics, engineering and law (Webb et al., 1998).

A recent study carried out at the University of Leeds medical school used a similar methodology to that of Webb and colleagues. (Pickard et al., 2000); Questionnaires

were completed by 208 second year medical students (123 women). Compared to the national survey in medical student carried out by Webb and colleagues, only slightly more male students (53% vs 48%) were drinking over the recommended limits, but a considerably greater number of women were drinking over the recommended limits at Leeds university (51% vs 38%). Twenty eight percent of men and 36% of women had experimented with illicit drugs compared to 54% of men and 40% of women medical students of other universities in the study carried out by Webb et al. (1998).

1.7 METHODOLOGICAL ISSUES REGARDING ALCOHOL USE

There is an inconsistency in the reporting of alcohol consumption and a lack of uniform methods for the eliciting and reporting of data (Liljestrand, 1993). Although evidence relating to reporting of alcohol consumption is limited and confusing (Plant, 1985) there is evidence to suggest that self-reported surveys of alcohol consumption are afflicted by under-reporting (Midanik, 1982). Generally whilst men are more likely to underestimate their drinking, women tend to report their drinking more accurately (Garrett and Barr, 1974).

1.8 STRESS

Stress is a complex issue but is generally defined as a physical, mental or emotional reaction resulting from an individual's response to environmental tensions, conflicts, pressures and similar stimuli (Fontana and Abouserie, 1993). It is a threat to the quality of life (Cox, 1978), as well as physical and psychological well-being (Cooper, 1996). It is often described as being associated with emotions such as anger, anxiety and depression (Cox, 1978) and there is evidence to suggest that it is also related to

impoverished mental health (Cooper, 1996). Stress can also have positive qualities in that the individual may feel more excited than agitated and perceive the situation positively as a form of challenge (Seyle, 1956). Stress is something that people recognise in others, but often miss in themselves (Grainger, 1994), and is an unavoidable part of an individual's working life (Cooper, 1988). Individual responses to stress can vary greatly and it has been shown that certain people are more likely to experience high levels of stress in their jobs than others (Fontana and Abouserie, 1993). There are various methods for assessing stress, including the General Health Questionnaire (GHQ) (Goldberg and Williams, 1988) and the Occupational Stress Indicator (OSI) (Cooper, 1988). Details regarding these methods can be found in Chapter 2, sections 2.2.6 (GHQ), section 2.2.7 (OSI).

1.8.1 Stress in medical students

There have been numerous studies investigating stress in medical students. Stewart et al. (1997); Guthrie et al., (1995) and Wolf (1994) all found that students are stressed at a very early stage in their university life and that closer attention must be paid to the way that students deal with it. Michie and Sandhu (1994) suggest that anxiety and depression caused by stress can lead to impaired concentration, memory and decision-making. They also found that learning to cope with stress is an important ingredient in the training of a doctor and that all students should be taught stress management as part of their studies. The BMA Report 'Stress and the Medical Profession' 1992 states that medical students stand out from the rest of the student body because of the length of time it takes to qualify, and the overloaded curriculum involving acquisition of basic knowledge and professional skills in a field of infinite breadth (BMA., 1992).

Medicine itself is a stressful occupation and much of the stress is inherent in the job itself and therefore can not be avoided, but that appropriate support systems need to be devised and introduced into both undergraduate and postgraduate training (Coles, 1994; Berger, 2000; O'Neal Roach, 2000).

1.8.2 Stress in doctors

It has been reported that junior doctors suffer from high levels of stress (Firth-Cozens, 1987; 1990;1998; King et al., 1992; Sutherland and Cooper, 1993; Grainger et al., 1995; Symons, 1995; Agius et al., 1996; Deary et al., 1996; Kapur and House, 1997; Williams et al., 1997; 1998; Tattersall et al., 1999) and that excessive levels of it may lead to dissatisfaction, lower morale and poorer work performance (Firth-Cozens, 1987). Work related stress and anxiety can not only affect the doctors' health but it can also have an impact on the quality of patient care provided (Firth-Cozens, 1993).

Firth (1986) examined levels and sources of stress in a group of medical students as undergraduates and then again as doctors and concluded that there are many difficult, unchangeable aspects of medical training, but that staff need to be aware of stress levels, and that any sense of this stress being an 'initiation rite' should give way to a climate in which the difficulties faced by the different strata of the profession can be openly acknowledged. Firth surveyed 405 fourth year medical students at the universities of Sheffield, Manchester and Leeds using a self-completion questionnaire that was anonymous and completed voluntarily. 318 questionnaires were completed (185 men), giving a response rate of 79%. The estimated prevalence of emotional

disturbance (measured with the 12 question GHQ) was 31%. 238 of the students were followed up as PRHOs in 1986 (Firth-Cozens, 1987). In total, 170 completed the questionnaire. The estimated prevalence of emotional disturbance in the group at this point had risen to 50%. This was considerably higher compared to other occupations (e.g. 36% of female and 34% of male civil servants (Firth-Cozens, 1987). Firth-Cozens surveyed 131 of the PRHOS again 10 years later (1993-1994) who were then working as general practitioners. Results showed that 33% of the sample scored above the threshold for stress eight years after graduating from medical school (Firth-Cozens, 1997;1998).

Questions relating to stress were included in the 1997 questionnaire of the British Medical Association 10 year study of the career paths of doctors who graduated from medical school in 1995 (BMA., 1998). Questionnaires were sent to 545 individuals (the majority were in their first year as senior house officers), of which 515 were returned and 440 used for analysis. The questionnaire included questions relating to potential work-related stressors using the Occupational Stress Indicator (Cooper, 1988). 'The demands that work made on personal/social life' was considered a source of stress by 66% of the sample (29% stated that it was a definite source and 37% stated that it was generally a source of stress). Fifty two percent of the sample thought that 'having too much work to do' was a source of stress (17% definite source; 35% generally a source of stress) and 'having to work long hours' was considered a source of stress by 48% of the sample (18% definite; 30% generally). Qualitative data showed that work-related stress was not related to the practice of medicine but to the organisational environment in which the doctors worked. The

study found that the majority of work-related stress was as a result of hospital trusts not adhering to contractual obligations for sick leave, study leave and annual leave and not following existing guidelines for mess and other facilities.

A study of 182 PRHOs working in the West Midlands Regional Health Authority also found that the house officers were dissatisfied with their jobs and suffered from high levels of mental and physical ill health when compared to a large group of non-health care white-collar workers (Grainger et al., 1995). They believe that the prevention of stress-related disorders requires intervention at both organisational and individual level. Kapur and House (1997) also found, that junior doctors, like medical students are in need of support in order to improve job satisfaction and to reduce manifestations of stress. Their study of two cohorts of 30 PRHOs found low job satisfaction and increased psychological morbidity in such individuals.

Rees and Cooper (1992) examined levels of occupational stress in 1127 health service workers in the UK. The sample consisted of 7 occupational groups; administrative and clerical staff (n=129); ancillary and maintenance staff (n=65); doctors (n=153); nurses (n=555); professions allied to medicine (n=147); scientists and technicians (n=66); and general managers (n=12). Results showed that health care workers reported significantly more pressure at work than a comparative sample of non-health care workers. The findings further show that approximately one in 12 health care workers had stress symptoms of equal magnitude to patients attending clinical psychology outpatient clinics (Rees, 1992).

The BMA Report 1998, 'The Misuse of Alcohol and other Drugs by Doctors' found that doctors are reluctant to seek help due to the stigma attached to psychological illness and the professional risks associated with its acknowledgement (BMA, 1998).

1.9 DRUG DEFINITION

In order to examine drug use it is necessary to know which drugs are being referred to, their origins and sources, the range and type of effects they can produce and the manner in which they are used.

It is sometimes difficult to define a drug and therefore many definitions have been put forward. One of the better definitions is 'any substance which when taken into the body may modify one or more of its physical or mental functions' (Cornwell and Cornwell, 1987). The dividing line between legal and illegal drugs is largely a social construct, reliant on tradition, morality and culture as much as science and logic, making rational debate about drug use extremely difficult (Collin, 1997). Drug abuse is considered a dangerous problem by most societies throughout the world because of its negative social and health effects. Legal drugs, largely taken for their mood altering and enhancing effects include alcohol, tobacco, and caffeine. Currently, many drugs can be obtained by illicit means; these include cannabis, LSD, amphetamines, cocaine/crack, ecstasy, magic mushrooms, amyl/butyl nitrate, temazepam/diazepam, opium/morphine/heroin and steroids.

The Misuse of Drugs Act 1971 grades illicit drugs into three classes according to the harmfulness attributable to a drug when it is misused (BMA and the Royal Pharmaceutical Society of Great Britain, 1995).

Class A includes: alfentanil, cocaine, dextromoramide, diamorphine (heroin), dipipanone, lysergide (LSD), methadone, morphine, opium, pethidine, phencyclidine, and class B substances when prepared for injection.

Class B includes: oral amphetamines, barbiturates, cannabis, cannabis resin, codeine, ethylmorphine, glutethimide, pentazocine, phenmetrazine and pholcodine.

Class C includes: certain drugs related to the amphetamines such as benzphetamine and chlorphentermine, buprenorphine, diethypropion, mazindol, meprobamate, pemoline, pipradrol and most benzodiazepines.

1.9.1 Alcohol

There are many different types of alcohol, but in this context, alcohol is an equivalent term for ethyl alcohol (ethanol). Ethanol is produced by the fermentation of sugars by micro-organisms, in particular by yeast. Almost any plant material can be fermented to produce ethanol but the most commonly used materials are grapes and cereal grains (Cornwell, 1987). A unit of alcohol contains 10 ml of ethanol (Plant and Cameron, 2000).

Ethanol has been made since ancient times by the fermentation of sugars (Microsoft, 1997). Alcohol is a drug, albeit a legal one, having many effects on the body, and is

distributed throughout the body water and so most tissues, including the heart, brain and muscles are exposed to the same concentrations as those in the blood. Blood alcohol concentrations vary according to a number of factors including, body weight, sex, type of drink and previous exposure to alcohol (Paton, 1994).

It has to be remembered that drinking alcohol is an accepted and pleasurable part of social life but sustained drinking in excess of recommended limits (more than 14 units/week for women and 21 units/week for men (Royal College of Physicians, 1995) is seen to progressively increase the risk of raised blood pressure and stroke, and in addition is associated with other conditions including cancers and liver cirrhosis (Royal College of Physicians, 1995; Anderson et al., 1994), not to mention alcohol related accidents including drink-driving (Department of Health, 1995; Department of Environment, Transport and the Regions, 1998). Around half of all pedestrians aged 16-60 killed in road accidents have above the legal drink-drive limit of alcohol in their bloodstream and approximately half of all adults admitted to hospital with head injuries are under the influence of alcohol. Alcohol is a factor in approximately 47% of accidental drowning (Hingson and Rowland, 1993), 40% of household fires (Health Education Authority, 1996) and 25% of work related accidents (International Labour Office, 1987). It is estimated that around 4,500 deaths in the UK in 1996 were directly attributable to alcohol misuse, and it was implicated in up to 40,000 deaths in total (Office for National Statistics, 1997; Raistrick et al., 1999). It is also estimated that 8 out of 10 people needing treatment in Accident and Emergency Departments at peak times have alcohol-related injuries or problems (Waller et al., 1998).

1.9.2 Tobacco *(Nicotiana tabacum)*

Tobacco is the name applied to plants of the nightshade family, that are cultivated for their leaves. Cigarette smoke contains many chemicals including nicotine, which is highly addictive (Microsoft, 1997). Tobacco smoking is currently the single greatest cause of illness and death. It is the main cause of cancers of the lung, windpipe, mouth and voice box; it greatly affects respiratory health; and is an important cause of coronary heart disease (Tees Health Authority, 1995). This is in stark contrast to the initial perception that tobacco was regarded, when first discovered at the beginning of the 16^{th} Century, as having great medical value and was recommended for a great variety of diseases (Eysenck, 1965).

1.9.3 Caffeine

Caffeine is an alkaloid ($C_8H_{10}O_2N_4 \cdot H_2O$) (Microsoft, 1997), that is found in tea, coffee, cocoa, many soft drinks such as colas and some chocolates. It is also used in a wide variety of medicines especially cold remedies (ISDD., 1999). Caffeine was first discovered in coffee in 1820 (Microsoft, 1997).

The amount of caffeine consumed is calculated as follows:

Instant coffee: 83 mg per cup.

Tea: 65 mg per cup.

Cola: 18 mg per can.

Cocoa: 4 mg per cup.

Chocolate: 1 mg caffeine per gram of chocolate.

Note: These values are only very approximate due to the wide range of caffeine content in individually prepared beverages.

A light user of caffeine is identified as using 0-200 mg of caffeine per day. A moderate user 200-400 mg caffeine per day and a heavy user more than 400 mg of caffeine per day (Tiffin et al., 1995).

1.9.4 Cannabis (*Cannabis sativa)*

Cannabis is the general name for the drug made from the Indian hemp plant *Cannabis sativa.* In general there are two main types of cannabis both of which have been used for centuries all over the world. The first type Cannabis, is made from the dried leaves, flowers and stems, and is also known as 'Bush, Grass, Weed, Ganja, Draw, and Sensi. The presence of seeds in Cannabis indicates a lower quality, and material which contains only the leaves is generally considered of poor quality (Cornwell and Cornwell, 1987; Atha, 1997).

The second type is Hashish, made from the resin of the plant which has been pressed into blocks. Both forms are normally rolled up into a cigarette and smoked. Cannabis is the most commonly used illicit drug today and its use is seen by many as a leisure activity being a relaxant and a mild intoxicant (Laurie, 1971).

1.9.5 LSD (Lysergic Acid Diethylamide)

Lysergic Acid Diethylamide (LSD) is a potent hallucinogenic drug, first synthesised by Dr. A. Hofmann in Germany in 1938. LSD is derived from ergot *(Claviceps purpurea)*, a fungus that is found growing wild on rye and other grasses (ISDD., 1999). It is a white powder generally mixed with other substances and formed into tablets or capsules to be taken orally but as a street drug it is absorbed into paper

sheets and cut into tiny squares like postage stamps (ISDD., 1999). The effects begin after about 30 minutes to 1 hour after administration. These effects reach a peak after 2 to 6 hours and decline after about 12 hours, depending on the dosage. The drug evokes dreamlike changes in mood and thought and alters the perception of time and space (Microsoft, 1997). Among some groups it is seen as a key to quasi religious transcendental experiences (Makhoul, 1996). Physiological effects include, nausea, tremors, drowsiness and muscular weakness.

1.9.6 Amphetamines (speed)

Amphetamines was first prepared in 1887 and first used medically in 1935 (Laurie, 1971). They were initially used to counter low blood pressure, help asthmatics breathe more easily and suppress appetite (ISDD., 1999). As a street drug, amphetamine usually comes as a white, grey, yellowish or pinky powder. The purity rate of street powders is less than 10%, the rest being made up of milder stimulants such as caffeine, paracetamol or substances like glucose, dried baby milk, flour or talcum powder. The powder form can be snorted up the nose, mixed in a drink or prepared for injection (ISDD., 1999). For most users, by stimulating the central nervous system, it produces endurance, euphoria, self-confidence, energy, decreased appetite and alertness but for some the predominant feelings may be anxiety, irritability and restlessness.

The current medical use of amphetamines is limited although Dexedrine is available for the treatment of narcolepsy and Ritalin for the treatment of Attention Deficit Syndrome in children (ISDD., 1999).

1.9.7 Cocaine/crack

Cocaine (alkaloid) is obtained from the leaves of the Andean coca plant *(Erythroxylon coca)*. Cocaine hydrochloride is a dry white powder that is usually inhaled through a tube, and more rarely injected into a vein. Crack (a form of cocaine) is shaped into pellets and placed in special smoking equipment. Like amphetamines it gives feelings of euphoria, exhilaration and decreased appetite. The psychological effects of cocaine appear after about 15 to 30 minutes of inhaling the drug. Side effects include anxiety, irritability and occasionally paranoid psychosis (Microsoft, 1997).

1.9.8 Ecstasy (methylene dioxymethamphetamine)

Ecstasy (methylene dioxymethamphetamine) is known on the streets as 'E'. It is taken in tablet or capsule form. Ecstasy is popular and its use is widespread amongst young people. Most users feel a mild euphoric 'rush' and feelings of serenity and calmness with feelings of stimulated empathy between users (Makhoul, 1996). Psychological effects include fatigue, depression and flashbacks (Graham-Smith, 1994).

1.9.9 Magic mushrooms (Psilocybe Semilanceata)

Magic mushrooms are a hallucinogenic species of mushrooms eaten for 'kicks', with the liberty cap mushroom, being most commonly used (Proudfoot, 1993). The effects include euphoria and hilarity, and prominent signs of physiological arousal including increased heart rate and blood pressure (Makhoul, 1996).

1.9.10 Amyl/Butyl Nitrate (poppers)

Amyl and butyl nitrates are related to nitrous oxide or laughing gas and are inhaled. They are commonly known as 'poppers' and are taken by inhaling straight from the bottle or from a cloth (Makhoul, 1996). There is now a medical concern for their widespread misuse. They are taken for the sudden rush of blood to the brain and cause feelings of euphoria. Although common amongst the gay community they are also becoming more common among the wider population, including young children (Microsoft, 1997).

1.9.11 Temazepam/diazepam.

Temazepam and diazepam are forms of benzodiazepines (tranquillisers). They are manufactured as powders formed into a variety of capsules and pills (Makhoul, 1996). Clinically they are used in the treatment of anxiety, insomnia and epilepsy (Microsoft, 1997). Benzodiazepines are seen as safer than barbiturates, but addiction to them is still a problem. Benzodiazepines such as tempazapam/diazepam are taken to relieve tension and anxiety, and induce feelings of calmness and relaxation, but more so for their recreational effects. The latter range from talkativeness and excitement, to aggressive and antisocial acts (BMA and the Royal Pharmaceutical Society of Great Britain, 1995).

1.9.12 Opium/morphine/heroin.

The term Opioids includes drugs derived from opium (including morphine and heroin). Medically, morphine is a potent analgesic and is the standard by which other pain-relieving drugs are measured (Microsoft, 1997).

Opiate powders can be swallowed or dissolved in water and injected. Heroin is rarely swallowed but can be sniffed like cocaine or smoked. Opium itself is either eaten or smoked (Makhoul, 1996). Opioids produce a 'rush' or 'high' immediately after use, due to their direct action on the brain. However their long term use causes dependence and their abrupt cessation produces withdrawal symptoms. These can produce a state of profound indifference, but symptoms of withdrawal include kicking movements in the legs, anxiety, insomnia, nausea, sweating, cramps, vomiting, diarrhoea and fever (Microsoft, 1997).

1.9.13 Steroids

Steroids are a large group of naturally occurring and synthetic lipids, with a great diversity of physiological activity (Microsoft, 1997).

Anabolic steroids induce weight gain and increase muscle mass and are seen as a huge problem in sport because of their misuse. Steroids are derived from the male sex hormone testosterone. They are most commonly taken by mouth or by intramuscular injection. In the long term, use can have serious psychological and physiological side effects, including increased aggressive behaviour and cancer of the liver (Microsoft, 1997).

1.10 THE BASIS FOR THE RESEARCH

The increasing alcohol and illicit drug use amongst medical students is a cause for concern and suggests a need for provision of better education and support systems on the health risks associated with such unhealthy lifestyles, but in order for educational

provision to be effective, it needs to be established whether the excessive alcohol consumption and illicit drug taking among undergraduate medical students is a temporary phenomenon reflecting today's style of living amongst young people and whether such students curb their pleasure-seeking lifestyles when they are later in a position of professional responsibility. The main aim of this thesis is to address the above issues by studying lifestyles in cohorts of medical students at Newcastle University.

CHAPTER 2

Subjects and methods

2.1 INTRODUCTION

This chapter outlines the main issues addressed by my research and the methodology used. The content of the questionnaire is also described in detail.

2.2 QUESTIONNAIRE DESIGN

The research was conducted using a modified version of the standard questionnaire (see appendices) employed for a nation-wide survey of university students lifestyles (Webb et al., 1996), which was designed after much consultation with other experts including psychologists, sociologists and a statistician.

The questionnaire used included demographic features and questions on lifestyle, including alcohol consumption, tobacco, caffeine, proprietary and prescribed medicines and illicit drugs, participation in sports, sleep quality and the Hospital Anxiety Depression (HAD) scale (Zigmond and Snaith, 1983) for measurement of subjective anxiety and depression. The Eysenck Personality Questionnaire (EPQ) (Eysenck, 1975) was used to measure trait personality and job satisfaction. Stress was evaluated in PRHOs using the Job Satisfaction component of the OSI (Cooper, 1988) and the 30 item GHQ (Goldberg and Williams, 1988), respectively (see the appendix for a copy of the questionnaire). The HAD and the EPQ were used in my research because they had been used in the very first survey carried out by Ashton and Kamali in 1992/1993. This enabled me to compare my data at all points. The OSI and the GHQ were introduced into the survey in 1996 in order to compare my data to that of other studies relating to stress and job satisfaction.

2.2.1 Demographics

Demographic details relating to individuals were recorded; including sex; age; ethnicity; religion and citizenship. It was stressed on the questionnaire that although the details are important to the study, they were not to be used for identification purposes, and were therefore strictly confidential.

2.2.2 Alcohol

For the purpose of this thesis the previous limits of 21/units per week for men and 14/units per week for women will be used (Royal College of Physicians, 1995). There were six questions concerning alcohol in the questionnaire. These evaluated weekly alcohol consumption; reasons for drinking; binge drinking (defined as drinking more than half the recommended limits of alcohol on one occasion per week (Moore et al., 1994); age at which the respondent had his/her first drink and risk taking behaviour.

2.2.3 Smoking

There were four questions concerning smoking. The questions evaluated prevalence of smoking; reasons for smoking and age at which the respondent first started smoking.

2.2.4 Illicit drugs

The questions on illicit drugs, included the use of cannabis, LSD, amphetamines, cocaine/crack, ecstasy, magic mushrooms, amyl/butyl nitrate, temazepam/diazepam, opium/morphine/heroin and steroids. Students were asked whether they had ever

used any of these substances and if they were currently using any, the reasons for their use and the age they first ever had used illicit drugs.

2.2.5 The Hospital Anxiety and Depression (HAD) scale

The HAD scale was used to assess the students' level of state anxiety and depression. The questionnaire consisted of 14 questions, designed to measure state levels of anxiety and depression. Scores of 8-10 suggest 'possible' and above 10 'probable' clinically significant anxiety or depression (Zigmond and Snaith, 1983). Items referring to symptoms that may have a physical cause (e.g. insomnia and weight loss) are not included in the scale. Therefore, the HAD is considered to be unbiased by coexisting general medical conditions (Snaith, 1987). The HAD has previously been used as a subjective measurement of anxiety and stress in medical students (Ashton and Kamali, 1995; Webb et al., 1996; 1998) and doctors (Caplan, 1994).

2.2.6 The General Health Questionnaire (GHQ)

The 30 question version of the GHQ (Goldberg and Williams, 1988) was used for the measurement of psychological stress, wherein a score of >4 indicates the possible presence of psychological stress. There are four versions of the GHQ, each using a different number of questions (ranging from 12-60 questions). The GHQ has been well used and validated (Goldberg and Williams, 1988). Various versions have been used as a measure of stress in the medical profession (Firth, 1986; Firth-Cozens, 1987; Caplan, 1994; Kapur et al., 1999; Tattersall et al., 1999). The GHQ does not measure long-standing attributes of personality, nor does it make assessments on the subject's future, but focuses instead on the present state of the person's mind

(Goldberg, 1972). At any one time between 12 and 20% of the general population will score over the threshold for stress with the GHQ (Goldberg, 1972). However a study of 6498 randomly selected British individuals found that 27% (men) and 33% (women) scored over the threshold for stress (Cox et al., 1987). The severity estimation for psychological stress in each individual was determined using the Likert method, by which each item has a score range of 0 to 3 (maximum score of 90). Validation studies of the GHQ have suggested that a cut-off score between 4 and 5 is a useful first stage screen for possible cases of psychiatric disorder (Tarnoplosky, 1979).

2.2.6.1 Stress factors

Students were asked which factors in their university life they currently found stressful. Respondents were given 5 options including 'other' and were asked to circle more than one option if required.

2.2.7 The Occupational Stress Indicator (OSI)

The OSI is a reliable and validated instrument which has been used successfully in the health care setting. The OSI has been used extensively as a diagnostic tool to measure job stress in the medical profession (Grainger et al., 1995; Fielden and Peckar, 1998; Reid and Moss, 1999). The job satisfaction component of the OSI was used to measure stress in PRHOs. The job satisfaction score is produced from five sub-scale scores (Cooper, 1988); achievement, value and growth; the job itself; organisational design and structure; organisational processes and personal relationships. Measurements of both intrinsic and extrinsic satisfaction with the job and the

organisation is measured on a 6-point Likert scale, (1 - very much dissatisfaction to 6 - very much satisfaction). The higher the score, the more satisfaction the person has with his/her job. The possible range of scores is 22-132.

Normative data (Cooper et al., 1989) for the job satisfaction component of the OSI are given in table 2.1.

Table 2.1: OSI normative data for 6326 non-health care workers

	Mean values (±SD)
Achievement value and growth	21.7 (5.7)
Job itself	16.3 (3.3)
Organisation design and structure	16.7 (4.2)
Organisation processes	15.5 (3.8)
Personal relationships	11.8 (2.5)
Total job satisfaction	81.8 (16.6)

2.2.8 The Eysenck Personality Questionnaire (EPQ)

The 90 question version of the EPQ was used to measure trait personality. The scale attempts to measure the major dimensions of personality, Psychoticism (P), Neuroticism (N), Extraversion (E) and Lie scale (E) from self ratings and is seen as the most applicable instrument for measuring these personality domains (Haapasalo, 1990). Psychoticism refers to an underlying dispositional personality trait which is present in varying degrees in all persons; if present in marked degree, it predisposes a person to the development of psychiatric abnormalities. Another explanation of

psychoticism is 'tough-mindedness'. A high Neuroticism score could describe an anxious, worrying individual, moody and frequently depressed. The Extraversion score can indicate whether a person is introvert or extrovert (the higher the score the more extrovert the individual). Another term for Neuroticism is 'emotionality'. The Lie scale (L) measures dissimulation (Eysenck, 1975). The EPQ has been used to measure personality characteristics of univeristy students (Golding et al., 1983; Golding and Cornish, 1987, Ashton and Kamali, 1995; Francis and Jackson ,1998) and of others in various occupations (Augestad and Levander, 1992; Turner et al., 1995; Iacovides et al., 1999; Center and Callaway, 1999). The EPQ has been well validated (Sanderman and Ranchor, 1994; Taub 1998). Normative data for the EPQ (with age norms) are shown as table 2.2 (Eysenck, 1975).

Table 2.2: Normative data for the EPQ: Mean (± SD)

Ages		P	E	N	L
MEN	**n**				
16-19	540	4.6 (3.3)	14.5 (4.3)	10.7 (5.1)	6.2 (3.8)
20-29	768	4.2 (3.3)	13.7 (4.8)	9.8 (5.1)	6.5 (3.9)
30-39	404	3.3 (2.8)	12.9 (4.8)	9.3 (5.2)	7.5 (4.5)
40-49	327	3.1 (2.6)	12.4 (5.1)	9.2 (5.1)	8.1 (4.1)
50-59	208	2.6 (2.5)	10.8 (5.3)	10.1 (5.4)	9.1 (4.1)
60-69	65	2.6 (2.5)	10.4 (5.0)	8.5 (5.6)	11.6 (5.2)
	2312	3.8 (3.1)	13.2 (4.9)	9.8 (5.2)	6.8 (4.1)
WOMEN	**n**				
16-19	590	2.3 (2.6)	13.3 (4.6)	13.3 (5.2)	6.8 (3.9)
20-29	1366	2.8 (2.4)	12.9 (4.7)	12.9 (5.0)	7.2 (3.9)
30-39	544	2.3 (2.2)	12.0 (5.0)	12.6 (5.3)	8.8 (4.1)
40-49	416	2.4 (2.1)	12.2 (4.9)	12.6 (5.4)	8.9 (3.9)
50-59	273	2.2 (2.0)	11.6 (5.0)	12.1 (5.4)	11.1 (4.8)
60-69	73	2.7 (2.9)	12.1 (5.4)	10.2 (5.6)	12.1 (4.9)
	3262	2.6 (2.4)	12.6 (4.8)	12.7 (5.2)	7.7 (4.2)

2.2.9 Other variables measured

Other variables measured included caffeine use; use of prescribed and proprietary medicines and vitamins; exercise; sleep; information received at university concerning drinking, illicit drug use and smoking as well as employment and number of hours worked per week (for PRHOs).

2.3 AIMS OF THE RESEARCH

The five main questions that were addressed by my research were:

1: Is excessive drinking and illicit drug use among medical students a problem which begins prior to medical school?

To address the above question, first year medical students' lifestyles were assessed shortly after beginning their degree course (Chapter 3).

2: Does the trend in increasing excessive alcohol consumption and illicit drug taking continue, or decline in medical students?

For this, the lifestyles questionnaire was administered to second year medical students for 4 consecutive years and the data compared to those of the 4 previous surveys carried out in second year medical students. This enabled me to cross-sectionally compare data for 8 consecutive years on medical students at Newcastle University (1992/1993 - 1999/2000) (Chapter 4).

3: Do medical students change their lifestyles as they mature and are later in a position of professional responsibility?

In order to explore this, the lifestyle questionnaire was re-administered to the 1993/1994, 1994/95, and 1995/96 cohorts of second year students whilst in the final year of their medical degree course, and then again after they had completed a year as PRHOs (Chapter 5).

4: How do the lifestyles of medical students compare to those of dental students?

It is important to establish whether the patterns of excessive drinking and illicit drug use in medical students could also be found in a similar group of students at Newcastle University. For this purpose the lifestyles of a cohort of medical students were compared longitudinally to the corresponding group of dental students (Chapter 6).

5: How do levels of stress, anxiety and depression relate to job satisfaction and personality in PRHOs?

In addition to the standard lifestyle questionnaire, the three cohorts of medical student who took part in the longitudinal study also completed the Job Satisfaction component of the Occupational Stress Indicator (OSI) and the 30 item General Health Questionnaire (GHQ) when working as PRHOs (Chapter 7).

Prior to the commencement of this research, in April and May of 1996 key personnel in the medical school, including the Dean of the Faculty of Medicine, and in the various NHS Trusts Hospitals were contacted in order to explain the aims of the study and to seek their cooperation for the recruitment of medical students and PRHOs.

The questionnaire was completed voluntarily and anonymously. Because of the anonymous nature of the study it was not possible to monitor changes in lifestyle of individuals. It was administered personally at the beginning or end of a scheduled lecture for undergraduate students. Personal administration of the questionnaire enabled me to clearly explain the general aims of the survey to every student and in

return answer any questions asked. Confidentiality was assured to all and it was made clear at the time of the survey that no one would be identified. PRHOs were met in groups and all assessments were carried out during their lunch time period. Some hospitals arranged for the survey to be classed as a teaching session and this ensured good attendance.

Attendance at each meeting was monitored, so that the questionnaire could be sent by post on the same day to those who were absent. In the case of non-responders, follow-up letters were sent approximately two weeks and then four weeks after the initial meeting. Those PRHOs who were working outside of the north east of England were sent a questionnaire with a covering letter explaining the purpose of the survey.

CHAPTER 3

Factors influencing alcohol and illicit drug use amongst fresher medical students

3.1 INTRODUCTION

The problems of excessive drinking and the use of illicit drugs by many university students are a cause for concern, and have resulted in calls for provision of better health care, health education and support systems in universities (Ashton and Kamali, 1995; Webb et al., 1996;1997;1998; White, 1997; Gray et al., 1998). However, for such systems to be effective, it was necessary to establish whether university life and atmosphere are to blame for much of the excessive drinking and illicit drug use among students, or whether these habits are formed prior to students entering university. The aim of this study was to investigate lifestyles, including alcohol and illicit drug use in a cohort of first year medical students shortly after arriving at Newcastle University.

3.2 SUBJECTS AND METHODS

The lifestyles questionnaire was completed by three separate cohorts of first year medical students in October 1998, 1999 and 2000 during the first week of their arrival at Newcastle University. The purpose of the study was explained to the students and it was made clear that the study was to measure their lifestyles prior to arrival at university and that students had to bear this in mind when completing the questionnaire.

3.3 DATA ANALYSIS

Data were collated and pooled for analysis and then comparisons between cohorts for alcohol, smoking, illicit drug consumption, anxiety, depression and stress were made.

Because of the positively skewed distributions of scores, log-transforms were used for alcohol, depression, stress and anxiety. In all cases these produced results giving residuals which were very well approximated by a normal distribution, indicating a good fit of the ANOVA models. Post hoc comparisons were carried out using Tukey's family error rate (Minitab Inc, 1994).

Alcohol consumption (units/week) were analysed using multi-way Analysis of Variance (ANOVA) with cohort as a factor. Age at which the respondent had his/her first full drink and current level of alcohol consumption was analysed using the ANOVA model. The ANOVA model was also used to analyse the relationship between cannabis and tobacco and mean alcohol consumption and also between the personality characteristic of Psychoticism and number of illicit drugs ever used. The chi-square test was used to investigate the relationship between levels of alcohol consumption (categorised as either low risk; medium to high risk or hazardous risk) and risky behaviours relating to alcohol consumption. Relationships between binge drinking and risky behaviours relating to alcohol consumption were tested using odds ratio. Student t-test were used to compare the relationship between Psychoticism and the use of illicit drugs. Multiple regression analysis was used to identify relationships between mean alcohol consumption and personality characteristics. Linear regression was used to investigate differences between cohorts for alcohol, smoking and illicit drug use and anxiety, depression and stress.

3.4 RESULTS

A response rate of 100% was achieved from the 502 students who were present at the lecture sessions and of 63% (76/120) from those who were contacted by post. Two questionnaires returned were marred and thus excluded from analysis.

Of a possible 622 students, a total of 576 (178 men and 398 women), [overall response rate 93%] aged 18.8±1.9 years (age range 17-39, median 18), completed the questionnaire. The response rate was 92% in 1997; 95% in 1998 and 92% in 1999. Eighteen percent (100) of the student sample surveyed were non-white. Over two thirds of men and three quarters of women reported having a religious belief (table 3.1).

Table 3.1: Religion

Religion	**Men (n=178)**		**Women (n=398)**	
	n	**%**	**n**	**%**
Roman Catholic	27	15.2	64	16.3
Protestant	41	23.0	137	34.9
Hindu	17	9.6	20	5.1
Muslim	6	3.4	17	4.3
Jewish	4	2.2	5	1.3
Buddhist	4	2.2	2	0.5
Atheist/agnostic	54	30.3	105	26.7
Other (methodist/christian)	25	14.0	43	10.9

3.4.1 Alcohol consumption

Sixty six (12%) of the students (18 men and 48 women) did not drink alcohol. Of these, 51 (15 men and 36 women) were non-white students. Amongst drinkers (160M/350F) the mean weekly alcohol consumption in men was 28.9 ± 20.7 units (range 1-100; median 22.5), and in women 15.4 ± 11.2 units (range 1-68; median 14). Amongst drinkers 48% of men and 53% of women drank within the recommended limits (Royal College of Physicians, 1995.), but the remaining men and women drank within the 'medium to high risk' and 'hazardous risk' levels (Table 3.2).

Table 3.2: Alcohol consumption in first year students

	Men (n=178)		Women (n=398)		All (n=576)	
	n	%	n	%	n	%
None drinkers	18	10.1	48	12.1	66	11.5
Low risk	77	43.3	187	47.0	264	45.8
Med-high risk	62	34.3	143	35.9	205	35.6
Hazardous risk	21	11.8	20	5.0	41	7.1

'Binge drinking', defined as drinking more than half the 'low risk' weekly limit on one occasion (Moore et al., 1994) was reported by 23% of men and 15% of women. There were ethnic differences in alcohol consumption with 51% of non-white students being non-alcohol drinkers compared to only 3% of white students. Pleasure was the main reason given for drinking (table 3.3).

Table 3.3: Reasons given for drinking

	Men (n=160)		Women (n=350)		All (n=510)	
	n	%	n	%	n	%
Pleasure	144	90.0	322	92.0	466	91.4
To increase confidence	61	38.1	153	43.7	214	42.0
Habit	40	25.0	79	22.6	119	23.3
Social pressures	43	26.9	67	19.1	110	21.6
Anxiety/stress	24	15.0	47	13.4	71	13.9
To feel more sexually attractive	20	12.5	29	8.3	49	9.6
Exam/work pressure	19	11.9	29	8.3	48	9.4
Other (relaxation, taste)	17	10.6	27	7.7	44	8.6
Don't know	4	2.5	4	1.1	8	1.6
To aid concentration	1	0.6	0		1	0.2

Twenty six percent of men and 27% of women reported having had their first full drink of alcohol before the age of 12; 53% of men and 58% of women between the ages of 13 and 15 and 20% of men and 15% of women after the age of 16. Forty-four percent of men and 39% of women reported that within the previous year, due to alcohol intoxication, they had 'felt so ill to have missed at least half a day of study'; 66% of men and 57% of women were 'unable to remember part of the evening the next day'; 45% of men and 40% of women had 'become more sexually involved with someone than they would normally have wanted'; 31% of men and 13% of women got 'involved in a physical fight or argument'; 8% of men and 6% of women had

'been afraid to go home'; 11% of both men and women had 'not taken contraceptive precautions when having sex'; and 1% of both men and women had had 'an accident while driving a car or motorcycle'.

Mean alcohol consumption for all three cohorts is shown in table 3.4. Although for men there were no statistically significant differences in mean alcohol consumption between the three cohorts, for women mean alcohol consumption was significantly different between the three cohorts (table 3.4).

Table 3.4: Mean alcohol consumption (units per week) of students who drink

Cohort	Men ±SD (range) [median]	Women ±SD (range) [median]
1997/1998	30.4±20.4 (1-100) [23.5]	17.8±13.3 (1-68) [16]
1998/1999	29.8±22.6 (3-90) [21]	15.5±10.9 (1-60) [13]
1999/2000	26.4±18.9 (2-83) [20]	12.5± 7.9 (1-42) [12]
	F=0.45; p=0.639; ANOVA	F=4.21; p=0.016; ANOVA

Proportions of students in the three cohorts who exceeded recommended limits for alcohol consumption are shown in table 3.5. The differences between women was statistically significant.

Table 3.5: Proportion of individuals who exceeded recommended limits for alcohol consumption

	Men		Women	
	n	%	n	%
Year				
1997/1998	31	59.6	70	55.1
1998/1999	29	49.2	49	43.0
1999/2000	23	46.9	43	39.8
	p=0.601		p=0.006	

3.4.2 Smoking

The frequency of current regular smoking (more than one cigarette or cigar per day) was 8% in men and 9% in women. The main reason given for smoking was 'habit' (60%M;54%F). The average age for first experience of smoking was 14.9±1.9 years (range 10-19 years; median 15) for men and 14.9±1.7 years (range 8-19 years; median 15) for women.

The number of individuals who reported as being current smokers are shown in table 3.6. There was no statistically significant differences for smoking between men or women.

Table 3.6: Proportion of students who reported as being 'current smokers'

	Men		Women	
	n	%	n	%
Year				
1997/1998	5	8.5	18	12.9
1998/1999	6	9.4	13	10.0
1999/2000	5	9.1	6	4.7
	p=0.985		p=0.067	

3.4.3 Illicit drug use

Cannabis was the most frequently reported illicit drug 'ever used' by both men and women (table 3.7). Other illicit drugs 'ever used' included amyl/butyl nitrite, amphetamines, Magic Mushrooms, and cocaine/Crack. All but 2 women who reported having experimented with other illicit drugs had also taken cannabis (table 3.7).

Table 3.7: Use of cannabis and other illicit drugs reported by students

	Ever used				Current user			
	Men (n=178)		Women (n=398)		Men (n=178)		Women (n=398)	
	n	%	n	%	n	%	n	%
Cannabis	88	49.7	160	40.3	34	19.2	71	17.9
LSD	8	4.5	28	7.1	0	0	2	0.5
Amphetamines	11	6.2	28	7.1	2	1.1	12	3.0
Cocaine/Crack	5	2.8	10	2.5	0	0	5	1.3
Ecstasy	8	4.5	17	4.3	2	1.1	5	1.3
Magic Mushrooms	6	3.4	17	4.3	0	0	0	0
Amyl/butyl nitrate	13	7.3	18	4.5	1	0.6	3	0.8
Temazepam/Diazepam	1	0.6	4	1.0	0	0	1	0.3
Opium/Morphine/Heroin	5	2.8	2	0.5	0	0	0	0
Steroids	0	0	0	0	0	0	0	0
Solvents	0	0	1	0.3	0	0	0	0

Pleasure was the main reason for illicit drug use (table 3.8). The average age for first experience with an illicit drug was 15.9±1.5 years (range 12-21 years; median 16) for men and 15.8±1.7 years (range 9-20 years; median 16) for women. Current use of cannabis was reported by 19% (men) and 18% (women). Forty one percent (men) and 54% (women) who were current users, were using cannabis currently on a 'monthly or more often' basis.

Table 3.8: Reasons given for using illicit drugs

	Men (n=88)		Women (n=162)		All (n=250)	
	n	%	n	%	n	%
Pleasure	50	56.8	93	57.4	143	57.2
Social pressures	13	14.8	21	13.0	34	13.6
Other (experimentation, curiosity)	9	10.2	19	11.7	28	11.2
Anxiety/stress	7	8.0	17	10.5	24	9.6
To increase confidence	3	3.4	14	8.6	17	6.8
Habit	4	4.5	4	2.5	8	3.2
Exam/work pressure	4	4.5	3	1.9	7	2.8
Don't know	2	2.3	4	2.5	6	2.4
To feel more sexually attractive	0	0	3	1.9	3	1.2
To aid concentration	0	0	1	0.6	1	0.4

The proportion of individuals in the three cohorts who reported having 'ever' experimented with illicit drugs are shown in table 3.9. There are no statistical differences between cohorts for both men and women.

Table 3.9: Proportion of individuals reporting 'ever' use of illicit drugs

	Men		Women	
	n	%	n	%
Year				
1997/1998	28	47.5	62	44.3
1998/1999	32	50.0	54	41.5
1999/2000	28	50.9	44	34.4
	p=0.915		p=0.233	

The proportion of individuals in the three cohorts who reported 'current' use of illicit drugs is shown in table 3.10. There was a statistically significant difference in the proportion of women who reported 'current use' of illicit drugs.

Table 3.10: Proportion of individuals reporting 'current' use of illicit drugs

	Men		Women	
	n	%	n	%
Year				
1997/1998	8	13.6	33	23.6
1998/1999	14	21.9	23	17.7
1999/2000	12	21.8	15	11.7
	p=0.391		p=0.041	

3.4.4 Anxiety, depression and stress

A significant proportion of the students surveyed suffered from anxiety and depression, with 35% (men) and 47% (women) scoring 8 or more on the anxiety component of the HAD and 10% (men) and 8% (women) scoring 8 or more on the depression component of the HAD. Twenty six percent of men and 15% of women with anxiety ratings ≥ 8 also had depression ratings of ≥ 8 on the HAD scale.

The GHQ was completed by the 1998/1999 and 1999/2000 cohorts of students. A significant proportion of students suffered from psychological stress with 35% (men) and 36% (women) scoring more than 4 on the GHQ. Using the Likert scale for measuring the GHQ, the mean scores were 24.0±10.6 (range 7-62; median 23) for men and 25.3±10.6 (range 8-74; median 23) for women. The main factors which students identified as causes of stress are shown as table 3.11.

Table 3.11: Stress factors

	Men (n=178)		**Women (n=398)**	
	n	**%**	**n**	**%**
Study load	118	66.3	302	75.9
Time management	120	67.4	296	74.4
Financial worries	58	32.6	140	35.2
Personal problems	52	29.2	123	30.9
Exams	1	0.6	2	0.5
Fitting in/homesickness	6	3.4	12	3.0

The proportion of individuals in the three cohorts suffering from anxiety, depression and stress are shown in tables 3.12, 3.13 and 3.14 respectively. There were statistically significant differences in the proportion of women scoring ≥8 for anxiety and depression.

Table 3.12: Proportion of individuals scoring ≥8 for anxiety on the HAD scale

	Men		**Women**	
	n	**%**	**n**	**%**
Year				
1997/1998	27	45.8	82	58.6
1998/1999	18	28.6	50	39.1
1999/2000	16	29.1	52	40.6
	p=0.082		p=0.002	

Table 3.13: Proportion of individuals scoring ≥8 for depression on the HAD scale

	Men		**Women**	
	n	**%**	**n**	**%**
Year				
1997/1998	8	136	21	15.0
1998/1999	6	9.5	7	5.5
1999/2000	4	7.3	3	2.3
	p=0.533		p=0.001	

Table 3.14: Proportion of individuals scoring >4 for stress on the GHQ scale

	Men		Women	
	n	%	n	%
Year				
1998/1999	24	37.5	50	39.4
1999/2000	18	32.7	42	33.1
	p=0.716		p=0.298	

3.4.5 Personality characteristics

Mean EPQ scores for Extraversion (E) were 15.3±3.9 (M) and 14.9± 3.8 (F), Neuroticism (N) 11.0±5.4 (M) and 13.1±8.0 (F), Psychoticism (P) 4.2±2.9 (M) and 2.8±2.5 (F) and Lie scale (L) 6.5±3.5 (M) and 7.1±3.6 (F).

3.4.6 Caffeine

Twelve percent of men and 9% of women consumed sufficient caffeine daily to be classified as heavy users; 35% (men) and 38% (women) as moderate users; 49% (men) and 53% (women) as light users, whilst 4% (men) did not consume any caffeine.

3.4.7 Prescribed drugs, proprietary medicines and vitamins

Use of prescribed tranquillisers, sleeping pills, or antidepressants (prescribed for more than 2 days) was reported by 3 men and 10 women. Proprietary medicines were taken 'once a month or more' by 49% (men) and 74% (women). The latter excluded the

used of the oral contraceptive pill. Vitamins and mineral supplements were used daily by 24% (men) and 32% (women).

3.4.8 Exercise and sleeping

'Daily', 'twice weekly', or 'weekly' physical exercise was reported by 87% (men) and 71% (women). The remainder took exercise monthly or hardly ever. Sixty six percent (men) and 70% (women) reported sleeping 7-8 hours per night, 5% (men) and 3% (women) 9 hours or more, 28% (men) and 26% (women) 5-6 hours per night and 1% (men) and 1% (women) 4 hours or less per night. Twenty one percent (men) and 23% (women) complained of difficulty getting to sleep; 51% (men) and 47% (women) unable to wake up properly and 14% (men) and 20% (women) of waking up early in the morning and being unable to get back to sleep. Thirty three percent (men) and 33% (women) had no sleep problems.

3.4.9 Associations

There was a statistically significant association between the age at which the first full drink of alcohol was taken and the current level of alcohol use, with mean alcohol consumption being significantly greater among those who reported having had a full drink of alcohol between the age of 0-12 and 13-15 years compared to those who had their first full drink at the age of 16 or more (table 3.15).

Table 3.15: Association between the age at which the first full drink of alcohol was consumed and the current level of alcohol use.

Age (years) of first drink	Number	Mean (±SD) weekly units of alcohol
0-12	137	22.7 (16.3)
13-15	291	19.1 (16.5)
16+	87	13.0 (13.4)
(F=15.61; p<0.0001; ANOVA)		

Non-alcohol drinkers are included in the analysis

Tobacco smoking and cannabis use were significantly related to alcohol consumption (table 3.16).

Table 3.16: Relationships between tobacco smoking and cannabis use with alcohol consumption

	Number	Mean (±SD) weekly units of alcohol
Use of cannabis		
Never	326	11.9 (13.3)
Once or twice	101	20.7 (20.7)
>once or twice	104	25.5 (16.4)
Regularly	43	32.1 (24.8)
(F=45.51; p<0.0001; ANOVA)		
Tobacco smoking		
Never	255	10.8 (12.8)
Tried a few	235	22.2 (14.8)
Ex-smoker	34	28.2 (22.2)
Regular smoker	52	30.3 (20.0)
F=47.85; p<0.0001; ANOVA)		

Non-alcohol drinkers are included in the analysis

Levels of alcohol consumption (categorised as either 'low risk', 'medium to high risk' or 'hazardous risk'; were significantly associated with each of the following experiences reported by the students: 'feeling so ill to miss at least half a day of study' (χ^2 = 54.477, p<0.0001), 'becoming more sexually involved with someone than normally would have wanted' (χ^2 = 37.914, p=0.0001), 'not using contraceptive precautions' (χ^2 = 20.821, p=0.0001),'being unable to remember part of the evening before' (χ^2 = 87.628, p=0.0001) and 'getting into a physical fight or argument' (χ^2 =

42.246, p<0.0001). Students with binge drinking habits were more prone to exhibiting the aforementioned risky behaviours compared to the rest; the odds ratio for such individuals reporting 'being unable to remember part of the evening before' was 2.63 (95% CI 1.43 - 4.82), 'feeling so ill to miss at least half a day of study' was 2.10 (95% CI 1.26 - 3.49), 'becoming more sexually involved with someone than normally would have wanted' was 1.36 (95% CI 0.81 - 2.28), and 'getting into a physical fight or argument' was 1.39 (95% CI 0.78 - 2.46). Significant positive associations were found between alcohol and caffeine consumption (r=0.2124 p<0.0001, CI 0.1330 – 0.2891) as well as caffeine consumption and anxiety levels (r=0.1308 p=0.0017, CI 0.0494 – 0.2104) [Spearman's rank correlation test].

The psychoticism scores for male and female students who had taken illicit drugs were significantly greater than the scores for the corresponding students who were not taking drugs (men: 4.87±3.02 versus 3.52±2.55, p=0.0016; women: 3.61±2.41 versus 2.31±2.38; p<0.0001) [Student t-test]. Further, there was a significant positive association between psychoticism scores and the number of different illicit drugs 'ever used' (table 3.17).

Table 3.17: Relationships between number of illicit drugs 'ever used' and EPQ psychoticism score.

Number of drugs	Number	Mean (±SD) psychoticism score (EPQ)
0 drugs	321	2.6 (2.5)
1 drug	172	3.7 (2.4)
2 drugs	37	4.4 (3.4)
3+ drugs	38	5.5 (2.7)
F=19.88; p<0.0001; ANOVA		

Multivariate analysis of relationships between alcohol use and personality characteristic scores of EPQ showed that psychoticism and extraversion scores were significantly related to alcohol consumption (table 3.18).

Table 3.18: Multiple regression analysis of alcohol and personality characteristics

	Regression coefficient	SD	p value
Men			
Neuroticism	0.0125	0.016	0.448
Psychoticism	0.0896	0.029	0.003
Extraversion	0.0959	0.022	<0.0001
Women			
Neuroticism	0.0076	0.006	0.238
Psychoticism	0.0537	0.020	0.010
Extraversion	0.0826	0.013	<0.0001

Non-alcohol drinkers are included in the analysis

3.5 DISCUSSION

This study of first year medical students shortly after commencing their study at Newcastle University showed that many were already drinking excessive amounts of alcohol and experimenting with illicit drugs, particularly cannabis before starting university life. Forty-nine percent of men and 43% of women medical students reported to be drinking above recommended limits, compared to 36% of men and 25% of women in the same age group in the general population (Office for National Statistics, 2000). There was a link between alcohol consumption among students and other risk taking behaviours, such as getting into physical fights or arguments and having unsafe sex. Such findings corroborate those of an earlier report on alcohol use among the young by the Royal College of Physicians and the British Paediatric

Association (Anon., 1995). Those students who started drinking at an earlier age were currently drinking more heavily than others. This finding is in keeping with research carried out in the United States of America which showed that in a population of midwestern high school seniors onset of alcohol use by the age of 12 years was associated with excessive use of alcohol in later adolescence (Gruber et al., 1996).

Illicit drug use was prevalent amongst the students surveyed, with 45% having experimented with cannabis at some stage during their life, compared to 42% in people of similar age group in the general population (Ramsey and Partridge, 2000) and 46% in a national survey of second year medical students (Webb et al., 1998). However, the use of cannabis by medical students is considerably higher than that reported by a survey of medical students at Newcastle University more than a decade ago, in which only 21% were reported as having ever used cannabis (Golding and Cornish, 1987), suggesting that cannabis use has become more acceptable in the young today. I also found, as in previous surveys, a significant association between drinking and cannabis use (Webb et al., 1996), which tends to support the notion that alcohol could act as a 'gateway' to the use of illicit drugs (Anon., 1995; Gruber et al., 1996).

The prevalence of smoking amongst the students surveyed (8% men and 9% women) was lower than in the same age group in the general population (36% men and 36% women) (Office for National Statistics, 2000). Socio-economic differences may play

a role for the disparity; the prevalence of smoking amongst professional people is 15% men and 14% women (Office for National Statistics, 2000).

The psychoticism component of the EPQ is a measure of risk taking and sensation seeking behaviour in an individual and it may be expected that individuals who experiment with illicit drugs and drink excessive amounts of alcohol have higher psychoticism scores than others. In support of this the results of the present study showed that psychoticism, as well as extraversion, scores for both male and female students who reported using illicit drugs were significantly higher than for those who did not use them and that psychoticism score increased with increasing number of different illicit drugs ever used. Psychoticism scores were significantly positively related to alcohol consumption. The presence of a significant relationship between psychoticism component of the EPQ and illicit drug taking corroborates the findings of a previously reported study in university students (Golding and Cornish, 1987).

A significant proportion of the students suffered from anxiety and/or stress. Like previous studies in medical students (Ashton and Kamali, 1995; Webb et al., 1996) the anxiety scores did not relate to drinking or illicit drug use. Unlike in the previous surveys of university students, the present study showed that a number of first year medical students had depression ratings within the clinically significant range. Surprisingly, more men than women suffered from depression. The reasons for this are unclear, but it could be related to students being homesick; arrival at university may have been their first experience of coping with living away from their immediate family, friends and surroundings, which could have contributed to their depression.

It has long been perceived by some that university life is a factor that promotes or facilitates excessive drinking and illicit drug use among students. It has been advocated that universities should provide better health education regarding alcohol and illicit drugs (Forney et al., 1988); Webb et al., 1996; White, 1997; Gray et al., 1998). The results of the present study, however, suggest that many medical students are drinking excessive amounts of alcohol and experimenting with illicit drugs before commencing their study at universityThe results further show that the use of illicit drugs by many students is related to their personality characteristics of risk taking and impulsiveness, rather than any other psychological factors. Moreover, ninety two percent of students reported drinking for pleasure, indicating that drinking is about hedonism rather than about escaping from problems. However, a factor that must be taken into consideration is that many students in the few months preceding beginning their university career would have been finishing their A levels and celebrating not only getting their results but also getting their place at medical school and this could be a source of bias in the results.

Although it has been identified that some groups of young people are more vulnerable to illicit drug use and drinking than others (Health Advisory Service, 1996), this study, along with others (Miller and Plant, 1996; Webb et al., 1996; 1997), has shown that such problems can affect a wider range of young people today, irrespective of their social standing. In order to reduce the current levels of drug and alcohol abuse it may be necessary to educate children about such issues at an even earlier stage in their education.

CHAPTER 4

Lifestyles in second year medical students:

a compilation of data on eight consecutive cohorts

4.1 INTRODUCTION

An earlier study of lifestyles in medical students at Newcastle University in 1993/1994 (Ashton and Kamali, 1995) showed that there had been a significant increase in alcohol and illicit drug consumption amongst medical students at the University of Newcastle since 1983/1984 (Golding and Cornish, 1987). The study by Ashton and Kamali also showed that a third of men and a fifth of women were drinking over the recommended limits (Royal College of Physicians, 1995). The reported prevalence of current cigarette smoking was 12% in men and 30% in women. Experimental use of cannabis had increased from 26% (men) and 46% (women) in 1983/1984 to 54% of men and 46% of women in 1993/1994. Other illicit drugs, including amphetamines, amyl nitrate, LSD, Ecstasy, magic mushrooms, cocaine and opioids, had been taken by 22% of the sample, compared with only 3% in 1983/1984. The use of alcohol and illicit drugs in 1993/1994 was comparative with the same age group in the general population (Office for National Statistics, 2000; Ramsey and Partridge, 2000).

This study investigated whether the reported excessive alcohol and illicit drug consumption amongst medical students in 1993/1994 was a temporary phenomenon or whether the excessive drinking and illicit drug use persisted or even escalated in subsequent groups of students. Four years of data (1993-1996) pertaining to second year medical students had already been collated prior to the commencement of my research. Subsequently I surveyed four consecutive groups (1997-2000) of second year medical students. This enabled the comparison of the prevalence and extent of

drinking and illicit drug use as well as comparisons of other variables between eight consecutive cohorts of second year medical students.

4.2 SUBJECTS AND METHODS

The lifestyle questionnaire was completed by eight cohorts of second year medical students during scheduled lecture times between 1993-2000. As from 1997, the questionnaire was posted to those students who did not attend the lecture. As the first four years of the study were not followed up with postal contact, it may of course lead to bias in the results as it has been shown that those who do not attend lectures are more likely to be drinking heavily and using illicit drugs (Webb et al, 1996).

Reasons for drinking, smoking and illicit drug use was not assessed in both 1993 and 1996. In 1993, the frequency of cannabis use amongst students was not evaluated. Illicit drug use other than cannabis was also not assessed in 1993. Current use of illicit drugs was assessed only as from 1997.

4.3 DATA ANALYSIS

The results are shown as descriptive statistics with mean alcohol consumption being tested using regression analysis with year as a predictor. Because of the positively skewed distributions of scores, log-transforms were used for the analysis of alcohol data.

4.4 RESULTS

Response rates ranged from 57% in 1994 to 92% in 1999 (table 4.1). A total of 1050 questionnaires were completed from a possible 1329, giving an overall response rate of 79%. (36%M; 64%F).

Table 4.1: Response rates in 8 consecutive groups of second year medical students

	M	W	Total (n)	%	White		Non-white	
	n	n			n	%	n	%
1992/1993	50	50	100/153	65.4	n.d		n.d	
1993/1994	26	59	85/150	56.7	n.d		n.d	
1994/1995	42	80	122/152	78.7	104	85.2	18	14.8
1995/1996	36	68	104/153	68.0	n.d		n.d	
1996/1997	65	76	141/153	92.2	107	76.4	33	23.6
1997/1998	48	108	156/171	91.2	130	83.3	25	16.0
1998/1999	61	131	192/209	91.0	148	77.5	43	22.5
1999/2000	52	98	150/188	79.8	131	87.9	18	12.1

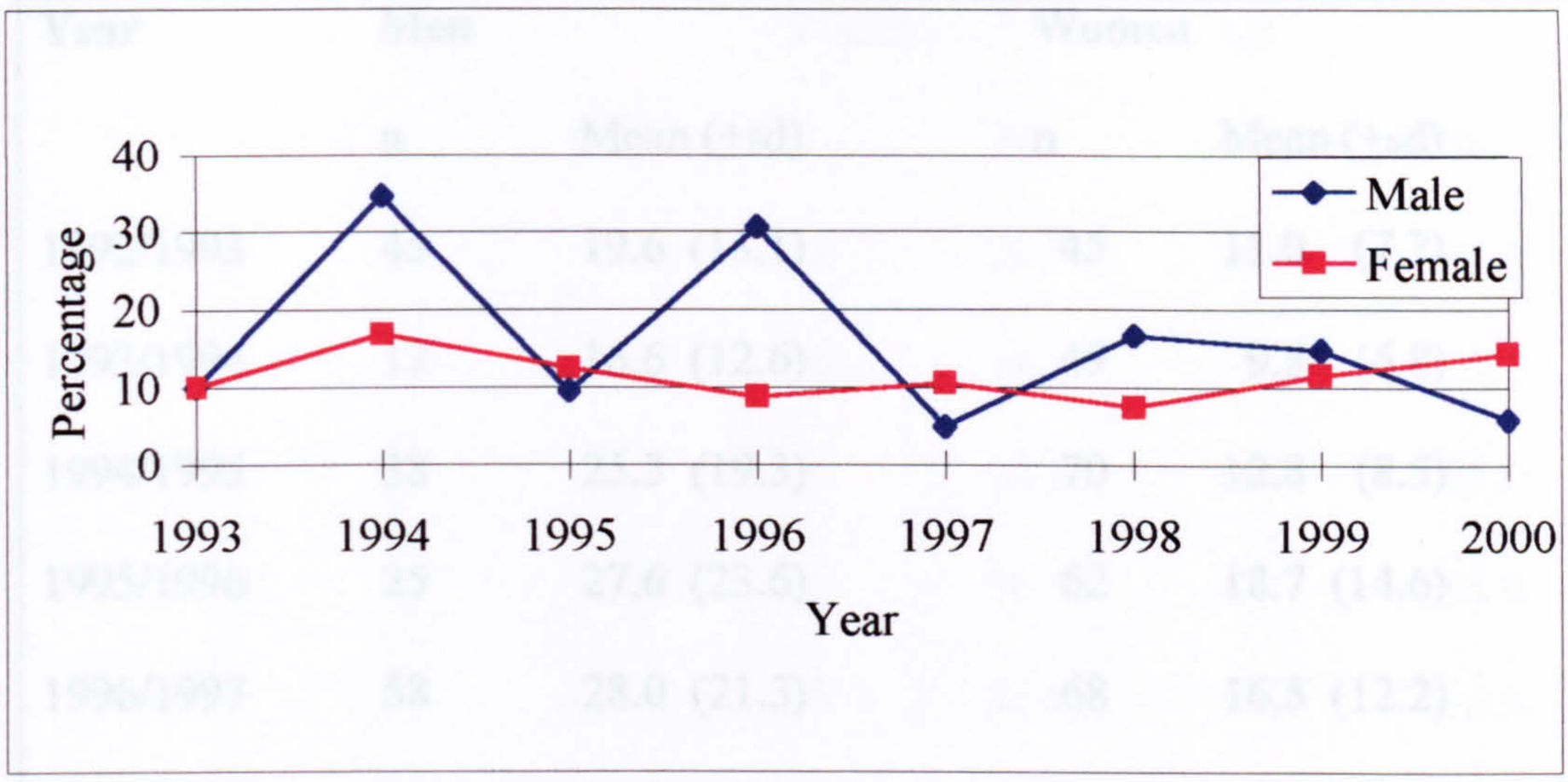
n.d: not determined.

1 man in 1997 and 1 women in 2000 did not report their ethnic origin.

4.4.1 Alcohol consumption

The highest proportion of non-drinkers were found in the 1994 cohort (22%) and the least in the 1993 cohort (10%) (figure 4.1).

Figure 4.1: Prevalence of non-drinkers



Mean alcohol consumption for both male and female drinkers is shown in table 4.2. Regression analysis showed a statistically significant difference in alcohol consumption between the eight years in both men (p=0.030) and women (p=0.006).

Table 4.2: Mean alcohol consumption amongst men and women who drink

Year	Men		Women	
	n	Mean (±sd)	n	Mean (±sd)
1992/1993	45	19.6 (13.1)	45	11.0 (7.7)
1993/1994	17	16.6 (12.6)	49	9.8 (6.8)
1994/1995	38	25.3 (19.3)	70	12.8 (8.5)
1995/1996	25	27.6 (23.6)	62	18.7 (14.6)
1996/1997	58	28.0 (21.3)	68	16.5 (12.2)
1997/1998	40	28.3 (16.5)	100	13.9 (9.1)
1998/1999	52	28.2 (17.4)	116	15.8 (12.3)
1999/2000	49	24.8 (18.2)	84	13.8 (9.0)

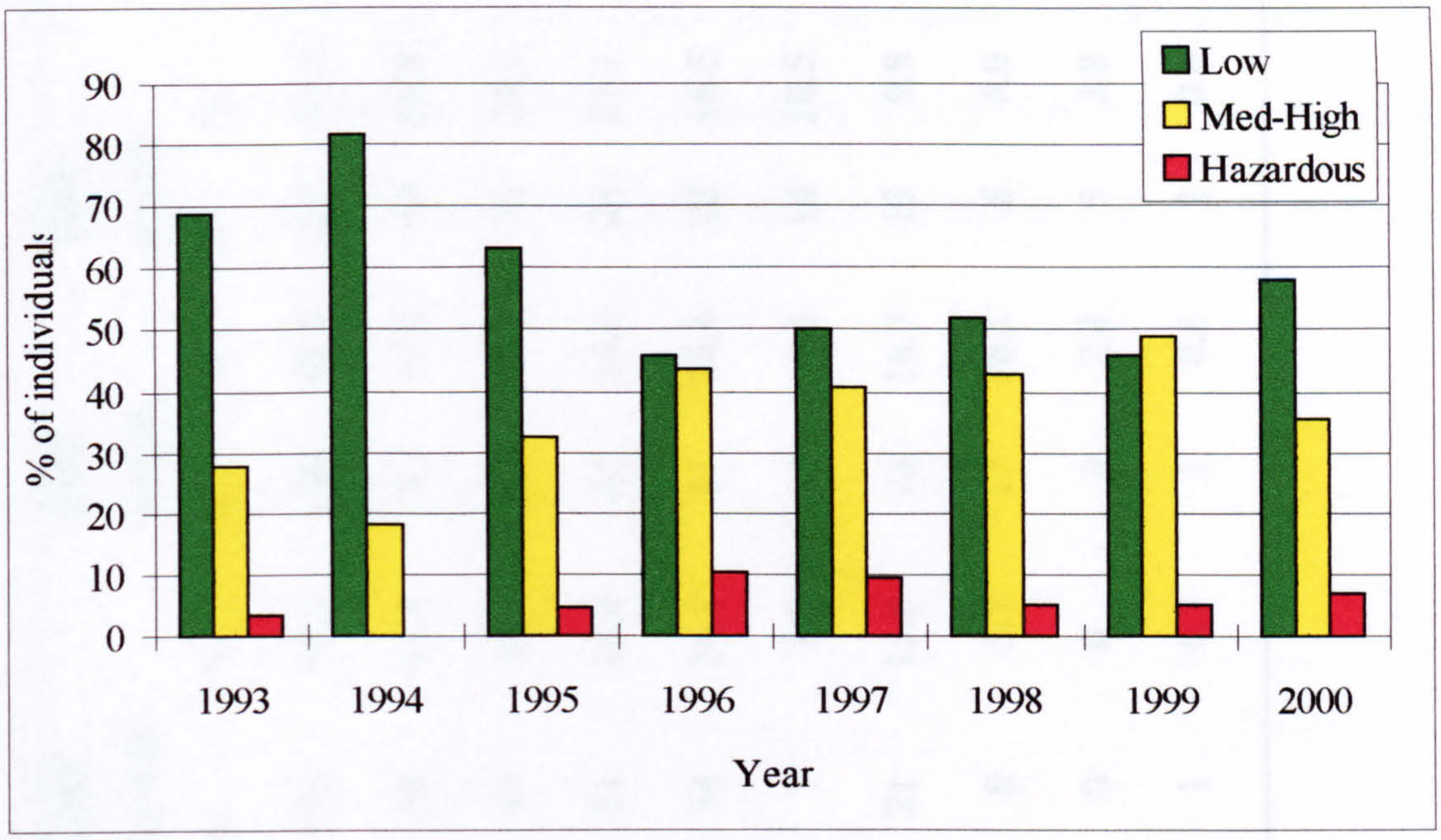
Of those who drank, the percentage of individuals drinking over the recommended limits for alcohol consumption of 21 units/week for men and 14 units/week for women (Royal College of Physicians, 1995) increased from 36% of men in 1993 to 67% in 1999, but it fell to 43% in 2000 (table 4.3). For women the prevalence increased from 27% in 1993 to 57% in 1996 and then it fell to 42% in 2000 (table 4.3).

Table 4.3: Proportion of individuals drinking over recommended limits'

Year	Men		Women		All	
	n	%	n	%	n	%
1992/1993	16	35.6	12	26.7	28	31.1
1993/1994	4	23.5	8	16.3	12	18.2
1994/1995	16	42.1	24	34.3	40	37.0
1995/1996	12	48.0	35	56.5	47	54.0
1996/1997	32	55.2	31	45.6	63	50.0
1997/1998	25	62.5	42	42.0	67	47.9
1998/1999	35	67.3	56	48.3	91	54.2
1999/2000	21	42.9	35	41.7	56	42.1

The highest prevalence of 'hazardous' levels of drinking (over 50 units/week, men; over 35 units/week, women) was found in 1996 and 1997 (figure 4.2). Apart from 1993 (28%) and 1994 (18%) over a third of all year groups drank within the 'medium to high risk' range (22-50 units/week, men; 15-35 units/week, women).

Figure 4.2: Risk levels for alcohol consumption



The overriding reason given for drinking was 'pleasure' in over 90% of all year groups. Other reasons included habit; to increase confidence and social pressures (table 4.4).

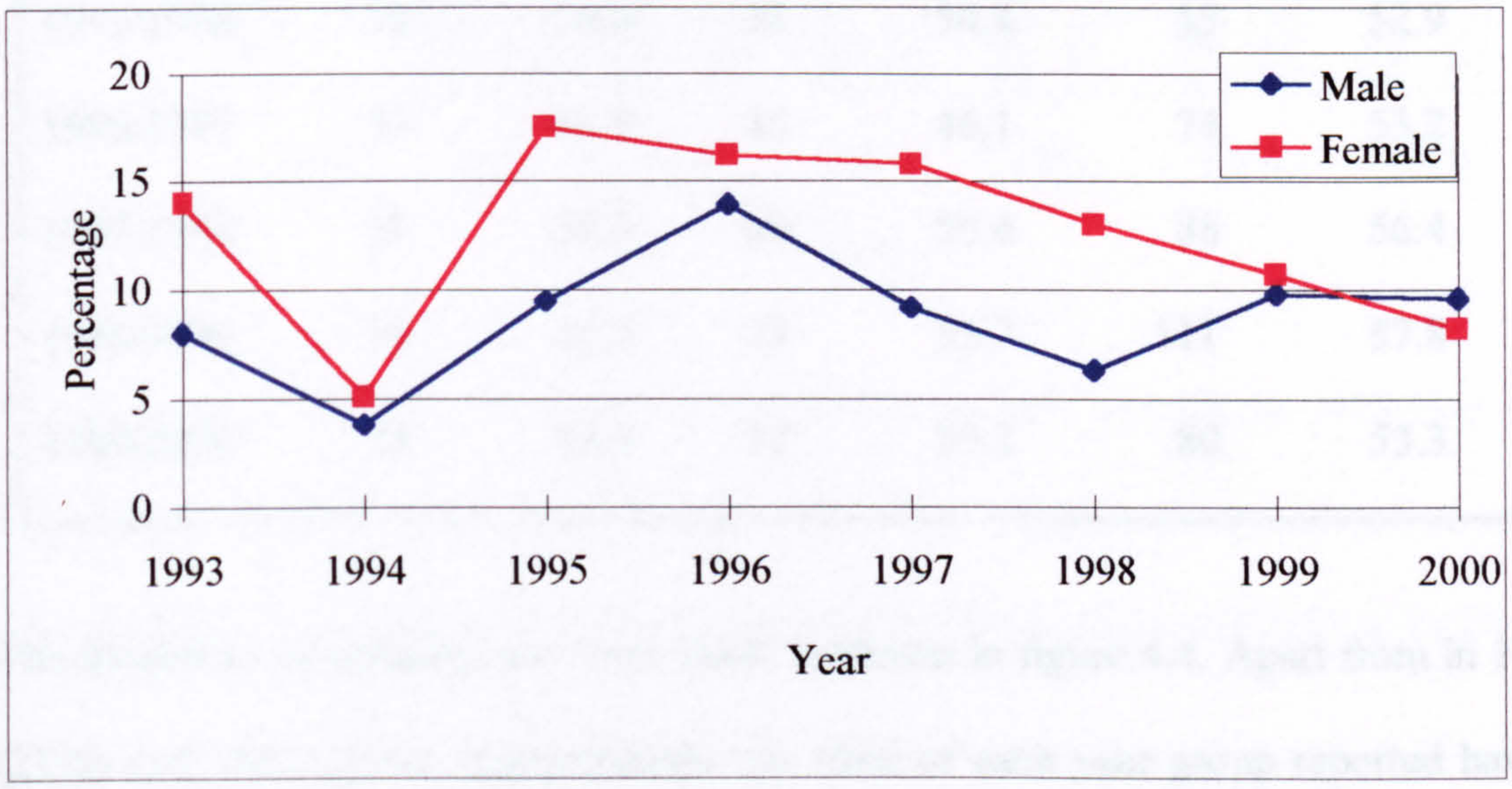
Table 4.4: Reasons given for drinking

	1994 n=66		1995 n=108		1997 n=126		1998 n=140		1999 n=168		2000 n=133	
	n	%	n	%	n	%	n	%	n	%	n	%
Pleasure	62	93.9	101	93.5	115	91.3	133	95.0	156	92.9	127	95.5
To increase confidence	0	0	47	43.5	59	46.8	58	41.4	52	31.0	49	36.8
Habit	0	0	16	14.8	43	34.1	43	30.7	54	32.1	32	24.1
Anxiety/stress	1	1.5	6	5.6	28	22.2	21	15.0	41	24.4	28	21.1
Social pressures	10	15.2	32	29.6	33	26.2	34	24.3	41	24.4	22	16.5
To feel more sexually attractive	0	0	3	2.8	8	6.3	7	5.0	14	8.3	14	10.5
Exam/work pressure	6	9.1	3	2.8	23	18.3	21	15.0	28	16.7	13	9.8
Other (relaxation; taste)	0	0	7	6.5	22	17.5	8	5.7	17	10.1	8	6.0
Don't know	0	0	3	2.8	6	4.8	0	0	4	2.4	5	3.8
To aid concentration	0	0	0	0	1	0.8	1	0.7	1	0.6	1	0.8

4.4.2 Smoking

The prevalence of current smoking (more than one cigarette or cigar per day) in men rose to 14% in 1996 before levelling off to around 10% in 1999/2000. For women the highest rate of smoking was 18% in 1995 before decreasing to 8% in 2000 (figure 4.3).

Figure 4.3: Prevalence of current smoking



4.4.3 Illicit drug use

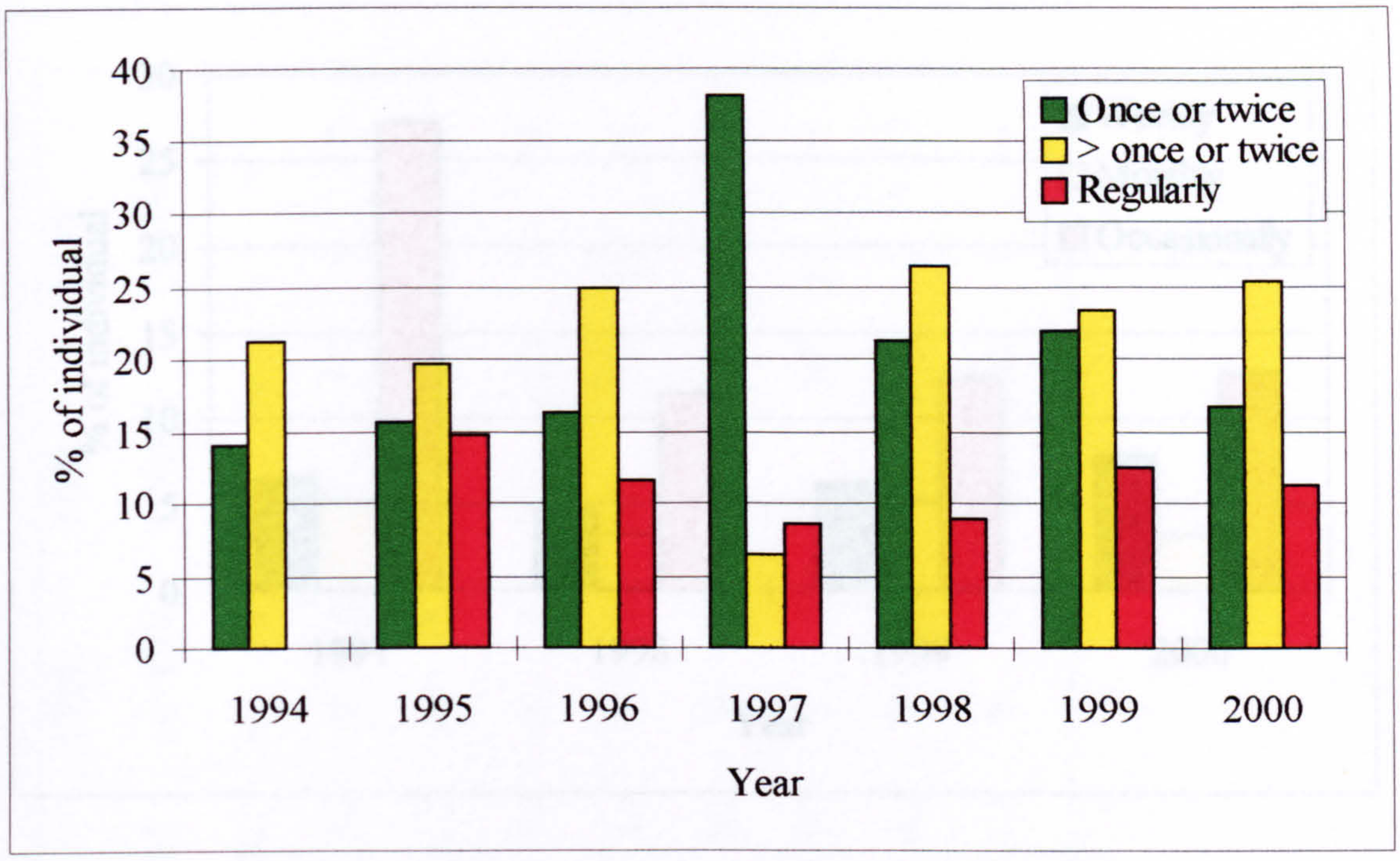
At least half the students in each year group had tried illicit drugs at least once (table 4.5). Cannabis was by far the most frequently used illicit drug; the highest prevalence of cannabis use was in 1993, with two thirds of the cohort reporting having experimented with it. The prevalence of cannabis use remained fairly constant between the different year groups (table 4.5).

Table 4.5: Proportion of individuals who reported having 'ever' used illicit drugs

Year	Men		Women		All	
	n	%	n	%	n	%
1992/1993	33	66.0	28	56.0	61	61.0
1993/1994	8	30.8	22	37.3	30	35.3
1994/1995	26	61.9	35	43.8	61	50.0
1995/1996	18	50.0	38	54.4	55	52.9
1996/1997	39	61.9	35	46.1	74	53.2
1997/1998	28	58.3	60	55.6	88	56.4
1998/1999	38	62.3	73	55.7	111	57.8
1999/2000	28	53.8	52	53.1	80	53.3

The frequency of cannabis use 'ever used' is shown in figure 4.4. Apart from in 1994 (21%) and 1997 (15%), approximately one third of each year group reported having used cannabis more than once or twice.

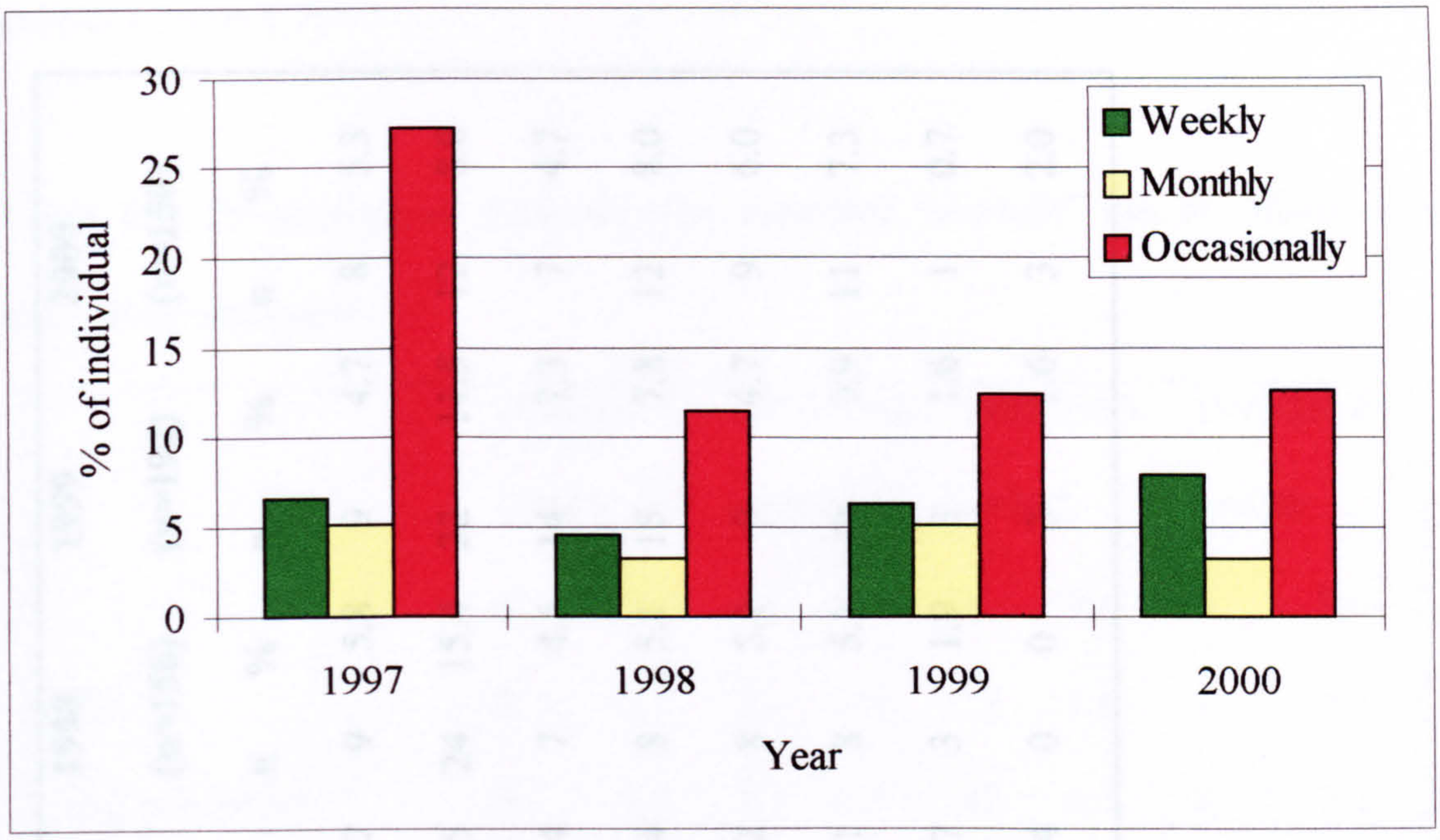
Figure 4.4: Frequency of the 'ever use' of cannabis



Current use of cannabis for men fell from 36% in 1997 to 19% in 1998 and then increased to 25% in 1999 and 29% in 2000. For women current use of cannabis stayed fairly constant (20% in 1997; 19% in 1998; 24% in 1999 and 21% in 2000).

Figure 4.5 shows that the decrease in current use of cannabis between 1997 and 1998 is attributed to a reduction in the number of occasional rather than regular users.

Figure 4.5 : Frequency of 'current' use of cannabis



After cannabis, amphetamines were the most commonly used illicit drug (table 4.6), followed by nitrates and magic mushrooms.

Table 4.6: Proportion of students who reported 'experimental' use of illicit drugs other than cannabis

	1994 (n=85)		1995 (n=122)		1996 (n=104)		1997 (n=141)		1998 (n=156)		1999 (n=192)		2000 (n=150)	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
LSD	4	4.7	10	8.2	7	6.7	8	5.7	9	5.8	9	4.7	8	5.3
Amphetamines	9	10.6	11	9.0	17	16.3	19	13.5	24	15.4	22	11.5	12	8.0
Cocaine	0	0	3	2.5	5	4.8	2	1.4	7	4.5	14	7.3	7	4.7
Ecstasy	2	2.4	11	9.0	9	8.7	2	1.4	8	5.1	15	7.8	12	8.0
Magic Mushrooms	2	2.4	10	8.2	11	10.6	13	9.2	8	5.1	9	4.7	9	6.0
Amyl/Butyl nitrate	4	4.7	18	14.8	12	11.5	10	7.1	8	5.1	19	9.9	11	7.3
Temazepam/Diazepam	0	0	1	0.8	1	1.0	1	0.7	3	1.9	3	1.6	1	0.7
Opioids	0	0	1	0.8	2	1.9	2	1.4	0	0	3	1.6	3	2.0

Amphetamines and Ecstasy were the most common 'currently used' illicit drug after cannabis (table 4.7).

Table 4.7: Proportion of students who reported 'current' use of illicit drugs other than cannabis

	1996/1997 n=141		1997/1998 n=156		1998/1999 n=192		1999/2000 n=150	
	n	%	n	%	n	%	n	%
LSD	8	5.7	3	1.9	3	1.6	1	0.7
Amphetamines	9	6.4	7	4.5	12	6.3	2	1.3
Cocaine	0	0	1	0.6	6	3.1	3	2.0
Ecstasy	2	1.4	5	3.2	8	4.2	2	1.3
Magic Mushrooms	2	1.4	2	1.3	1	0.5	2	1.3
Amyl/Butyl nitrate	2	1.4	0	0	1	0.5	2	1.3
Temazepam/Diazepam	0	0	1	0.6	1	0.5	0	0
Opioids	0	0	0	0	1	0.5	0	0

Of those who had experimented with illicit drugs, the proportion of students who had used more than one drug ranged from a third in 2000 to a half in 1996 (table 4.8).

The overwhelming reason given for using drugs was 'pleasure' (table 4.9). Other reasons given include 'social pressures' and also 'to increase confidence'.

Table 4.8: Polydrug use

No. of drugs used	1993 n=64		1994 n=30		1995 n=61		1996 n=56		1997 n=75		1998 n=92		1999 n=111		2000 n=80	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1 drug	49	76.6	18	60.0	33	54.1	27	48.2	49	65.3	54	58.7	74	66.7	54	67.5
2 drugs	8	12.5	7	23.3	11	18.0	15	26.8	10	13.3	23	25.0	10	9.0	10	12.5
3 drugs	3	4.7	1	3.3	8	13.1	5	8.9	6	8.0	8	8.7	13	11.7	6	7.5
4 drugs	3	4.7	3	10.0	1	1.6	3	5.4	6	8.0	3	3.3	6	5.4	3	3.8
5 drugs	1	1.6	1	3.3	5	8.2	2	3.6	4	5.3	3	3.3	2	1.8	2	2.5
6 drugs	0	0	0	0	2	3.3	3	5.4	0	0	0	0	4	3.6	4	5.0
7 drugs	0	0	0	0	1	1.6	1	1.8	0	0	1	1.1	0	0	1	1.3
8 drugs	0	0	0	0	0	0	0	0	0	0	0	0	2	1.8	0	0

Table 4.9: Reasons given for using illicit drugs

	1994 n=30		1995 n=61		1997 n=75		1998 n=92		1999 n=111		2000 n=80	
	n	%	n	%	n	%	n	%	n	%	n	%
To increase confidence	0	0	4	6.6	11	14.7	9	9.8	6	5.4	3	3.8
Social pressures	5	16.7	17	27.9	26	34.7	15	16.3	17	15.3	13	16.3
Anxiety/stress	0	0	2	3.3	8	10.7	8	8.7	11	9.9	7	8.8
Habit	0	0	1	1.6	2	2.7	2	2.2	5	4.5	4	5.0
To feel more sexually attractive	0	0	2	3.3	0	0	1	1.1	2	1.8	5	6.3
Exam/work pressure	1	3.3	2	3.3	5	6.7	1	1.1	3	2.7	1	1.3
Pleasure	19	63.3	40	65.6	56	74.7	51	55.4	58	52.3	49	61.3
To aid concentration	0	0	0	0	0	0	0	0	0	0	1	1.3
Don't know	0	0	3	4.9	1	1.3	2	2.2	0	0	0	0
Other (experimentation; curiosity)	10	33.3	14	23.0	16	21.3	9	9.8	10	9.0	10	12.5

4.5 DISCUSSION

This study showed that in all eight cohorts of medical students surveyed during 1993-2000 a high proportion were drinking alcohol excessively and experimenting with illicit drugs. The proportion of students who exceeded the recommended limits for alcohol consumption over the intervening eight years of the study had increased by 25% for men and 19% for women and in comparison to the general population a greater proportion of the students in all cohorts were drinking above the recommended limits (Office for National Statistics, 2000).

The prevalence of smoking in women was higher than in men (apart from in 2000) and had not changed much from the 1983/1984 survey but was lower than in the same age group in the general population. (Office for National Statistics, 2000).

Apart from a small decrease in the prevalence of cannabis experimentation in 1994, the results of the study showed that >50% of the students in each year group had used cannabis. The latter is significantly higher than that reported by medical students in 1983/1984 (Golding and Cornish, 1987.) The current use of cannabis among the different student groups is comparable with the same age group in the general population (Ramsey and Partridge, 2000). Recently, there is evidence to suggest that there has been a levelling off and possibly a downturn in the experimentation of illicit drugs by young people (Balding, 2000). However the results of the present study do not support this. In fact the prevalence of experimentation with illicit drugs among medical students has consistently remained high in medical students during the eight year period of the study which is of concern.

Excessive drinking and illicit drug use are seen by many as part of the hedonistic lifestyles of young people today (Parker et al., 1998) and in support of this over 90% of students in all eight cohorts surveyed stated that pleasure was the main reason for drinking. Over 50% of the students also stated pleasure as the reason for using illicit drugs. It appears that medical students, like other university students (Webb et al., 1997) are no different to those in the general population who see excessive drinking and illicit drug use as part of their normal daily life.

As my earlier study in fresher medical students showed, many students are drinking excessively and using illicit drugs before coming to university. Although universities have a responsibility towards their students in providing effective health education and support services on alcohol and drugs there is nevertheless a need for education and services to be made available at a much earlier age in a student's education. There also needs to be a more holistic approach to alcohol and illicit drug use within society, with policies needed to discourage young people from drinking excessively and using illicit drugs.

This study shows that there is no indication of excessive alcohol and illicit drug use among undergraduate medical students declining. For many students the excessive drinking and illicit drug use may however cease as they become older and are later in a positions of greater responsibility, but for some, these habits may continue into later life which could have deleterious consequences on their health as well on the quality of the service they provide to their patients as future doctors. Chapter five will

investigate whether the heavy drinking and illicit drug use continues as medical students progress through university to when working as PRHOs.

CHAPTER 5

From medical students to doctors: a longitudinal study of lifestyles

5.1 INTRODUCTION

It is well documented that medical students are not immune from the current general trend of excessive drinking and illicit drug use among the young (Collier and Beales, 1989; West et al., 1990; Baldwin et al., 1991; File et al., 1994; Ghodse and Howse, 1994; Ashton and Kamali, 1995; Howse and Ghodse, 1997; Webb et al., 1998; Pickard et al., 2000). My earlier studies showed that medical students are drinking heavily and using illicit drugs before beginning their university life (chapter 3) and that the heavy drinking and illicit drug use in second year medical students has not abated over the past eight years (chapter 4). However, it is not clear whether such youthful behaviour among medical students is a temporary phenomenon reflecting the current lifestyle of young people and whether medical students will curb their pleasure-seeking behaviour when they become older and are in a position of professional responsibility. This issue is of particular relevance to medical students because, as future doctors, they will exert an influence disproportionate to their number on the social and economic health in the UK. This longitudinal study monitored alcohol consumption and illicit drug use as well as other lifestyle variables in three cohorts of medical students during their undergraduate studies and as qualified doctors.

5.2 SUBJECTS AND METHODS

Three cohorts of medical students were surveyed as second and final year undergraduate students and again after one year working as PRHOs using the lifestyles questionnaire (table 5.1).

Table 5.1: Calendar of survey

	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.	H.O
Cohort 1	93/94	94/95	95/96	96/97	97/98
Cohort 2	94/95	95/96	96/97	97/98	98/99
Cohort 3	95/96	96/97	97/98	98/99	99/00

Binge drinking was not assessed in the 1993/1994 and 1995/1996 groups of second year students. The prevalence of experimentation with illicit drugs ('ever used') was determined by data obtained from cohorts as PRHOs. The prevalence of "current use" of illicit drugs was not evaluated in the students during their second year of studies. The GHQ was only completed by the final two groups of final year students and all three groups of PRHOs. Exercise was not assessed in the 1995/1996 group of second year students. Sleep was not assessed in the 1993/1994 and 1994/1995 group of second year students. Health risks associated with alcohol were not assessed in any of the second year groups and the 1996/1997 group of final year students.

5.3 DATA ANALYSIS

Because of the anonymous nature of the questionnaire it was not possible to compare the results for the same individual at the three time points in the survey. Thus the data pertaining to each time point were analysed as three independent sets, giving results which are likely to be conservative in the sense that significance levels are underestimated.

Alcohol consumption (units/week), depression, anxiety and stress scores were analysed using multi-way Analysis of Variance (ANOVA) with year (second, final and PRHO), sex (male or female) and cohort (1, 2 and 3) as factors. Because of the positively skewed distributions of scores, log-transforms were used for alcohol, depression, stress and anxiety. In all cases these produced results giving residuals which were very well approximated by a normal distribution, indicating a good fit of the ANOVA models. Post hoc comparisons were carried out using Tukey's family error rate (Minitab Inc, 1994).

The use of alcohol in excess of recommended limits (Health Education Authority, 1992) and cannabis use were analysed using binary logistic regression. Alcohol consumption was related to cannabis use and anxiety using analysis of covariance, with sex as a factor. Associations between alcohol, stress and anxiety were carried out using Spearman's rank correlation test.

5.4 RESULTS

Overall, of three cohorts of medical students, 311/443 [104M] attended scheduled lectures and completed the questionnaire in the second year of their medical degree. In the second time-point of the survey, 375/434 [136M] of the cohort as final year students and in the third-time point 327/412 [111M] PRHOs who were contacted completed the questionnaire (table 5.2).

Table 5.2: Number of questionnaires completed by the three cohorts

	Cohort 1		Cohort 2		Cohort 3		All	
	M	W	M	W	M	W	M	W
	n	n	n	n	n	n	n	n
As 2nd year students	26	59	42	80	36	68	104	207
As 5th year students	55	95	38	76	43	68	136	239
As PRHOs	37	72	33	77	41	67	111	216

5.4.1 Alcohol consumption

Sixteen percent of the group as second year and 10% as final year students and 6% as PRHOs did not drink (table 5.3). Mean alcohol consumption increased in both men ($p<0.0001$) and women ($p=0.002$) over the 4 year period of the survey, with the consumption in men being significantly greater than that in women ($p<0.001$) [table 5.3]. There were no statistically significant differences between the three cohorts for mean alcohol consumption.

The proportion drinking above the recommended limits of alcohol consumption ($\leq$ 21 units/week for men and $\leq$14 units/week for women (Royal College of Physicians, 1995) increased significantly from the second year of studies to when working as PRHOs for men ($p=0.004$) and for women ($p=0.02$) [table 5.3]. There were no statistically significant differences between the three cohorts. "Binge drinking", defined as drinking over half the recommended limits per week in one session (Moore et al., 1994), was reported by 20% as second year students, 18% as final year students and 17% as PRHOs (table 5.3).

Sixty five percent of the group as final year students and 31% as PRHOs reported that within the previous year, due to alcohol intoxication, they had 'felt so ill to have missed at least half a day of study'; 57% as final year students and 53% as PRHOs were 'unable to remember part of the evening the next day'; 33% as final year students and PRHOs had 'become more sexually involved with someone than they would normally have wanted'; 16% as final year students and PRHOs had got 'involved in a physical fight or argument'; 1.0% as final year students and 0.3% as PRHOs had 'been afraid to go home'; 13% as final year students and 16% as PRHOs had 'not taken contraceptive precautions when having sex'; and 1% as final year students and 0.3% as PRHOs had 'an accident while driving a car or motorcycle'.

The main reason given for drinking was 'pleasure' (60% as second year students, 96% as final year students and 95% as PRHOs). Other reasons given included 'anxiety/stress', 'to increase confidence', 'habit', 'social pressures' and 'exam/work pressures' (table 5.4).

Table 5.3: Summary statistics for alcohol consumption in the group as second and final year students and as PRHOs

	As second year students		As final year students		As PRHOs	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
	n =104	**n = 207**	**n =136**	**n = 239**	**n = 109**	**n = 216**
Alcohol (units/week)						
Mean (±SD)	18.6 (20.2)	12.2 (11.4)	23.0 (18.3)	12.7 (9.9)	25.9 (19.6)	14.4 (9.0)
Median (range)	14 (0-99)	10 (0-73)	20 (0-90)	11 (0-61)	22 (0-84)	14 (0-51)
No alcohol: n (%)	24 (23.1)	26 (12.6)	18 (13.2)	21 (8.8)	7 (6.4)	13 (6.0)
Low risk [a] n (%)	48 (46.2)	114 (55.1)	53 (39.0)	134 (56.1)	43 (39.4)	100 (46.3)
Med-high risk[b]	25 (24.0)	60 (29.0)	55 (40.4)	78 (32.6)	46 (42.2)	100 (46.3)
Hazardous [c]	7 (6.7)	7 (3.4)	10 (7.4)	6 (2.5)	13 (11.9)	3 (1.4)
Binge drinking [d]	7 (28.0)	10 (16.1)	32 (27.1)	29 (13.3)	25 (23.8)	28 (13.8)

Alcohol units: 1 pint strong beer/lager = 3 units; 1 pint ordinary beer/lager = 2 units; 1 glass wine = 1 unit; 1 measure of spirits = 1 unit (1 UK pint=0.57 L, 1 UK measure of spirit = 25.0 mL in England, 35.0 mL in Scotland).

[a]1-21 units (men), 1-15 units (women); [b]22-50 units (men), 15-35 units (women); [c]>50 units (men), >35 units (women) (Royal College of Physicians, 1995.); Binge drinking[d] (defined as drinking more than half the recommended limit in a single session [of those who drink] (Moore, Smith et al., 1994).

Table 5.4: Reasons given for drinking

	As second year students				As final year students				As PRHOs			
	Men		Women		Men		Women		Men		Women	
	n = 80		n =181		n = 118		n = 218		n = 102		n = 203	
	n	%	n	%	n	%	n	%	n	%	n	%
To increase confidence	28	35.0	81	44.8	26	22.0	47	21.6	22	21.6	41	20.2
Social pressures	18	22.0	24	13.3	23	19.5	24	11.0	15	14.7	16	7.9
Anxiety/stress	6	7.5	18	9.9	20	16.9	39	17.9	23	22.5	60	29.6
Habit	17	21.3	26	14.4	43	36.4	46	21.1	30	29.4	46	22.7
To feel more sexually attractive	1	1.3	2	1.1	10	8.5	8	3.7	3	2.9	6	3.0
Exam/work pressure	1	1.3	2	1.1	11	9.3	35	16.1	6	5.9	28	13.8
Pleasure	56	70.0	101	55.8	110	93.2	213	97.7	97	95.1	194	95.6
To aid concentration	0	0	0	0	1	0.8	0	0	1	1.0	0	0
Don't know	3	3.8	0	0	4	3.4	4	1.8	1	1.0	1	0.5
Other (relaxation, socialise, taste)	7	8.8	7	3.9	8	6.8	11	5.0	1	1.0	8	3.9

5.4.2 Smoking

Although the prevalence of smoking (smoking > one cigar or cigarette per day) was reduced over the period of the survey in women from 15% as second year students to 11% as final year students to 9% as PRHOs, it fluctuated among men (10% as second year students, 19% as final year students and 14% as PRHOs). There were no statistically significant differences between the three cohorts in the prevalence of current smoking.

5.4.3 Illicit drug use

Two thirds of the group reported having used cannabis (table 5.5). Forty seven percent of the cohort, with a greater proportion of men (61%) than women (46%), reported having experimented with at least two illicit drugs. Apart from two women, all those who had used other illicit drugs had also used cannabis. The percentage of individuals who reported having experimented with illicit drugs increased from 47% as second year students to 58% as final year students to 66% as PRHOs.

Table 5.5: Reported experience with cannabis and other illicit drugs ('ever used') in the group as PRHOs

Drug	Men		Women		All	
	n=111		n=216		n=327	
	n	%	n	%	n	%
Cannabis	79	71.2	134	62.0	213	65.1
LSD	18	16.2	23	10.6	41	12.5
Amphetamines	30	27.0	35	16.2	65	19.9
Ecstasy	19	17.1	19	8.8	38	11.6
Amyl/Butyl nitrate	26	23.4	25	11.6	51	15.6
Magic Mushrooms	22	19.8	19	8.8	41	12.5
Cocaine/crack	12	10.8	7	3.2	19	5.8
Temazepam/Diazepam	7	6.3	12	5.6	19	5.8
Opium/Morphine/Heroin	4	3.6	2	0.9	6	1.8
Steroids	1	0.9	1	0.5	2	0.6

The 'current use' of cannabis was reported by 17% of the cohort as final year students and by 21% as PRHOs (table 5.6). A significantly greater proportion (p=0.003) of men than women reported current use of cannabis; 22% (men), 13% (women) as final year students and 28% (men) and 17% (women) as PRHOs.

Table 5.6: Current use of cannabis in the group as final year students and PRHOs

	As final year students		As PRHOs	
	Men	Women	Men	Women
	n= 136	n= 239	n=111	n=216
	n (%)	n (%)	n (%)	n (%)
Weekly	9 (6.6)	8 (3.7)	7 (6.3)	4 (1.9)
Monthly	3 (2.2)	9 (3.8)	5 (4.5)	9 (4.2)
Very occasionally	18 (13.2)	15 (6.3)	19 (17.1)	24 (11.1)
Total	30 (22.1)	32 (13.4)	31 (27.9)	37 (17.1)

The reported 'current use' of other illicit drugs included amphetamines (3% of the group as final year students and 2% as PRHOs); Ecstasy (3% as final year students and 2% as PRHOs); cocaine/crack (1% as final year students and PRHOs); LSD (0.3% as final year students and PRHOs); Magic Mushrooms (0.5% as final year students and 0.3% as PRHOs); Amyl/butyl nitrate (0.5% as final year students and 0.3% as PRHOs). The current use of temazepam/diazepam (1%) was reported by the cohorts only as PRHOs. The main reason for illicit drug use was 'pleasure'. Other reasons provided included 'social pressures', 'experimentation/curiosity', and 'anxiety/stress' (table 5.7).

Table 5.7: Reasons given for illicit drug use

	Second year students				Final year students				PRHOs			
	Men		Women		Men		Women		Men		Women	
	n = 52		n = 94		n = 86		n = 133		n = 79		n = 136	
	n	%	n	%	n	%	n	%	n	%	n	%
To increase confidence	8	15.4	15	16.0	6	7.0	5	3.8	3	3.8	2	1.5
Social pressures	7	13.5	15	16.0	9	10.5	16	12.0	6	7.6	13	9.6
Anxiety/stress	2	3.8	1	1.1.	8	9.3	4	3.0	0		10	7.4
Habit	0	0	2	2.1	8	9.3	3	2.3	3	3.8	3	2.2
Exam/work pressure	2	3.8	10	10.6	1	1.2	1	0.8	1	1.3	3	2.2
To feel more sexually attractive	0	0	0	0	0	0	1	0.8	2	2.5	1	0.7
Pleasure	24	46.2	46	48.9	55	64.0	70	52.6	46	58.2	65	47.8
To aid concentration	0	0	0	0	0	0	0	0	0	0	0	0
Don't know	0	0	3	3.2	1	1.2	2	1.5	2	2.5	1	0.7
Other (curiosity, experimentation)	6	11.5	8	8.5	9	10.5	10	7.5	4	5.1	10	7.4

5.4.4 Anxiety, depression and stress

Forty five percent and 42% of the group as second year and final year students respectively and 27% as PRHOs had a score of ≥8 on the anxiety component of the HAD scale (table 5.8). The prevalence of anxiety decreased over the period of the study in both men ($p<0.0001$) and women ($p=0.013$).

Eight percent and 7% of the group as second year and final year students and 7% as PRHOs scored ≥8 for the depression component of the HAD scale (table 5.8).

There were no statistically significant differences between the three cohorts in the prevalence of scores ≥8 for both the anxiety and depression component of the HAD.

Forty percent as final year students and 38% of PRHOs scored more than 4 on the GHQ. There were differences in the prevalence of stress between the three cohorts in men with the number of individuals scoring >4 increasing from 25% of the first cohort to 22% of the second cohort to 52% of the third cohort.

5.4.5 Prescribed drugs, proprietary medicines and vitamins

Use of prescribed tranquillisers, sleeping pills or antidepressants (prescribed for more than 2 days) in the past year was reported by 1% (men) and 4% (women) as second year students; 3% (men) and 5% (women) as final year students and 3% (men) and 4% (women) as PRHOs. Proprietary medicines, excluding the use of oral contraceptives by women, were taken once a month or more by 39% (men) and 49% (women) as second year students, 53% (men) and 76% (women) as final year students

and 49% (men) and 75% (women) as PRHOs. Women were found to use proprietary medicines more frequently than men ($p<0.0001$).

Table 5.8: Summary statistics of anxiety, depression and stress scores

	As second year students		As final year students		As PRHOs	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
	n = 104	**n = 207**	**n = 136**	**n = 239**	**n = 111**	**n = 216**
[1]HAD (Anxiety)						
Mean (±SD)	7.1 (3.2)	7.8 (3.5)	6.3 (3.5)	7.8 (3.9)	5.3 (3.1)	6.4 (3.1)
(median) Range	(7) 1-19	(7) 0-21	(6) 0-18	(7) 1-19	(5) 0-13	(6) 0-17
≥8	43 (41.3%)	97 (47.1%)	44 (33.6%)	111 (46.8%)	19 (17.1%)	70 (32.4%)
[1]HAD (Depression)						
Mean (±SD)	3.0 (2.7)	3.1 (2.5)	2.6 (2.6)	2.9 (2.6)	2.9 (2.7)	2.9 (2.5)
(median) Range	(2) 0-13	(3) 0-12	(2) 0-11	(2) 0-13	(2) 0-10	(2) 0-11
≥8	10 (9.6%)	16 (7.8%)	8 (6.1%)	16 (6.8%)	9 (8.1%)	15 (6.9%)
GHQ score >4	n.d	n.d	31 (39.2%)	58 (40.6%)	36 (33.3%)	86 (40.4%)

n.d - not determined

[1]HAD scores of ≥ 8 indicate possible clinical anxiety or depression.

5 male final year students and 1 second and 2 final year female students did not complete the HAD.

The GHQ was not completed by the 1996/1997 cohort of final year students.

2 male and 1 female final year student and 3 male and 3 female PRHOs did not complete the GHQ.

5.4.6 Exercise and sleeping

Daily, twice weekly or weekly physical exercise was reported by 81% (men) and 78% (women) as second year students, 79% (men) and 74% (women) as final year students and 75% (men) and 65% (women) as PRHOs. The remainder took exercise monthly or hardly ever. Sixty three percent of the group as second year students, 54% as final year students and 56% as PRHOs reported problems with sleeping (difficulty getting to sleep; waking up early and being unable to get back to sleep; unable to wake up properly).

5.4.7 Associations

All those who used cannabis were also drinking heavily ($p=0.0001$). Men were more likely to use cannabis than women ($p=0.004$). There was a significant negative association between anxiety scores and alcohol consumption ($r=-0.132$; $p=0.0001$, CI -0.1927 – -0.0712). Anxiety scores were not significantly related to cannabis use. Depression scores did not show any discernible relationship to alcohol or cannabis use. There was a significant negative relationship between alcohol consumption levels and stress scores ($r= -0.124$; $p=0.009$, CI -0.1738 – -0.0538), but not between stress scores and cannabis use.

The reported sleep problems were positively associated with higher stress scores ($p<0.0001$). There was a positive relationship between the use of proprietary medicines and alcohol ($p<0.0001$).

5.5 DISCUSSION

University students (Webb et al., 1996; 1997), including medical students (Ashton and Kamali, 1995; Webb et al., 1998; Collier and Beales, 1989; West et al., 1990; File et al., 1994; Howse and Ghodse, 1997) are not immune from the current general trend of excessive drinking and illicit drug use among the young. Such unhealthy pursuits are of particular concern in medical students because of their responsibilities as future doctors towards their patients. This study longitudinally monitored lifestyles in a group of medical students as they progressed through their medical degree and one year after working as PRHOs.

At the outset I expected that medical students would reduce their alcohol and illicit drug consumption in response to increasing demands of the medical curriculum and the impending demands of becoming a doctor. Contrary to this however, I found that mean alcohol consumption had significantly increased in both men and women and the proportion of individuals drinking above the recommended limits had also significantly increased over the intervening 4 years of the study. An increasing number of individuals also reported to be binge drinking. The presence of a positive relationship between alcohol and proprietary medicines suggests that those who drink more heavily suffer more from ailments which require over the counter medicines. A greater proportion of women were suffering from stress compared to their male counterparts. Whilst the prevalence of stress in the male PRHOs (28%) is similar to that in the male British population (27%), for female PRHOs (47%) it was greater than that in the female British population (33%) (Cox et al., 1987). The significant negative correlation between alcohol consumption levels and both anxiety and stress

scores, suggests that alcohol might be used by some individuals to alleviate their symptoms of stress and anxiety. The use of illicit drugs had also significantly increased during the period of the study, with cannabis being the most commonly used illicit drug. This suggests that cannabis use is perceived by many in the cohort as a normal part of life today. A significant positive association was found between cannabis use and drinking, which supports the notion that alcohol could act as a 'gateway' to the use of illicit drugs (Anon, 1995).

Although few studies have previously followed up alcohol and illicit drug use among medical students in USA, it is not possible to draw any direct comparisons between my findings and of these, because of the stark differences in study methodologies, as well as social, cultural and educational differences that exist between UK and USA. Nevertheless, a four year longitudinal study of a cohort of medical students at a midwestern medical college in USA showed that although male students consistently drank more than their female counterparts during the pre-clinical years, the men reduced their intake during the clinical years to converge on the lower, more consistent intake rates of their female classmates (Clark et al., 1987). A later study of a cohort of undergraduate medical students in the first and third year of their degree at a northwestern university in USA found that although there was no evidence that substance use was a major problem, a few of the students appeared to be at risk of drug or alcohol dependence (Croen et al., 1997).

Heavy drinking and illicit drug use are common amongst young people today (Parker et al., 1998) and it appears that medical students are no exception to this. Indeed the

overall levels of alcohol consumption and illicit drug use reported by the cohort is similar to those of the same age group in the general population (Office for National Statistics, 2000; Ramsey et al., 2000). Also there is evidence that many young people today start drinking and experimenting with illicit drugs at an early age (Miller and Plant, 1996, Balding, 2000). In concordance with this, as I found earlier (chapter 3) many new students entering medical school were drinking and experimenting with illicit drugs, particularly cannabis, before starting university life and those who had started drinking at an earlier age were currently drinking more heavily than others.

However, it has to be questioned whether the unrelenting heavy drinking and drug taking in medical students found by the present study ought to be accepted as normal youthful behaviour or whether we must expect better conduct from such individuals who should know all too well about the impact of alcohol and drug abuse upon an individual's health. It is likely for such individuals to become dependent on alcohol and/or drugs if they continue to abuse such substances in later life. It has now been acknowledged that dependence on alcohol and or/drugs by doctors is a problem (Anon, 1998). Indeed doctors have a significantly greater risk of dying from liver cancer, cirrhosis and other alcohol-related diseases compared to the general population (Office of Population Censuses and Surveys, 1995).

These findings also raise another important question of whether alcohol and drug misuse in these individuals as doctors will have an impact on their professional competence and the quality of care they provide for their patients. It might be necessary to introduce policies for intervention so that risk to patients is minimised.

To date the problem of alcohol and drug misuse in doctors has not been satisfactorily addressed. This has been partly due to denial by the profession to acknowledge the problem and also due to the lack of clear guidelines and policies which would enable the early detection, support and provision of simple access to appropriate diagnostic treatment and rehabilitation for those doctors who are affected. More recently there have been calls for random alcohol and drug testing for the medical profession (Christie, 1997). Interestingly, medical students also back the introduction of random testing in doctors (Sellappah, 1999; BMA, 2000). The recent publicity on doctors and alcohol and drugs has prompted the General Medical Council to make appropriate recommendations to safeguard both doctors and patients (Anon, 1998). Perhaps the greatest single reason for the high prevalence of alcohol and drug use amongst doctors is the failure of current medical training to make students as aware of their own problems as they should be of those of their patients.

Doctors are seen by many as role models and the people who can be turned to for help and advice. The present heavy drinking and drug taking behaviour among medical students and doctors is bound to damage the responsible and caring image of the profession.

CHAPTER 6

A comparative longitudinal study of lifestyles between medical and dental students

6.1 INTRODUCTION

My earlier work showed that many medical students are drinking excessively and using illicit drugs before arriving at university (chapter 3). My longitudinal study (chapter four) showed that the excessive drinking and illicit drug use further increased in medical students as they progressed through medical school and when working as PRHOs. It is important to establish whether the increased drinking and illicit drug use among medical students are unique to this group of individuals or whether such conduct are simply part of the hedonistic behaviours among the young student population today. In order to examine this, the present study longitudinally compared the lifestyles of a group of medical students to those of a group of dental students at Newcastle University. Dental students were chosen as a comparative group because the dental degree course is similar to the medical degree course in relation to duration.

6.2 SUBJECTS AND METHODS

A cohort of medical and dental students were surveyed in spring of 1995 and 1998 as second and final year undergraduate students respectively, and again in summer 1999 after one year working as either PRHOs or dentists.

6.3 DATA ANALYSIS

The statistical analyses of the data were the same as those, with the addition of degree as a factor (medicine or dentistry). Student t-test was used to analysis the difference in both psychoticism scores and drug use between the two groups.

6.4 RESULTS

6.4.1 Response rates

Of medical students, 122/152 individuals [42M/80F] as second year students. 114/143 as final year students [38M/76F] and 110/137 as PRHOs [33M/77F] completed the questionnaire. Of dentists, 47/66 individuals [16M/31F] as second year students, 53/66 as final year students [27M/26F] and 49/62 as dentists [25M/24F] completed the questionnaire.

6.4.2 Alcohol consumption

In the medical student group mean alcohol consumption increased significantly over the three time points ($p<0.015$) from 22.9 to 23.6 to 27.1 units/week for men and from 11.2 to 12.2 to 15.3 units/week for women (table 6.1). In contrast, in the dental student group mean alcohol consumption decreased from 34.6 to 26.0 to 25.2 units/week for men and from 14.7 to 7.3 to 10.7 units/week for women, although the decreases were not statistically significant (table 5.2). For the medical student group the proportion of individuals drinking above the recommended limits ($\leq$ 21 units/week for men and $\leq$14 units/week for women (Royal College of Physicians, 1995) increased over the three-time points from 33% to 43% to 54% (table 6.1) compared to 47% to 25% to 41% in dentists (table 6.2). Analysis of variance showed that the pattern of alcohol consumption differed significantly between medics and dentists ($p=0.018$).

"Binge drinking" in medics was reported by 15% of the group as second year and final year students and 18% as PRHOs (table 6.1). In dentists binge drinking was

reported by 35% of the cohort as second year students, 27% as final year students and 35% as dentists (table 6.2).

Table 6.1: Summary statistics for alcohol consumption in the medical student group as second and final year students and as PRHOs

	As second year medical students		As final year medical students		As PRHOs	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
	n = 42	**n = 80**	**n = 38**	**n = 76**	**n = 33**	**n = 77**
Alcohol (units/week)						
Mean (±SD)	22.9 (19.8)	11.2 (9.0)	23.6 (13.6)	12.2 (8.6)	27.1 (19.1)	15.3 (9.2)
Median (range)	18 (0-84)	10 (0-36)	23 (0-51)	9.5 (0-32)	24 (0-80)	15 (0-34)
No alcohol	4 (9.5%)	10 (12.5%)	2 (5.3%)	5 (6.6%)	2 (6.1%)	5 (6.5%)
Low risk level [a]	22 (52.4%)	46 (57.5%)	14 (36.8%)	44 (57.9%)	12 (36.4%)	32 (41.6%)
Med-high risk level [b]	12 (28.6%)	23 (28.8%)	21 (55.3%)	27 (35.5%)	16 (48.5%)	40 (51.9%)
Hazardous level [c]	4 (9.5%)	1 (1.3%)	1 (2.6%)	0	3 (9.1%)	0
Binge drinking [d]	6 (15.8%)	10 (14.3%)	9 (25.0%)	12 (16.9%)	4 (12.9%)	15 (20.8%)

Alcohol units: 1 pint strong beer/lager = 3 units; 1 pint ordinary beer/lager = 2 units; 1 glass wine = 1 unit; 1 measure of spirits = 1 unit (1 UK pint=0.57 L, 1 UK measure of spirit = 25.0 mL in England, 35.0 mL in Scotland).

[a]<22 units (men), <15 units (women); [b]22-50 units (men), 15-35 units (women); [c]>50 units men, >35 units (women) (Health Education Authority, 1992); Binge drinking[d] (defined as drinking more than half the recommended 'low risk' in a single session) (Moore, Smith et al., 1994).

Table 6.2: Summary statistics for alcohol consumption in the dental student group as second and final year students and as dentists

	As second year dental students		As final year dental students		As dentists	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
	n = 16	**n = 31**	**n = 27**	**n = 25**	**n = 25**	**n = 24**
[1]**Alcohol (units/week)**						
Mean (±SD)	34.6 (29.2)	14.7 (13.9)	26.0 (26.0)	7.3 (5.3)	25.2 (15.7)	10.7 (6.2)
Median (range)	26.5 (0-88)	8 (0-55)	18 (0-106)	8 (0-22)	25 (0-70)	10 (1-28)
No alcohol	3 (18.8%)	4 (12.9%)	2 (7.4%)	2 (8.0%)	1 (4.0%)	0
Low risk level [a]	3 (18.8%)	15 (48.4%)	13 (48.1%)	22 (88.0%)	10 (40.0%)	18 (75.0%)
Med-high risk level [b]	4 (25.0%)	9 (29.0%)	10 (37.0%)	1 (4.0%)	13 (52.0%)	6 (25.0%)
Hazardous level [c]	6 (37.5%)	3 (9.7%)	2 (7.4%)	0	1 (4.0%)	0
Binge drinking [d]	8 (61.5%)	6 (22.2%)	11 (44.0%)	2 (8.7%)	7 (29.2%)	3 (12.5%)

Alcohol units: 1 pint strong beer/lager = 3 units; 1 pint ordinary beer/lager = 2 units; 1 glass wine = 1 unit; 1 measure of spirits = 1 unit (1 UK pint=0.57 L, 1 UK measure of spirit = 25.0 mL in England, 35.0 mL in Scotland). [a]<22 units (men), <15 units (women); [b]22-50 units (men), 15-35 units (women); [c]>50 units men, >35 units (women) (Health Education Authority, 1992); Binge drinking[d] (defined as drinking more than half the recommended 'low risk' in a single session) (Moore, Smith et al., 1994).

6.4.3 Smoking

The prevalence of smoking (smoking > one cigar or cigarette per day) in medics was 15% as second year students; 5% as final year students and 6% as PRHOs. In dentists the prevalence was 11% as second year students, 4% as final year students and 6% as dentists.

6.4.4 Illicit drug use

Cannabis was the most frequently reported illicit drug 'ever used' by both men and women. Sixty six percent of the medical student group as PRHOs and 51% of the dental student group as dentists reported having experimented with it (table 6.3). Thirty five percent of PRHOs and 27% of dentists reported having experimented with at least one other drug in addition to cannabis. Three percent of PRHOs and 5% of dentists reported having used 4 different illicit drugs in addition to cannabis. Experimentation with illicit drugs had increased from 50% of medical student cohort as second year students to 63% as final year students and to 65% as PRHOs. Experimentation with illicit drugs in the dental student cohort ranged from 47% as second year students to 54% as final year students and to 51% as dentists.

Table 6.3: Reported experience with cannabis and other illicit drugs ('ever used') in the group as PRHOs and dentists

Drug	PRHOs				Dentists			
	M	n=33	W	n=77	M	n=25	W	n=24
	n	%	n	%	n	%	n	%
Cannabis	22	66.7	50	64.9	16	64.0	9	37.5
LSD	6	18.2	8	10.4	7	28.0	1	4.2
Amphetamines	8	24.2	13	16.9	6	24.0	2	8.3
Ecstasy	8	24.2	7	9.1	5	20.0	3	12.5
Amyl/Butyl nitrate	9	27.3	9	11.7	6	24.0	1	4.2
Magic Mushrooms	11	33.3	6	7.8	5	20.0	2	8.3
Cocaine/crack	4	12.1	3	3.9	5	20.0	2	8.3
Temazepam/Diazepam	3	9.1	6	7.8	2	8.0	1	4.2
Opium/Morphine/Heroin	2	6.1	0	0	0	0	1	4.2
Steroids	1	3.0	0	0	1	4.0	0	0

Current use of cannabis was reported by 22% of final year medical students and 24% of PRHOs and by 8% of final year dental students and 16% of dentists (tables 6.4 and 6.5). Logistical regression showed that current cannabis use was significantly higher amongst the medical student group as final year students and as PRHOs than the dental student group as final year dental students and dentists (p=0.004).

Table 6.4: Current use of cannabis in final year medical students and PRHOs

	Final year students				PRHOs			
	Men		Women		Men		Women	
Cannabis	n=38		n=76		n=33		n=77	
	n	%	n	%	n	%	n	%
Current user	14	36.8	11	14.5	9	27.3	17	22.1
Weekly	4	10.5	4	5.3	3	9.1	0	0
Monthly	3	7.9	2	2.6	4	12.1	6	7.8
Very occasionally	7	18.4	5	6.6	2	6.1	11	14.3

Table 6.5: Current use of cannabis in final year dental students and dentists

	Final year students				Dentists			
	Men		Women		Men		Women	
Cannabis	n=27		n=25		n=25		n=24	
	n	%	n	%	n	%	n	%
Current user	3	11.1	1	4.0	6	24.0	2	8.3
Weekly	1	3.7	1	4.0	1	4.0	1	4.2
Monthly	0	0	0	0	2	8.0	1	4.2
Very occasionally	2	7.4	0	0	3	12.0	0	0

Other illicit drugs currently used by medics included amphetamines (1% of the cohort as both final year students and PRHOs); Ecstasy (3% as final year students and 4% as PRHOs); cocaine/crack (1% as final year students and 3% as PRHOs). The current use of amyl/butyl nitrate (1%); LSD (1%) and temazepam/diazepam (3%) was only

reported by PRHOs. For dentists current use included amphetamines (4% of the cohort as final year students and 4% as dentists); Ecstasy (6% of the cohort as final year students and 13% as dentists); cocaine/crack 6% as final year students and 13% as dentists. The current use of amyl/butyl nitrate (4%) and magic mushrooms (4%) was only reported by the cohort as dentists.

6.4.5 Anxiety, depression and stress

Forty seven percent of medical students as second year students, 26% as final year students and 30% as PRHOs had a score of ≥8 on the anxiety component of the HAD scale compared to 47% of dental students as second year students, 67% as final year students and 16% as dentists (tables 6.6 and 6.7).

Four percent of medical students as second year students, 5% as final year students and 10% as PRHOs scored ≥8 for the depression component of the HAD scale compared to 15% of dental students as second year students, 14% as final year students and 2% as dentists (tables 6.6 and 6.7).

The number of medics who scored >4 on the GHQ increased from 32% as final year students to 39% as PRHOs ($p=0.004$) with the differences between men and women being significant (0.041). For dentists the number decreased from 72% as final year students to 19% as dentists ($p<0.0001$) with the differences between men and women being significant ($p=0.032$).

Table 6.6: Summary statistics of anxiety, depression and stress in medics as second and final year students and as PRHOs

	As second year medical students		As final year medical students		As PRHOs	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
	n = 42	**n = 80**	**n = 38**	**n = 76**	**n = 33**	**n = 77**
HAD (Anxiety)						
Mean (±SD), range	7.0 (3.1) 1-13	7.7 (3.4) 2-19	5.9 (3.2) 1-14	6.3 (3.4) 1-18	5.6 (3.2) 0-13	6.3 (3.0) 0-16
≥8	20 (47.6%)	37 (46.3%)	10 (27.8%)	21 (27.6%)	8 (24.2%)	25 (32.5%)
HAD (Depression)						
Mean (±SD), range	2.5 (2.5) 0-13	2.8 (2.4) 0-12	2.3 (2.5) 0-9	2.4 (2.2) 0-9	3.0 (2.9) 0-10	3.1 (2.6) 0-10
≥8	1 (2.4%)	4 (5.0%)	3 (8.3%)	2 (2.6%)	4 (12.1%)	7 (9.1%)
GHQ score>4	n.d	n.d	6 (16.2%)	20 (26.7%)	9 (29.0%)	34 (45.3%)

n.d - not determined

2 male final year students did not complete the HAD

1 male and 1 female final year student and 1 male and 2 female PRHOS did not complete the GHQ.

Table 6.7: Summary statistics of anxiety, depression and stress in dentists as second and final year students and as dentists

	As second year dental students		As final year dental students		As dentists	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
	n = 16	**n = 31**	**n = 27**	**n = 25**	**n = 25**	**n = 24**
HAD (Anxiety)						
Mean (±SD), range	7.0 (3.6) 4-17	8.7 (3.7) 2-16	7.7 (3.2) 1-13	10.3 (4.1) 4-19	5.0 (3.3) 0-13	5.6 (2.3) 0-11
≥8	4 (25.0%)	18 (58.1%)	13 (50.0%)	21 (27.6%)	4 (16.0%)	4 (16.7%)
HAD (Depression)						
Mean (+SD), range	4.2 (2.3) 1-10	4.2 (3.0) 0-10	3.0 (2.8) 0-10	4.3 (3.2) 0-11	1.5 (1.4) 0-5	1.7 (2.1) 0-10
≥8	1 (6.2%)	6 (19.4%)	3 (11.5%)	4 (16.7)	0	1 (4.2%)
GHQ score>4	n.d	n.d	15 (57.7%)	21 (87.5%)	3 (13.0%)	6 (25.0%)

n.d - not determined

1 male final year student did not complete the HAD

1 male/1 female final year student and 2 male dentists did not complete the GHQ

6.4.6 Personality

Personality scores for the medical and dental student groups are shown in table 6.8 and 6.9 respectively. Although there were no statistically significant differences between male medical and dental students for any of the personality characteristics, the female medical student group had statistically significantly higher scores for psychoticism than their dental counterparts.

Table 6.8: Mean (±SD) of personality characteristics in male medical and dental students

	Medics (n=32)	Dentists (n=25)	
Extraversion	14.3 (5.1)	14.7 (3.5)	p=0.82
Neuroticism	10.2 (5.1)	8.9 (4.8)	p=0.33
Psychoticism	4.9 (3.3)	4.2 (2.9)	p=0.47

Table 6.9: Mean (±SD) of personality characteristics in female medical and dental students

	Medics (n=75)	Dentists (n=23)	
Extraversion	14.9 (4.9)	14.2 (5.4)	p=0.88
Neuroticism	12.5 (4.9)	13.3 (3.8)	p=0.65
Psychoticism	3.2 (2.1)	2.1 (1.8)	p=0.02

6.4.7 Associations

For both medics (p=0.038) and dentists (p=0.001), those who were drinking excessively were more likely to be cannabis users. Although in medics, there was a significant but

weak negative correlation between alcohol consumption and anxiety (r= -0.198; p=0.002) and between alcohol consumption and stress (r= -0.199; p=0.031) no such correlations were found for dentists.

Multivariate analysis of relationships between alcohol use and personality characteristics scores of EPQ showed that psychoticism and extraversion scores were significantly related to alcohol consumption in PRHOs but not in dentists (table 6.10).

Table 6.10: Multiple regression analysis of alcohol and personality characteristics in medics and dentists

	Regression coefficient	SD	p value
Medics			
Neuroticism	0.0220	0.0178	0.215
Psychoticism	0.0812	0.0321	0.013
Extraversion	0.0667	0.0192	0.001
Dentists			
Neuroticism	-0.0427	0.0247	0.091
Psychoticism	0.0400	0.0451	0.380
Extraversion	0.0480	0.0266	0.079

Non-alcohol drinkers are included in the analysis

The psychoticism scores for individuals who had taken illicit drugs were significantly greater than the scores for the corresponding individuals who had not taken illicit drugs

in both medics (4.0±2.8 versus 2.9±2.0; p=0.045) and dentists (3.9±3.0 versus 2.4±1.9; p=0.042) [student t-test].

6.4 DISCUSSION

It is not clear whether the persistent excessive drinking and illicit drug use among medical student are due to the ethos and culture of the medical degree course and the type of individuals who seek to pursue a medical degree course, or whether such unhealthy behaviours are part of the characteristics of young people today. Therefore it was useful to compare the lifestyles of medical students with a similar group of university students. This study compared lifestyles between a group of medical students and dental students at Newcastle University in a longitudinal design study. The dental students were chosen as a comparative group to medical students because the dental degree course is of the same duration as that of the medical degree and upon qualification both groups tend to deal with the general public on a daily basis. Perhaps a better indicator of how medical students' lifestyles differ to other young people would have been to survey a similar age group in the general population, but this was not possible due to time and financial constraints.

This study showed that a high proportion of both medical and dental students drink excessively and take illicit drugs. However, the pattern of alcohol consumption was different between medics and dentists; with mean alcohol consumption over time increasing in medics whilst it decreased in dentists. By the final time-point in the survey, although a similar proportion of male PRHOs and dentists were drinking over the recommended limits, more female PRHOs were drinking excessively than their dentist

counterparts. Similarly, compared to female dentists, a greater proportion of female PRHOs reported experimental use of illicit drugs. There was also a significantly higher proportion of final year medical students and PRHOs who reported 'current use' of illicit drugs, compared to their dentist counterparts. More dental students than medical students, however, were drinking at hazardous levels at all three time-points. Those who were drinking excessively were more likely to be cannabis users in both the medical student and dental student group which is in keeping with my earlier findings in fresher medical students (chapter 3).

The prevalence of smoking in both groups was similar at all three time-points and was lower than in the same age group in the general population (36% men and 36% women) (Office for National Statistics, 2000). As previously argued (chapter 3), this could be due to socio-economic differences. Nevertheless it is encouraging to note that the prevalence of smoking in medical students (15% as second year students; 5% as final year students and 6% as PRHOs) and dental students (11%; 4% and 6%) is still lower than among professional people in the general population (Office for National Statistics, 2000).

Psychoticsm has been described as a measure of 'tough-mindedness and sensation seeking'. The results of this study showed that whereas there were no statistically significant differences for psychoticism scores in male PRHOs and dentists, the female PRHOs had significantly higher scores for this personality characteristic than those for female dentist. A significant association was found between personality and alcohol consumption in medics but not in dentists. Also, the presence of a correlation between

alcohol and anxiety and alcohol and stress in medics implies that these individuals may be using alcohol as a coping mechanism for dealing with both stress and anxiety.

The results show that dental students, like medical students, are not immune from the general trend in young people of excessive drinking and illicit drug use. There has been a growing emphasis in recent years on the problems relating to alcohol and illicit drug consumption by dentists (Busch, 1982; Giangrego and Oberg, 1987; Peterson and Avary, 1988; Anon., 1991; Anon, 1996; British Dental Association, 2000). The Sick Dentists Trust, currently known as the Dentists Health Support Programme established in 1991 is helping members of the dental profession with matters relating to health. There is however a lack of research into alcohol and illicit drug use amongst dental undergraduate students in the UK. As is for the medical profession, for the dental profession there has been a reluctance to acknowledge the existence of alcohol and drug abuse and stress (Talbot, 1984). Both the medical (BMA, 1998) and the dental (British Dental Association, 2000) professions are now taking steps to tackle the problems of alcohol and illicit drug use amongst their members in order to safeguard them against ill health but also to ensure that patient care is not affected.

Whilst the greatest proportion of individuals suffering from anxiety and stress in the dental student group was during the final year of studies, for medics this was during the registration year. The reasons for this could be attributed to the greater pressures of the work during the PRHO year.

In conclusion, the study showed that many medical and dental students are drinking excessively and using illicit drugs. However, in contrast to medical students, the prevalence of excessive drinking and drug taking and stress in dental student population appear to decline as they progress through their undergraduate degree and one year after working as qualified dentists. A further study of the two groups may be necessary in a few years to ascertain whether these lifestyles continue as the PRHOs/dentists progress in their careers.

CHAPTER 7

Psychological stress, anxiety, depression, job satisfaction and personality in pre-registration house officers

7.1 INTRODUCTION

Stress is an unavoidable part of an individual's working life (Cooper, 1988). Although stress can have positive qualities in that the individual may feel more excited than agitated and perceive the situation positively as a form of challenge (Seyle, 1956), it is also described as posing a threat to the quality of life as well as physical and psychological well being (Cox, 1978). Stress is a complex issue but generally it is defined as a physical, mental or emotional reaction resulting from an individual's response to environmental tensions, conflicts, pressures and similar stimuli (Fontana and Abouserie, 1993). Stress is often described as being associated with emotions such as anger, anxiety and depression (Cox, 1978), and there is evidence to suggest that it is also related to impoverished mental health (Cooper, 1996).

It has been reported that junior doctors suffer from high levels of stress (Firth-Cozens, 1987; Hsu and Marshall, 1987) and that excessive levels of it may lead to dissatisfaction, lower morale and poorer work performance (Firth-Cozens, 1987). Work related stress and anxiety can not only affect doctors' health but it can also have an impact on the quality of patient care provided (Firth-Cozens, 1993).

Individual responses to stressful situations can vary greatly and it has been shown that certain people are more likely to experience high levels of stress in their job than others (Fontana and Abouserie, 1993). Moreover, personality factors have been shown to attribute to stress (Cooper, 1988; Firth-Cozens, 1993; Fontana and Abouserie, 1993), anxiety (Sutherland and Cooper, 1993) and job satisfaction (Deary et al., 1996) in different occupations.

I therefore investigated the relationships between stress, anxiety and job satisfaction and the influence of personality characteristics on these variables in a group of PRHOs in the north east of England.

7.2 SUBJECTS AND METHODS

Four years of PRHO data relating to stress, anxiety and job satisfaction was collated and pooled for analysis and then comparisons made between cohorts. 535 PRHOs were contacted and of these 417 (150M/267F) aged 23-40 years (median 24) agreed to take part. Stress was measured using the 30 question version of the GHQ. Anxiety and depression were measured using the HAD scale and job satisfaction was measured using the job satisfaction scale of the OSI. See chapter 2 for details.

7.3 DATA ANALYSIS

Because of the positively skewed distributions of scores, log-transforms were used for the analysis of data relating to anxiety, depression and stress. In all cases these produced results giving residuals which were very well approximated by a normal distribution, indicating a good fit of the ANOVA models. Post hoc comparisons were carried out using Tukey's family error rate (Minitab Inc, 1994).

Job satisfaction for both men and women was analysed using ANOVA with year as a factor. The Student's t-test was used to analyse job satisfaction sub-scales and personality characteristics. Spearman rank correlations were use to look at the relationship between anxiety, job satisfaction, stress, depression and personality. Linear

regression was used to investigate differences between cohorts for anxiety, depression and stress.

7.4 RESULTS

7.4.1 Stress, anxiety and depression

Thirty two percent of men and 41% of women scored more than 4 on the GHQ. The mean (±sd) stress score was 25.6±10.7 (range 2-65) [median 24] for men and 28.0±10.9 (range 1-62) [median 26]. Women had statistically significant higher scores than men ($p=0.028$). Eighteen percent of men and 35% of women had a score 8 or more on the anxiety and 8% of men and 7% of women had a score of 8 or more on the depression components of the HAD scale.

The proportion of individuals in the three cohorts suffering from anxiety, depression and stress are shown in tables 7.1, 7.2 and 7.3. There were no statistically significant differences found between cohorts for men or women for anxiety, depression or stress.

Table 7.1: Proportion of individuals scoring ≥8 for anxiety on the HAD scale

	Men		Women	
	n	%	n	%
Year				
1996/1997	8	20.5	23	46.0
1997/1998	2	5.4	28	38.9
1998/1999	8	24.2	25	32.5
1999/2000	9	22.0	17	25.4
	p=0.144		p=0.108	

1F in 1997 did not complete the HAD scale.

Table 7.2: Proportion of individuals scoring ≥8 for depression on the HAD scale

	Men		Women	
	n	%	n	%
Year				
1996/1997	3	7.7	4	8.0
1997/1998	1	2.7	6	8.3
1998/1999	4	12.1	7	9.1
1999/2000	4	9.8	2	3.0
	p=0.510		p=0.498	

Table 7.3: Proportion of individuals scoring >4 for stress on the GHQ scale

	Men		Women	
	n	%	n	%
Year				
1996/1997	10	27.0	22	44.0
1997/1998	9	25.0	27	37.5
1998/1999	9	28.1	35	46.7
1999/2000	18	45.0	24	36.4
	p=0.209		p=0.550	

2M/1F in 1997; 1M in 1998; 1M/2F in 1999 and 1M/1F in 2000 did not complete the GHQ.

7.4.2 Working hours

Fifty nine percent of men and 69% of women scored more than 3 on the question regarding whether they thought the hours they worked were too long.

7.4.3 Job satisfaction scale of the Occupational Stress Indicator

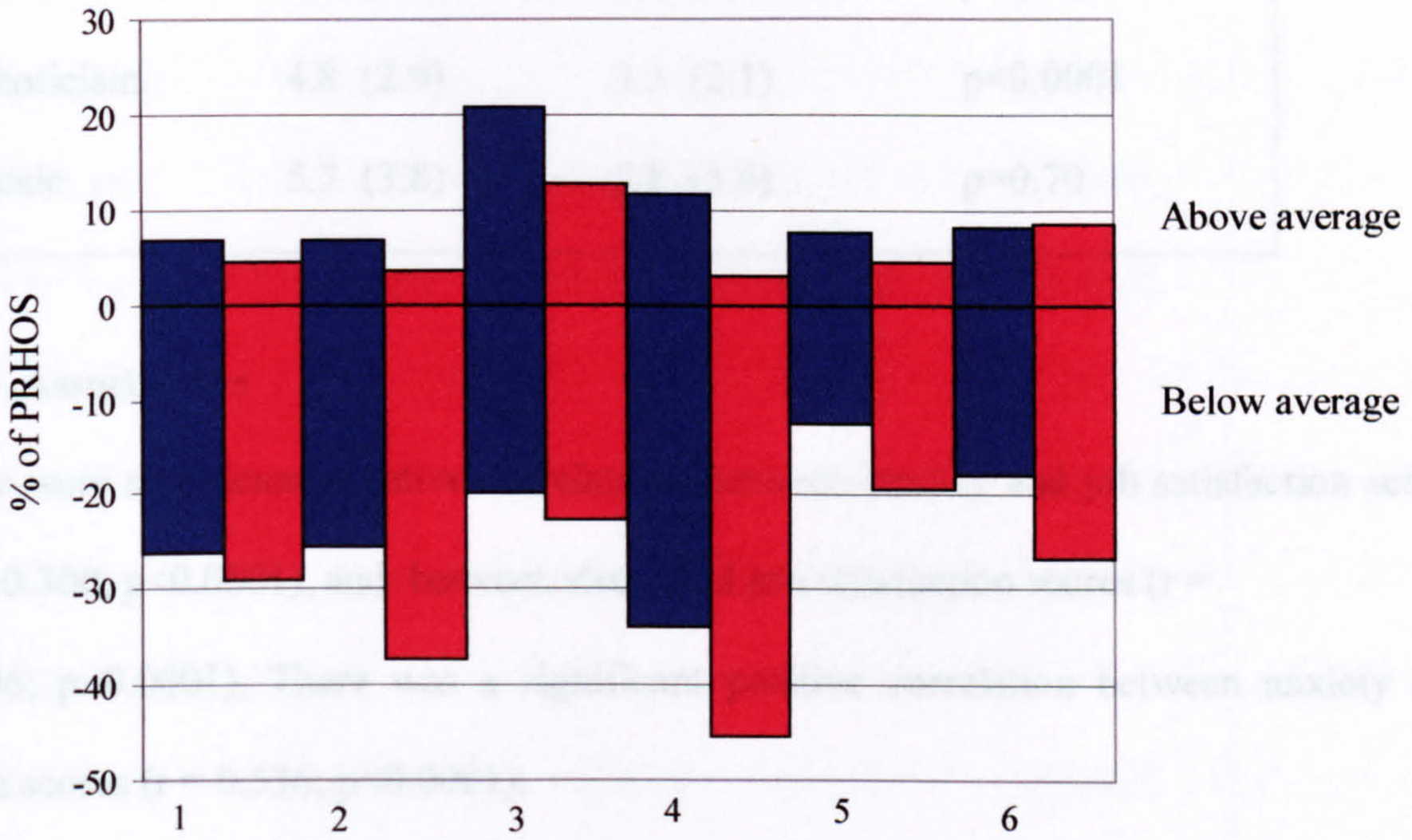
The mean (±sd) job satisfaction score was 82.6±16.6 (range 42-130) [median 83] for men and 79.1±15.4 (range 41-115) [median 78] for women. Mean job satisfaction scores for each cohort are shown as table 7.4.

Table 7.4: Mean OSI scores

	Men	Women
Cohort	**Mean ±SD (range) [median]**	**Mean ±SD (range) [median]**
1996/1997	80.8±15.8 (47-117) [80]	76.0±14.8 (48-110) [76]
1997/1998	83.8±17.4 (52-127) [86.5]	80.5±16.7 (41-114) [81]
1998/1999	80.3±16.7 (42-117) [81]	77.2±14.4 (45-112) [78]
1999/2000	85.0±16.7 (54-130) [86]	82.0±14.9 (47-115) [78]
	F=0.549; p=0.71; ANOVA	F=204; p=0.109; ANOVA

The percentages of women and men PRHOs scoring above and below normal ranges for the five sub-scales of the job satisfaction scale and for broad view of job satisfaction are shown in figure 7.1. Apart from the 'satisfaction with organisational design and structure' sub-scale, more men and women PRHOs scored below the normal ranges than those scoring above them (figure 7.1). Greater proportions of women scored below the normal ranges for all the sub-scales compared to men (figure 7.1). The least and the highest proportion of both men and women scored above and below the normal range score for the 'organisational processes' sub-scale respectively (figure 7.1). The latter comprised of 'supervision by senior staff', 'flexibility and freedom in the job', 'motivation with the job' and 'the amount of participation given in important decision making'. Men had statistically significant higher scores for 'the job itself' (p=0.041) and 'personal relationships' (p=0.015). There were no statistically significant differences in mean scores between men and women for any of the other sub-scales of the job satisfaction scale.

Figure 7.1: Percentages of men and women PRHOs scoring above and below normal ranges for job satisfaction sub-scales



Key: 1: Achievement, value & growth.

2: Job itself.

3: Organisational design & structure.

4: Organisational processes.

5: Personal relationships.

6: Broad view of job satisfaction.

7.4.4 Personality

The mean scores for the Eysenck Personality Questionnaire are shown in table 7.5. Women had significantly lower scores for psychoticism and significantly higher scores for neuroticism compared to men.

Table 7.5: Mean scores (± SD) of personality characteristics for PRHOs

	Men (n=144)	Women (n=262)	
Extraversion	14.9 (4.4)	14.5 (4.3)	p=0.323
Neuroticism	9.0 (5.2)	11.8 (5.1)	p<0.0001
Psychoticism	4.8 (2.9)	3.3 (2.1)	p<0.0001
Lie scale	5.7 (3.8)	5.8 (3.6)	p=0.70

7.4.5 Associations

There were significant negative correlations between anxiety and job satisfaction scores ($r = -0.300$; $p<0.0001$), and between stress and job satisfaction scores ($r = -0.406$; $p<0.0001$). There was a significant positive correlation between anxiety and stress scores ($r = 0.536$; $p<0.0001$).

Stress, job satisfaction, anxiety and depression scores were positively correlated with neuroticism scores of EPQ for both men and women. Stress scores were negatively correlated with extraversion scores of EPQ for both men and women, whilst anxiety, depression and job satisfaction scores were negatively correlated with extraversion scores of EPQ in women, but not in men (table 7.6). The psychoticism component of EPQ did not correlate with either stress, anxiety or depression.

Table 7.6: Correlations between personality characteristics scores and stress, anxiety, depression and Job satisfaction scores

	Men		Women	
	r	**p value**	**r**	**p value**
Stress (GHQ)				
Neuroticism	0.470	<0.0001	0.521	<0.0001
Extraversion	-0.295	<0.001	-0.280	<0.0001
Anxiety (HAD)				
Neuroticism	0.542	<0.0001	0.650	<0.0001
Extraversion	-0.144	0.085	-0.241	<0.0001
Depression (HAD)				
Neuroticism	0.503	<0.0001	0.460	<0.0001
Extraversion	-0.149	0.073	-0.287	<0.0001
Job satisfaction scale (OSI)				
Neuroticism	-0.255	0.002	-0.271	<0.0001
Extraversion	-0.066	0.434	0.145	0.019

7.5 DISCUSSION

This study revealed that a significant proportion of PRHO's surveyed suffered from possible psychological stress and anxiety. A significantly larger proportion of women PRHO's had anxiety scores within the clinically significant range than men and more women PRHO's were also found to be suffering from possible depression than men. The higher prevalence of anxiety and depression in women PRHO's compared to their men counterparts could be due to a number of reasons, including lack of women role models

in the workplace and the conflict for women between their work and personal roles (Firth-Cozens, 1990).

Although the overall job satisfaction score of 80.4±15.9 in the PRHOs is similar to the normative value of 81.8±16.6 (Cooper et al., 1989), the study revealed that a significant proportion were dissatisfied with their job, particularly with the organisational processes of it. Thus whilst only 6% reported being satisfied with the organisational processes, over a third reported being dissatisfied with this aspect of their job. The assessment of organisational processes was based on the PRHO's reporting of the level of supervision provided by their superiors, flexibility and freedom in the job, level of participation given in important decision making and the overall motivation with the job. Overall, I found that a greater proportion of women PRHOs were dissatisfied with their job compared to men. I also found that women were significantly less satisfied with two aspects of their jobs; the job itself and personal relationships. Moreover, I found that job satisfaction scores in PHROs was inversely correlated with their scores for stress and anxiety. However, whether job dissatisfaction is the causative factor for stress and anxiety or vice versa cannot be established at this stage.

The personality characteristic of neuroticism is associated with being 'anxious', 'worrying' and 'moody' (Eysenck, 1975). This study further established that neuroticism appears to be a predisposing factor for anxiety, depression, job satisfaction and stress levels in both men and women PRHOs. The mean neuroticism score for women was nearly twice that for men. This is, however, in keeping with gender differences that are generally observed in this personality factor (Lynn and Martin, 1997).

Stress is a well recognised problem within the medical profession (Firth-Cozens, 1987;1990;1993;1998; Hsu and Marshall, 1987; Sutherland and Cooper, 1993; Deary et al., 1996). In recent years efforts have been made to improve working conditions and training for junior doctors in the UK (GMC, 1997) and stress counselling is becoming more commonplace within hospital settings (Grainger et al., 1995; Firth-Cozens, 1998; GMC, 1999). In the Newcastle area, in particular, all PRHOs have access to occupational health services through the House Concern scheme which provides confidential, individual counselling and psychotherapy, workshops on stress, educational seminars and group work. The service is available 24 hours a day, seven days a week and is staffed by two part-time consultant psychotherapists, a senior nurse specialist in analytical psychotherapy and a group analyst. All trainees are informed about House Concern during their induction course. Despite ready access to occupational health services, however, it is not certain whether those doctors who are affected by stress would willingly seek help. In the Newcastle area for example, on average, only four PRHOs take advantage of the House Concern scheme each year (GMC, 1999). Resistance to seek help might be a result of the general perception among doctors that stress is something they have to learn to live with and it is not unusual for doctors to treat themselves or rely on informal consultations with colleagues to solve their problems (McKevitt et al., 1996).

Work related stress can affect doctors' health and result in low morale and motivation, poor communication and decision making as well as poor relationships with colleagues and with patients, all of which might affect patient care. It could also have financial

implications for the NHS, through doctors taking sick leave, or leaving the main public sector or even ceasing to practice medicine.

The findings of this study indicate that generally PRHOs were dissatisfied with their work conditions, and in particular the organisational problems described earlier. Therefore PRHOs work conditions may need further examination. Attention should be given to identifying the particular causes of stress in women doctors and to find ways in which they can be helped. This is important, considering that ever more women are now entering the medical profession. Clearly, while some stresses encountered by doctors are intrinsic to the job, others (such as hours worked) may be modified.

People respond differently to stressful situations and it appears that those doctors who suffer least from stress in their job do so by adopting appropriate coping strategies (Tattersall et al., 1999). The way individuals cope with stressful situations may also be related to their personality characteristics. This study found that some PRHOs might be more vulnerable to stress, anxiety and depression as a result of their personality characteristics. This might be taken into consideration when offering support and counselling.

CHAPTER 8

General discussion

There is increasing concern about the excessive drinking (Alcohol Concern, 2000) and the use of illicit drugs amongst young people in the general population (Cabinet Office, 1999). It has long been perceived by some that university life is a factor that promotes or facilitates excessive drinking and illicit drug use among students. Furthermore, it has been advocated that universities should provide better health education regarding alcohol and illicit drugs (Forney et al., 1988; Webb et al., 1996; White, 1997; Gray et al., 1998). However, for any such measures to be effective it was necessary to establish whether the excessive drinking and illicit drug taking amongst medical students is a temporary phenomenon and whether such students would curb their pleasure-seeking lifestyles when they are later in a position of professional responsibility.

My research findings showed that many medical students were drinking heavily and experimenting with illicit drugs before coming to university and that the prevalence of heavy drinking and illicit drug use among undergraduate medical students changed little in a cross-sectional study of eight consecutive cohorts between 1993-2000. Furthermore, the longitudinal study of medical students, contrary to my expectations, found that the prevalence of heavy drinking and illicit drug use increased as they progressed through their degree and when working as PRHOs.

A significant proportion of PRHOs suffered from stress and anxiety with more women than men PRHOs having anxiety scores within the clinically significant range. Job satisfaction was low for both men and women, with more PRHOs being dissatisfied with the organisational processes of their jobs.

Health promotion at Newcastle university medical school has been reviewed during the last few years and health promotion initiatives have been put forward regarding alcohol and illicit drug use. Although third year medical students are given a one day lecture on alcohol and tobacco use, virtually no time is dedicated to the issue of illicit drug use. However, changes are slowly taking place, with alcohol guidelines now in place for staff and students, whilst drug and mental health guidelines are still being developed. Multi-agency participation is being used to develop these guidelines with input from health promotion, counselling services, specialist referral services, police, disability officers, community safety and Drug Action Team co-ordinators. The results of my research have been utilised by such groups to develop the guidelines. The latter not only seek to address health promotion issues within the medical school, but also give advice on referring individuals with problems relating to alcohol, illicit drugs or mental health issues in order to seek help. It is yet to be evaluated whether these guidelines will have any positive impact.

By implementing these guidelines the medical school is moving towards a more open approach to dealing with the issues of alcohol, illicit drugs and stress. However, my research shows that for many students the problems of heavy drinking and illicit drug use begin at a much earlier age. It is therefore worth considering whether students should be provided with health education at a much earlier point in their formative education at schools.

When looking at education, there are two main groups of prevention strategies that may reduce alcohol and illicit drug consumption. The first is individual (or internal)

measurements such as alcohol and drug education, which are aimed at the person making an informed choice in their alcohol and illicit drug use. However, it has been shown that although the government have high expectations of alcohol and drug education in UK schools and are providing monies to schemes such as the National Healthy Schools Scheme which is being given £2.85 million to support the development of local healthy schools via accredited education and health partnerships, the emphasis is on schools themselves to deliver effective education, with very little clarity on what is expected of them. There does need to be more evaluation of the educational materials used in education with an emphasis on evidence based reasearch (Wright, 2000). The second type of approach is the population-based (or external) approach in which the drinking or drug taking context and environment, controls on availability and in the case of alcohol marketing and price is tackled. Wright (2000) argues that both are needed and both should be part of a broader strategy to tackle alcohol and illicit-drug taking across the whole population. Young people have a moral right to be educated about alcohol and illicit drugs as part of their experience of schooling, but there is a need to redefine the role of schools in this education and such education should be part of national and local strategies for dealing with alcohol and drugs within society.

Within universities, I feel that it may be worth also considering the inclusion of a harm reduction approach in health promotion initiatives for those who have problems with alcohol and drugs. I also feel that doctors should be more encouraged to recognise that they may have problems with alcohol, drugs and stress and to seek help. Early interventions could reduce the prevalence of ill health in doctors. It would also improve the quality of care they provide for their patients. The medical profession is seen by

many as role models and the people who can be turned to for help and advice for many issues including alcohol and illicit drug use. At the moment not enough is being done to care for these future 'carers' of the general population. A more open approach to alcohol and drug problems is needed within the medical profession, alongside structures that help and encourage both medical students and doctors into seeking help for their problems. It should not be seen as another way of 'having a go' at the medical profession, but of acknowledging the issue and productively doing something to help those individuals who need help. If nothing is done, the present heavy drinking and drug taking behaviour among medical students and doctors is bound to damage the responsible and caring image of the profession.

More than 90% of the medical student population at Newcastle University come from outside the Newcastle upon Tyne area. It is therefore unlikely that the problems of heavy drinking and illicit drug use among medical students and PRHOs are confined to this university. Nevertheless there is still a need for a national survey in order to establish whether such problems in medical students and PRHOs are widespread. It is also important to establish whether the current heavy drinking and illicit drug use among newly qualified doctors will persist in later years during their professional career.

REFERENCES

ADSHEAD F. AND CLARE A.. (1986). Doctors' double standards on alcohol. *British Medical Journal* **293**: 1590.

AGIUS R., BLENKIN J., DEARY L., ZEALLEY J. AND WOOD R. (1996). Survey of perceived stress and work demands on consultant doctors. *Occupational and Environmental Medicine.* **53**(4): 217-224.

ALCOHOL CONCERN (2000). *Proposals for a national alcohol strategy for England.* London, Alcohol Concern.

ANDERSON P., BABOR TF., EDWARDS G. (1994*). Alcohol Policy and the Public Good.* Oxford, Open University Press.

ANDERSON P., CREMONA A., PATONS A., TURNER C. AND WALLACE P. (1993). The risk of alcohol. *Addiction* **88**(11): 1493-1508.

ANON.. (1991). Sick Dentists-An Escalating Problem. *British Dental Journal* **171**(6): 151.

ANON. (1995). Alcohol and the Young. *Journal of the Royal College of Physicians of London.* **29**(6): 470-474.

ANON. (1996). Drink, drugs and dentistry - are you at risk? *British Dental Journal* **180**(10): 392-393.

ANON. (1998). *The Misuse of Alcohol and other drugs by doctors.* London., British Medical Association.

ASHTON CH. AND KAMALI F. (1995). Personality, lifestyles, alcohol and drug consumption is a sample of British medical students. *Medical Education.* **29**: 187-192.

ATHA MJ. AND BLANCHARD S. (1997). *Regular Users.* Wigan, Independent Drug Monitoring Unit.

AUGESTAD LB. AND LEVANDERS S. (1992). Personality, health and job stress among employees in a Norwegian penitentiary and in a maximum security hospital. *Work and Stress*. **6**:1 65-79.

BALDING J. (2000). *Young people and illegal drugs into 2000*. Exeter, Schools health Education Unit.

BALDWIN DC., HUGHES PH., CONDARD SE., STORR SE., STORR CL. AND SHEEHAN DV. (1991). Substance Use Among Senior Medical Students: a Survey of 23 Medical Schools. *JAMA* **265**(16): 2074-2078.

BARBONE F., MCMAHON AD., DAVEY PG., MORRIS AD., REID IC., MCDEVITT DG. AND MACDONALD TM. (1998). Association of road-traffic accidents with benzodiazepine use. *Lancet* 352:(9137):1331-1336.

BERGER A. (2000). Surviving (and even enjoying) medicine. *Student British Medical Journal* **8**(196-197).

BRITISH MEDICAL ASSOCIATION. (1992). *Stress and the Medical Profession.* London, Chameleon Press Ltd.

BRITISH MEDICAL ASSOCIATION AND THE ROYAL PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (1995). *The British National Formulary, No 29.* London.

BRITISH MEDICAL ASSOCIATION. (1998). *Work-related stress among junior doctors*. London, Health Policy and Economic Research Unit.

BRITISH MEDICAL ASSOCIATION. (1998). *The misuse of alcohol and other drugs by doctors.* London., British Medical Association.

BRITISH MEDICAL ASSOCIATION. (2000). *Tomorrow's Medicine Today - Medicine in the New Millennium.* Medical Students Conference 2000, St. Andrews University, Scotland.

BRITISH DENTAL ASSOCIATION. (2000). *Drugs and Alcohol. Addiction in the Dental Profession.* London, British Dental Journal.

BROOKE D., EDWARDS G. AND ANDREWS T. (1993). Doctors and substance misuse - types of doctors, types of problems. *Addiction* **88**(5): 655-663.

BUSCH L. (1982). Rehabilitating the impaired dentist: A look at what the profession is doing to help. *JADA* **105**:781-787.

CABINET OFFICE. (1999). *First annual report and national plan. The United Kingdom anti-drugs co-ordinator.* London, Cabinet Office.

CAPLAN RP. (1994). Stress, anxiety, and depression in hospital consultants, general practitioners, and senior health service managers. *British Medical Journal* **309**(6964): 1261-3.

CENTER DB. AND CALLAWAY JM. (1999). Self-reported job stress and personality in teachers of students with emotional or behavioral disorders. *Behavioural Disorders.* **25:** (1) 41-51

CHRISTIE B. (1997). Inquiry calls for doctors to be tested regularly for alcohol. *British Medical Journal* **314**: 769.

CLARE AW. (1990). The Alcohol Problem in Universities and the Professions. *Alcohol and Alcoholism* **25**(2/3): 277-285.

CLARK D., ECKENFELS E., DAUGHERTY S AND FAWCETT J. (1987). Alcohol-Use patterns through medical school: A longitudinal study of one class. *JAMA* **257**(21): 2921-2926.

COLES C. (1994). Learning to cope: stress and medical career development in the United Kingdom. *Medical Education* **28**: 18-25.

COLLIER DJ. AND BEALES ILP. (1989). Drinking among medical students: a questionnaire survey. *British Medical Journal* **299**: 19-22.

COLLIN M. (1997). *Altered State. The Story of Ecstasy Culture and Acid House.* London, Serpents Tail.

COOPER C., SLOAN SJ. AND WILLIAMS S. (1988). *Occupational Stress Indicator Management Guide*. London, NFER-Nelson.

COOPER C., SLOAN S. AND WILLAMS S. (1989). *Occupational Stress Indicator Data Supplement*. Windsor, NFER-Nelson.

COOPER C. (1996). *Handbook of Stress, Medicine and Health*. USA, CRC Press Inc.

CORNWELL A. AND CORNWELL V. (1987). *Drugs, alcohol and mental health.* Cambridge., Cambridge University Press.

COX B., BLAXTER M., BUCKLE A., FENNER N., GOLDING J., GORE M. ET AL. (1987). *The Health and Lifestyle Survey*. Cambridge, Health Promotion Research Trust.

COX T. (1978). *Stress*. Hampshire, Macmillan Education Limited.

CROEN L., WOESNER M., HERMAN M. AND REICHGOTT M. (1997). A longitudinal study of substance use and abuse in a single class of medical students. *Academic Medicine.* **72**(5): 376-381.

DEARY L., BLENKIN H., AGIUS R., ENDLER N. AND ZEALLEY H. (1996). Models of job-related stress and personal achievement among consultant doctors. *British Journal of Psychology.* **87**(1): 3-29.

DEPARTMENT OF ENVIRONMENT, TRANSPORT AND THE REGIONS. (1998). *Road Accidents, Great Britain. 1997.* The Casualty Report. London:DETR.

DEPARTMENT OF HEALTH (1993). *The Health of the Nation: a Strategy for Health in England.* London, HMSO.

DEPARTMENT OF HEALTH (1995.). *Sensible drinking: the report of an inter-departmental working group.* London., Department of Health.

DEPARTMENT OF HEALTH (1998). *Smoking Kills.* London, HMSO.

DEPARTMENT OF HEALTH (1999). *Saving Lives: Our Healthier Nation.* London, HMSO.

ENGS RC. AND TEIJLINGEN EV. (1997). Correlates of alcohol, Tobacco and Marijuana Use among Scottish Postsecondary Helping-Profession Students. *Journal of Studies on Alcohol*: 435-444.

ESMAIL S. (1997). *Alcoholism and Doctors.* London, The Medical Council on Alcoholism Annual Report.

EYESENCK HJ. (1965). *Smoking, health and Personality.* London, Cox and Wyman Ltd.

EYSENCK HJ AND EYSENCK SBG. (1975). *Manual of the Eysenck Personality Questionnaire (Junior and Adult).* Essex, Hodder and Stoughton.

FIELDEN S. AND PECKAR C. (1998). Work stress and hospital doctors: a comparative study. *Stress Medicine.* **14.**

FILE S., MABBUTT P. AND SHAFFER J. (1994). Alcohol consumption and lifestyle in medical students. *Journal of Psychopharmacology* **8**(1): 22-26.

FIRTH J. (1986). Levels and sources of stress in medical students. *British Medical Journal* **292**(1177-1180).

FIRTH-COZENS J. (1987). Emotional distress in junior house officers. *British Medical Journal* **295**: 533-536.

FIRTH-COZENS J. (1990). Sources of stress in women junior house officers. *British Medical Journal.* **301**: 89-91.

FIRTH-COZENS J. (1993). Stress, Psychological problems and clinical performance. In *Medical Accidents.* Vincent C., Ennis M. and Audley RMJ. Oxford, Oxford University Press.

FIRTH-COZENS J. (1997). Predicting stress in general practitioners: 10 year follow up postal survey. *British Medical Journal* **315**: 34-35.

FIRTH-COZENS J. (1998). Individual and organizational predictors of depression in general practitioners. *British Journal of General Practice* **48**(435): 1647-1651.

FONTANA D. AND ABOUSERIE R. (1993). Stress levels, gender and personality factors in teachers. *British Journal of Educational Psychology.* **63**(2): 261-270.

FORNEY M., RIPLEY W. AND FORNEY P. (1988). A Profile and Prediction Study of Problem Drinking among First-Year Medical Students. *The International Journal of the Addictions.* **23**(7): 767-779.

FRANCIS LJ. AND JACKSON CJ. (1998). The social desirability of toughmindedness: A study among undergraduates. *Irish Journal of Psychology* **19**(2-3) 400-403.

GARRETT GR. AND BARR HM. (1974). Comparison of Self-Rating and Quantity-Frequency Measures of Drinking. *Quarterly Journal of Studies on Alcohol.* **35**: 1293-1306.

GENERAL MEDICAL COUNCIL. (1997). *The new doctor.* London., General Medical Council.

GENERAL MEDICAL COUNCIL. (1999). *Report of the visit to the faculty of medicine and the postgraduate institute, the University of Newcastle upon Tyne*. London, General Medical Council.

GHODSE A. AND HOWSE K. (1994). Substance use of medical students: a nationwide survey. *Health Trends.* **26**: 85-88.

GIANGREGO E. AND OBERG S. (1987). Chemical dependency: the road to recovery. *JADA* **115**: 17-27.

GOLDBERG D. (1972). *The detection of psychiatric illness by questionnaire*. New York, Oxford University Press.

GOLDBERG D. AND WILLIAMS P. (1988). *A User's Guide to the General Health Questionnaire*. London, NFER-Nelson.

GOLDING J. AND CORNISH A. (1987). Personality and lifestyle in medical students: psychopharmacological aspects. *Psychology and Health* **1**: 287-301.

GOLDING J., HARPUR T. AND BRENT-SMITH H. (1983). Personality, drinking and drug-taking correlates of cigarette smoking. *Person. Indiv. Diff.* **4**(6): 703-706.

GOMEZ DA., SAYWELL RM., ZOLLINGER TW., SCHMIT TM. AND DONAHUE R. (1992). Factors related to adult drowning. Journal of Safety Research. 23: (1) 1-8.

GRAFTON WD. AND BAIRNSFATHER LE. (1991). Use of psychoactive substances by medical students: A survey. *Journal of Louisia State Medicine Society* **143**(6): 27-29.

GRAHAM-SMITH DG. AND ARONSON JK. (1994). *Oxford Textbook of Clinical Pharmacology and Drug Therapy*. Oxford, Oxford University Press.

GRAINGER C. (1994). Understanding Stress. *Student British Medical Journal* **2**: 345-346.

GRAINGER C., HARRIES E., TEMPLE J. AND GRIFFITHS R. (1995). Job satisfaction and health of house officers in the West Midlands. *Health Trends.* **27**(1): 27-30.

GRAY G., BHOPAL R. AND WHITE M. (1998). Developing a medical school alcohol policy. *Medical Education* **32**: 138-142.

GRUBER E., DICLEMENTE R., ANDERSON M. AND LODICO M. (1996). Early Drinking Onset and Its Association with Alcohol Use and Problem Behaviour in Late Adolescence. *Preventative Medicine* **25**: 293-300.

GUPTA S. (1996). Health Trends in Health Trends. *Health Trends* **28**(3-4): 17.

GUTHRIE E., BLACK D., SHAW C., HAMILTON J., CREED F. AND TOMENSON B. (1995). Embarking upon a medical career: psychological morbidity in first year medical students. *Medical Education* **29**: 337-341.

HAAPASALO J. (1990). The Eysenck Personality Questionnaire and Zuckerman Sensation Seeking Scale (FORM-V) in Finland - age differences. *Personality and Individual Differences* **11**(5): 503-508.

HANNY D. (1998). Student Drinking Habits. *Alcohol and Alcoholism* **33**(5): 552-553.

HEALTH ADVISORY SERVICE. (1996). *Children and young people: Substance Misuse Services, the substances of young need.* London, HMSO.

HEALTH EDUCATION AUTHORITY. (1992). *That's the limit: a guide to sensible drinking.* London., Health Education Authority.

HEALTH EDUCATION AUTHORITY. (1996). *Think about drink.* London.

HINGSON R. AND HOWLAND J. (1993). Alcohol and non-traffic unintended injuries. *Addiction* **88**: 877-883.

HOWSE K. AND GHODSE AH. (1997). Hazardous drinking and its correlates among medical students. *Addiction Research* 4(4): 355-366.

HSU K. AND MARSHALL V. (1987). Prevalence of depression and distress in a large sample of Canadian residents, interns and fellows. *American Journal of Psychology* **144**: 1561-1566.

HUGHES K., MACKINTOSH K., MACKINTOSH AM., HASTINGS G., WHEELER G., WHEELER C., WATSON J. AND INGLIS J. (1997). Young people, alcohol, and designer drinks: quantitative and qualitative study. *British Medical Journal* **314**: 414.

HUMPHREY R. AND MCCARTHY P. (1998). Stress and the contemporary student. *Higher Education Quarterly* **52**(2): 221-242.

IACOVIDES A., FOUNTOULAKIS KN., MOYSIDOU C. AND IERODIAKONOU C. (1999). Burnout in nursing staff: Is there a relationship between depression and burnout? *International Journal of Psychiatry in Medicine.* **29**:(4)421-433.

INTERNATIONAL LABOUR OFFICE. (1987). *Responses to Drugs and Alcohol in the Workplace.* Geneva: ILO.

ISDD. (1999). *DRUGSEARCH, the online drug encyclopaedia.* **2000.**

KAPUR N., APLLETON K. AND NEAL R. (1999). Sources of job satisfaction and psychological distress in GPs and medical house officers. *Family Practice* **16**(6): 600-601.

KAPUR N. AND HOUSE A. (1997). Job satisfaction and psychological morbidity in medical house officers. *Journal of the Royal College of Physicians of London.* **31**(2): 162-167.

KELLNER F., WEBSTER I. AND CHANTELOUP F. (1996). Describing and predicting alcohol use-related harm - an analysis of the Yukon alcohol and drug survey. *Substance Use and Misuse*. 31:1619-1638.

KING M., COCKCROFT A. AND GOOCH C. (1992). Emotional distress in doctors: sources, effects and help sought. *Journal of the Royal Society of Medicine.* **85**(10): 608-608.

KORY WP., CRANDALL LA. (1984). Nonmedical Drug Use Patterns among Medical Students. *The International Journal of the Addictions* **19**(8): 871-884.

KUZEL A., SCHWARTZ R., LUXENBERG M., LEWIS D. AND KYRIAZI N. (1991). A Survey of Drinking Patterns During Medical School. *Southern Medical Journal* **84**(1): 9-12.

LAURIE P. (1971). *Drugs*. Middlesex, Penguin Books.

LILJESTRAND P. (1993). Quality in Student Drinking Research: Conceptual and Methodological Issues. *Journal of Alcohol and Drug Education* **38**(3): 1-36.

LYNN R. AND MARTIN T. (1997). Gender differences in extraversion, neuroticism, and psychoticism in 37 nations. *Journal of Social Psychology* **137**(3): 369-373.

MADDUX JF., HOPPE SK. AND COSTELLO RM. (1986). Psychoactive Substance Use Among Medical Students. *American Journal of Psychiatry* **143**(2): 187-191.

MAKHOUL M. (1996). *The relationship of psychological and social factors in the use of alcohol, tobacco and drugs amongst students in a UK university.* North East England., University of Northumbria. (UNPUBLISHED).

MCAULLIFE W., ROHMAN M. AND FISHMAN P. (1984). Psychoactive drug use by young and future physicians. *Journal of Health and Social Behaviour* **25**: 34-54.

MCKEVITT C., MORGAN M., SIMPSON J. AND HOLLAND W. (1996). *Doctor's health and needs for services*. London, Nuffield Provincial Hospitals Trust.

MICHIE S. AND SANDHU S. (1994). Stress management for clinical medical students. *Medical Education.* **28**: 528-533.

MICROSOFT. (1997). *Encarta 97 Encyclopaedia*, Microsoft Corporation.

MIDANIK L. (1982). The Validity of Self-Reported Alcohol Consumption and Alcohol Problems: A Literature Review. *British Journal of Addiction.* 77(4):357-382.

MILLER P. AND PLANT M. (1996). Drinking, smoking, and illicit drug use among 15 and 16 year olds in the United Kingdom. *British Medical Journal* **313**: 394-397.

MILLER P. AND PLANT M. (2000). Drug use has declined among teenagers in United Kingdom. *British Medical Journal* **320**:1536.

MINITAB INC. (1994). *Minitab Reference Manual, Release 10*. USA.

MOORE L., SMITH C. AND CATFORD J. (1994). Binge drinking; prevalence, patterns and policy. *Health Educ Res.* **9**: 497-505.

NAJEM G., PASSANNANTE M. AND FOSTER J. (1995). Health risk factors and health promoting behaviour of medical, dental and nursing students. *Journal of Clinical Epidemiology.* 48(6): 841-849.

OFFICE FOR NATIONAL STATISTICS. (1998). *Mortality Statistics, Cause, England and Wales, 1997.* London, Stationery Office.

OFFICE FOR NATIONAL STATISTICS. (2000). *Living in Britain: Results from the 1998 General Household Survey*. London, Government Statistical Service.

OFFICE OF POPULATION CENSUSES AND SURVEYS. (1995). *Occupational Health: Decennial Supplement*. London, HMSO.

O'NEAL ROACH J. AND GUTHRIE E. (2000). Dealing with stress [editorial]. *Student British Medical Journal* **320**: 218-219.

OYEFESO A., GHODSE H., CLANCY C. AND CORKERY JM. (1999). Suicide among drug addicts in the UK. *British Journal of Psychiatry* 175:277-282.

PARKER H., ALDRIDGE J. AND MEASHAM F. (1998). *Illegal Leisure. The normalization of adolescent recreational drug use.* London, Routledge.

PATON A. (1994). *ABC of alcohol.* Cambridge., British Medical Journal Publishing Group.

PAVIS S., CUNNINGHAM-BURLEY S. AND AMOS A. (1997). Alcohol consumption and young people: exploring meaning and social context. *Health Education Research* **12**(3): 311-322.

PETERSON RL., AVERY JK. (1988). The alcohol-impaired dentist: an educational challenge. *JADA* **117**:743-748.

PICKARD M., BATES L., DORIAN M., GREIG H. AND SAINT D. (2000). Alcohol and drug use in second-year medical students at the University of Leeds. *Medical Education* **34**: 148-150.

PLANT M. (1985). *Women Drinking and Pregnancy.* Cambridge. Oxford University Press.

PLANT M. AND PLANT M. (1992). *Risk-takers: Alcohol, Drugs, Sex and Youth.* London, Routledge.

PLANT M. AND CAMERON D. (Eds). (2000). *The Alcohol Report.* London. Free Association Books.

PROUDFOOT AT. (1993). *Acute Poisoning, diagnosis and management.* Oxford, Butterworth-Heinemann Ltd.

QUIGLEY LA. AND MARLATT GA. (1996). Drinking among young adults - prevalence, patterns and consequences. *Alcohol Health and Research World.* 20:185-191.

RAISTRICK D., HODGSON RJ. AND RITSON B. (EDS) (1999). Society for the Study of Addiction. *Tackling Alcohol Together. The Evidence Base for a UK Alcohol Policy.* London, Free Association Books.

RAMSEY M. AND PARTRIDGE S. (2000). *Drug Misuse Declared in 1998: results from the British Crime Survey.* London, Home Office.

REES D. AND COOPER CL. (1992). Occupational stress in health-service workers in the UK. *Stress Medicine* **8**(2): 79-90.

REID D. (1996). Teenage drug use [letter]. *British Medical Journal* **313**: 375.

REID N. AND MOSS P. (1999). The impact of the new deal: Doctors' stress levels and their views. *Stress Medicine* **15**: 9-15.

ROYAL COLLEGE OF GENERAL PRACTITIONERS. (1986). *Alcohol - A Balanced View.* London, Royal College of General Practitioners.

ROYAL COLLEGE OF PHYSICIANS. (1995). Alcohol and the heart in perspective: sensible limits reaffirmed. Summary of the report of a working group of the Royal Colleges of Physicians, Psychiatrists and General Practitioners. *J R Coll Phys Lond.* **29**: 266-271.

SANDERMAN R. AND RANCHOR AV. (1994). Stability of personality - traits and psychological distress over 6 years. *Perceptual and Motor Skills.* **78**(1)89-90.

SCHWARTZ R., LEWIS D., HOFFMANN N. AND KYRIAZI N. (1990). Cocaine and marijuana use by medical students before and during medical school. *Arch. Intern. Med.* **150**: 883-886.

SELLAPPAH A. (1999). Consumption of drugs and drink among junior doctors [letter]. *Student British Medical Journal* 7:32.

SEYLE H. (1956). *The Stress of Life*. London, Longmans, Green and Co.

SNAITH R. (1987). The concepts of mild depression. *British Journal of Psychiatry* **150**: 387-393.

STEWART S., BETSON C., LAM T., MARSHALL L., LEE P. AND WONG C. (1997). Predicting stress in first year medical students: a longitudinal study. *Medical Education.* **31**: 163-168.

SUTHERLAND V. AND COOPER C. (1993). Identifying distress among general-practitioners - Predictors of psychological ill-health and job dissatisfaction. *Social Science and Medicine* **37**(5): 575-581.

SYMONS L. AND PERSAUD R. (1995). Stress among doctors. *British Medical Journal* **310**: 742.

TARNOPLOSKY A. (1979). Validity and use of a screening questionnaire (GHQ) in the community. *British Journal of Psychiatry*(508-515).

TATTERSALL A., BENNETT P. AND PUGH S. (1999). Stress and coping in hospital doctors. *Stress Medicine* **15:**109-113.

TALBOT GW. (1984). The courage to change. Boston. Houghton-Mifflin Co.

TAUB JM. (1998). Eysenck's descriptive and biological theory of personality: A review of construct validity. *International Journal of Neuroscience.* **94**(3-4):145-197.

TEES HEALTH AUTHORITY. (1995). *Annual Report of the Director of Public Health.* Teesside, Billingham Press Ltd.

TIFFIN P., ASHTON H., MARSH R. AND KAMALI F. (1995). Pharmacokinetic and pharmacodynamic responses to caffeine in poor and normal sleepers. *Psychopharmacology* **121**(4): 494-502.

TURNER SW., THOMPSON J. AND ROSSER RM. (1995). The Kings-Cross fire - Psychological reactions. *Journal of Traumatic Stress.* **8**:3;419-427

WALLER S., THOM B., HARRIS S. AND KELLY M. (1998). Perception of alcohol related attendances in A & E departments in England. *Alcohol and Alcoholism.* **33**(4):354-361.

WEBB., ASHTON C., KELLY P. AND KAMALI F. (1996). Alcohol and drug use in UK university students. *Lancet.* **348**: 922-925.

WEBB E., ASHTON H., KELLY P. AND KAMALI F. (1997). Patterns of alcohol consumption, smoking and illicit drug use in British university students: interfaculty comparisons. *Drug and Alcohol Dependence.* **47**: 145-153.

WEBB E., ASHTON C., KELLY P. AND KAMALI F. (1998). An update on British medical students' lifestyles. *Medical Education.* **32**: 325-331.

WEST R., DRUMMOND C. AND EAMES K. (1990). Alcohol consumption, problem drinking and anti-social behaviour in a sample of college students. *British Journal of Addiction.* **85**: 479-486.

WHITE M. (1997). Preventing problem drinking among doctors: the role of medical school. *Alcoholism* **16**: 3-4.

WILLIAMS S., DALE J., GLUCKSMAN E. AND WELLESLEY A. (1997). Senior house officers' work related stressors, psychological distress, and confidence in performing clinical tasks in accident and emergency: a questionnaire study. *British Medical Journal* **314**: 713.

WOLF T. (1994). Stress, coping and health-enhancing well-being during medical school. *Medical Education* **28**(1): 8-17.

WRIGHT L. (2000). Evidence-Based Alcohol Education in Schools. In *The Alcohol Report.* Eds.Plant M and Cameron D. London, Free Association Press.

ZIGMOND A. AND SNAITH R. (1983). The Hospital Anxiety and Depression scale (HADs). *Acta Psychiatrica Scand.* **67**: 361-370.

APPENDICES

student

LIFESTYLE QUESTIONNAIRE

This questionnaire is designed to provide information about lifestyles and personality variables of Newcastle University medical and dental students and junior hospital doctors and dentists.

This is an anonymous questionnaire: do not write your name. All data will be kept strictly confidential and will be collated and analysed in the aggregate - no one person will ever be identified.

Please answer all the questions - putting a circle around the number next to your answer when appropriate. Some questions ask you to circle one option only - others allow you to circle more than one option if applicable. Some questions also ask you to insert a number.

Please read the questions closely - in each case you will be advised how to answer.

For official use.

N ☐

P ☐

L ☐

E ☐

A ☐☐

D ☐☐

GHQ ☐☐

E.P.Q. (Adult)

Occupation .....

Age ..... Sex.....

INSTRUCTIONS: Please answer each question by putting a circle around the "YES" or the "NO" following the question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

PLEASE REMEMBER TO ANSWER EACH QUESTION

1	Do you have many different hobbies?	YES	NO
2	Do you stop to think things over before doing anything?	YES	NO
3	Does your mood often go up and down?	YES	NO
4	Have you ever taken the praise for something you knew someone else had really done	YES	NO
5	Are you a talkative person?	YES	NO
6	Would being in debt worry you?	YES	NO
7	Do you ever feel "just miserable" for no reason?	YES	NO
8	Were you ever greedy by helping yourself to more than your share of anything?	YES	NO
9	Do you lock up your house carefully at night?	YES	NO
10	Are you rather lively?	YES	NO
11	Would it upset you a lot to see a child or an animal suffer?	YES	NO
12	Do you often worry about things you should not have done or said?	YES	NO
13	If you say you will do something, do you always keep your promise no matter how inconvenient it might be?	YES	NO
14	Can you usually let yourself go and enjoy yourself at a lively party?	YES	NO
15	Are you an irritable person?	YES	NO
16	Have you ever blamed someone for doing something you knew was really your fault?	YES	NO
17	Do you enjoy meeting new people?	YES	NO
18	Do you believe insurance schemes are a good idea?	YES	NO
19	Are your feelings easily hurt?	YES	NO
20	Are *all* your habits good and desirable ones?	YES	NO

21	Do you tend to keep in the background on social occasions?	YES	NO
22	Would you take drugs which may have strange or dangerous effects?	YES	NO
23	Do you often feel "fed up"?	YES	NO
24	Have you ever taken anything (even a pin or button) that belonged to someone else?	YES	NO
25	Do you like going out a lot?	YES	NO
26	Do you enjoy hurting people you love?	YES	NO
27	Are you often troubled about feelings of guilt?	YES	NO
28	Do you sometimes talk about things you know nothing about?	YES	NO
29	Do you prefer reading to meeting people?	YES	NO
30	Do you have enemies who want to harm you?	YES	NO
31	Would you call yourself a nervous person?	YES	NO
32	Do you have many friends?	YES	NO
33	Do you enjoy practical jokes that can sometimes really hurt people?	YES	NO
34	Are you a worrier?	YES	NO
35	As a child did you do as you were told immediately and without grumbling?	YES	NO
36	Would you call yourself happy-go-lucky?	YES	NO
37	Do good manners and cleanliness matter much to you?	YES	NO
38	Do you worry about awful things that might happen?	YES	NO
39	Have you ever broken or lost something belonging to someone else?	YES	NO
40	Do you usually take the initiative in making new friends?	YES	NO
41	Would you call yourself tense or "highly-strung"?	YES	NO
42	Are you mostly quiet when you are with other people?	YES	NO
43	Do you think marriage is old-fashioned and should be done away with?	YES	NO
44	Do you sometimes boast a little?	YES	NO
45	Can you easily get some life into a rather dull party?	YES	NO
46	Do people who drive carefully annoy you?	YES	NO
47	Do you worry about your health?	YES	NO
48	Have you ever said anything bad or nasty about anyone?	YES	NO
49	Do you like telling jokes and funny stories to your friends?	YES	NO
50	Do most things taste the same to you?	YES	NO
51	As a child were you ever cheeky to your parents?	YES	NO
52	Do you like mixing with people?	YES	NO
53	Does it worry you if you know there are mistakes in your work?	YES	NO
54	Do you suffer from sleeplessness?	YES	NO
55	Do you always wash before a meal?	YES	NO

56	Do you nearly always have a "ready answer" when people talk to you?	YES	NO
57	Do you like to arrive at appointments in plenty of time?	YES	NO
58	Have you often felt listless and tired for no reason?	YES	NO
59	Have you ever cheated at a game?	YES	NO
60	Do you like doing things in which you have to act quickly?	YES	NO
61	Is (or was) your mother a good woman?	YES	NO
62	Do you often feel life is very dull?	YES	NO
64	Do you often take on more activities than you have time for?	YES	NO
65	Are there several people who keep trying to avoid you?	YES	NO
66	Do you worry a lot about your looks?	YES	NO
67	Do you think people spend too much time safeguarding their future with savings and insurances?	YES	NO
68	Have you ever wished that you were dead?	YES	NO
69	Would you dodge paying taxes if you were sure you could never be found out? .	YES	NO
70	Can you get a party going?	YES	NO
71	Do you try not to be rude to people?	YES	NO
72	Do you worry too long after an embarrassing experience?	YES	NO
73	Have you ever insisted on having your own way?	YES	NO
74	When you catch a train do you often arrive at the last minute?	YES	NO
75	Do you suffer from "nerves"?	YES	NO
76	Do your friendships break up easily without it being your fault?	YES	NO
77	Do you often feel lonely?	YES	NO
78	Do you always practice what you preach?	YES	NO
79	Do you sometimes like teasing animals?	YES	NO
80	Are you easily hurt when people find fault with you or the work you do?	YES	NO
81	Have you ever been late for an appointment or work?	YES	NO
82	Do you like plenty of bustle and excitement around you?	YES	NO
83	Would you like other people to be afraid of you?	YES	NO
84	Are you sometimes bubbling over with energy and sometimes very sluggish?	YES	NO
85	Do you sometimes put off until tomorrow what you ought to do today?	YES	NO
86	Do other people think of you as being very lively?	YES	NO
87	Do people tell you a lot of lies?	YES	NO
88	Are you touchy about some things?	YES	NO
89	Are you always willing to admit it when you have made a mistake?	YES	NO
90	Would you ever feel sorry for an animal caught in a trap?	YES	NO

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS

1. Have you smoked cigarettes/cigars?
(Circle one option only)

Never	1
Tried a few	2
Ex-regular smoker	3
Current smoker	4

---

2. If a current smoker, how much do you smoke?
(Please insert your average number per day - please put "0" if none - use more than one box if necessary)

Cigarettes	☐☐
Roll up cigarettes (actual no. -not amount of tobacco)	☐☐
Cigars	☐☐

---

3. For what reasons do you smoke?
(Circle more than one option if necessary)

To increase confidence	1
Social pressures	2
Anxiety/Stress	3
Habit	4
Exam/Work Pressure	5
To Feel more Sexually Attractive	6
Pleasure	7
To Aid Concentration	8
Don't know	9
Other	10

Please specify, if you circled "other"

.....

4. How much alcohol do you drink per week? Please state average no. per week- Please put "0" if none - use more than one box if necessary)

Strong Beer/Cider (pints/week)	
Ordinary Beer/Cider (pints/week)	
Wine (glasses/week)	
Spirits (measures/week)	
For official use only	

5a. For what reasons do you drink? (Circle more than one option if necessary)

To Increase Confidence	1
Social pressures	2
Anxiety/Stress	3
Habit	4
Exam/Work Pressure	5
To Feel more Sexually attractive	6
Pleasure	7
To Aid Concentration	8
Don't know	9
Other	10

Please specify, if you circled "other"

.....

5b. Within the last year, after drinking alcohol, have you: (Please circle one number for each question)

	Yes	No
Felt so ill that you have missed at least half a day at work or study?	1	2
Been unable to remember part of the evening before?	1	2
Felt that you have become more sexually involved than you would normally have wanted?	1	2
Got into a physical fight or argument?	1	2

Been afraid to go home?	1	2
Not taken contraceptive precautions when having sex?	1	2
Experimented with injecting drugs?	1	2
Had an accident while driving a car or motorcycle?	1	2

6. On how many occasions during the week do you drink alcohol? (Please insert average number) | | |

7. How many times in the last six months have you been seriously affected following consumption of alcohol? (seriously debilitated etc.) (Please insert number) | | |

8. Have you ever knowingly used any of the following recreational drugs? Please make sure that you circle one number on *every* row)

	Never	Once or twice.	More than once or twice.	Use/used on a regular basis.
a) Cannabis	1	2	3	4
b) L.S.D.	1	2	3	4
c) Amphetamine	1	2	3	4
d) Cocaine/Crack	1	2	3	4
e) Ecstasy	1	2	3	4
f) Magic Mushrooms	1	2	3	4
g) Amyl/Butyl Nitrate	1	2	3	4
h) Temazepam/ Diazepam etc.	1	2	3	4
i) Opium/Morphine/ Heroin	1	2	3	4
j) Steroids	1	2	3	4
k) Other	1	2	3	4

(Please specify) .....

9. Are you currently taking any of the following recreational drugs?
(Please make sure that you circle one number on every row)

	Nil	Weekly	Monthly	Very Occasionally
a) Cannabis	1	2	3	4
b) L.S.D.	1	2	3	4
c) Amphetamine	1	2	3	4
d) Cocaine/Crack	1	2	3	4
e) Ecstasy	1	2	3	4
f) Magic Mushrooms	1	2	3	4
g) Amyl/Butyl Nitrate	1	2	3	4
h) Temazepam/ Diazepam etc.	1	2	3	4
i) Opium/Morphine/ Heroin	1	2	3	4
j) Steroids	1	2	3	4
k) Other	1	2	3	4

(Please specify) .....

If you take or have taken any of the above intravenously, please indicate with a * at the side of the relevant substance.

10. For what reasons do you take drugs?
(Circle more than one option if necessary)

To Increase Confidence	1
Social Pressures	2
Anxiety/Stress	3
Habit	4
Exam/Work Pressure	5
To Feel more Sexually Attractive	6
Pleasure	7
To Aid Concentration	8
Don't know	9
Other	10

Please specify, if you circled "other" .....

---

11. At what age did you first start smoking? ☐☐

At what age did you take your first sip of alcohol? ☐☐

At what aged did you take your first full drink of alcohol? ☐☐

At what age did you first take illicit drugs? ☐☐

(Please insert age in years)

12a. As part of your University Education have you been provided information about the health risks of?

	Yes	No
Smoking	☐	☐
Alcohol	☐	☐
Illicit drugs	☐	☐

12b. Do you feel this education has influenced your behaviour?

	Yes	No
Smoking	☐	☐
Alcohol	☐	☐
Illicit Drugs	☐	☐

---

13. How much tea/coffee/cola/chocolate do you drink per day?
(Exclude decaffeinated drinks - average number of cups/cans per day - please put "0" if you do not drink any)

Chocolate/Cocoa	☐☐
Tea	☐☐
Coffee	☐☐
Cola	☐☐

---

14. How many average size bars of chocolate do you eat per week on average?
(Please insert number) ☐☐

For official use only ☐☐

---

15. How often do you take proprietary (over the counter) medicines (aspirin, paracetamol, "cold cures", "Neurofen" etc.) on average?
(Please circle one option only)

Never	1
Once a year	2
Once every six months	3
Once a month	4
Once a week	5
Every day	6

---

16. In the last year have you been medically prescribed tranquillisers, anti-depressants or sleeping pills for more than 2 days? (please circle one option only)	Yes	1
	No	2

17. How often do you take vitamin/mineral supplements and/or herbal remedies? (Please circle one option only)	**Never**	**1**
	Occasionally	**2**
	Weekly	**3**
	Daily	**4**
18. How often do you take physical exercise or play sports (e.g. jogging, swimming, squash, continuous walking over 3 miles? (Please circle one option only)	**Hardly ever**	**1**
	Monthly	**2**
	Weekly	**3**
	Twice weekly	**4**
	Daily	**5**
19. How much sleep, on average, do you have per night? (Please circle one option only)	**Four hours or less**	**1**
	Five to six hours	**2**
	Seven to eight hours	**3**
	Nine hours or more	**4**

20. Normally do you find yourself: (Circle more than one option if necessary)

Having a problem getting to sleep?	**1**
Waking up early in the morning and being unable to get back to sleep?	**2**
Unable to wake up properly in the morning?	**3**
Having none of the problems above?	**4**

21. Do you feel that the hours you work are too long? (Please circle a number)

No					**Yes, very much**
1	**2**	**3**	**4**	**5**	**6**

For further information please contact:
Dorothy Newbury- Birch, Wolfson Unit of Clinical Pharmacology, Newcastle University. Telephone 0191 2225819. E-mail address:
D.E.Birch@ncl.ac.uk

Personal details. **The following details are important for this survey but will not be used for identification purposes etc. All information will be kept confidential.**

1. Age (Please insert age in years)		☐☐
2. Male		**1**
Female		**2**
3. Ethnic Origin (Please circle one option only - E.O.C. classification)	**Bangladeshi**	**1**
	Black - African	**2**
	Black - Caribbean	**3**
	Black - other	**4**
	Chinese	**5**
	Indian	**6**
	Pakistani	**7**
	White	**8**
	Other (Please specify)	**9**
4. Religion	**Roman Catholic**	**1**
	Protestant	**2**
	Hindu	**3**
	Muslim	**4**
	Jewish	**5**
	Buddhist	**6**
	Atheist/Agnostic	**7**
	Other (Please specify)	**8**
5. If a student, are you (Please circle one option)	**A U.K. student?**	**1**
	An E.C. (non U.K.) student?	**2**
	An overseas (non-E.C.) student?	**3**

This questionnaire is designed to let us know how you feel at the moment. Read each item and place a tick in the box beside the reply which comes closest to how you have been feeling in the past week. Don't take too long over replies: your first reaction to each item will be more accurate than a long drawn out response.

I feel tense or wound up:

Most of the time.....
A lot of the time.....
Time to time/occasionally.....
Not at all.....

I feel as if I am slowed down:

Nearly all the time.....
Very often.....
Sometimes.....
Not at all.....

I still enjoy things I used to enjoy:

Definitely as much.....
Not quite so much.....
Only a little.....
Hardly at all.....

I get a sort of frightened feeling like butterflies in the stomach:

Not at all.....
Occasionally.....
Quite Often.....
Very often.....

I get a sort of frightened feeling as if something awful is about to happen:

Very definitely and quite badly.....
Yes, but not too badly.....
A little, but it doesn't worry me.....
Not at all.....

I have lost interest in my appearance:

Definitely.....
I don't take as much care as I should.....
I may not take as much care.....
I take just as much care as ever.....

I can laugh and see the funny side of things:

As much as I always could.....
Not quite so much now.....
Definitely not so much now.....
Not at all.....

I feel restless as if I have to be on the move:

Very much indeed.....
Quite a lot.....
Not very much.....
Not at all.....

Worrying thoughts go through my mind:

A great deal of the time.....
A lot of the time.....
From time to time but not too often.....
Only occasionally.....

I look forward with enjoyment to things:

As much as I ever did.....
Rather less than I used to.....
Definitely less than I used to.....
Hardly at all.....

I feel cheerful:

Not at all.....
Not often.....
Sometimes.....
Most of the time.....

I get sudden feelings of panic:

Very often indeed.....
Quite often.....
Not very often.....
Not at all.....

I can sit at ease and feel relaxed

Definitely.....
Usually.....
Not often.....
Not at all.....

I can enjoy a good book or radio/T.V.

Often.....
Sometimes.....
Not often.....
Very seldom.....

Please read this carefully:

Please answer ALL the questions on the following pages simply by circling the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

HAVE YOU RECENTLY:

1.	been able to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2.	lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3.	been feeling mentally alert and wide awake?	Better than usual	Same as usual	Less alert than usual	Much less alert
4.	been feeling full of energy?	Better than usual	Same as usual	Less energy than usual	Much less energetic
5.	been having restless, disturbed nights?	Not at all	No more than usual	Rather more than usual	Much more than usual
6.	been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
7.	been getting out of the house as much as usual?	More than usual	Same as usual	Less than usual	Much less than usual
8.	been managing as well as most people would in your shoes?	Better than most	About the same	Rather less well	Much less well
9.	felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
10.	been able to feel warmth and affection for those near to you?	Better than usual	About same as usual	Less well than usual	Much less well
11.	been finding it easy to get on with other people?	Better than usual	About the same as usual	Less well than usual	Much less well
12.	felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
13.	felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
14.	felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual

15.	felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
16.	been finding life a struggle all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
17.	been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
18.	been taking things hard?	Not at all	No more than usual	Rather more than usual	Much more than usual
19.	been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
20.	been able to face up to your problems?	More so than usual	Same as usual	Less able than usual	Much less able
21.	found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
22.	been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
23.	been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
24.	been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
25.	felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
26.	been feeling hopeful about your own future?	More so than usual	About the same as usual	Less so than usual	Much less hopeful
27.	been feeling reasonably happy, all things considered?	More so than usual	About the same as usual	Less so than usual	Much less than usual
28.	been feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
29.	felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
30.	found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual

H.O

LIFESTYLE QUESTIONNAIRE

This questionnaire is designed to provide information about lifestyles and personality variables of Newcastle University medical and dental students and junior hospital doctors and dentists.

This is an anonymous questionnaire: do not write your name. All data will be kept strictly confidential and will be collated and analysed in the aggregate - no one person will ever be identified.

Please answer all the questions - putting a circle around the number next to your answer when appropriate. Some questions ask you to circle one option only - others allow you to circle more than one option if applicable. Some questions also ask you to insert a number.

Please read the questions closely - in each case you will be advised how to answer.

Please indicate whether you answered this questionnaire as a second year student. Yes ☐ No ☐

Please indicate whether you answered this questionnaire as a final year student. Yes ☐ No ☐

For official use.

N ☐

P ☐

L ☐

E ☐

A ☐☐

D ☐☐

GHQ ☐☐

E.P.Q. (Adult)

Occupation .....

Age ..... Sex.....

INSTRUCTIONS: Please answer each question by putting a circle around the "YES" or the "NO" following the question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

PLEASE REMEMBER TO ANSWER EACH QUESTION

1	Do you have many different hobbies?	YES	NO
2	Do you stop to think things over before doing anything?	YES	NO
3	Does your mood often go up and down?	YES	NO
4	Have you ever taken the praise for something you knew someone else had really done	YES	NO
5	Are you a talkative person?	YES	NO
6	Would being in debt worry you?	YES	NO
7	Do you ever feel "just miserable" for no reason?	YES	NO
8	Were you ever greedy by helping yourself to more than your share of anything?	YES	NO
9	Do you lock up your house carefully at night?	YES	NO
10	Are you rather lively?	YES	NO
11	Would it upset you a lot to see a child or an animal suffer?	YES	NO
12	Do you often worry about things you should not have done or said?	YES	NO
13	If you say you will do something, do you always keep your promise no matter how inconvenient it might be?	YES	NO
14	Can you usually let yourself go and enjoy yourself at a lively party?	YES	NO
15	Are you an irritable person?	YES	NO
16	Have you ever blamed someone for doing something you knew was really your fault?	YES	NO
17	Do you enjoy meeting new people?	YES	NO
18	Do you believe insurance schemes are a good idea?	YES	NO
19	Are your feelings easily hurt?	YES	NO
20	Are *all* your habits good and desirable ones?	YES	NO

21	Do you tend to keep in the background on social occasions?	YES	NO
22	Would you take drugs which may have strange or dangerous effects?	YES	NO
23	Do you often feel "fed up"?	YES	NO
24	Have you ever taken anything (even a pin or button) that belonged to someone else?	YES	NO
25	Do you like going out a lot?	YES	NO
26	Do you enjoy hurting people you love?	YES	NO
27	Are you often troubled about feelings of guilt?	YES	NO
28	Do you sometimes talk about things you know nothing about?	YES	NO
29	Do you prefer reading to meeting people?	YES	NO
30	Do you have enemies who want to harm you?	YES	NO
31	Would you call yourself a nervous person?	YES	NO
32	Do you have many friends?	YES	NO
33	Do you enjoy practical jokes that can sometimes really hurt people?	YES	NO
34	Are you a worrier?	YES	NO
35	As a child did you do as you were told immediately and without grumbling?	YES	NO
36	Would you call yourself happy-go-lucky?	YES	NO
37	Do good manners and cleanliness matter much to you?	YES	NO
38	Do you worry about awful things that might happen?	YES	NO
39	Have you ever broken or lost something belonging to someone else?	YES	NO
40	Do you usually take the initiative in making new friends?	YES	NO
41	Would you call yourself tense or "highly-strung"?	YES	NO
42	Are you mostly quiet when you are with other people?	YES	NO
43	Do you think marriage is old-fashioned and should be done away with?	YES	NO
44	Do you sometimes boast a little?	YES	NO
45	Can you easily get some life into a rather dull party?	YES	NO
46	Do people who drive carefully annoy you?	YES	NO
47	Do you worry about your health?	YES	NO
48	Have you ever said anything bad or nasty about anyone?	YES	NO
49	Do you like telling jokes and funny stories to your friends?	YES	NO
50	Do most things taste the same to you?	YES	NO
51	As a child were you ever cheeky to your parents?	YES	NO
52	Do you like mixing with people?	YES	NO
53	Does it worry you if you know there are mistakes in your work?	YES	NO
54	Do you suffer from sleeplessness?	YES	NO
55	Do you always wash before a meal?	YES	NO

56	Do you nearly always have a "ready answer" when people talk to you?	YES	NO
57	Do you like to arrive at appointments in plenty of time?	YES	NO
58	Have you often felt listless and tired for no reason?	YES	NO
59	Have you ever cheated at a game?	YES	NO
60	Do you like doing things in which you have to act quickly?	YES	NO
61	Is (or was) your mother a good woman?	YES	NO
62	Do you often feel life is very dull?	YES	NO
64	Do you often take on more activities than you have time for?	YES	NO
65	Are there several people who keep trying to avoid you?	YES	NO
66	Do you worry a lot about your looks?	YES	NO
67	Do you think people spend too much time safeguarding their future with savings and insurances?	YES	NO
68	Have you ever wished that you were dead?	YES	NO
69	Would you dodge paying taxes if you were sure you could never be found out? .	YES	NO
70	Can you get a party going?	YES	NO
71	Do you try not to be rude to people?	YES	NO
72	Do you worry too long after an embarrassing experience?	YES	NO
73	Have you ever insisted on having your own way?	YES	NO
74	When you catch a train do you often arrive at the last minute?	YES	NO
75	Do you suffer from "nerves"?	YES	NO
76	Do your friendships break up easily without it being your fault?	YES	NO
77	Do you often feel lonely?	YES	NO
78	Do you always practice what you preach?	YES	NO
79	Do you sometimes like teasing animals?	YES	NO
80	Are you easily hurt when people find fault with you or the work you do?	YES	NO
81	Have you ever been late for an appointment or work?	YES	NO
82	Do you like plenty of bustle and excitement around you?	YES	NO
83	Would you like other people to be afraid of you?	YES	NO
84	Are you sometimes bubbling over with energy and sometimes very sluggish?	YES	NO
85	Do you sometimes put off until tomorrow what you ought to do today?	YES	NO
86	Do other people think of you as being very lively?	YES	NO
87	Do people tell you a lot of lies?	YES	NO
88	Are you touchy about some things?	YES	NO
89	Are you always willing to admit it when you have made a mistake?	YES	NO
90	Would you ever feel sorry for an animal caught in a trap?	YES	NO

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS

1. Have you smoked cigarettes/cigars?
(Circle one option only)

Never	1
Tried a few	2
Ex-regular smoker	3
Current smoker	4

---

2. If a current smoker, how much do you smoke?
(Please insert your average number per day - please put "0" if none - use more than one box if necessary)

Cigarettes	☐☐
Roll up cigarettes (actual no. -not amount of tobacco)	☐☐
Cigars	☐☐

---

3. For what reasons do you smoke?
(Circle more than one option if necessary)

To increase confidence	1
Social pressures	2
Anxiety/Stress	3
Habit	4
Exam/Work Pressure	5
To Feel more Sexually Attractive	6
Pleasure	7
To Aid Concentration	8
Don't know	9
Other	10

Please specify, if you circled "other"

.....

4. How much alcohol do you drink per week? Please state average no. per week- Please put "0" if none - use more than one box if necessary)

Strong Beer/Cider (pints/week)	
Ordinary Beer/Cider (pints/week)	
Wine (glasses/week)	
Spirits (measures/week)	
For official use only	

5a. For what reasons do you drink? (Circle more than one option if necessary)

To Increase Confidence	1
Social pressures	2
Anxiety/Stress	3
Habit	4
Exam/Work Pressure	5
To Feel more Sexually attractive	6
Pleasure	7
To Aid Concentration	8
Don't know	9
Other	10

Please specify, if you circled "other"

.....

5b. Within the last year, after drinking alcohol, have you: (Please circle one number for each question)

	Yes	No
Felt so ill that you have missed at least half a day at work or study?	1	2
Been unable to remember part of the evening before?	1	2
Felt that you have become more sexually involved than you would normally have wanted?	1	2
Got into a physical fight or argument?	1	2

Been afraid to go home?	1	2
Not taken contraceptive precautions when having sex?	1	2
Experimented with injecting drugs?	1	2
Had an accident while driving a car or motorcycle?	1	2

6. On how many occasions during the week do you drink alcohol? (Please insert average number) | | |

7. How many times in the last six months have you been seriously affected following consumption of alcohol? (seriously debilitated etc.) (Please insert number) | | |

8. Have you ever knowingly used any of the following recreational drugs? Please make sure that you circle one number on *every* row)

	Never	Once or twice.	More than once or twice.	Use/used on a regular basis.
a) Cannabis	1	2	3	4
b) L.S.D.	1	2	3	4
c) Amphetamine	1	2	3	4
d) Cocaine/Crack	1	2	3	4
e) Ecstasy	1	2	3	4
f) Magic Mushrooms	1	2	3	4
g) Amyl/Butyl Nitrate	1	2	3	4
h) Temazepam/ Diazepam etc.	1	2	3	4
i) Opium/Morphine/ Heroin	1	2	3	4
j) Steroids	1	2	3	4
k) Other	1	2	3	4

(Please specify) .....

9. Are you currently taking any of the following recreational drugs?
(Please make sure that you circle one number on every row)

	Nil	Weekly	Monthly	Very Occasionally
a) Cannabis	1	2	3	4
b) L.S.D.	1	2	3	4
c) Amphetamine	1	2	3	4
d) Cocaine/Crack	1	2	3	4
e) Ecstasy	1	2	3	4
f) Magic Mushrooms	1	2	3	4
g) Amyl/Butyl Nitrate	1	2	3	4
h) Temazepam/ Diazepam etc.	1	2	3	4
i) Opium/Morphine/ Heroin	1	2	3	4
j) Steroids	1	2	3	4
k) Other	1	2	3	4

(Please specify) .....

If you take or have taken any of the above intravenously, please indicate with a * at the side of the relevant substance.

10. For what reasons do you take drugs?
(Circle more than one option if necessary)

To Increase Confidence	1
Social Pressures	2
Anxiety/Stress	3
Habit	4
Exam/Work Pressure	5
To Feel more Sexually Attractive	6
Pleasure	7
To Aid Concentration	8
Don't know	9
Other	10

Please specify, if you circled "other" .....

11. At what age did you first start smoking? ☐☐

At what age did you take your first sip of alcohol? ☐☐

At what age did you take your first full drink of alcohol? ☐☐

At what age did you first take illicit drugs? ☐☐

(Please insert age in years)

---

12. How much tea/coffee/cola/chocolate do you drink per day?
(Exclude decaffeinated drinks - average number of cups/cans per day - please put "0" if you do not drink any)

Chocolate/Cocoa	☐☐
Tea	☐☐
Coffee	☐☐
Cola	☐☐

---

13. How many average size bars of chocolate do you eat per week on average?
(Please insert number) ☐☐

For official use only ☐☐

14. How often do you take proprietary (over the counter) medicines (aspirin, paracetamol, "cold cures", "Neurofen" etc.) on average?
(Please circle one option only)

Never	1
Once a year	2
Once every six months	3
Once a month	4
Once a week	5
Every day	6

---

15. In the last year have you been medically prescribed tranquillisers, anti-depressants or sleeping pills for more than 2 days?
(please circle one option only)

Yes	1
No	2

---

16. How often do you take vitamin/mineral supplements and/or herbal remedies?
(Please circle one option only)

Never	1
Occasionally	2
Weekly	3
Daily	4

---

17. Are you in any form of paid employment during the term/semester?

(Please circle one option)

Yes	1
No	2
Not Applicable	0

---

18. How often do you take physical exercise or play sports (e.g. jogging, swimming, squash, continuous walking over 3 miles?
(Please circle one option only)

Hardly ever	1
Monthly	2
Weekly	3
Twice weekly	4
Daily	5

19. How much sleep, on average, do you have per night? (Please circle one option only)	**Four hours or less**	**1**
	Five to six hours	**2**
	Seven to eight hours	**3**
	Nine hours or more	**4**

---

20. Normally do you find yourself: (Circle more than one option if necessary)

Having a problem getting to sleep?	**1**
Waking up early in the morning and being unable to get back to sleep?	**2**
Unable to wake up properly in the morning?	**3**
Having none of the problems above?	**4**

21a. As part of your University Education have you been provided information about the health risks of?

	Yes	**No**
Smoking	☐	☐
Alcohol	☐	☐
Illicit drugs	☐	☐

21b. Do you feel this education has influenced your behaviour?

	Yes	**No**
Smoking	☐	☐
Alcohol	☐	☐
Illicit drugs	☐	☐

22. Which factors in university life do you <u>currently</u> find stressful: (circle more than one option if required)

Study load	**1**
Time management	**2**
Financial worries	**3**
Personal problems	**4**
Other	**5**

(Please specify) .....

For further information please contact:
Dorothy Newbury-Birch,
Wolfson Unit of Clinical Pharmacology,
Newcastle University.
Telephone (0191) 2225819
E-Mail address: D.E.Birch@ncl.ac.uk

Personal details. The following details are important for this survey but will not be used for identification purposes etc. All information will be kept confidential.

1. Age (Please insert age in years)		[ ][ ]
2. Male		1
Female		2
3. Ethnic Origin (Please circle one option only - E.O.C. classification)	Bangladeshi	1
	Black - African	2
	Black - Caribbean	3
	Black - other	4
	Chinese	5
	Indian	6
	Pakistani	7
	White	8
	Other (Please specify)	9
4. Religion	Roman Catholic	1
	Protestant	2
	Hindu	3
	Muslim	4
	Jewish	5
	Buddhist	6
	Atheist/Agnostic	7
	Other (Please specify)	8
5. If a student, are you (Please circle one option)	A U.K. student?	1
	An E.C. (non U.K.) student?	2
	An overseas (non-E.C.) student?	3

This questionnaire is designed to let us know how you feel at the moment. Read each item and place a tick in the box beside the reply which comes closest to how you have been feeling in the past week. Don't take too long over replies: your first reaction to each item will be more accurate than a long drawn out response.

I feel tense or wound up:

Most of the time.....
A lot of the time.....
Time to time/occasionally.....
Not at all.....

I still enjoy things I used to enjoy:

Definitely as much.....
Not quite so much.....
Only a little.....
Hardly at all.....

I get a sort of frightened feeling as if something awful is about to happen:

Very definitely and quite badly.....
Yes, but not too badly.....
A little, but it doesn't worry me.....
Not at all.....

I can laugh and see the funny side of things:

As much as I always could.....
Not quite so much now.....
Definitely not so much now.....
Not at all.....

Worrying thoughts go through my mind:

A great deal of the time.....
A lot of the time.....
From time to time but not too often.....
Only occasionally.....

I feel cheerful:

Not at all.....
Not often.....
Sometimes.....
Most of the time.....

I can sit at ease and feel relaxed

Definitely.....
Usually.....
Not often.....
Not at all.....

I feel as if I am slowed down:

Nearly all the time.....
Very often.....
Sometimes.....
Not at all.....

I get a sort of frightened feeling like butterflies in the stomach:

Not at all.....
Occasionally.....
Quite Often.....
Very often.....

I have lost interest in my appearance:

Definitely.....
I don't take as much care as I should.....
I may not take as much care.....
I take just as much care as ever.....

I feel restless as if I have to be on the move:

Very much indeed.....
Quite a lot.....
Not very much.....
Not at all.....

I look forward with enjoyment to things:

As much as I ever did.....
Rather less than I used to.....
Definitely less than I used to.....
Hardly at all.....

I get sudden feelings of panic:

Very often indeed.....
Quite often.....
Not very often.....
Not at all.....

I can enjoy a good book or radio/T.V.

Often.....
Sometimes.....
Not often.....
Very seldom.....

□□□□

JOB SATISFACTION AND HEALTH QUESTIONNAIRE

INSTRUCTIONS

We would like you to please:-

* answer all the questions
* give your first and natural answer; be accurate and honest
* work quickly and efficiently through the questionnaire
* base your answers on how you have felt during the last three months
* if you make a mistake, cross it out and make your new answer
* check each questionnaire to ensure that you have answered all the items

How you feel about your job

This questionnaire is concerned with the extent to which you feel satisfied or dissatisfied with your job. Try not to be put off by any other reactions you may have – simply rate the items against the satisfaction/dissatisfaction scale provided.

▶ Please answer by circling the number of your answer on the scale shown:

Very much satisfaction	6
Much satisfaction	5
Some satisfaction	4
Some dissatisfaction	3
Much dissatisfaction	2
Very much dissatisfaction	1

1	Communication and the way information flows around your organisation	6	5	4	3	2	1
2	The relationships you have with other people at work	6	5	4	3	2	1
3	The feeling you have about the way you and your efforts are valued	6	5	4	3	2	1
4	The actual job itself	6	5	4	3	2	1
5	The degree to which you feel 'motivated' by your job	6	5	4	3	2	1
6	Current career opportunities	6	5	4	3	2	1
7	The level of job security in your present job	6	5	4	3	2	1
8	The extent to which you may identify with the public image or goals of your organisation	6	5	4	3	2	1
9	The style of supervision that your superiors use	6	5	4	3	2	1
10	The way changes and innovations are implemented	6	5	4	3	2	1
11	The kind of work or tasks that you are required to perform	6	5	4	3	2	1
12	The degree to which you feel that you can personally develop or grow in your job	6	5	4	3	2	1
13	The way in which conflicts are resolved in your company	6	5	4	3	2	1
14	The scope your job provides to help you achieve your aspirations and ambitions	6	5	4	3	2	1
15	The amount of participation which you are given in important decision-making	6	5	4	3	2	1
16	The degree to which your job taps the range of skills which you feel you possess	6	5	4	3	2	1
17	The amount of flexibility and freedom you feel you have in your job	6	5	4	3	2	1
18	The psychological 'feel' or climate that dominates your organisation	6	5	4	3	2	1
19	Your level of salary relative to your experience	6	5	4	3	2	1
20	The design or shape of your organisation's structure	6	5	4	3	2	1
21	The amount of work you are given to do whether too much or too little	6	5	4	3	2	1
22	The degree to which you feel extended in your job	6	5	4	3	2	1

1	2	3	4	5	6

Please read this carefully:

Please answer ALL the questions on the following pages simply by circling the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

HAVE YOU RECENTLY:

1.	been able to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2.	lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3.	been feeling mentally alert and wide awake?	Better than usual	Same as usual	Less alert than usual	Much less alert
4.	been feeling full of energy?	Better than usual	Same as usual	Less energy than usual	Much less energetic
5.	been having restless, disturbed nights?	Not at all	No more than usual	Rather more than usual	Much more than usual
6.	been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
7.	been getting out of the house as much as usual?	More than usual	Same as usual	Less than usual	Much less than usual
8.	been managing as well as most people would in your shoes?	Better than most	About the same	Rather less well	Much less well
9.	felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
10.	been able to feel warmth and affection for those near to you?	Better than usual	About same as usual	Less well than usual	Much less well
11.	been finding it easy to get on with other people?	Better than usual	About the same as usual	Less well than usual	Much less well
12.	felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
13.	felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
14.	felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual

15.	felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
16.	been finding life a struggle all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
17.	been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
18.	been taking things hard?	Not at all	No more than usual	Rather more than usual	Much more than usual
19.	been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
20.	been able to face up to your problems?	More so than usual	Same as usual	Less able than usual	Much less able
21.	found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
22.	been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
23.	been losing confi-dence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
24.	been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
25.	felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
26.	been feeling hopeful about your own future?	More so than usual	About the same as usual	Less so than usual	Much less hopeful
27.	been feeling reason-ably happy, all things considered?	More so than usual	About the same as usual	Less so than usual	Much less than usual
28.	been feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
29.	felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
30.	found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual