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AN EVALUATION OF MOTIVATIONS FOR STUDYING PHARMACY, CAREER COMMITMENT AND FUTURE CAREER PLANS

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SUMMARY

An Evaluation of Motivations for Studying Pharmacy, Career Commitment and Future Career Plans

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The profession of pharmacy is changing rapidly and little is known of the motivations behind a decision to study pharmacy. It has also been predicted that there will be a full time pharmacist workforce shortage of over 15,000 by 2013. It is therefore necessary to recruit more students of a suitable calibre to undergraduate pharmacy degree courses. This study was designed to investigate the motivations of pre-university and MPharm students for studying pharmacy. A series of focus groups was conducted with Year 12 students and a national survey of Year 13, 1st year MPharm and 4th year MPharm students was undertaken.

The study found that amongst Year 12 students, pharmacy is perceived as a background profession and was also perceived as being of a lower status than medicine and dentistry. It was concluded that there was a need for greater promotion of pharmacy as a career amongst pre-university students, including the provision of structured work experience placements.

Analysis of UCAS applicant data for pharmacy shows that the applicant pool is buoyant and that the majority of applicants are female. Female respondents to the surveys were significantly more likely than males to wish to work part time if they had a family. This could lead to further shortages in the full time workforce.

The largest ethnic group of applicants to pharmacy degree courses was Asians. Business ownership and self-employment were motivations for entering the profession of pharmacy and career aims for significantly more Asian than White respondents. Ownership of independent pharmacies is declining and this could be a barrier to future recruitment to pharmacy degree courses. A high degree of interest in locum working may present a problem for continuity in commissioned services within community pharmacy practice. Further work is needed to examine the motivations for working as a locum pharmacist.

Key words:
Pharmacy career motivation, business ownership, feminisation, image of pharmacy, locum work.

Dedication

It's what you need.

Acknowledgements

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Introduction

The profession of pharmacy in the United Kingdom is undergoing a period of considerable change. Pharmacists are being encouraged by both Government policy and the Royal Pharmaceutical Society to move away from the traditional dispensing role into one of much greater patient contact. This includes medicines management, prescribing and bidding for commissioned services. Movement into these new roles may be problematic as it has been identified that there is likely to be a workforce shortage in the profession of pharmacy in the United Kingdom by the year 2013. Clearly this provides a driver for recruiting further new pharmacy undergraduates. However, little is known about the motivations of those students who choose to study for a career in pharmacy. In order to address future workforce shortages then the profession needs to know what these motivations are. If they do not match the proposed new roles of pharmacists in the future then retention within the pharmacist workforce may become a serious issue.

There has been an unplanned increase recently in the number of Schools of Pharmacy recruiting students in the United Kingdom, with other new Schools of Pharmacy poised to open. With such an increase in the number of Schools of Pharmacy there is necessarily a need to recruit sufficient students of a suitable standard to fill these new places. In order to recruit students of a suitable standard it is necessary to examine the perceptions of pharmacy as a potential career, the state of the applicant pool for pharmacy and the motivations behind a decision to choose to study pharmacy. The perceived image of pharmacy as a profession is of interest as this perceived image is vital to recruitment to the profession. It is also desirable to examine the future work and life plans of these students to discover if there are any potential problems with retention of any expanded pharmacist numbers in the future.

This study which forms part of a larger body of work, examines career choice, career motivation, future career plans and work / life balance issues within the population of 1st and 4th year MPharm undergraduates. The same issues were also explored with Year 13 school students – 17 and 18 year olds entering their final year of A level studies. As an initial scoping exercise it was decided to explore the more general areas of career choice and motivation with Year 12 students – 16 and 17 year olds in their first year of A level

studies – in the period of time before making decisions about future careers and university courses.

Objectives of the study

The study was designed to investigate the following:

- Motivations for career choice amongst Year 12 school pupils;
- The perceptions of healthcare careers amongst Year 12 school pupils, with particular reference to the profession of pharmacy;
- The size and nature of the applicant pool to MPharm degree courses in the United Kingdom from 1998-2005;
- The perceptions of potential applicants to pharmacy degree courses of the profession of pharmacy as a career;
- The perceptions of general influencing factors upon a decision to study pharmacy;
- The perceived influence of personal factors upon a decision to study pharmacy;
- The perceived influence of careers related material upon a decision to study pharmacy;
- The career plans of both potential applicants to MPharm degree courses and those enrolled upon their MPharm degree studies;
- The future work / life plans of both potential applicants to MPharm degree courses and those enrolled upon their MPharm degree studies.

In order to develop the research tools necessary for this study, a thorough literature review was undertaken in the following areas:

- The United Kingdom Education system;
- The development of career preferences;
- A level choice;
- Motivations for studying pharmacy;
- The application process for entry to higher education in the United Kingdom;
- Qualification as a pharmacist in the United Kingdom;
- Pre-registration pharmacist training within the United Kingdom.

This thesis presents the results and discussion of: four focus groups undertaken with year 12 students; an analysis of the UCAS application data for pharmacy for the years 1998-

2005; a survey of Year 13 students who expressed an interest in studying pharmacy and a survey of 1st and 4th year MPharm undergraduates.

Chapter 1: Review of the literature

1.1 The United Kingdom Education System

Education in the United Kingdom is compulsory from the age of 5 years (Year 1) until the age of 16 years (Year 11). The 1988 Education Reform Act made provision for a National Curriculum and key stages in education in England, Wales and Northern Ireland amongst other fundamental changes to the education system in these countries. It should be noted that this legislation does not apply to independent schools, only those in the public sector. Scotland has a different education system from the rest of the United Kingdom and so will be discussed separately.

1.1.1 National Curriculum

The National Curriculum determines the content of teaching at all stages within the education of 5 to 16 year olds. It also defines attainment targets, assessment schedules and how the results of such assessments are reported.(1)

1.1.2 Compulsory education in England

The Education Reform Act 1988 defined four key stages in the education process from the age of five upwards. Compulsory elements of the National Curriculum must be taught within each of these four stages.

Key Stage 1

Key stage 1 (KS1) covers children from the age of 5 years up to the age of 7 years (Years 1 and 2). The following subjects must be taught under the provisions of the National Curriculum (NC):(2)

- English
- Mathematics
- Science
- Design and technology
- Information and Communication technology (ICT)
- History
- Geography
- Art and design
- Music
- Physical education.

Religious Education must also be taught, but this is not part of the National Curriculum. National Curriculum assessments in English and mathematics are taken at the age of 7 years (end of Year 2).

Key Stage 2

Key stage 2 (KS2) takes children from the age of 7 years (Year 3) through to the end of primary school education at the age of 11 years (Year 6). The same NC subjects as in KS1 must be taught along with religious education. National Curriculum tests and tasks are taken in English, mathematics and science at the end of Year 6 (aged 11).(2)

Key Stage 3

Key stage 3 (KS2) takes children from the age of 11 years (Year 7) to the age of 14 years (Year 9). The same NC subjects as in KS1 and KS2 are taught, with the addition of a further NC subject area, modern foreign languages and religious education. National Curriculum tests are taken at the age of 14 years (the end of Year 9) in English, mathematics and science.(2)

Key Stage 4

Key stage 4 (KS4) takes children from the age of 14 years to the official school leaving age of 16 years (Years 10 and 11). Students must study at least one course in each of the following National Curriculum subjects:(2)

- English
- Mathematics
- Science
- Design and technology
- Information and communication technology (ICT)
- a Modern foreign language
- Physical education
- Citizenship

Three subjects not in the National Curriculum must also be taught namely religious education, careers education and sex education. It is not compulsory to study for a qualification in any of the NC subjects, but most pupils will.

At the end of Year 9 (the end of KS3), pupils are asked to consider which optional subjects they wish to study during KS4. Optional subjects are those that are not in the list of compulsory NC subjects such as history, geography and music.

According to information provided by the Qualifications and Curriculum Authority (the QCA)(3), most schools have a core curriculum leading to qualifications in English, mathematics, science, design and technology, and a modern foreign language. Some schools also make the acquisition of a qualification in information and communication technology (ICT) compulsory.

Principal Qualifications at Key Stage 4

General Certificate in Education (GCSE)(3)

The General Certificate in Education courses replaced O levels and Certificates in Secondary Education (CSEs) in 1986 with the first examinations being taken in 1988. The majority of pupils will take GCSEs in most subjects at KS4. GCSEs are graded from A* to G, with A* being the highest possible pass grade and G being the lowest possible pass grade. Examinations may occur once at the end of two years of study (i.e. at the end of Year 11, aged 16) or twice (i.e. once at the end of Year 10, aged 15 and once at the end of Year 11, aged 16). Single GCSE subjects are generally taken, although there are double awards available (i.e. equivalent to two full GCSEs) in Science and, Applied Information and Communication Technology. A double award GCSE will be given two grades (e.g. A*B or BB).

Vocational GCSEs

Eight vocational subjects are offered, which are assessed as double awards (i.e. equivalent to two full GCSEs). These vocational GCSEs consist of three separate units, two of which are assessed internally (e.g. through a portfolio) and one is assessed externally (either through submitted coursework or examination). Vocational GCSEs are much more practically orientated with work placements and / or visits replacing some of the academic content of an ordinary GCSE. The grading system is the same for ordinary GCSEs and each vocational award will be given two grades (e.g. AB or BB).

1.1.3 Post-compulsory education in England

Following the completion of Year 11, it is not compulsory for pupils to remain within the education system. Many qualifications are available in post-16 education; for the purposes of this thesis, only those that are relevant for entry to study pharmacy at university will be described.

General Certificate in Education (GCE)(3)

A levels were introduced in the 1950s and were discrete, specialist subjects. A levels were unitised in September 2000 under the provisions of Curriculum 2000 with the aim of broadening the range of academic subjects studied by 16 and 17 year olds. Unitisation means that students can be assessed in units of study throughout the course rather than having to take one or two examinations at the end of two years of study. The new A level qualification, introduced in September 2000, with the first examinations taken in 2002, consists of two parts:

- Advanced Subsidiary (AS)
  - o Advanced Subsidiary courses contain three units of study leading to an AS level qualification. This has the value of half of an A level. The assessment of each unit is at a standard that would be expected of a student halfway through a course of A level studies. The three units combined contribute 50% of the assessment for a full A level qualification in a subject.
- A2 (full A level)
  - o The full A level qualification consists of a further three units in addition to the three units studied at AS level. These further three units are assessed at a standard expected of a student at the end of a full A level course.

AS levels cover the less demanding material within a full A level syllabus, whilst A2s cover the more demanding material. Most AS and A2 modules are assessed by examination. GCE awards are graded from A to E with A being the highest pass grade available and E being the lowest pass grade available. Many students are encouraged to take four or five AS level subjects, dropping at least one when continuing through to A2 level.

Vocational Certificate in Education (VCE)(3)

The Vocational Certificate in Education is available as one of the following:

- The three-unit VCE Advanced Subsidiary (VCE AS level);
- The six-unit VCE Advanced Level (VCE A level);
- The twelve-unit VCE Double Award (equivalent to two VCE A levels).

As with the vocational GCSEs, there is a limited list of subjects that can be studied at VCE level and there is much more emphasis on practical aspects of work than on purely academic teaching.

Figures released by the Department for Education and Skills show that at the end of 2006 78.1% of all 16 year olds in England were in full-time education or training. 45% of all 16 year olds in England were studying for AS or A level (either GCE or VCE) qualifications. 40% of all 17 year olds in England were studying for the same qualifications, implying that approximately 5% of those in their first year of sixth-form studies (Year 12) drop out of their studies at the end of Year 12. 5% of 18 year olds were studying for AS or A levels, a group which is likely to have retaken either AS or A2 level modules.

1.1.4 Wales

Education in Wales is under the governance of the Department of Education, Lifelong Learning and Skills of the Welsh Assembly. The 1988 Education Act has been revised in Wales since the devolution of power in 1999. The same system of education operates as in England, but the core subjects of the National Curriculum in Wales differ slightly.(4) It is not compulsory to teach English in Key Stage 1 if the medium of instruction is Welsh, but English must be taught in such cases from Key Stage 2 onwards. National Curriculum tests and tasks are no longer taken at the end of Key Stage 2 (aged 7). Welsh language (either as a first or second language) is a compulsory subject throughout all four Key Stages in Wales. At Key Stage 4, there are only five compulsory subjects in the Welsh version of the National Curriculum namely English, Welsh (or Welsh second language), mathematics, science and physical education.

1.1.5 Northern Ireland

The same system of education operates in Northern Ireland as in England and Wales. However, the National Curriculum in Northern Ireland was revised under the Education (Curriculum Minimum Content) Order (Northern Ireland) 2007.(5)

At primary school level (Key Stages 1 and 2) the curriculum now comprises six Areas of Learning:
- Language and Literacy (includes the teaching of Irish in Irish speaking schools);

- Mathematics and Numeracy;
- The Arts (including Art and Design, Drama and Music);
- The World Around Us (covering geography, history, science and technology);
- Personal Development and Mutual Understanding;
- Physical Education.

At Key Stages 3 and 4 in Northern Ireland, there are nine Areas of Learning in the National Curriculum:

- Language and Literacy (includes the teaching of Irish in Irish speaking schools);
- Mathematics and Numeracy;
- Modern Languages;
- The Arts;
- Environment and Society (history and geography);
- Science and Technology (science, technology and design);
- Learning for Life and Work;
- Physical Education;
- Religious Education.

1.1.6 Scotland

The Scottish education system is independent of the rest of the United Kingdom and is overseen by the Scottish Executive. Primary school education begins at the age of 5 through to 12 years of age (Primary 1 to Primary 7). Secondary school education is compulsory between the ages of 12 (Secondary 1 or S1) and 16 (Secondary 4). Currently there is no National Curriculum in Scotland, although guidance is provided by the Scottish Executive. A National Curriculum for the ages of 3 years to 18 years is under development for roll out from August 2008 (Curriculum for Excellence).(6) Responsibility for what is taught at school therefore currently lies with local authorities. Pupils work towards National Qualifications which are taken at many levels, the principal of which are: Standard Grades. Taken at the age of 16 in S4, these are equivalent to GCSEs elsewhere in the UK and are Scottish Credit and Qualifications Framework (SCQF) level 3;

- Highers. These are National Courses (comprising of three National Units) taken at SCQF level 6, usually taken in the fifth year of secondary school (S5) and are equivalent to AS level elsewhere in the UK;

- Advanced Highers. These are National Courses (again comprising of three National Units) taken at SCQF level 7, usually taken in the sixth year of secondary school and are equivalent to A2s elsewhere in the UK.(7)

1.2   Development of Career Preferences

In 1989, as part of a larger project – Girls into Science and Technology (GIST), Kelly et al conducted a longitudinal study in over 1700 pupils in co-educational comprehensive schools over the course of their educational career between the ages of 11 years and 17 years.(8) The study included the pupils' job plans and whether they changed over the six year period and also whether there were any differences between genders regarding job plans. Questionnaires were completed during the pupils' first term at secondary school (aged 11), at the point of choosing their GCSE options (aged 14) and one year post-compulsory education (aged 17). The most detailed questionnaire with regard to job plans was that at the age of 14. Over 1000 responses were obtained at each stage.

Kelly et al found that at all three ages, boys and girls had very different career or job aspirations. Secretary, hairdresser, nursery nurse and teacher appeared in the top ten girls' choices at all three stages, with armed forces, engineer, and car mechanic appearing in the top ten at all three stages for boys. "Idealistic" careers (as defined by Kelly) such as athlete, pilot or model were popular with pupils aged 11, but more realism entered the results at the age of 14 where participants were asked about what job they thought they would do and also if they could do any job, what job would they like to do. Although there appears to be consistency in the job titles chosen by the three age groups, there was very little consistency within individual choices over time. Only 12% of girls and 8% of boys mentioned the same occupation at the ages of 14 and 17.

To examine this individual consistency further, the authors analysed the most popular carer choices at age 17 and investigated what careers those individuals had mentioned at the ages of 11 and 14. They found that individuals appear to select a broad career or job area at the age of 14 and then refine it later. For example the office-based job area of secretary might be selected at the age of 14 and then refined to other office-based jobs such as estate-agent or bank clerk at the age of 17. The profession of teaching appeared to be selected early as a career with 50% of the girls who mentioned it at the age of 17 having mentioned it at the

age of 11. 60% of boys who wished to be doctors at the age of 17 had mentioned it at the age of 14. Girls also appeared to decide upon hairdressing very early.

When asked at the age of 14 for their "ideal" careers, jobs such as entertainer, air hostess and model were mentioned by girls with athlete, pilot and entertainer mentioned by boys. Those professions which could be considered as being of high status, such as medicine or law, were mentioned as an ideal career by very few participants in this age group. The authors suggest that there is little desire in the 14 year old age group for "prestigious, secure and well paid jobs" and that they have limited ambitions at this age, being prepared to aim for jobs of a medium socio-economic status.

The study also found that interesting work and good pay were the most important characteristics of a job overall, but that boys attached more importance to good pay than girls. Girls attached more importance to having a useful job which helps people than boys, but still ranked this factor lower than the intrinsic work factors of interest and variety.

Overall, Kelly et al found that career or job ideas at the age of 11 and 14 years have little predictive value for career or job ideas at the age of 17. The authors suggest that career aspirations at the age of 14 should not be used as a basis for selecting subjects for study at GCSE level.

1.2.1 Personal Characteristics

Holland, in 1985, identified six personal characteristics which may be used to define the way people search out an appropriate career.(9) These are not mutually exclusive and include:

- Realistic – a preference for outdoor and physical work;
- Investigative – thought and creativity with few social demands;
- Artistic – a dislike of structure and needing intense involvement;
- Social – communication and helping others;
- Enterprising – power and management;
- Conventional – high structure, self-control, low interpersonal demands.

Kniveton, in a study of 174 male and 174 female pupils aged 14 – 18 years from eight co-educational schools, found that male pupils placed realistic, social and investigative characteristics at the top of their list with female pupils placing social, investigative and artistic at the top of their list.(10) This implies that boys are more likely to seek careers that involve outdoor or physical work (e.g. engineering) and girls are more likely to seek careers within the arts. Both genders are likely to seek careers in a scientific field (investigative characteristics) or within a field that involves working with others.

Kinveton also investigated influencing and motivational factors upon career decisions within this cohort. She found that parents were more influential than teachers and that careers teachers were less influential than school teachers. Friends and siblings were the least influential. She found that the primary motivational factors within her study were money and enjoyment of the work itself (the former was the highest ranked factor for males and the latter the highest for females). Altruistic factors such as helping others were ranked much lower, particularly by males. Factors related to working conditions such as working hours, job security and having a good boss ranked the lowest. Status appeared towards the middle of the list of motivational factors and was placed higher by males than females. Kniveton proposes that recruitment problems in careers such as nursing and teaching may be due to this placement of altruistic motivating factors as less important than immediate satisfaction through monetary reward.

1.2.2   Career decision-making theory

In 1995 Hodkinson published the results of a series of interviews conducted with 115 pupils from Year 11 (final year of GCSE studies) and from sixth form (Years 12 and 13 – AS and A2 level).(11) Hodkinson investigated how they had made career decisions (if they had done so). He found that close relatives or neighbours had been a strong influence for many, but grounded through the participants own long-term influences. Hodkinson also found that work experience had a strong influence upon a career decision either positively or negatively and that this group of students was making rational career decisions based upon their personal experiences.

Hodkinson's work with this group of students led him to develop a new theory of career decision-making based upon the concept of *habitus* (developed by the French sociologist Bordieu). He refined the theory further in a paper published in 1997 with Sparkes and

coined the phrase "careership" to describe it.(12)   They considered three established theories of career decision-making, namely trait theory, developmental theory and social learning theory.

Trait theory proposes that careers guidance should match an individual to placements based upon the personality traits, skills and interests of that individual. This has been criticised by both Kidd and Law as an oversimplification of the process of career decision-making.(13;14)

Developmental theory was first proposed in the 1950s. This argues that an individual has to develop their own abilities as far as possible and be sufficiently mature before a "good" career decision can be made. Hodkinson and Sparkes argue that this is problematic in two ways: firstly, it concentrates solely upon the person and does not allow for the impact of external influences upon that person; secondly, they argue, who is qualified to judge what makes a "good" career decision for an individual.(12)

These theories describe career decision-making as a plan to which individuals work. Hodkinson and Sparkes propose that career decision-making is based upon the concept of *habitus* where an individual's "beliefs, ideas and preferences are individually subjective but [are] also influenced by the social networks and cultural traditions in which that person lives".(12)   Hodkinson describes young people as amassing schemata – conceptual structures – which help them to understand their own experiences. These schemata help to filter out irrelevant information for an individual, but are changed or adjusted by new experiences gained by that individual.(11) Hence, a person's life experiences develop a set of schemata which are then used in their decision-making process.

Hodkinson and Sparkes take this concept of *habitus* further by proposing that young people make decisions from within "horizons for action" – areas of knowledge or experiences in which decisions can be made. As far as career decision-making is concerned, these horizons for action are set by a combination of habitus and the limitations set by the labour market. Hence young people will make pragmatic, rational career decisions based upon their personal experiences such as close relations, friends and work experience (*habitus*) and their perceptions of the labour market (is it relatively easy to get a job in the chosen career?).(12) Hodkinson proposes that young people may therefore reject

careers advice given to them as it does not fit within any of their schemata and hence is outside their personal horizons for action. Work experience may expand an individual's horizons for action as the experience is assimilated.(11)

Hodkinson and Sparkes' theory of "careership" is described as individuals making pragmatic, rational career decisions consisting of three inter-related parts:

> "...pragmatically rational decision-making, choices as interactions within a field, and choices within a life course consisting of interlinked routines and turning points."

Hodkinson and Sparkes state that this is very much a sociological theory of career decision-making rather than a purely psychological theory or model of the process.(12)

Hemsley-Brown and Foskett(15) support the assertion made by Hodkinson and Sparkes that young people make careers decisions based upon their social and cultural background and their own life experiences as well as their likes, skills and abilities. They investigated, through the Career Perceptions and Decision-making Project (CAPDEM), to what extent young people make economic rational career decisions. In their analysis of their data they propose that young people choose careers from three categories of job:

- "Lottery" jobs – well paid, high status, high profile jobs requiring little or no academic training such as sportsman / woman, famous actor / actress. Most of these lottery jobs rely upon the individual being spotted by chance. One quarter of all respondents selected a job in this category.
- High status jobs – typically the established professions such as medicine, dentistry and the law which require high academic achievement and participation in higher education. One fifth of all participants selected an occupation within this category.
- Customary jobs – occupations which are much more likely to be available in the job market such as teacher or nurse.(15)

Hemsley-Brown and Foskett found that nearly half of 11 year old pupils (Year 6) selected a "lottery" job, a proportion that declines to 25% of 15 year olds (Year 10) and 20% of 17 year olds (Year 12), similar results to those which Kelly obtained 10 years earlier.(8) They suggest that a process of "defaulting" occurs as young people become more aware of their own limitations and of the potential within the labour market, a process very much like the

adjustments of horizons for action as described by Hodkinson and Sparkes. Like Kelly, they propose that this process of defaulting has implications for GCSE choice. People at this stage of their academic career (the end of Year 9, aged 13 or 14 years) possibly will not yet be in a position of making realistic subject choices with a view to future career choice, as they may not yet have defaulted to a realistic career aim. These data support the decision by the Government to broaden the curriculum studied to the age of 16 through the National Curriculum(1) – decisions to specialise in subjects taken to GCSE too early may impact upon future career satisfaction of individuals.

Feldman and Whitcomb(16) argue that if students make career decisions based upon Holland's taxonomy a degree of career indecision may set in as the career decision is contextualised within the individual's personal experience (e.g. work experience) and their social and cultural background (i.e. their horizons for action as proposed by Hodkinson and Sparkes). Feldman and Whitcomb argue that these influences may impact upon career choices based solely upon skills, abilities and liking and may lead to individuals becoming more indecisive about their future careers rather than less so.

1.2.3   Work experience

Huddleston and Oh present a review of work experience placements in the context of secondary school education.(17) Work experience placements first entered the secondary school curriculum (without being compulsory) in the early 1960s. The 1973 Education (Work Experience) Act allowed students to undertake work experience on employers' premises in their final year of compulsory schooling (i.e. aged 15 or 16). Until a speech made by the then Prime Minister, James Callaghan, in 1976, it would appear that such work experience placements were not taken up to any great extent. However, Callaghan's speech attempted to encourage schools to use work experience as a link between education and the wider world of work. From this point, particularly during the recession of the 1980s and early 1990s, work experience seems to have been aimed at less able pupils who were more likely to be unemployed. Mass unemployment became less of a problem as the 1990s progressed and work experience evolved to tackle social exclusion (i.e. those students who choose to absent themselves from school prior to age 16).(17)

The introduction of the National Curriculum following the Education Reform Act 1988 required that work experience should be more closely tied in with the National Curriculum.

Work experience placements are now aimed at making young people "work ready" and "enterprise aware".(17)

Work experience placements are permitted by law for students during Key Stage 4 (i.e. Years 10 and 11). Government guidance states that they should be linked to one or more of the following five curriculum areas:(18)

- Developing students' employability and key skills;
- Careers education and guidance;
- Vocational courses including Vocational GCSE and National Vocational qualification (NVQ) programmes;
- Personal and social education;
- National Curriculum and other subjects.

Secondary schools are encouraged to provide each student with two weeks "high quality" work experience.

Such work experience is enabled through the 1996 Education Act as amended by the 1998 School Standards and Framework Act. This latter Act extended the time available for such placements back to Year 10 rather than just Year 11.

Hillage, Kodz and Pike in 2001 evaluated secondary school work experience programmes in England.(19) They found that over 95% of students had had work experience in Year 10 or 11. The most common length of experience was two weeks and 70% of placements occurred in Year 10. Just under half of all placements were arranged through a central agency, with the remainder organised directly by schools or students and their families. The authors found that higher ability students were more likely to find their own placements through their own contacts. Two thirds of students chose a placement based upon their own career interests and placements in education and health were predominantly taken by girls.

Activities on placements included helping someone else do their job, doing an actual job, moving around departments within an organisation, and doing a specially created job. Students thought that their placements gave them a good idea about what work is like, and to a lesser extent helped them to decide about their future career.

1.3 A level choice

Early work on A level subject choice was performed by Garratt in the early 1980s.(20) As part of a wider study, Garratt conducted a survey with 177 first year A level students (89 boys and 88 girls) on the influence of eight factors upon subject choice. She found that the interest value of a subject was the most influential factor, followed by career value (i.e. the subjects were needed for a particular career) and previous performance in a subject. The influence of parents and teachers on the choice of A level subjects of study were much lower and the perceived difficulty of a subject (whether easy or difficult) was not a factor with a high degree of influence.

In 1995 Stables and Stables published the results of a similar study investigating reasons for choosing A level subjects.(21) They found that a higher proportion of boys than girls cited that they had chosen their subjects with a view to a future career. A higher proportion of girls than boys (almost double) stated that they had chosen their subjects with a view to further or higher education. Stables and Stables also showed that pupils were more likely to consult subject teachers than careers teachers or advisers for advice on subject choice or career choice. Students' parents were the most consulted source of information. When asked about the main point of studying A levels, a higher proportion of boys stated that it was for further or higher education or a career than girls, while a higher proportion of girls stated that it was for self improvement. It would therefore appear that girls are more likely to study for A levels to improve themselves and choose their subjects with a future career in mind, whilst the main reason for studying A levels for boys is to fit themselves for further or higher education or a career.

In 2005 Bell, Malacova and Shannon published an analysis of the uptake of A levels in England by Year 13 pupils (17 – 18 year olds in their final year of A level studies) in 2001 and 2002.(22) The purpose of the study was to investigate whether the aims of Curriculum 2000 had been met to any degree. As discussed on page 32, Curriculum 2000 unitised A level studies and introduced AS and A2 level courses with a view to broadening the curriculum studied in post-16 education. The authors found that the most common combination of A level subjects (out of a theoretical number of combinations of over 59,000) was Biology, Chemistry and Mathematics, taken by 2.2% of candidates (approximately 1300) taking at least three A level subjects in 2002. The combinations of

three A level subjects that formed the top 10% of those students taking at least three A level subjects all contain Chemistry and at least one other science (biology, physics or mathematics). More male students than female were studying a combination of science subjects with more females studying subjects from English, languages and arts groupings. At AS level, the numbers of students studying subjects were naturally larger as students are encouraged to study at least 4 AS level subjects in Year 12, but may drop one or more of the subjects when continuing to A2 level. However there were no differences in the proportions of male and female students when A levels alone are considered.

Bell, Malacova and Shannon conclude that the introduction of AS level prior to full A2 level has broadened the curriculum for students.(22) They report that one effect of the introduction of Curriculum 2000 has been to decrease the proportion of students taking more than one science A level, particularly from the group of higher achieving students who obtained a mean GCSE grade of B in all subjects taken at this level. The proportion of students taking two science subjects at A level declined from 12% in 2001 to 11% in 2002, which is a very small decrease and cannot necessarily be ascribed to the introduction of Curriculum 2000. The proportion of students taking three science subjects at A level declined from 10% in 2001 to 8% in 2002.(22) If this trend has continued, it has implications for pharmacy and other healthcare courses that require at least two, if not three, science subjects at A2 level for entry to undergraduate degree courses. The decrease in numbers of students taking a combination of sciences at A2 level means that the pool of well qualified students with the correct combination of A2 subjects will correspondingly decrease and competition for these students by universities offering subjects such as medicine, dentistry and pharmacy will naturally increase.

There is little work published on the reasons for selecting individual subjects at A level. However, in 2001 Barker reported the results of a small survey of 350 students studying chemistry A level from 27 schools and colleges across the United Kingdom.(23) This is a small study as over 40000 thousand students are entered for chemistry A level each year, but the results are interesting. She found that over 90% of these students planned to enter higher education. Nearly one fifth wished to study medicine and 14% chemistry or a chemistry related subject. Fewer than five per cent wanted to study "pure" chemistry at university and Barker states that becoming a forensic scientist or a pharmacist was more desirable than becoming a pure scientist.

Barker includes pharmacy as a chemistry-related subject rather than a vocational subject (a group which included chemical engineering, dietetics, nutrition, physiotherapy and nursing).(23) This grouping of pharmacy as a scientific subject rather than a vocational subject may be due to the fact that pharmacy is usually part of a science faculty at university and requires chemistry A level for entry. As previous studies have shown, subject teachers are a source of information consulted by students when considering A level and career choices.(10) It is possible to surmise that the pharmacy profession has a need to become more proactive in the provision of information about the course to subject teachers, particularly chemistry teachers, to ensure that all concerned parties are correctly informed about the profession.

In a follow up survey, Barker found that nearly two fifths of respondents found that their A level chemistry course had influenced their career choice, with 10% stating that chemistry was essential for their future career choice and so they had had no choice in studying the subject.(23)

1.4 Motivations for studying pharmacy

Early work on motivating factors for studying pharmacy in the United Kingdom was done by Booth, Harkiss and Linley in 1984.(24) They surveyed nearly 300 applicants to pharmacy at Bradford University for entry in October 1984. They achieved a response rate of 55% (n=164). The purpose of the survey was to investigate (amongst other factors) the following: factors influencing the respondents' choice of pharmacy as a career; at what stage pharmacy was selected as a career and whether the respondents had considered other careers.

Booth and co-workers found that the majority of respondents had made their decision to study pharmacy during the course of their A level studies. Over one third of respondents had not considered any other career, with one quarter having considered medicine and 13% dentistry. The main influencing factor upon the decision to study pharmacy was the nature of the work (a term not defined by the authors) followed by employment prospects, wanting to work in a profession allied to medicine, A level subjects being studied and a visit to or work in a pharmacy. The authors concluded that recruitment material should be

made available to students prior to the time they make their A level choices to ensure that the correct choice of A level subjects for entry to study pharmacy can be made.

One year later, in 1985, Rees published work investigating the reasons why males and females choose to study pharmacy.(25) Rees surveyed 80 first year pharmacy students at the University of Manchester (48 females and 32 males). She found that in this cohort, approximately half had first considered pharmacy as a career prior to taking their O levels and half after this point in their academic career. Parents and close family influenced students more frequently than teachers. Nearly one fifth of respondents (17%) had considered medicine in addition to pharmacy as a career choice with a similar number having considered paramedical courses, the definition of which is not given. Nearly two fifths of respondents (39%) had only considered pharmacy as a career. There were no differences between the responses by gender. Rees reports that the main reasons for studying pharmacy were: career opportunities and job prospects; studying the required A level subjects but not wanting to study pure science; wanting a job that enabled them to help and meet people and low unemployment in pharmacy. Again, none of these factors was dependent on gender.

Rascati in her survey of 250 pharmacy students at the University of Texas in 1988(26) found that overall the main influencing factors upon the choice of pharmacy as a career were (in order of importance): wanting a career in the health field; a desire to help people; a wide variety of job opportunities; the opportunity to earn a high salary; job security and a respected profession. Female respondents ranked a desire to help people higher than males (second in order) with male respondents ranking both job opportunities and a high salary above wanting to help people. The order of importance of these factors is different from that found in Rees' survey of UK pharmacy students(25) but similar to that of Booth and co-workers.(24) Rascati also found that over half of respondents stated that liking chemistry at high school or college was an influencing factor.

A very small study, too small to be generalised (n=42), by Kanth and Syms (27) in 1999 found that mature students at Portsmouth School of Pharmacy had slightly different reasons for choosing to study pharmacy. These were: consolidation of previous pharmacy knowledge and experience, subject interest and flexibility of employment. 66% of

respondents had worked in pharmacy related employment which may explain the predominance of the first factor in this list.

Chisholm and Prichard conducted another small scale survey with 114 pharmacy students at the University of Georgia in the United States.(28) They found two factors that were equally rated as the most important influence upon the decision to become a pharmacist, namely: the ability to work part-time whilst raising a family and the opportunity to earn a high salary. Ranked closely after these two factors was that of the opportunity for a career in a healthcare field. This was an older survey group (average age 25 years) than would be seen at a United Kingdom school of pharmacy owing to the differences between the education systems in the United Kingdom and in the United States. The age of the sample and the proportion of female respondents (63% of the sample) may account for the importance the first factor – part-time working.

Cockerill and Tanner performed a cohort study with Canadian pharmacists to investigate whether the relative importance of various factors changed over time, with gender or by ethnicity.(29) Three cohorts, based upon year of licensure as a pharmacist were included in the survey: pre-1975, 1976 – 1985 and 1986 and later. The most frequently cited reason for choosing pharmacy within all three cohorts was a desire to help people. Job security and income potential became more important over time (70% in the pre-1975 group to 83% in the post-1985 group). Self-employment was consistently more important to males and flexible working hours was consistently a more important factor to females. The authors proposed that the increase in the number of female Canadian pharmacists over the time period covered by the survey may account for the increased importance of flexible working hours to the later cohorts in the survey. However, asking respondents to think back a considerable number of years to describe their motivations for choosing pharmacy may produce questionable results. What respondents thought their motivations were at the beginning of their pharmacy career may be very different to what their motivations actually were.

Davey and co-workers surveyed undergraduate pharmacy students at the University of South Australia.(30) Only those undergraduates who had experience of tertiary education (i.e. having taken part in or completed other undergraduate degree studies) were included. The factor of future employment prospects was ranked as the most influential in the

decision to study pharmacy by this group, followed by a desire to make a contribution to healthcare.

Work by Willis and co-workers, published in 2006, comprises the largest study to date.(31) They surveyed third year pharmacy undergraduates at 14 schools of pharmacy in the United Kingdom in 2005. The questionnaire was designed to investigate, amongst other areas, the motivations of students in the decision to study pharmacy. Willis and co-workers report that the strongest motivating factor was a desire to study a science-based course. Other influential factors included the reputation of the profession and financial reward.

The importance of financial reward and job security can be seen in early studies involving non-UK based pharmacy students and pharmacists. This factor is not of great importance in the studies reported by Booth and co-workers(24) and Rees(25), but emerges in later studies, such as that of Willis and co-workers(31). This may be because of the changes in the UK Higher Education system relating to tuition fees and support grants. In the 1980s, many students enrolled upon higher education courses did not have to pay tuition fees as grants were freely available for both fees and subsistence. Therefore, student debt upon leaving university was low. In England, with the abolition of student grants in 1997 (replaced by income-contingent student loans), the introduction of means tested tuition fees in 1998 and the introduction of "top-up" fees (to a cap of £3000) (32) in 2006, the value of individual student debt has risen considerably. Therefore, it is reasonable to infer that the availability of work once qualified, along with good financial remuneration have become more important to UK students. Although the situation regarding tuition fees is very different in Scotland, Wales and Northern Ireland(33-35), the majority of schools of pharmacy are located in England where this fee structure applies.

Whilst all of these studies provide a very valuable insight into the motivations behind a decision to study pharmacy across the world, they are, in general, very small which makes generalisation difficult. With the exception of Booth's work in 1984(24), all deal only with students already enrolled upon pharmacy degree courses or qualified pharmacists at the time of investigation. Booth surveyed applicants invited for interview for a place on the Bradford pharmacy course; these are individuals who had already decided that they would possibly study pharmacy (the intention is clear through the application to study the

subject at university). What is not known, or not published, is anything about the motivations of potential pharmacy students – those who are studying the correct A level subjects but have not yet decided what, if any, courses they would like to study at university. This group of students comprises those who have just embarked upon their A level studies or who have finished their AS levels and are deciding what to do next. As outlined on page 32, students are encouraged to study four or five AS levels and at the end of their Year 12 studies decide which AS levels they wish to carry through to full A level. It is at this point that many career decisions are made (as discussed on page 42) as individuals are conscious of making the correct A level choice for their future career or university studies.

1.5   Application for entry to Higher Education in the United Kingdom

Applications for a place on a course of study in Higher Education in the United Kingdom are made through the Universities and Colleges Admissions Service (UCAS). This is a centralised electronic admissions system administered through the UCAS website.(36) Potential applicants register through the UCAS website and obtain access to a UCAS application form which covers applications to all Higher Education establishments in the United Kingdom. At the time of writing, applicants can make up to six choices of course and / or institution, with the exception of applications to medicine, dentistry, veterinary medicine or veterinary science. For these courses, a maximum of four choices of institution can be made. However, a further two choices could also be made from one of the other courses, e.g. applications to four medical schools and two schools of dentistry.

There is a series of deadlines by which forms must be submitted, through UCAS, to higher education institutions in order for decisions to be made regarding offers of places upon higher education courses. The types of offer that may be made are either conditional (e.g. dependent upon the applicant achieving appropriate qualifications) or unconditional (e.g. the applicant has already met the entry requirements for the course to which they are applying). Once any offers are received, candidates have a period of time in which to consider which course and where they would like to study. Applicants can accept up to two places; their firm, or first, choice (designated CF or UF) and an insurance choice (designated CI or UI). The key stages in the application process for September 2007 entry to higher education are outlined below:(36)

1st September 2006	Application processing begins.
15th January 2007	Closing date for applications from UK and EU students to be guaranteed equal academic consideration.
30th June 2007	Last date for receipt of applications for immediate consideration. Those received after this date held for Clearing (see below).
16th August 2007	Publication of GCE and VCE results. Start of vacancy information service (Clearing).
20th September 2007	Last date for receipt of applications for 2007 entry.

UCAS Extra is a service provided for applicants who have made six choices, have received decisions from those six choices and have rejected any offers made. Applicants may apply to one course at a time through the Extra process and cannot make further applications until the institution applied to through Extra has made a decision on an offer of a place.

Clearing is the process through which vacancies on courses can be found once the GCE and VCE results have been released. It is only open to applicants who are registered with UCAS and fulfil one of the following criteria: the applicant holds no offers from an institution; the applicant has not had any offers confirmed because they have not met the conditions of the offer (e.g. not achieved the required A level grades); the applicant has declined all their offers prior to the publication of the GCE and VCE results; the applicant began the application process after the final application deadline. Vacancies available through Clearing are published on the UCAS website and in the national press. Applicants have to contact institutions directly to be considered for a place through Clearing.

1.5.1 Institutional offers for places upon courses in higher education

Higher education institutions make offers for places based upon the information provided by the applicants on their UCAS application form. Institutions may conduct interviews with applicants to facilitate the decision-making process. Offers are of two types, either conditional (C) or unconditional (U) and are based upon qualifications already obtained by applicants (where an unconditional offer will be made) or upon qualifications being taken by applicants in the future (where a conditional offer will be made).

As there are many UK qualifications available, UCAS have compiled the UCAS Tariff. This is a points-based system used to compare different types of qualifications. Only post-16 qualifications are included in the tariff (i.e. GCSEs and Scottish Standard Grades are not included). The tariff allows higher education institutions to compare and aggregate UK qualifications in order to make meaningful offers for places on courses.

1.6 Qualification as a pharmacist in the United Kingdom

For a UK national to become a pharmacist in the United Kingdom, it is necessary for them to graduate from an accredited MPharm degree programme (four years of study) then complete a 12 month period of pre-registration training in employment and pass the registration examination before they become eligible for registration as a practicing pharmacist (inclusion in the Register of Pharmaceutical Chemists held by the Royal Pharmaceutical Society of Great Britain).

1.6.1 The MPharm degree course

The European Community Directive, 85/432/EEC, on pharmacy governs the length of the MPharm degree course and sets out the basic scientific components of such a course. Article 2 of the directive states that there should be a minimum of 5 years training, four of which should be full-time "theoretical and practical training in a university" with at least six months "in-service training in a pharmacy open to the public or in a hospital under the supervision of the pharmaceutical department of that hospital".(17;37) Resolutions adopted by the EU Advisory Committee on Pharmaceutical Training in 1994 led to the recommendation that a pharmacy degree programme should include a minimum of 3000 hours of study. At least half of this should consist of "theoretical instruction" and at least 35% of the course should "take the form of practical training".(38).

The European Community Directive led to the adoption, from 1st August 1997, of a four year MPharm degree to replace the existing three year BSc (or BPharm) in England, Wales and Northern Ireland and to bring the four year BSc (or BPharm) in Scotland into line with the rest of the United Kingdom.(39) Despite the Masters (M) level designation, the MPharm degree is not designated as a post-graduate degree but is recognised by HEFCE as an integrated masters degree. A revised accreditation document and indicative syllabus for the accreditation of MPharm degree courses were adopted at the same time. The adoption

of the Masters (M) level qualification was problematic in Scotland. The Scottish pharmacy degree courses met the EU Directive requirements for time (i.e. they were already of four years duration). However, the Scottish higher education framework states that for an M level qualification to be achieved, a course must be of 5 years duration. A compromise now exists in Scotland with 560 HE credits being studied over four years compared to 480 credits in England, Wales and Northern Ireland.

1.6.2 Accreditation of MPharm degree courses

The current accreditation policy (38), adopted in 2002, consists of 50 criteria which can be grouped as follows:

- Criteria 1 – 5 deal with the pre-requisites set by the European Directive 85/432/EEC and the resolutions of the EC Advisory Committee on Pharmaceutical Training as described before.

- Criterion 6 sets a minimum requirement of an individual having attained at least a grade C in GCSE English Language and Mathematics (or an equivalent qualification) to gain entry to a pharmacy degree course.

- Criteria 7 – 23 outline the graduate outcomes expected by the Royal Pharmaceutical Society of Great Britain.

- Criteria 24 – 31 outline the processes pharmacy undergraduates should undergo during their MPharm studies.

- Criteria 32 – 50 deal with the academic requirements for both content and delivery (including facilities and staffing). Criterion 32 states than an MPharm degree course should be planned with reference to the indicative syllabus given by the Society.

The Society's indicative syllabus contains 51 items which are "indicative of items which should appear in an actual syllabus".(38) The Society does not make any stipulation on how, or at what point in an MPharm degree course each item should be taught.

Each MPharm degree course is reaccredited at intervals of no more than five years, although the Council of the Royal Pharmaceutical Society may award accreditation for a reduced period of time. The potential outcomes of the reaccreditation process include the following:

- a full five year accreditation;

- a shorter term of accreditation for a reason (e.g. monitoring major changes planned in a MPharm course);

- should there be any concerns about the standard of an MPharm a period of probation, usually of one year, pending actions taken to remedy any deficiencies;

- no accreditation.

The exception to this process is a new MPharm programme at a new school of pharmacy which has to undergo seven stages before achieving full accreditation. In this case, a business plan and detailed syllabus must be approved before students are admitted to the course. The new school is then visited every year for the first four years of delivery of a new MPharm before full accreditation can be given.

From 1988, when the School of Pharmacy at Heriot-Watt University was closed, to September 2002, there were 16 established schools of pharmacy in the United Kingdom; 12 in England, one in Wales, one in Northern Ireland and two in Scotland. In May 2001, the foundation of the first two new schools of pharmacy in the UK was announced.(40) These were the University of East Anglia (which took its first cohort of students in September 2002 and has now achieved full accreditation) and Medway, a joint venture between the universities of Kent and Greenwich. Medway was joined by Kingston University in taking a first cohort of students in September 2004. The main reason given for the foundation of these new schools of pharmacy was that there were calls for pharmacy education in the regions concerned.(40)

Since the opening of these first three new schools of pharmacy, five more have opened to new students.(41-44) These new schools are: Hertfordshire (2005), Reading (2005), Keele (2006), Wolverhampton (2006) and Central Lancashire (2007). This makes a total of 24 schools of pharmacy in the United Kingdom, 20 of which are in England. At the time of writing, five further universities are in the process of obtaining initial accreditation for an intake of students to an MPharm degree. Four of these are in England, one is in Northern Ireland.

Concerns have been expressed about the expansion in undergraduate student numbers, not only through the opening of new schools of pharmacy but also through established schools taking larger numbers of students. These concerns centred on: the academic standards of

new pharmacy undergraduates, the availability of sufficient academic staff to teach the subject and the availability of pre-registration training places for MPharm graduates.

Taylor and Bates, and later Taylor, Bates and Harding, expressed the opinion that with more places available to study pharmacy, it would be necessary to lower the academic entry requirements to MPharm courses (e.g. A level grades). This was seen to be a particular problem if the pool of applicants to MPharm degree courses remained static or decreased in size.(45;46) Taylor and co-workers argued that if the academic entry standard declined then the academic standards on MPharm courses would also decline. They stated that this would mean that the teaching of MPharm courses would have to change to deal with this problem and that, possibly, there would be an acceptance of lower academic standards on MPharm degree courses.(45;46)

Robert Dewdney, then head of education at the Royal Pharmaceutical Society, argued in 2004 that there would be a strain on the pool of academics available to teach pharmacy. He also expressed concern that there was no national plan for the expansion of pharmacy education and that the Government's position on this was ambivalent.(42) The Royal Pharmaceutical Society also has no power to regulate the number of Schools of Pharmacy or the number of undergraduate pharmacy students. Taylor and co-workers expanded further on the point of limited academic resource. They argued that restricted resources (i.e. the same, or only slightly increased, number of academic staff spread over a larger number of schools of pharmacy dealing with larger numbers of students) would have implications for established MPharm courses. It was argued that the potentially smaller numbers of academic staff in each school of pharmacy could possibly lead to extensive redesigning of course, and that small group teaching methods such as tutorials or problem based learning would not be practical.(46) Taylor and co-workers also suggested that clinical teaching by staff based in the National Health Service (NHS) would also be put under considerable strain through increased student numbers and the lack of NHS funding for pharmacy.(45)

Another issue of concern was that of employment at pre-registration level and beyond.(45-47) If the number of pre-registration placements did not keep pace with the number of MPharm graduates, then a problem with graduate unemployment was foreseen. In anticipation of this, the Department of Health announced funding for extra pre-registration

placements in 2005-06. If this issue was surmounted, another potential problem foreseen was that a surplus of qualified pharmacists would drive down salaries and possibly, in the long term, depress MPharm student numbers. This is particularly relevant with the potential changes in the need for personal control in community pharmacies. The Health Act 2006 gave powers to amend the Medicines Act 1968 to replace the requirement for 'personal control' of a pharmacy by a pharmacist with a requirement for a 'responsible pharmacist'.(48) At the time of writing this was under consultation. Regulations to be made under this act may also alter the need for the 'responsible pharmacist' to be present at a registered pharmacy for the whole time such a pharmacy is open (i.e. the delegation of the pharmacist's role of supervision of supply of P and POM medications).(48) These changes came about following the publication of the Department of Health's consultation paper 'Making the best use of the pharmacy workforce', the aims of which were to increase the flexibility of the community pharmacist's role to enable the further development of pharmacy services. However the potential remains that these changes could lead to a decrease in the need for a pharmacist to be directly employed in an individual community pharmacy.(48)

1.7   Pre-registration training

Pharmacy, like optometry, is a graduate profession where the undergraduate curriculum forms the first stage of training with a separate, independent period of work-based training (the pre-registration year) providing the second. At the end of the pre-registration year pre-registration pharmacy trainees must have achieved a series of practical competencies and have passed the Society's Registration Examination prior to registration as a pharmacist and entry to the profession. This process is described in more detail below.

Medicine and dentistry have very different systems of registration. Medical graduates have limited responsibilities upon graduation (provisional registration). They must then complete two years of foundation training, under close supervision, in an accredited training placement before achieving full registration. A series of competencies must be met before full registration is granted. Achievement of the practical competencies for registration as a dentist is the responsibility of the graduating universities and dentists are eligible for registration with the General Dental Council as soon as they graduate and are therefore able to practice upon graduation.(49) Other, NHS funded, allied healthcare

professions, such as nursing, physiotherapy and occupational therapy, are similar to dentistry in that there is a co-terminus award upon graduation.

1.7.1 Pre-registration training for MPharm graduates

Because of the European Directive 85/432/EEC, the UK qualification to become a pharmacist is not the achievement of an MPharm degree, but registration with the Royal Pharmaceutical Society of Great Britain (MRPharmS). Pharmacy pre-registration trainees must complete 52 weeks of supervised training. This must take place in employment and is assessed. In accordance with the European Directive 85/432/EEC, at least six months of this period must be undertaken in a community pharmacy or hospital pharmacy setting. The Royal Pharmaceutical Society of Great Britain also state that "some weeks' experience also of community or hospital pharmacy practice when the rest of the pre-registration year is undertaken, respectively, in hospital or community pharmacy" should be undertaken.(38)

Each trainee enters a learning contract with a tutor, undertaking to comply with the Society's Performance Standards (of which there are eleven). The trainee's performance against these standards is assessed in three staged assessments at 13 week intervals (i.e. after 13, 26 and 39 weeks of training), with a final assessment at 52 weeks. Achieving a satisfactory standard overall is a requirement for eligibility for admission to the register. If the trainee achieves a satisfactory 39 week assessment and has completed 45 weeks of training, they are eligible to sit the Registration Examination. This examination is designed to complement the testing of skills in practice by pre-registration tutors and must be passed in order for the trainee to be eligible for admission to the register. Only three attempts may be made at the registration examination; if a trainee fails their first two attempts, they must undertake a further six months of "supervised practice" before their final attempt.(50)

Chapter 2:   Methodology

2.1   Choice of Method

Figure 2.1: Methods of data collection

Numbers involved

Many

Social surveys

Structured interviews

Unstructured interviews

Observation, focus groups

Participant observation

Few

Low   *High*

Personal involvement of researcher
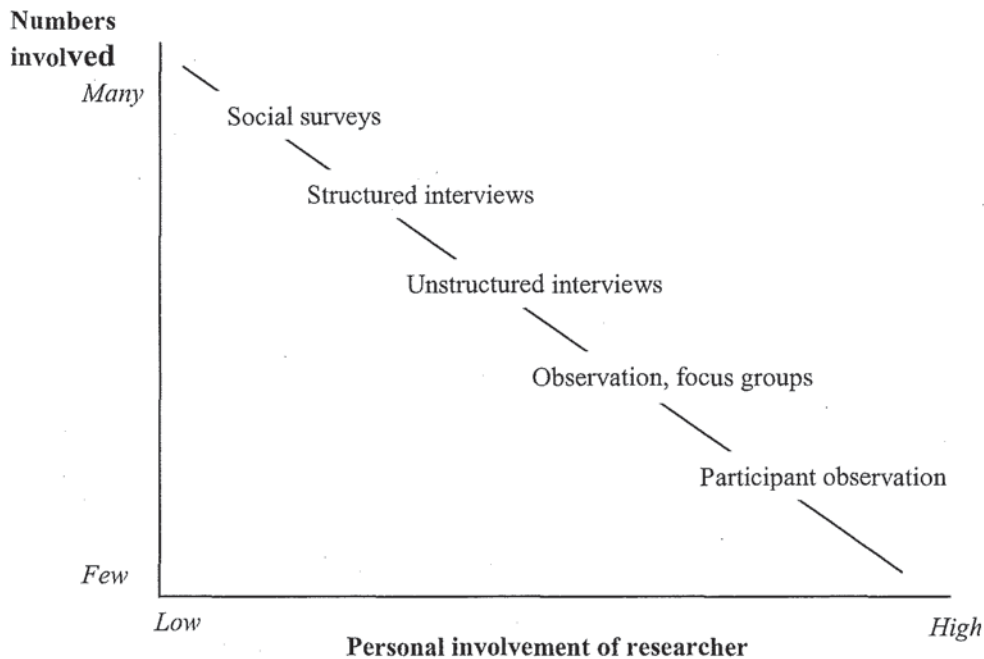
(Source: Worsley 1977:89)(51)

There are several research techniques available for measuring the attitudes of respondents. These methods of data collection vary in the numbers of respondents involved and the degree of personal involvement of the researcher. The relationship between each factor inherent in each method is illustrated in figure 1.1.

2.1.1   Focus Groups

Focus groups have been used for many years by market researchers to elicit and assess attitudes and reactions to new products, marketing information or communication tools such as television programmes.(52-56) They have also been used in the political arena(55) and in recent years the use of focus groups in sociological research has become more popular.(53;55)

Focus groups are discussion groups which form a type of group interview co-ordinated by a moderator (also known as a facilitator). The aim of a focus group is to allow the interaction of the participants themselves when discussing topics of interest to generate data. Participants are encouraged to talk to one another, discuss issues and react to each others' points of view, rather than talking directly to the moderator.(52;53;55) Focus

groups are useful not only for exploring the knowledge of participants, but also to examine how they think and why they think in a particular way.(52)

Focus groups can be used to inform the design of more structured methods of social research, such as questionnaires. Their value is to identify issues that can be explored further with a more structured research method, particularly where there is little in the way of published literature as in this study. Focus groups can also be used alone as a qualitative method where views and opinions can be explored in great depth.(54)

An ideal focus group would consist of a free-flowing discussion that may be controlled or steered by a moderator, solely to keep the discussion within the limits of the research question being explored. Researchers often use a topic guide, or theme plan, to guide discussion within the groups and to ensure that all areas or topics requiring discussion are covered.(55) Although there are no hard and fast rules as to the nature and conduct of a focus group, a consensus does exist within the literature. These common elements include:

- A group size of between 4 and 12 participants;
- A moderator / facilitator / researcher;
- Discussion of selected topic(s);
- Typical length of 1 to 2 hours;
- A comfortable, non-threatening environment;
- Encourage group participation and interaction.

Participants can be drawn from naturally occurring groups (e.g. people who work together or share a hobby or interest) or a group drawn together especially for the purposes of the research (e.g. patients with a particular medical condition). Using participants from a "naturally occurring" group has the advantage of prior knowledge of one another and the possibility of shared experiences for discussion.(52)

The focus group should take place in a relaxed environment and it should be explained to all participants that the aim of the session is for them to talk to each other. Ideally the focus group discussion should be tape (or digitally) recorded and transcribed for analysis. The researcher may also take additional notes, or an observer may be employed for this task.(52)

Data from focus group discussions may be analysed separately or combined to form one large data set for analysis. Theme analysis involves examining the transcripts of focus group discussions for commonalities either between groups or within each group.(55) The researcher may relate the findings back to a general population, but focus group discussions do not generate generalisable data as it cannot be guaranteed that the focus group participants are representative of the population as a whole.

2.1.1.1 Advantages of focus groups

- Provide an opportunity to explore attitudes and beliefs in depth with a group of individuals;
- Less time consuming than face to face individual interviews;
- Participant interaction may produce data that would not otherwise occur with individual interviews;
- Can be used to identify issues for research by other methods;
- Can be used to validate and / or refine social survey instruments;
- Do not discriminate against people who cannot read or write;
- Can encourage participation from individuals who do not wish to be interviewed or feel that they have nothing to say.

2.1.1.2 Disadvantages of focus groups

- Time consuming both to conduct and transcribe;
- Results are not generalisable;
- Rely on group dynamics – one individual may dominate or participants may feel that they have to conform to the "norm";
- Confidentiality of the session is compromised with may prevent participants saying everything they want to say.
- These points may limit the usefulness of any data produced.

2.1.2 Questionnaires

Questionnaires can be administered in three ways: postal, face to face interview, and (rarely) by telephone.(53) If cost is an issue, and the researcher wishes to include a large number of people, a postal questionnaire is often favoured as it can be sent to many people at the cost of a postage stamp per questionnaire although the cost of printing the questionnaires and of follow up mailings can be large. Face to face interviews (also known

as structured interviews) are much more costly in terms of administration time for the researcher. As the sample sizes for the questionnaires administered in this thesis were very large, questionnaires administered at a distance were chosen as the method of administration.

Postal questionnaires have one major drawback when compared to face to face interviews: response rate. The typical response rate to a postal questionnaire is between 30 and 40 per cent, whilst structured interviews may attract a response rate of between 70 and 80 per cent.(53;57) Non-responders present a problem in their own right, that of the introduction of bias to the responses obtained. It may be that there is some factor inherent to those who responded which does not occur with those who did not respond which may introduce bias to any data generated. Poor response rates also create problems for the generalisation of results. Response rates of over 90 per cent justify generalising the results to the general population and it is accepted that response rates of between 75 and 90 per cent can also be generalised.(57)

Some methodological strategies have been proposed to minimise the numbers of non-responders to surveys. These methods include: pre-notification, personalised cover letters, the use of reminders, incentives for participation (this increases cost), and stamped, addressed envelopes in which to return surveys.(57) Oppenheim reports that there is some evidence to suggest that the use of postage stamps on return envelopes rather than reply-paid envelopes may slightly increase response rates as this implies trust in the respondent.(58)

2.1.2.1 Advantages of postal questionnaires

- Low cost of administration
- Avoidance of interview bias
- Ability to reach widely dispersed respondents

2.1.2.2 Disadvantages of postal questionnaires

- Lower response rates and possible associated bias
- Unsuitable for those who cannot read or write
- No opportunity for the researcher to correct any misunderstandings
- No opportunity to prevent bias from inter-subject communication

2.1.3 Questionnaire design

It has been suggested that questionnaires should consist of a series of question sequences or modules.(58) Each of these modules should be designed to investigate a different variable or aspect of the research question. The modules should appear in a logical sequence within the questionnaire to ensure the respondents understand fully what is being asked of them. Pilot work, where a questionnaire is "tried out" on a small number of volunteers, should identify whether question modules are in the correct order to maximise response rates.(58) Oppenheim states that question modules concerning personal data (e.g. age, gender, marital status) should appear at the end of a questionnaire to avoid respondents feeling threatened by being asked for what may be very sensitive information to them at the very beginning of a survey.(58)

2.1.3.1 Question types

Two types of questions – "open" and "closed" – can be used in a questionnaire. Open questions allow the respondents to say as much, or as little, as they like but analysis of open questions is time consuming and difficult for researchers to categorise and to count.(53)

Closed questions allow the researcher to control the answers given by the respondents by providing a range of possible answers.(54) This means that responses are easy to count and to perform statistical analysis upon but this is possibly at the cost of establishing the true depth of feeling of respondents.(53)

Closed questions can take several formats. The most simple of these formats is that of a *dichotomous scale* where only two answer choices are offered (typically a yes / no question, or the question of gender where the two possible answers are male or female). *Multiple category* questions offer the respondent three or more answers where the answers given are independent of one another (i.e. there is no relationship of magnitude or order between the answer statements). Both dichotomous and multiple category questions produce nominal data.(54)

A third type of closed answer question is that of *rating scales*. These rate attributes between two opposite poles: low to high, weak to strong, positive to negative.(54) These types of questions allow researchers to focus on one category and explore respondents'

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attitudes or strengths of feeling to the issue in question. As there is an implied order or magnitude between categories, the data gathered are ordinal in nature and allow researchers to calculate means and standard deviations of responses. However, this is non-parametric data as the numbers used refer to categories, not points on a continuum. The magnitude of difference between weak and strong, for example, will be different to each respondent. Therefore, it is necessary to use appropriate non-parametric statistical tests to analyse any data generated.(54)

The *Likert scale* was developed in 1932 and is widely used in social research. A Likert scale type question asks respondents to indicate an amount of agreement or disagreement with a statement. Likert scales can consist of any number of categories; five is the most typical.(54;58) A Likert scale can be scored by researchers in two ways, as shown in figure 2.2.

Figure 2.2: A typical Likert scale and scoring method

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
(+2)	(+1)	(0)	(-1)	(-2)
(1)	(2)	(3)	(4)	(5)

In the second method, the scoring may run in the opposite direction with 5 indicating strong agreement and 1 strong disagreement. If a neutral point is used in the scale then the first scoring system is the most useful (+2 to -2) as a 1 to 5 scale would give the impression that a score of 3 indicates stronger disagreement than a score of 2 when in reality a score of 3 indicates the neutrality of the respondent.(54)

Semantic differential questions ask respondents to rate issues on a bipolar scale (e.g. good / bad, interesting / boring). *Visual analogue* scales typically use a horizontal line of 100 mm (10 cm) in length. Respondents are asked to mark on the line where there strength of feeling lies (the line is anchored at two extremes of an issue). These are commonly used to assess the degree of pain a patient may be experiencing with the scale anchored in "no pain" at one end and "extreme pain" at the other. The line is divided into 1 cm segments by the researcher and scored according to the segment in which the respondent's mark lies.(54) As with all rating scales and Likert scales, visual analogue scales are subjective. One respondent's idea of extreme pain could be (and is likely to be) very different to another's.

Careful attention must be paid to the wording of questions to prevent leading of respondents to a desired answer. Questions must be simple, clear, precise and unambiguous, particularly for postal questionnaires where it is not possible for the respondent to clarify questions with the researcher before answering.(53) Attitudinal statements must be worded in such a way that respondents can agree or disagree with them(58), but should not be emotionally loaded such that respondents will feel they have to answer them in such a way to avoid being judged in a negative manner.(53) If scaled answers are used, clear instructions as to how to provide answers should be provided. Questionnaire piloting should identify any issues with unclear or misleading wording of questions and instructions.(58)

2.2 UCAS data

The data obtained from UCAS represents the total number of applicants to UCAS and the number of applicants to the following courses: dentistry, medicine, optometry and pharmacy. As the data represents applicants, it can be assumed that there is some overlap as each applicant had six choices of institution / course to make on a UCAS application form and were only allowed to choose a maximum of four medical or dental schools.

Detailed applicant data was obtained from the UCAS statistics service. The data was supplied in a Microsoft Excel spreadsheet; it was manipulated and analysed using pivot tables. It consists of applicants to the above four courses from 1998 (i.e. for entry to university in September 1998) to 2005 (i.e. for entry to university in September 2005) and all years in between. The following information about each applicant was provided by UCAS:

- Gender
- Ethnic origin
- Age (as on 1st September of the year of entry to university)
- Socio-economic status (SES)
- Domicile (home / EU or overseas)

Ethnic origin and SES data was only available for home / EU applicants.

Ethnicity data has been combined into the following categories: White, Black, mixed race, Asian and other. UCAS include the Chinese ethnic group within the Asian population; the same has been done with the questionnaire data.

There are several methods by which the occupation of a person is used to classify their socioeconomic background. These methods are all based upon the occupation of an individual or, in the case of a household, the highest earning member of the family. Traditionally this was the "head of the household" or the "man" of the house (i.e. the husband or senior male member of the family). In this model, the socioeconomic background was determined by the husband's occupation regardless of whether his wife earned a higher salary. However now, with greater equality between partners in a household, this has been changed to the occupation of the highest earner.

The government in England, Wales and Northern Ireland use the National Statistics Socio-Economic Classification (NS-SEC) which is based upon the Standard Occupational Classification 2000. A simplified version is used by UCAS to classify the socioeconomic background of applicants to degree courses within the UK. NS-SEC places pharmacists in Classification 1 – higher managerial and professional occupations along with medical practitioners and dentists. The proportions of the population in England and Wales in the 2001 census from each NS-SEC classification are shown in table 2.1.

Table 2.1: The proportions of the population of England and Wales in the 2001 census belonging to each of the seven NS-SEC socio-economic classifications used by UCAS.(59)

	NS-SEC classification	Proportion of population of England and Wales (2001)
1	Higher managerial and professional occupations	8.46%
2	Lower managerial and professional occupations	18.59%
3	Intermediate occupations	9.39%
4	Small employers and own account workers	6.98%
5	Lower supervisory and technical occupations	7.15%
6	Semi-routine occupations	11.68%
7	Routine occupations	9.07%

When determining the social class of applicants, UCAS base the NS-SEC classification upon an applicant's parental occupation (or the occupation of the person contributing the highest income to the household if the applicant is aged 21 years or over).(60)

Examples of the types of professions / jobs included in each classification include:

- Classification 1: Medical practitioners, dentists, pharmacists, barristers;
- Classification 2: Ophthalmic opticians, school teachers, social workers, laboratory technicians;
- Classification 3: Dispensing optician, accounts clerk, draughtsperson;
- Classification 4: Bricklayer, plasterer;
- Classification 5: Radio, TV and video engineers, toolmaker;
- Classification 6: Scaffolder, sheet metal worker;
- Classification 7: Glazier, welder, sewing machinist, butcher.

2.3   Year 12 Focus Groups

2.3.1   Sixth form selection

A total of 16 schools and sixth form centres in the West Midlands area were selected for preliminary contact based upon the following criteria, the aim being to conduct focus groups with sixth form students from a wide range of social, ethnic and educational backgrounds. The schools were selected from a guide to schools and sixth forms obtained from the Schools Liaison Department at Aston University. The variables considered for selection were as follows:

- Gender of students
  - Mixed or single-sex schools or sixth form centres
- Sixth form selective based upon GCSE results
- Location of sixth form
  - Inner city
  - Urban
  - Rural
- Type of sixth form
  - State school
  - State sixth form centre separate from schools
  - Independent school

Gender of students

Mixed and single sex sixth forms were included as single sex focus groups may identify issues that mixed sex focus groups may find difficult to discuss.

Sixth form centre selective based upon GCSE results

Sixth forms that select students based upon their performance in GCSE examinations may produce students that have different career aims and ambitions to those who attend non-selective sixth form centres. These latter students may be more or less realistic in their career plans.

Location of sixth form

Career plans may be made based upon social background and location of the student's home. A wide range of locations should also produce a wider mix of ethnic and social backgrounds of participants.

Type of sixth form

The future career plans of A level students may be related to the type of school which they attend. The schools and sixth form centres selected for approach covered all possible types of sixth form to investigate this area. The schools and sixth form centres selected for approach for inclusion in the project are summarised in table 2.3.

The Head of Science at each school and sixth form centre identified was contacted in writing to seek their assistance with the project (letter in appendix X). Positive replies were received from five of those contacted; these are summarised in table 2.3. The focus groups were conducted between September 2003 and March 2004.

Table 2.3: Sixth Form Centres used in the Year 12 focus groups.

Sixth Form	Gender of pupils	Selective on GCSE results?	Location	Type of Sixth Form	Focus group conducted
King Edward VI, Stourbridge	Mixed	Yes	Stourbridge (urban)	State, separate from schools	September 2003
Josiah Mason Sixth Form College	Mixed	No	Central Birmingham	State, separate from schools	March 2004
King Edward VI, Camp Hill	Female	Yes	Central Birmingham	State, school	March 2004
New College, Telford	Mixed	Yes	Shropshire (rural)	State, separate from schools	March 2004
High Clare School	Female	No	Central Birmingham	Independent school	Cancelled

The Head of Science at each school and sixth form centre was then asked to ask for volunteers to participate in the focus group. They were asked to approach students who were studying chemistry at AS level along with other science subjects. It was made clear that although these students would be suitably qualified to apply to read pharmacy at university, they need not have any interest in pharmacy or indeed any healthcare profession.

Each focus group was conducted at a time convenient to the sixth form concerned; all took place during a lunch hour. The contacts at the sixth from centres were asked to provide a quiet room with adequate warmth and light, along with the ability to sit the participants in a circle. Before the focus groups started, each participant was asked to complete a card with their first name, the subjects they were studying at AS level and any thoughts they had on their future career. The focus groups were tape recorded, transcribed and then analysed by theme analysis.

The moderator agreed to answer any questions about pharmacy as a career once the theme plan had been completed and the tape stopped. This allowed an impromptu "careers" session to take place as a "reward" for participation.

2.3.2   Theme plan design

A theme plan was designed by the moderator (K Maddock) based on a review of the relevant pharmacy literature. The core themes included were:

- Choice of subjects being studied at AS level
- Future study and career plans
- Career motivation
- Perceptions of the status of healthcare professions
- Perceptions of the status of pharmacy as a profession

The initial theme plan was developed by K Maddock (see appendix 2). It was piloted on a small group of final year MPharm students and was also peer reviewed by other members of the research team. It was then modified and implemented. Following the first focus group, it was decided to test a novel technique to examine perceptions of the nature and image of pharmacy as a career. This used a series of phrases (as suggested by Kitzinger).

The phrases used to test perceptions were taken from the first focus group transcript and included:

- *Well paid*
- *Interesting*
- *Boring*
- *Hard work*
- *Flexible*
- *Well respected*
- *Repetitive*
- *Not challenging*
- *Exciting*
- *Variety*
- *Career progression*

2.3.3   Year 12 focus group participants

A total of 40 young people, all of whom were studying chemistry at AS level participated in the four focus groups conducted.

King Edward VI Sixth Form College, Stourbridge

7 pupils participated in the focus group: 3 female (1 Asian, 2 White) and 4 male (3 Asian, 1 White).   All seven were studying biology, with a wide spread of other AS levels: sociology, business, mathematics and general studies.

Josiah Mason VI Form College

8 pupils participated in the focus group: 5 female (all Asian) and 3 male (2 Asian, 1 White). Seven of the pupils were also studying AS level biology. Other AS level subjects included physics, mathematics, computing, English language and literature, geography, religious education, psychology and law.

King Edward VI Camp Hill School for Girls

12 pupils participated in the focus group, all female (the only single sex focus group) (2 White, 1 Chinese, 10 Asian). All 12 students were also studying biology. Other AS level

subjects included German, mathematics, business and economics, graphics, physics, English literature, geography, religious studies, IT, psychology and history.

New College, Telford

13 pupils participated in the focus group: 7 female (all White) and 6 male (5 White and 1 Afro-Caribbean). Ten of these were also studying biology AS level. Other AS levels included mathematics, English language and literature, IT, physics, music, psychology, French, theatre studies, film studies, geology, law, physical education, geography, health and social communication studies (AVCE).

2.3.4 Analysis of focus group material

The recorded focus groups were transcribed and analysed using Grounded Theory to identify key themes.

2.4 Questionnaires

The questionnaires used in this study were designed as part of a larger project examining career motivation and career ambitions and so the number of questions used in the final documents is much greater than the number of questions analysed in this thesis. Appendix 3 contains a copy of the Year 1 MPharm questionnaire for completeness.

Time constraints, costs and the need to sample a large population of respondents meant that the primary research method used in this thesis was that of social surveys using questionnaires. The initial exploratory work was taken from the Year 12 focus groups as described earlier in this chapter.

Three populations were surveyed for this thesis using a purposive sampling technique. Purposive sampling is when a researcher chooses a particular group to study as it is known to be what is wanted.(53) The populations surveyed were Year 13 students (i.e. those in their second year of A level studies), 1st year MPharm students and 4th (final year) MPharm students in the United Kingdom. All three questionnaires were based around the same bank of questions. This thesis focuses on those questions relating to career motivation and ambition.

2.4.1 Questionnaire content

The following sections were common to all three questionnaires.

Motivations and influences

This section was designed to explore reasons for and influences upon a decision to study pharmacy. These were sub-divided further into three areas: education related reasons, personal influences and other influencing factors. Education related reasons included those factors directly linked to school and careers advice and materials. Personal influences were those connected to family, close contacts and work experience. For both of those sub-sections, respondents were asked to rate the importance of each factor upon a rating scale from 1 (important) to 4 (not important). The third sub-section contained factors related to the nature of the type of career the respondents wanted for themselves and to future work / life balance. For these factors, respondents were asked to rate the strength of influence on a rating scale from 1 (strong) to 4 (not strong).

The factors contained in this motivation and influences section of the questionnaire were derived from previous work published by Booth et al (24), Rees (25) (both with UK pharmacy students), Rascati (26), Chisholm and Pritchard (28) (both with US pharmacy students), Ferguson et al (61) (with US, Canadian and Australian pharmacy students), Davey (30) (with Australian pharmacy students) and Cockerill and Tanner (29) (with Canadian pharmacists).

Choice of school of pharmacy

The second section concerned the respondents' reasons for the choice of a particular school of pharmacy at which to study. These were derived from work published by Soutar & Turner with Australian university students.(62) Respondents were asked to rate the importance of these factors on a rating scale from 1 (important) to 4 (not important). For the 1st and final year MPharm students only, questions were included to explore whether pharmacy was their first and only choice of subject of study at university, their route of entry to their school of pharmacy through UCAS (CF, CI or Clearing, see page 48) and their desire to study pharmacy and to be a pharmacist upon entry to university. These questions were not applicable to the Year 13 cohort as at the time of sampling they would only just have started the UCAS application process.

Career image

A third section of questions was included to explore the commitment of respondents to pharmacy as a career. The questions used were Rascati's adaptation(26) of Blau's career commitment scale,(63) a robust method originally devised by Blau for administration to nurses. These consist of positive and negative statements related to pharmacy as a career, with responses generated through a four point Likert scale.

Future career plans and ambitions

A fourth section was designed to investigate the future plans of respondents for their career in pharmacy. Respondents were asked to select which sectors of the profession in which they would seek work for their pre-registration training year, their first year as a newly qualified pharmacist and in the medium term (4 – 5 years after qualification).

Work / life balance

In this section of the questionnaire, questions were posed concerning the respondents' plans for their working life and their career ambitions. Work / life plans were derived from Rascati(26) and Chisholm & Pritchard(28) and included factors such as full-time and part-time work. Career ambitions were explored by providing a series of job titles (such as hospital pharmacist, hospital pharmacy manager, Chief Pharmacist) and asking respondents to indicate those which represented the highest level they would like to attain in their career in pharmacy.

Demographic information

The final section of the questionnaire was included to gather demographic data including: gender, age, and ethnic background of respondents.

Career choice

This section was included at the beginning of the Year 13 questionnaire only. It was designed to ascertain whether respondents had considered other careers than pharmacy, particularly medicine and dentistry. These two subjects were chosen as they are healthcare professions requiring similar qualifications as those required to study pharmacy at university. These two subjects also commonly appear within the personal statements on the UCAS forms of pharmacy applicants to Aston University. Open questions were included to give respondents the opportunity of providing information upon which other courses they were considering for study at university. A final question, included within the

section on demographic information, required respondents to detail the qualifications (i.e. A level subjects) they were studying at the time of completion of the questionnaire.

2.4.2   Design and piloting of the questionnaires

The questionnaires were designed and reviewed by the research team before piloting. An A4 sized booklet was produced containing the questions, printed upon yellow paper to make the questionnaire more visible. The numbers of questions and pages contained in each questionnaire are summarised in table 2.4 below.

Table 2.4: The numbers of questions and pages in each questionnaire used in the research.

Questionnaire	Number of pages	Number of questions
Year 13	14	27
1st year MPharm	14	28
4th year MPharm	20	40

The questionnaires were then piloted by a group of 10 third year MPharm undergraduates at Aston University – a cohort not involved in the sampling for this research – and by members of pharmacy admissions staff. The average time taken to complete a questionnaire by a member of the pilot group was 30 minutes. This time was indicated on the front of the questionnaires to inform the respondents of the time commitment involved. The questionnaires were revised following feedback from the pilot group and approved by Aston University Ethics Committee. Two schools of pharmacy sought ethical approval from their own institution prior to administration of the questionnaires and this was granted.

2.4.3   Administration of the Year 13 questionnaire

The Year 13 questionnaire was administered by post to 1569 Year 13 students who had expressed an interest in pharmacy through the UCAS Card Scheme. UCAS Card is a scheme administered through UCAS whereby students who register with the UCAS website are entitled to discounts at certain retailers upon production of their UCAS Card. Students may also register an interest in up to six subjects or subject areas (which is flexible and can be changed at any point). UCAS make lists of students interested in particular subjects available to any institution, at a price, for marketing purposes. UCAS were contacted and granted permission for the survey to be administered to students who had expressed an interest in studying pharmacy at university and a list of names and addresses was purchased. The possession of a list of names and addresses enabled follow

up letters and questionnaires to be sent to non-responders to the first mailing. Questionnaires were mailed to the sample population in August and September 2005, with a follow up mailing in January 2006.

2.4.4 Administration of 1st and 4th Year MPharm questionnaires

The first year and final year MPharm surveys were administered through a named contact at the 14 established schools of pharmacy who agreed to take part in the study. Only the 16 established schools of pharmacy at the time of the study were contacted as these were the only schools with a final year cohort at the time. Each school was offered £500 to cover administration costs. A prize of £80 per participating school was offered to the students as an incentive to complete the survey.

The schools of pharmacy involved in the study had different requirements for administration of the questionnaires. These included the following:

- 9 schools provided first and final year class lists and were sent individual labelled envelopes;
- 2 schools were provided with sealed numbered envelopes;
- 3 schools were provided with unmarked questionnaires which were then distributed during a lecture. One school only distributed to first year students as their final year students were not present in the school at the time of the study.

The questionnaires were posted to the participating schools of pharmacy in March and April 2005. 1878 questionnaires were distributed to first year MPharm students at 14 schools of pharmacy. 1428 questionnaires were distributed to final year MPharm students at 13 schools of pharmacy. A deadline of four weeks was given for the completed questionnaires to be returned. Once this had elapsed, the named contacts at each school of pharmacy were reminded by letter, telephone and / or email to prompt the return of completed questionnaires.

2.4.5 Analysis of responses

Data from the questionnaires were coded and entered into SPSS v12.01.1 for analysis. Significant differences between the responses of male and female respondents were

investigated. Significant differences between the responses of respondents from different ethnic backgrounds were investigated.

Data from rating scale questions and Likert scale questions were tested for significance using the Mann-Whitney U-test, the most appropriate non-parametric test for such independent groups, between-groups data.(54) Significance was tested to a level of $p \leq 0.05$. To perform the Mann-Whitney U test, the value of the rating scale selected by each respondent was taken as a rank score from 1 (most important or strong) to 4 (least important or strong). Therefore a mean rank approaching 1 implies that there is a strong influence from a factor and a mean rank approaching 4 implies that there is not a strong influence from a factor. Analysis based upon ethnic background used only data from White and Asian respondents as the numbers of respondents from other ethnic backgrounds were too small for analysis. Significance was tested to a value of $p \leq 0.05$.

Two-factor analysis of variance (two-way ANOVA) was used to test for any interactions between the two independent variables of ethnicity and gender.(54) Significance was tested to a value of $p \leq 0.05$.

Data from dichotomous scaled questions were tested for significance using Pearson's Chi squared test to a level of $p \leq 0.05$. These questions included those regarding future career choice. Pearson's Chi squared test was performed using SPSS v12.0.1 using two-by-two tables, resulting in one degree of freedom. If the respondent had selected an option in these questions, this was deemed to be a positive selection (i.e. "yes") and if an option was not selected by a respondent this was deemed to be a negative selection (i.e. "no") by default. A value for phi was calculated to gauge the strength of association of the independent variable (ethnicity or gender) with the dependent variable (the question asked). A value of phi approaching zero indicates a weak association between the two variables, whilst a value of phi approaching one indicates a strong association between the two variables. Where results showed a high degree of significance, an odds ratio was calculated.

2.4.6   Analysis of career commitment of MPharm students

Six attitudinal statements, adapted from Rascati's variation of Blau's career commitment scale(26), were presented to 1st and 4th year MPharm participants. A four point Likert

scale (from 1 - strongly agree - to 4 - strongly disagree) was provided for each statement, with responses being scored according to the point upon the Likert scale chosen. Three statements were negatively worded statements with regard to pharmacy as a career and so were reverse scored (i.e. from 4 – strongly agree – to 1 – strongly disagree). These three statements were:

- "If I could pick a different occupation which paid the same amount, I would probably change degree";
- "I regret that I entered pharmacy school";
- "I intend to undertake a second degree after completing pharmacy".

A total career commitment score for each respondent was calculated by addition of the score for each of the six statements. The minimum score possible was 6, with a maximum score of 24. Scores approaching 6 indicate a strong commitment to a career in pharmacy with scores approaching 24 indicating a lack of commitment to a career in pharmacy.

2.4.7 Analysis of career commitment of Year 13 students

Because this cohort of students were only in the process of applying to study at university, three of Rascati's career commitment statements were not relevant. Therefore these were not included in the questionnaire. The three remaining statements were:

- "I definitely want a career in pharmacy";
- "Pharmacy is the ideal profession for life";
- "I intend to undertake a second, undergraduate degree after completing pharmacy".

The latter statement was reverse scored from 4 – strongly agree – to 1 – strongly disagree. Therefore the minimum possible career commitment score was 3, with a maximum of 12. A score approaching 3 indicates a high degree of commitment to pharmacy as a career and a score approaching 12 indicates a lack of commitment to pharmacy as a career.

Chapter 3:   Year 12 focus groups

This chapter presents the results of four focus groups undertaken with Year 12 students. The focus groups are summarized in table 3.1 below.

Table 3.1: The location and composition of the four Year 12 focus groups.

Sixth form	Location	Type	Selective on GCSE results?	Date conducted	Gender	Ethnicity
King Edward VI, Stourbridge **(KES)**	Stourbridge (urban)	State, separate from schools	Yes	Sep-03	3F, 4M	4 Asian, 3 White
Josiah Mason Sixth Form College **(JMC)**	Central Birmingham	State, separate from schools	No	Mar-04	5F, 3M	7 Asian, 1 White
King Edward VI, Camp Hill **(KEC)**	Central Birmingham	State, school	Yes	Mar-04	12F	10 Asian, 2 White, 1 Chinese
New College, Telford **(NC)**	Shropshire (rural)	State, separate from schools	Yes	Mar-04	7F, 6M	12 White, 1 Afro-Caribbean

3.1   Subjects of study at AS level and beyond

To begin the discussion, each participant was asked to state which AS level subjects they were studying and why they had chosen to study them. No possible reasons were suggested by the moderator; the discussion within each focus group remained entirely open. A number of clear themes emerged.

3.1.1   Enjoyment or an interest in the subjects / the student is good at the subject

Individual participants from all four groups stated that the main reason for their choosing their subjects of study was enjoyment of one or all of their subjects and there was general agreement amongst the groups that this was an important reason.

> *"Because...... there are certain subjects that I really like to do like chemistry and biology......"* (Student 2 - KEC)

> *"Chemistry and biology at the moment* [at] *AS like, something that I enjoyed at GCSE and I want to do something in that at university."* (Student 8 - JMC)

"I'm doing biology, chemistry and geography because I was good at them at GCSE and I think they are interesting." (Student 2 - JMC)

3.1.2 Complementing other subjects being studied

Several individuals cited this as a reason allied with the theme of liking a specific subject, in that one or more subjects were chosen because the participant enjoyed them, and other subjects were chosen either to match those already chosen for a future career or because they were a good "fit". This theme was raised at all focus groups except Josiah Mason.

> *"I actually just chose…… I really enjoyed chemistry and I only did biology to go along with it cos [sic] it went well and the two together and sociology just looked interesting."* (Student 1 - KES)

> *"I was…… considering going in for medicine or something in that field so I though I really enjoyed human biology and I like sciences I thought chemistry would go with it."* (Student 4 - KES)

There was a view in the focus group at King Edward's, Camp Hill that there was a certain degree of cross-over of material between some A-level subjects and that this was or could be very helpful.

3.1.3 Parental influence

This did not appear to have been a major factor in influencing subject choice for study at A-level, but it was mentioned by one individual at each of two of the focus groups. However, there was no group consensus within any of the groups that family opinion was an influence on the choice of subjects being studied at A-level.

3.1.4 Subjects of study chosen because of future career plans

This particular theme emerged at all four focus groups and prompted active discussion. The majority, but not all of the participants who spoke about career plans had a definite career in mind. Several participants had linked this theme with that of enjoying subjects of A-level study to decide upon a subject to study at university. Others had deliberately chosen A-level subjects with a future career in mind. Several students in each of the groups voiced an interest in a healthcare career however few of the participants in the Josiah Mason focus group had a definite career in mind. The most commonly mentioned career destination was medicine.

"Because like there are certain subjects that I really like to do like chemistry and biology. And then to pick my third and fourth, I thought, well I want to do medicine, so it's better taking a sciency one like physics." (Student 2 - KEC)

"I just chose them because I thought I can use chemistry and biology as a way to get into a profession." (Student 2 - KES)

"......I wanted to be a dietician. You need chemistry and biology to do that; that's why I chose them." (Student 4 - NC)

3.2 Career direction: influencing factors

The next question asked at each discussion was "What do you plan to do when your A-level studies are finished?" None of the focus groups were provided with prompts as to possible actions by the facilitator. One participant at each focus group raised the subject of going to university and when the moderator sought to confirm the overall views of participants, there was widespread agreement in all the groups with all participants agreeing that they wanted to go on to study at university. Before the focus group discussions commenced, participants were asked to complete a card with the AS level subjects they were studying and any career plans they had in mind. The majority of participants had a career (or careers) in mind.

At King Edward's, Stourbridge, all of the participants had definite ideas of the careers they wished to pursue; two were interested in pharmacy, one in dentistry, one in teaching, one in physiotherapy, one in medicine and one undecided between engineering and medicine. This latter participant developed their career idea over the course of the discussion, finally professing to being most interested in medicine.

At Josiah Mason, two of the students expressed an interest in pharmacy as a future career; other careers being considered included medicine, dentistry, forensics, engineering, biological research and biotechnology. However, this group of students were much less certain of which careers they would choose to follow post- A-level study than the other three focus groups.

Ten of the students at King Edward's, Camp Hill had definite ideas about their future careers, with eight expressing a desire to study medicine. One student was determined to study pharmacy, with two others expressing an interest. Other careers mentioned were

dentistry and optometry. Two participants were unsure, but wanted to do something science related.

At New College, four of the participants expressed an interest in pharmacy, with five interested in studying medicine. Other careers included embalming, forensic sciences, aerospace engineering, teaching, dietetics, physiotherapy, concert pianist, psychiatry and analytical chemistry. Two of the participants were unsure of what they wanted to do for a career.

The groups were then asked to consider the reasons for their choice of career - the specific question asked by the moderator was "Why did you consider the careers you are going to apply for?" The focus group at King Edward's, Camp Hill developed a very open discussion and required little further prompting, apart from the influence of family. The other three focus groups needed more prompts along the following lines of enquiry:

- Home (family and friends)
- Careers advice
- Students' own research
- Something they thought they would like to do

3.2.1 Work experience

The strongest theme to emerge, unprompted, was that of work experience. This was considered an important influence in all of the focus groups except Josiah Mason where the theme of work experience did not emerge. As work experience was not included in the focus group theme plan, this issue was not explored with this focus group. For many participants, work experience confirmed either the desirability or undesirability of the area in which the work experience was undertaken for future career plans.

> "At school I always wanted to go into the police, so I went into Year 11 work experience with the police and that completely put me off." (Student 1 - KES)

> "......my mind went blank on what my future was and my future was a total blank......it all came into perspective when I did work experience." (Student 12 - KEC)

> "I did work experience in a primary school and I was working with kids and helping them with their work, but I couldn't imagine doing that for the rest of my life and seeing doctors going into hospitals I'd rather be there." (Student 7 - KEC)

Examples of where work experience had served to confirm to some participants that the area was not one in which they would wish to pursue a career included: the police, working in schools, working in an office, working with the RAF, working in a garage, hospital pharmacy.

Examples of where work experience had served to confirm a future career choice included: GP surgery work, dentistry, pharmacy (both community and hospital pharmacy), veterinary science, physiotherapy, ward based work in a hospital (leading to a desire for a career in medicine or nursing), working in an undertakers (leading to a desire for a career in forensics).

3.2.2   Careers advice

Participants views on careers advice was explored with all the focus groups by a direct question from the moderator. The groups were asked what, if any, types of careers advice they had received and from whom.

There was a general consensus amongst the participants in all four groups that the provision of careers advice was not sufficient and that what had been provided was not of any great use to them. Participants in the focus group at King Edward's, Stourbridge were strongly of the view that the career advice they had received was not good and was lacking in the more detailed information the students felt they needed such as grade requirements for entry to university. There was agreement amongst the participants in the focus group at King Edward's, Camp Hill that, whilst the careers advice they had received had been of some value, it had not been very useful to them.

> *"I think every school had the careers advisor, but they weren't much good."* (Student 2 - KES)

> *"You had careers teachers and that, but they don't well, they don't really do anything, it's like well, you could do maths or you could do accountancy and that's about it really and they just said what you could do, they didn't like help you decide at all really, they just point out the options."* (Student 6 - KES)

> *"Useful, but not incredibly useful."* (Student 2 - KEC)

3.2.3   The influence of family upon career choice

Participants in all four focus groups were asked whether they had chosen their future career direction in response to influence from members of their families. Whilst some individuals

stated that this was the case, the consensus in the groups was that this was not a major influencing factor.

> *"Sometimes it's for your family, sometimes, but mostly for yourself than anything else."* (Student 5 - KES)

3.2.4   Personal interest

Each group was asked directly whether they had based their career choice solely upon personal interest. There was general agreement in all groups that this was a motivating factor for the choice of subject, or subjects, to study at university.

3.2.5   Academic challenge

The perceived academic challenge of the chosen subject of study at university was a theme that emerged, unprompted, at two of the focus groups. There was some discussion as to whether studying a challenging subject at university would be rewarding. There was general agreement that this was the case, with only one or two participants disagreeing; the words "proud", "achievement" and "satisfaction" were used.

Participant	*"[a career]* that is challenging..."
Moderator	*"Do you all feel that? Do you all feel that what you study at university should be a challenge?"*
Answer 1	*"What's the point if it's not?"*
Answer 2	*"I don't. I just think it should be what you like."*
Answer 3	*"I think that like, on the one hand it is, but it could be a bit trying, but you want to show that you're capable of doing something and that you want something you can be proud of... you wanna [sic] like, show that this is what I can achieve and like push myself"*

(KES)

> *"It gives you satisfaction to know that you've accomplished something as well. If you find something hard and you've done it, you know what, it can make you feel good."* (Student 11 - KEC)

3.3   Career motivation

The groups were asked to identify the desirable characteristics of a career for them (i.e. what makes a "good" career). No prompts were given to any of the groups in this area.

3.3.1   Enjoyment and personal interest

In each focus group discussion there was a consensus that a desirable career had to be enjoyable, interesting and something that could be done for a long time.

"...something that you're good at, you'll enjoy and it makes you feel good." (Student 2 - JMC)

"Looking forward to it, when you get up in the morning." (Student 8 – KEC)

3.3.2 Money

In three of the focus group discussions the issue of money (in the context of earning a good salary) emerged, but in all three groups there was generally a consensus that monetary reward, whilst a benefit of a chosen career path, was not of overriding importance as a motivating factor in the choice of a future career.

Moderator   *"What other things motivate you? You mentioned money."*
Answer 1   *"I was only joking about that."*
General disagreement.
Answer 2   *"It's good to have, but so long as you've got enough to live on and be happy and get what you want now and again, it's good to have it but it's not just......"*
Answer 3   *"Money's not everything in the world is it?"* (KES)

3.3.3 Job security

This emerged as an issue where there was a consensus of agreement in all four focus groups. Job security was viewed as being more important than monetary reward, particularly when participants considered their long term future. This appeared to be the most important factor for participants in the Josiah Mason focus group.

"Something that you'd like to work for a long time so that you wouldn't have to change jobs." (Student 6 - JMC)

"Something with a good future...... like I know that way down, I'd have a job." (Student 8 - JMC)

"Something you can carry on until you are old." (Student 6 - JMC)

3.3.4 Job satisfaction

The theme of job satisfaction emerged in two of the focus groups, and there was general agreement within both groups that it was a more important factor in career choice than either financial gain or job security. Participants were aware of jobs or careers that had the potential for high earnings. Accountancy and business were mentioned specifically by one group, but were dismissed as being "boring" or less satisfying than other chosen career paths.

"If it was just the money, then I would have gone into accountancy…… and at the end you have a secure job. So I could easily go into that, but it's the job satisfaction." (Student 9 - KEC)

Job satisfaction was closely linked to the personal satisfaction of meeting a challenge. Medicine was cited by participants in both of the focus groups as providing this challenge.

"I want to be a cardiologist. Because it's challenging and you can get a lot of job satisfaction…… If I just want to help people I suppose I can become a nurse or a vet." (Student 5 - KEC)

Participants in both groups also agreed that job satisfaction came from having helped people. Again, medicine was cited by both of the focus groups as being an exemplar career in offering this level of job satisfaction.

"Self-satisfaction, like if you were a doctor you know, the satisfaction of knowing that you've saved somebody's life or you, you know, you're helping out other people." (Student 3 - NC)

Job satisfaction was also expressed as being in a career that offered variety in a day-to-day role. Science based careers were seen as offering this opportunity as opposed to "office jobs".

"That's why science is more, it's not the same thing every day, you know if you're a doctor you can see different things every day. I don't like office jobs, just sitting there all day 9-5. I like different things all the time." (Student 5 - NC)

3.3.5 Status and reputation

The status and reputation of a career was mentioned as a factor in only one of the focus groups, with medicine given specifically as an example of a career with a good reputation. However, there was disagreement within the group as to the importance of the status of a particular career as a motivating factor for choosing to enter that career. Male participants appeared to value it more highly than female. However, all participants in the focus group agreed that this status had to be earned by an individual.

Participant 1   *"It's just enough to say to people, I'm a doctor, yeah I'm a doctor, yeah man. I'm earning 20 grand [sic] more than you."*

Moderator   *"So do the jobs that you've chosen, do you think they've got a certain kudos with other people? Is that a motivating factor?"*

Participant   *"Yeah, that would be true. Cos you get lots of respect like. But before you can get that respect you have to go and actually earn it."* (KES)

3.3.6 Flexibility

The flexibility of a career (the ability to work part time to be with a family) was mentioned by only one participant in one focus group – the all female group at King Edward's, Camp Hill.

3.4 Status of healthcare professions

Participants in all four focus groups were asked to consider the following healthcare professions: medicine, dentistry, pharmacy, nursing, optometry, physiotherapy, occupational therapy and audiology. Each group was asked to imagine a career "ladder" and place the professions in order upon it with what they considered the number one (or highest status) profession at the top of the ladder and the other professions in order beneath this. It was emphasised that this perceived status should be from the point of view of the general public.

There was widespread agreement in all groups that medicine had the highest status of the healthcare professions. Active discussions then took place as to the placement of the other healthcare professions. After these discussions, it emerged in three of the groups that nursing would be placed second in the eyes of the public, displacing dentistry which was perceived by several participants as being the second most important profession after medicine.

> "...when you go to hospital, you don't see dentists and opticians. You need the nurses." (Student 4 - KEC)

In the one focus group where participants did place dentists as the next highest healthcare profession to medicine in terms of status, this was because a student needed "more A stars" to study dentistry, a reference to GCSE qualifications, although this is more likely a perception of the students than the general public.

A view that emerged strongly in two of the groups was that the opinions of the public may change if they have had personal interaction with a profession, such as treatment with a physiotherapist following an accident.

> "I think it depends on what situation you're looking at because if you look at it from an injury like a car accident where you may not be able to walk then you're looking at say, something that could make you go blind or something, you'd actually put optometrists near the top. It depends on your situation and the context of how you look at things." (Student 1 - NC)

All four groups found it very difficult to place the healthcare professions on a linear scale according to perceived status in the eyes of the public. One of the groups had the view that a pyramid was a more appropriate model. Overall, the view of the groups was that there was a perceived need for all the professions by the public.

3.5 Positive and negative aspects of a career in a healthcare profession

This subject was not included in the theme plan used at King Edward's, Stourbridge because this was the first group conducted and it was only during the review of the transcript of this group discussion that this issue was identified as one that could be explored.

3.5.1 Positive aspects of a career in a healthcare profession

Participants were asked to discuss what they though were the good things about working as a healthcare professional. The aspect of helping people or making a difference to people emerged with general agreement in all three focus groups.

> *"I think it's just the satisfaction of knowing that at the end of the day if you've helped at least one person, you've made a difference in their life, no matter how small it is."* (Student 7 - NC)

Other positive aspects of a healthcare career included good pay, a career with good prospects and stability, a career that is respected by others (particularly the general public), a career that is challenging. This latter point was initially felt to be a negative aspect, but on discussion it was thought to be more of a positive aspect of a career as it made the career more interesting.

3.5.2 Negative aspects of a career in a healthcare profession

The question about the negative aspects of healthcare professions provoked more discussion than that of the positive aspects.

Stress

The first theme to emerge from all three discussions was that of stress, either personal and emotional, or work based. Participants in all three groups felt that this aspect of a healthcare career could be very difficult. Stress was described in two ways: in terms of personal responsibility or workplace linked.

Emotional stress was closely linked with personal responsibility by participants in all three groups. Being un- or underappreciated was also mentioned as a factor in emotional stress.

> *"Say if you gave somebody the wrong kind of drug, that would be terrible. You could do real harm. That would be awful. You'd have to live with that for the rest of your life."* (Student 7 - KEC)

> *"…… dealing with one-to-one, with ill people. The effects on you as a person might be hard."* (Student 4 - JMC)

Stress related to the workplace, and in particular mental stress and the pressure of working long hours were cited by participants in all groups as negative factors.

> *"Sometimes you can get really scared and you have to work under pressure, so that's not good."* (Student 3 - NC)

Bullying

The participants in the focus group at King Edward's, Camp Hill discussed bullying within a profession (specifically medicine) as a potentially negative issue. One student was very clear that this related particularly to the time spent as a medical student, in that medical students were bullied by both senior medical staff and nursing staff.

Adverse publicity

Participants in the focus group at King Edward's, Camp Hill cited incidents of adverse publicity surrounding healthcare professions. The case of Harold Shipman and the Which? report on community pharmacy were specifically mentioned and the general state of the NHS was also discussed. This issue emerged spontaneously, without prompting.

> *"All you're hearing nowadays is bad things about the NHS, about waiting lists and stuff and some people living in some places get treatment and other people don't and so like the public are thinking that our NHS system is rubbish and we should go like to Spain or France to have our treatment done and stuff so and then they blame the doctor and the nurses for things like this. But it's like because of under funding and stuff."* (Student 4 – KEC)

3.6   The status of pharmacy

The final area of discussion in each focus group (including King Edward's, Stourbridge) was that of the image and status of pharmacy as a profession and of pharmacists. Each group was asked to give their impressions of pharmacy as a profession and also of where pharmacists worked. Several clear areas emerged and were discussed.

Some participants in two of the focus groups (Josiah Mason and King Edward's, Camp Hill) described pharmacy as a "boring" profession because all the public see is that it is "in the back of a shop" and there was little disagreement with this perception amongst the other participants in these two focus groups. The term "boring" arose unprompted in these two focus groups when the image of pharmacy as perceived by the general public was explored.

Moderator   *"Why do you think that is? What is it that makes [pharmacists] have a poor image with the public?*

Participant 1   *"It's just looking boring."*

Participant 2   *"Because most of the pharmacists that you see is er, just chemists in shops."* (JMC)

Moderator   *"...What image do you get of the pharmacist?"*

Participant 1   *"Boring."*

Participant 2   *"White coat."*

Participant 3   *"Being stuck in a lab."*

Participant 4   *"Not in a lab, in the back of a shop."*

Participant 1   *"All enclosed, and......"*

Participant 4   *"Yeah, enclosed. That's a good word."* (KEC)

One participant in the New College focus group had participated in a work experience placement in a hospital pharmacy department and, whilst still interested in pharmacy as a career, would not consider hospital pharmacy as it was "not very interesting". A participant in the focus group at Kind Edward's, Stourbridge thought that the general public perceived pharmacists as "lazy", a view that appeared to have originated from a teacher.

"Everyone thinks that pharmacists are really lazy just like sitting there doing nothing." (Student 7 - KES)

"At first I had this teacher who really really hated pharmacists cos she was like 'look at me I'm doing marking all day and pharmacists just sit there like handing out the drugs that the doctors have told them to give us." (Student 3 - KES)

Participants in the King Edward's, Camp Hill focus group were particularly damning of pharmacists. Pharmacists were described as "unsociable", "reclusive", "hermits", and "behind the scenes" by individual participants in this group and there was little disagreement with these descriptions within the group. Another view to emerge from this group was that there was not a great deal involved in being a pharmacist.

"[it's just] ordering chemicals and stuff. There's not really much involved." (Student 7 - KEC)

A participant in the focus group at King Edward's, Stourbridge shared this opinion.

> *"You take the prescription to the pharmacist and he just goes in the back and makes your drugs up then he comes back and says 'there you go' and then that's what people think – 'Oh, that's easy, I can get that myself'. They don't see like what the pharmacist is doing like making or mixing up the stuff."* (Student 3 - KES)

Disagreement with these statements generally came from those participants who had taken part in a work experience placement within pharmacy and had had a positive experience in this placement.

In these initial, spontaneous responses to the image of pharmacy and of pharmacist, as perceived by the general public, no positive terms were used to describe pharmacy and pharmacists.

Discussion arose in two of the focus groups when the aspect of pharmacists being "behind the scenes", which was mentioned spontaneously, was probed further by the moderator. The issue of the amount of involvement between pharmacists and patients was discussed. Those participants who had no experience of pharmacy felt that there was little pharmacist-patient interaction ("not really talking to people"), whilst those who had had work experience within a pharmacy were very clear and also positive about the amount of patient interaction there could be within the profession.

> *"If you go to a chemist you'll tell them something's wrong with you, they'll advise you on what you can do."* (Student 4 – NC)

The moderator explored the issue of working relationships between pharmacists and doctors by asking if such a relationship exists. Participants in all of the focus groups volunteered that pharmacists were knowledgeable about drugs and medicines and went on to acknowledge that in some way this was used to either help doctors or work with doctors. There was no disagreement with these views in any of the focus groups.

> *"I was at ……hospital and it's the pharmacists that actually come up with what drugs are used and doses to the doctors."* (Student 3 - KES)

> *"………the pharmacists have knowledge about the medicines and the doctors have the knowledge of the illnesses. So they work together."* (Student 1 - NC)

A primary role of pharmacists identified by all the focus groups was that of "making medicines". However, this did not appear to be confined to a role within industrial manufacture; in fact it applied to all three of the main sectors of the profession

(community, hospital and industry). The terms "mixing", "making up drugs" and "making medicines" were commonly used. Working in the industrial sector of the profession was primarily associated with research into new drugs.

"Research into new drugs, new medicines." (Student 3 - JMC)

"Creating new medicines to cure all different health problems." (Student 5 - NC)

A difference was also spoken of between hospital and community pharmacy. It was felt that the work in hospital pharmacy may be more involved than in community pharmacy and possibly, therefore, more respected by the public.

"Because in a hospital it's the first time, everything has to be thought about, the doctor thinks about it first, but then the pharmacist has to go and check it and then when it comes to community, that person is getting better aren't they?" (Student 7 - KES)

"......if people view it a bit as commercial then it doesn't really show it in a good light because there are people that work in the hospitals which is a lot more professional so it doesn't really reflect very well." (Student 1 - NC)

The perception that pharmacy is a profession with a degree of responsibility was only expressed in one of the groups (New College), but there was agreement within this group that this is the case.

3.7   Word association

At two of the focus groups (Josiah Mason and New College), the participants were shown a series of words or phrases in a random order and were asked if these reflected their opinions of pharmacy as a profession and a career. This exploration of words possibly associated with pharmacy was performed with only these two focus groups as time constraints prevented the exercise being carried out with the focus groups at King Edwards, Stourbridge and King Edwards, Camp Hill. There were differences in the two groups that may have contributed to the differences in the opinions expressed. Josiah Mason is an inner city, non-selective sixth form centre and the focus group consisted of five Asian females, three Asian males and one White male. New College is a semi-rural sixth form centre and is selective based upon GCSE results. The focus group here consisted of seven White females, five White males and one Afro-Caribbean male. Discussion was very spontaneous and free at this latter sixth form centre, requiring little prompting from the moderator, whilst discussion in the Josiah Mason focus group was

much more constrained and required a great deal of prompting and encouragement from the moderator to elicit any views.

Boring / Interesting

When the word "interesting" was shown to the participants at Josiah Mason, there was general agreement that pharmacy was an interesting job. The discussion at New College started with the opposite word, "boring", and one participant immediately answered "No". As the discussion was very free around this term and the opposite term, "interesting", there was no need to introduce the latter word separately. At this point the discussion opened up in both groups. One participant in the group at Josiah Mason felt that working as a pharmacist in a shop would be boring and two other participants agreed, whilst another thought it would be interesting in industry. One of the participants in the group at New College thought along very similar lines, stating that any job could be boring and that pharmacy is no different. This statement provoked general agreement. One participant at New College stated that they had not considered pharmacy as a potential career because they thought working in a "chemist's" would be boring. The same student considered that working in research would not be boring however.

Hard work

There was general agreement amongst the participants in the Josiah Mason focus group that a career in pharmacy would be hard work. This was taken further by the participants at New College one of whom stated that it would be hard work because of the responsibility to the general public, particularly with keeping up to date with new drugs. Another participant in this group voiced the opinion that working in a "chemist's" would be less hard work and less stressful than working in a hospital.

Flexible

At first, the participants in the group at Josiah Mason disagreed with this statement. The meaning of the term (the ability to work part time, or take time off from the profession) was then clarified by the moderator and this led to discussion with the participants in both this group and the group at New College. There was general agreement in both groups that pharmacy offered a flexible career in two aspects. Firstly, that there was the ability to change direction within the profession and secondly, that there was the ability to leave the profession for a career break (either to have a family or to travel) and then return.

Well respected

The participants at Josiah Mason agreed with this statement, with one student stating that they would have parental support if they chose to enter the profession because they

respected pharmacy as a career. The participants in the New College focus group also agreed that pharmacy was a respected profession, but that its perceived low profile with the general public meant that it possibly wasn't respected as much as it should be. One participant in this group also stated that they thought that handing out prescriptions in a community pharmacy was less respected that a pharmacist working on a hospital ward.

Repetitive

Two participants in the focus group at Josiah Mason thought that pharmacy had the potential to be repetitive, and when prompted to explain, one stated that it would be repetitive particularly in a "chemists". A similar opinion was obtained from one participant in the group at New College in that whether pharmacy was repetitive very much depended on where the pharmacist was working.

> *"......if you're working in a pharmacy like Boots or anywhere and you're just handing out the same things constantly, then it will be repetitive, but if you go into research it would be different because there's always new drugs being discovered and created."* (Student 1 - NC)

However, there was some disagreement within this group with this latter statement in that making drugs in batches had the potential to be repetitive and so the industrial side of pharmacy could also be repetitive.

Not challenging

The participants in both focus groups unanimously disagreed with this statement. One participant at Josiah Mason considered pharmacy to be a "really challenging job". Another student disagreed with this saying that the challenge was lost once a person became good at a job. This opened up the discussion further, leading to the conclusion that it would not be challenging in a "chemist's" (*"you're just giving out drugs all the time"*), but that it would be in industry. Discussion amongst the participants at New College led to the conclusion that pharmacy was a challenging career based upon the amount that had to be known to be a pharmacist, but also that it was less challenging than medicine or some of the other healthcare careers.

Exciting

Once again, the participants at Josiah Mason agreed that the job would be exciting in industry, but not in community or hospital pharmacy. However, one student stated that "all things get boring". At New College, after discussion, the participants agreed that exciting was an overstatement and that interesting was perhaps more appropriate.

Career progression

Participants in both groups agreed that there was the potential for progression up a career ladder within pharmacy. One participant at Josiah Mason thought that it would vary according to where one worked; industry was considered to offer more potential than *"if you like work for somebody like Boots."*

Variety

The group at Josiah Mason was asked whether they thought that pharmacy offered variety within the career. Opinion within the group was split fairly evenly with some saying no, but others saying that a career in pharmacy would give variety because of the potential to work within different sectors of the profession and also with working with many different patients. Time constraints meant that this question could not be asked of the focus group at New College.

3.8   Discussion

The four schools that agreed to take part in the focus groups provided students from a mixture of cultural and socio-economic backgrounds, with a wide range of AS level subjects being studied. These four focus groups were used to explore key areas of the career decision-making process from the choice of A-level subjects through to choice of career. They were also used to explore the students' perceptions of healthcare professions as possible career destinations, with particular emphasis on the profession of pharmacy.

3.8.1   Choice of A-level subjects

Five key reasons emerged for the students' choice of subjects to study at A-level from the focus group discussions. Whilst focus groups are not quantitative in nature, two of the themes that emerged, namely that of enjoying a subject and/or being good at a subject and that of choosing subjects in view of future career plans, enjoyed strong agreement amongst the participants in all four groups. These two reasons are also found in previous qualitative research undertaken by Garratt (1985), Bewick & Southern (1997) and Barker (2001).(20;23;64)

Garratt surveyed 177 first year A-level students studying a wide range of subjects and found that the most important factor in A-level subject choice was the interest value of the subjects, followed by previous performance and career value. Parental influence and the

influence of careers advice were not rated highly by the respondents and these finding support the results from the focus groups discussions conducted in this study.(20)

Bewick & Southern surveyed nearly 200 first year A-level Mathematics students to investigate the reasons behind choosing mathematics as an A-level subject. Career relevance was seen to be the most important factor with an interest in mathematics and good GCSE performance in mathematics also rated highly. Barker surveyed A-level Chemistry students with a similar aim – to investigate the reasons for studying chemistry. Approximately 20% of respondents had chosen to study chemistry with a view to future career plans.(64)

Both of the above studies also asked respondents to indicate which, if any, careers they were considering post- A-level studies. In both surveys, medicine was the most frequently mentioned career choice (18% of chemistry students and almost 40% of mathematics students). When the participants in the focus groups in this study were asked about future career plans, medicine was also the most popular career destination. Interestingly, pharmacy was mentioned by some participants in Barker's survey and was classified as a chemistry-related subject (along with biochemistry, medicinal chemistry and environmental chemistry). Chemical engineering however, was placed within the vocational science group which also included nursing, dietetics, nutrition and physiotherapy.

The focus group discussion at Josiah Mason Sixth Form College differed from the other three focus groups in this study in that none of the participants stated that they had chosen any of their A-level subjects to complement another. This may be due to the fact that in the non-selective environment, these students were encouraged only to take subjects in which they were confident they could perform well, or liked particularly. The participants in the other three focus groups appeared to be much more confident in their subject choice and some had made rational decisions based upon the fact that some A-level subjects shared common material that would aid in their study.

3.8.2   Career direction: influencing factors

The National Institute for Careers Education and Counselling outline several theories of career decision-making.(65) These include:

- Opportunity structure theory
  - Educational and socio-economic opportunities have more influence on an individual than individual choice. E.g. children of a lower socio-economic background are much less likely to enter higher education or a high status profession.
- Social learning theory and community interaction theory
  - The influence of people with whom young people come into contact and the influence of learning experiences.
- Developmental theory
  - Where career decisions are made over a long period of time and are linked to the development of the individual.
- Person-environment fit ("matching") theory
  - Individuals try to find a career that matches their abilities, interests and values and also opportunities within the labour market.

However, Hodkinson & Sparkes argue that these theories are too limited.(12) They proposed that young people use a pragmatic decision-making process in reaching career decisions and coined a phrase "careership" to describe the process. Careership is based upon an individual's "horizons for action". The concept of horizons for action are taken from Bordieu's description of *habitus* – "the ways in which a person's beliefs, ideas and preferences are individually subjective but also influenced by the objective social networks and cultural traditions in which that person lives".(12)

To simplify, a person's horizons for action are determined by their view of the world (their beliefs, ideas and perceptions) and their place within it (their social and cultural background). Added to these is the individual's perception of the labour market. Because of these horizons for action, young people may reject out of hand information and advice about a career or careers because it is something that does not fit with their view of themselves. Hemsley-Brown & Foskett (1999) take this idea and enlarge it further stating that

> *'The capacity and willingness to make economically rational, informed choices about careers is context related, and cannot be separated from the social and cultural background, and the life experiences of young people.'* (15)

Hodkinson & Sparkes also propose that a horizon for action may contain "turning points" where a young person's career ambitions may change in response to an event which has made them revise and re-evaluate their ideas. However, despite the limitations of horizons for action, young people do seem to make rational, pragmatic decisions within these horizons.(12)

In the selective sixth form environments (King Edward's Stourbridge, King Edward's Camp Hill and New College), the majority of participants had definite ideas about their future careers, particularly following work experience placements which may have provided them with such turning points. These participants appeared to be confident in their studies and their plans for the future and this may be due to the fact that they had already had to attain a certain level of achievement to enter their sixth form centres (a minimum of 5 GCSE passes at grades A – C was the requirement for entry to all of these sixth forms). The non-selective sixth form participants (Josiah Mason) had less definite ideas about their future career plans and did not volunteer any information about work experience. These participants from Josiah Mason College had also not yet sought, or received, any careers guidance. This may mean that they had not yet reached one of the turning points within their career decision-making process. The lack of a benchmark of minimum GCSE scores for entry to sixth form studies in this particular centre meant that they also appeared to be much less confident about how well they were going to do in their A-level examinations and may well have been delaying any final decisions until they had taken their AS level examinations to gauge their level of achievement and also potential. However, one of the participants was basing his decision on his chosen career upon the need to obtain high A-level grades which he was not sure he could obtain.

3.8.3 Work Experience

Guidance produced by the National Institute for Careers Education and Counselling in 1996 for careers advisors suggests that the key influences on career choice in pre-16 year olds are:

- o Parents and other relatives;
- o Friends and peer groups;
- o Careers specialists;
- o Subject teachers;
- o Work experience;

o Careers information in the form of books, leaflets and software.(65)

The findings of these focus groups suggest that work experience may be the most important of these influences, with parents, teachers and careers information much lower in importance.

Work experience may have a role in widening or narrowing a person's horizon for action and thus may well have a very strong influence upon their choice of both A-level subjects and higher level subjects of study. In this study the perception was that work experience as a determinant in career choice was possibly the strongest influencing factor in career choice. The influence of work experience emerged unsolicited at three of the four focus groups. Work experience is defined by the Department for Education and Skills (the DfES) as:

> 'A placement on an employer's premises in which a student carries out a particular task or duty, or a range of tasks and duties, more or less as would an employee, but with the emphasis on the learning aspects of the experience.'(18)

By law such work experience placements can only take place in Key Stage 4 and onwards (i.e. from Year 10 when pupils are aged 14 or 15 and in their first year of GCSE studies). The Government has encouraged all schools to provide two weeks' work experience for all pupils during Key Stage 4.

Hodkinson also found that work experience strongly influenced students in Years 11, 12 and 13 either positively or negatively(11), and that enjoyment is often an important consideration which was reflected in the findings of these focus groups.

A report commissioned by the Department for Education and Employment (now the DfES) in 2000 evaluated such work experience placements in England.(19) Hillage and Kodz found that over 95% of students had taken part in a work experience placement in either Year 10 or 11 and that 60% of these had been for two weeks' duration. These figures were confirmed by Huddleston and Oh in 2004.(17) Most of the students took part in work experience in Year 10. Over two thirds of pupils had chosen their placement because of their interest in it as a career. In areas such as education or health, placements were taken mainly by girls. The report found that to some extent students' work experience placements had helped them to decide about their future career. Watts and Hawthorn in 1993 had found similar results with higher education students on work placements.(66)

These positive-affirmative (work experience confirming that this was a career for the student to consider) and positive-negative (work experience confirming that this was not a career for the student to consider) aspects of the process were evident in the focus group discussions.

> *"At school I always wanted to go into the police, so I went into Year 11 work experience with the police and that completely put me off."* (Student 1 - KES)

Three students in the focus group discussions stated that they were definitely going to apply for a place to study pharmacy at university and all had taken part in school organised pharmacy work experience, two in hospital pharmacy and one in community pharmacy. This work experience appears to have had a very positive effect on these particular pupils. One pupil from New College had also had two weeks work experience in hospital pharmacy, but had found it uninteresting. However, it had not had a particularly adverse effect on her consideration to study pharmacy, in that she had simply decided that she did not wish to work in the hospital pharmacy sector.

> *"I'm still interested in pharmacy but I wouldn't do it in a hospital because it wasn't very interesting."* (Student 6 - NC)

3.8.4   Attributes of the "ideal" career

The National Institute for Careers Education and Counselling guidance for careers advisors states that an individual may relate their own interests, values and abilities to their career opportunities.(65)   An individual's values are defined as their basic beliefs about what is important to them, e.g. job security, high wages. Kniveton in 2004 found that males placed money first, with enjoyment of the work and doing something you are good at second and third. Females placed enjoyment of the work above money, but these were still the two most important motivating factors. Helping others and doing something useful were ranked much lower.(10)

The results of these focus groups seem to suggest that the participants have these primary values because enjoyment and personal interest emerged as the strongest factor of an "ideal" career. However, job security and job satisfaction, which both appeared to be stronger factors in the focus group discussions than money, were not tested in Kniveton's study and so a comparison is not possible.

3.8.5   Academic difficulty

Thomson et al, in 1992, found that the perceived difficulty of science subjects in a course remained as one of the strongest barriers to a career in a health profession.[67]   One student at Josiah Mason expressed a desire to study pharmacy if he *"got the grades"*, whilst another spoke of the difficulty he perceived in studying science at a higher level.

> *"...one of my cousins wants to become a dentist, he's doing his A2s now and the other one's in my year she wants to become an optician. I feel like I do want to do something in science because I enjoy it, but it's really hard."* (Student 8 - JMC)

However, participants in two of the other focus groups were not concerned about the difficulty, but saw it as a measure of status or achievement.

> *"...but you want to show that you're capable of doing something and you want something you can be proud of... you wanna like show that this is what I can achieve and like push yourself..."* (Student 3 - KES)

> *"It gives you satisfaction to know that you've accomplished something as well. If you find something hard and you've done it, it makes you think, you know what, it can make you feel good."* (Student 11 - KEC)

This difference in the perception of difficulty between the participants in the focus groups can possibly be explained by the non-selective nature of the participants at Josiah Mason. These students were not studying AS levels on the strength of their GCSE results, they were studying AS level subjects based upon enjoyment or perceived ability rather than having to have achieved a minimum of grade C at GCSE in a subject. It could be that they were less confident of their abilities than those participants from the other three sixth form centres. The participants in the Josiah Mason focus group were more likely to cite a liking of a subject as the reason for studying it at AS level rather than because they were good at that particular subject, unlike the participants in the other three focus groups. Because all other participants in this study were studying at selective sixth form centres, it is likely that they were a biased sample in their perceptions of the difficulty of a subject and what that perception meant to them.

3.8.6   Status of healthcare professions

A course that is perceived to be difficult leading to qualification for a profession such as medicine or pharmacy may also be seen as having a higher status. Status was mentioned as a factor for choosing a future career or profession by one participant each in the focus groups at King Edward's, Stourbridge and King Edward's, Camp Hill. Overwhelmingly,

medicine was seen as the most important (that is, the highest status) of all the health professions discussed in the focus groups. It was interesting to see that when the participants were asked to rank the health professions in order of perceived importance by the general public, medicine was placed at the top, closely followed by nursing. The most interesting discussions were around the placement of the other health professions. Nursing was considered to be more important in the eyes of the general public than pharmacy, optometry, physiotherapy etc, but it was also seen to be of a lower status in terms of pay and work. Participants found it very difficult to rank the other professions in any sort of order, with two students in two separate groups stating that unless a member of the public came into direct contact with one of the professions, they were unlikely to know enough about it to make a judgement. The example of physiotherapy following a car accident was given by one student who stated unequivocally that in such a case, that particular profession may be ranked much more highly through a type of "insider knowledge". The findings from these focus group discussions are similar in nature to those obtained by Kritikos et al in 2003.(68) They found that amongst a cohort of pharmacy undergraduates, pharmacy was placed significantly lower than medical practitioners, dentists and physiotherapists in terms of power and status. The findings from the focus group discussions in this study appear to indicate that the perceived status of pharmacy, when compared to other healthcare professions such as medicine and dentistry, is set even before students start to apply for university places on healthcare degree courses.(68)

3.8.7 Views of pharmacy as a career

Out of the 40 focus group participants in this study, only 11 were considering pharmacy as a possible subject for study at university and only three of these were definitely going to apply to study pharmacy. Participants in the all of the focus groups appeared to see pharmacists either working in community pharmacy (in shops) or in laboratories. Only those who had work experience within hospital pharmacy mentioned this as a sector for possible employment and one had found it uninteresting. It is not, therefore, unreasonable to conclude that there is a lack of information available to school pupils about careers in pharmacy at this very important stage in their studies and their decision-making process.

Early work on influencing factors for application to study pharmacy (Booth and co-workers in 1984 and Rees in 1985) showed that the nature of the work and employment

prospects were the most important, followed by work experience, consultation with a community pharmacist and information about the profession.

Booth in 1984 surveyed new entrants to the pharmacy degree course at Bradford University and found that the most important factor in the respondents' decision to study pharmacy was the "nature of the work".(24) This is not defined, but could be taken to mean the caring aspects of the profession. Second to this were the employment prospects in pharmacy, followed by a profession allied to medicine, A-level subjects studied and a visit / work in a pharmacy. All of these factors, when generalised to all careers, were important to the focus group participants, particularly those that were interested in a career in a health profession.

Rees in 1985 examined the same factors in first year pharmacy students, but looked in more depth at the gender differences.(25) She found that the main reasons for choosing pharmacy were the career opportunities and job prospects, studying the required A-level subjects and a job that helps and meets people. She also found that none of these factors were gender dependent.

In 1996, Hassell conducted a survey of practicing pharmacists partly to examine any differences between non-minority (i.e. White) pharmacists and minority pharmacists in their reasons for choosing pharmacy as a career.(69) Amongst the respondents to this survey, job security was the most important influencing factor on the decision to study pharmacy, for both non-minority and minority pharmacists. Interesting work was the second most important factor both overall and to non-minority respondents, but was the third most important factor for minority pharmacists. The factor that was second most important to minority pharmacists was the certainty of getting a job. A desire to help people and a desire to be a health professional were fourth and fifth respectively. Hassell's study also found that flexible working hours were more important to minority pharmacists, but not significantly so.

Cockerill and Tanner (2001) carried out similar work in Canada and found similar results.(29) Here, however, a desire to help people was the most important factor, followed by job security and income potential. Work with Australian pharmacists(30) and American pharmacists(26;28) all show very similar results.

It is clear from the discussions with these four focus groups that the same factors emerge as being of importance for choosing a future career, despite the lack of specificity of choice in some of the students. Job satisfaction was particularly important to all participants, along with a job or career that could be continued for a long time. When the discussion focused on the positive aspects of health professions, the most common positive aspect was that of being able to help people, or making a difference in their lives. Healthcare careers were also seen to offer the other most important factors in an "ideal" career; job security, job prospects and respect.

The only group that mentioned the flexibility of a career, being able to take time out to have a family and work part time, as being of importance to them was that of the all-female focus group at King Edward's, Camp Hill. This is likely to be because having a gender separated focus group allows subjects that are possibly gender sensitive to be discussed more freely. This corresponds to the gender differences observed by Cockerill and Tanner(29), but was not a major influencing factor for the participants in this focus group.

From the focus group discussions, there appears to be a perception that pharmacy is very much a background profession with a lack of interaction with the public and other health professions. Because of this, some focus group participants in all four focus groups had the idea that pharmacy was boring and so was unattractive. This perceived lack of attractiveness, combined with the perceived lower status of pharmacy when compared to medicine and dentistry needs to be addressed by the profession to encourage pupils to apply to study pharmacy as it was perceived by the focus group participants to be a real barrier to an interest in studying pharmacy. Of the four focus group participants who had work experience within a pharmacy environment, three were very forthcoming on positive aspects of the profession. The fourth stated that she had found hospital pharmacy work experience boring, but this had not deterred her from considering pharmacy as a possible career option; rather she would prefer to work in the community sector. Regardless of the sector of practice for their pharmacy work experience, there was a perception that a positive relationship with doctors was seen in that pharmacists use their expertise in the uses of drugs to assist doctors in decision-making in the treatment of patients.

A dichotomised view of the sectors in which pharmacists work emerged from the focus group discussions. Participants viewed pharmacists as either working in a shop or in a laboratory. Over 70% of registered pharmacists in the UK work in community pharmacy(70) and these are the most visible pharmacists to the general public. As these focus groups were conducted with participants of the age of 16 or 17 years, it is likely that the only contact with pharmacists in a healthcare context would have been in the community sector. The second view that pharmacists work in a laboratory, was perceived as much more exciting and worthwhile by participants, as this sector was viewed as being primarily involved in the discovery and creation of new drugs to the benefit of society. This is possibly not surprising as all the participants in the focus groups had been selected based upon the fact that they were studying A-level chemistry. The A-level chemistry syllabuses carry modules concerned with drug discovery and analysis and so this drug discovery element would be at the forefront of the participant's ideas. As only 3% of pharmacists in the UK are employed in the industrial sector(70), this pervasive image of the scientist in the laboratory may be very misleading to those students who wish to follow a career in this direction. Even those that are employed within the industrial sector are not all employed in research; they may be employed in quality assurance, medicines information, clinical trials or regulatory affairs, none of which were concepts that the participants were aware of. The profession of pharmacy has, over recent years, become much more clinical both in hospital and community practice, particularly with the advent of pharmacist prescribing. This aspect of the profession was not apparent to the focus group participants, except those who had work experience within the profession.

3.8.8   Limitations of the study

Morgan (1997) defines a focus group as:

> "... a research technique that collects data through group interaction on a topic determined by the researcher. In essence it is the researcher's interest that provides the focus, whereas the data themselves come from the group interaction." (71)

Part of the method of focus groups is to use the interactions of the participants to explore issues and generate points of view.(52) As Kitzinger states:

> "When group dynamics work well the participants work alongside the researcher, taking the research in new and often surprising directions. A downside is that group norms may stifle individual opinions."(52)

Three of the four focus groups in this study were conducted at selective sixth form centres (King Edward's, Stourbridge; King Edward's, Camp Hill; New College, Telford). The first and last of these are state sixth form centres that are separate from a secondary school, whilst the second is a state sixth form centre attached to a selective school. Selection for entry to sixth form studies in all of these cases is based upon the student's performance at GCSE level where a minimum of five GCSE subjects at grade C are required. The students are generally allowed only to study A-level subjects in which they obtained a minimum of grade C at GCSE, unless the subject was not offered at GCSE level (e.g. Law). These three focus groups were very easy to conduct as the students were confident and very willing to voice their opinions. Discussions were relatively easy to initiate as information was volunteered readily by the participants and they were very willing to disagree with one another's opinions.

The fourth focus group was conducted at the only non-selective sixth form centre in an inner-city area of Birmingham. These students had entered sixth form studies without the minimum GCSE requirements of the other three focus groups and the resulting focus group was challenging to the researcher. The students did not readily volunteer information and a group dynamic, as described by Kitzinger, was lacking with little or no discussion amongst participants. The focus group became much more like a group interview which Wilson defines as not explicitly including participant interaction as an integral part of the research process.(56) Generally, there was group agreement with any statement made by any of the participants, unless the moderator asked another question to try to provoke a discussion. The whole session was very much a question and answer session led by the moderator, rather than a discussion facilitated by the moderator. This group consisted of five Asian (Muslim) girls, three Asian males and one White male. A cultural effect within the composition of this focus group may therefore have led to the lack of discussion and dissonance amongst the participants – Asian females may be less willing to articulate their views in the presence of male participants. When the tape recording of this particular focus group discussion is played back, it is the case that the male participants spoke for a much larger proportion of the time and held stronger opinions than the female participants. The possible cultural effect along with the relative lack of confidence of the participants when compared to the participants in the other three focus groups does not necessarily negate the results of this focus group discussion, but may go some way to explain the

differences in the views obtained from this group's discussion when compared to the thoughts and opinions obtained from the other three focus group discussions.

As stated before, focus group discussions are a qualitative method of research that do not produce results that are generalisable for a population. If there is a good dynamic within the focus groups themselves, they do however allow the researcher to explore ideas with a target population which may confirm the findings of previous research, answer questions posed or generate new areas for further research. The focus group discussions undertaken for this study have shone light upon potential areas of concern for the profession of pharmacy namely the lack of information about the career, the effects of work experience placements within pharmacy upon the decision to study pharmacy at university and a generally negative opinion of pharmacy as a potential career for students studying the correct A-level subjects for entry onto an MPharm degree course.

Chapter 4:   UCAS Applicant data

This chapter presents the results of the analysis of Universities and Colleges Admissions Service (UCAS) application data. The data represents the total number of applicants to UCAS and the number of applicants to the following courses: dentistry, medicine, optometry and pharmacy. Medicine, dentistry and optometry were chosen as these are healthcare careers that have similar A level subject and entry requirements to pharmacy and so may be seen as "competitor" courses. As the data represents applicants, it can be assumed that there is some overlap as each applicant has six choices of institution / course to make on a UCAS application form and are only allowed to choose a maximum of four medical or dental schools.

General applicant data was obtained from the UCAS website statistics service for the years 1998 (i.e. for entry to university in September 1998) to 2005 (i.e. for entry to university in September 2005) and all years in between.

The more detailed data obtained from UCAS consists of applicants to the above four courses from 1998 to 2005 and all years in between. The following information about each applicant was provided by UCAS:

- Gender
- Ethnic origin
- Age (as on 1st September of the year of entry to university)
- Socio-economic status (SES)
- Domicile (home / EU or overseas)

Ethnic origin and SES data is only supplied for home / EU applicants.

4.1   General trends

The number of applicants to all UCAS courses is summarised in table 4.1.

Table 4.1: The number of applicants to all UCAS listed courses for the period 1998 to 2005.

Year	1998	1999	2000	2001	2002	2003	2004	2005
Applicants	446457	442931	442028	453833	461365	476467	486028	522155

Following a low point in 2000, the overall number of applicants has risen steadily each year until 2005, where a sharp increase can be seen over the 2004 applicant figure. On

average, over the 8 year period, 47% of applicants were male, with 53% female. Stating ethnic origin on the UCAS application form is voluntary. On average, of those who did state their ethnic origin over the 8 year period, 10.2% were of Asian origin, 4.3% were of Black origin and 82.6% were of White origin.

The numbers of applicants to dentistry, medicine, optometry and pharmacy degree courses are summarised in table 4.2 and are illustrated in figure 4.1 below.

Table 4.2: The numbers of applicants to dentistry, medicine, optometry and pharmacy degree courses from 1998 to 2005.

	Number of applicants							
Year	1998	1999	2000	2001	2002	2003	2004	2005
Dentistry	2443	2081	2105	1811	1913	2184	2580	3252
Medicine	12626	11704	10815	10828	12691	15890	19047	20896
Optometry	2165	2078	1778	1580	1478	1593	1841	1884
Pharmacy	4762	4499	4605	4191	4126	4679	5521	6602

Figure 4.1: The numbers of applicants to dentistry, medicine, optometry and pharmacy degree courses from 1998 to 2005.
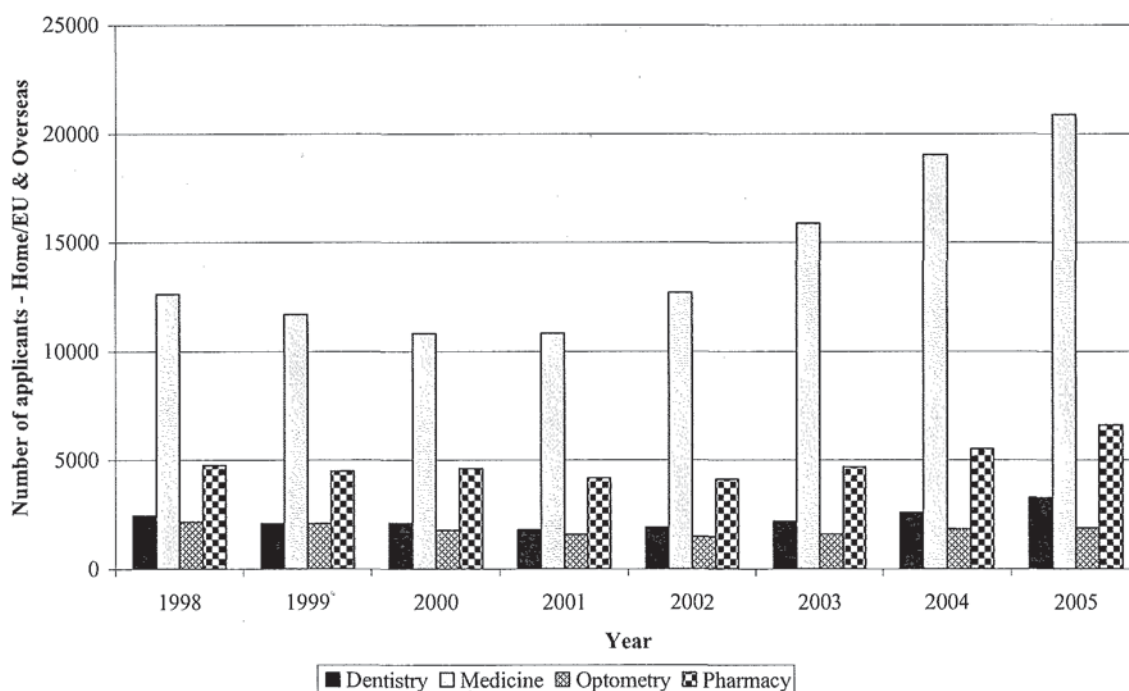
All courses suffered a decline in the number of applicants from 1998. Medicine reached its lowest number of applicants in 2000, with dentistry in 2001 and optometry and pharmacy in 2002. Co-incidentally, the number of medical school choices for each applicant was restricted to four (instead of the usual UCAS allocation of six) for year 2000 entry. The same restriction was introduced for dentistry for 2001 entry. No such restriction exists for pharmacy and optometry. Since each of these low points, there has been a rise in

applications in all four subjects, with a very steep rise seen in the number of applicants to medical school while optometry has not yet attracted a number of applicants equivalent to that seen in 1998.

Year on year changes show that since medicine reached its lowest number of applicants in 2000 it has achieved large net increases in the number of applicants between 2001 and 2005. These net increases peaked in 2003 with a 25% increase on 2002 numbers and there appears to have been a slow down in the increase in number of applicants in 2004 and 2005 with an increase of 9% in 2005. The year on year changes in applicant numbers are illustrated in figure 4.2 below.

Figure 4.2: Year on year changes in the number of applicants to dentistry, medicine and pharmacy from 1998-2005.
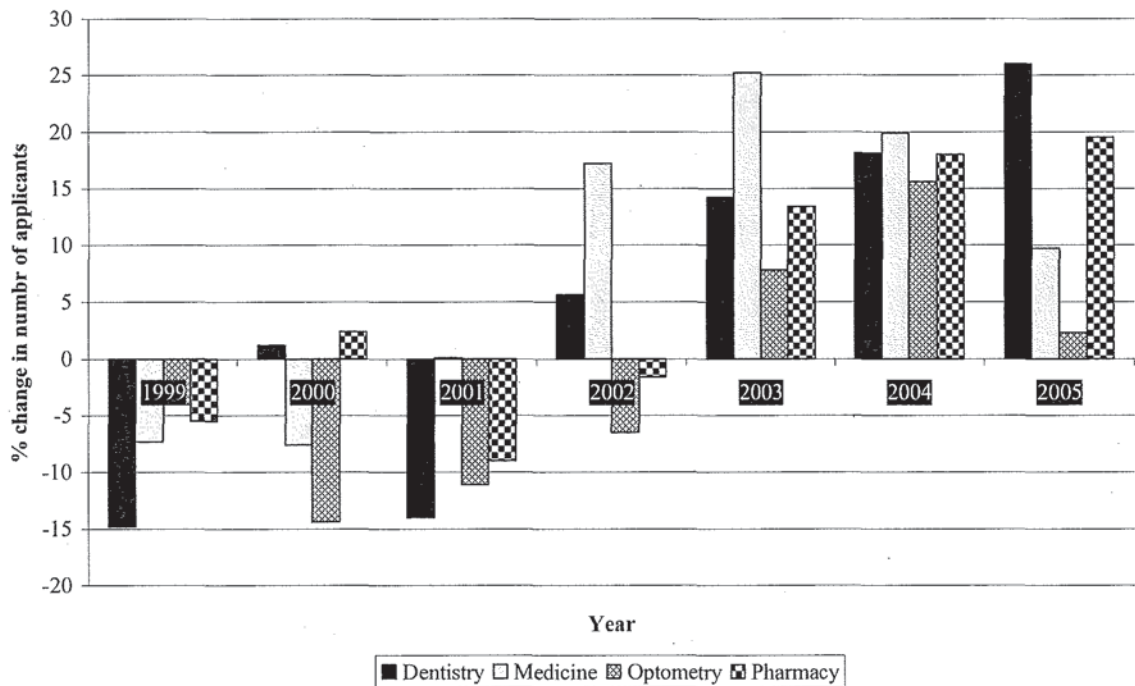
Dentistry reached its lowest number of applicants in 2001 and has been showing steady net increases in applicant numbers between 2002 (5.6%) and 2005 (26%) with no indication of a slow down in the rate of increase. Optometry applicant numbers reached their lowest level in 2002 and have shown net increases from 2003 to 2005, with the largest increase in 2004 (15.6%) and only a small increase in 2005 (2.3%). Likewise, pharmacy applicant numbers were at their lowest in 2002 and have risen steadily year on year since this date. It is interesting to note that whilst applications to all four courses are still increasing, the increases in the numbers of applicants for medicine and optometry are showing signs of slowing, and those for dentistry and pharmacy are still increasing.

4.1.1 General trends within pharmacy

To investigate whether pharmacy is used as a "back up" course to the restricted courses of medicine and dentistry (i.e. applicants to medicine and dentistry courses choose to apply to pharmacy as their 5th and 6th options), data for "core" pharmacy applicants was obtained from UCAS. The "core" applicants, as defined by UCAS, are those who selected pharmacy as their preferred subject for three or more of their six available options. The differences between the total number of applicants to pharmacy and the "core" applicants to pharmacy are summarized in table 4.3 below.

Table 4.3: The numbers of applicants (both total and "core") to pharmacy degree courses during the period 1998 to 2005.

Year	"Core" applicants	Total applicants to pharmacy	Difference
1998	3,033	4,762	1,729 (36.3%)
1999	3,004	4,499	1,495 (33.2%)
2000	3,053	4,605	1,552 (33.7%)
2001	2,686	4,191	1,505 (35.9%)
2002	3,174	4,126	952 (23.1%)
2003	3,395	4,679	1,284 (27.4%)
2004	3,725	5,521	1,796 (38.4%)
2005	4,460	6,602	2,142 (32.4%)

These data show that whilst the total number of applicants to pharmacy reached its lowest level in 2002, the number of core applicants had reached its trough level one year previously. Prior to this, the number of applicants whose preferred subject was pharmacy held steady at approximately 3000 applicants, falling by 12% for entry in 2001. Since this point, both the total number of applicants and the number of core applicants have risen steadily. However, apart from in 2002, approximately one third of all applicants to pharmacy have not been "core" applicants. It is possible to assume therefore that approximately one third of applicants to pharmacy are using it as a "back up" course to either medicine or dentistry.

4.2 Gender of applicants

The proportions of male and female applicants to dentistry, medicine, optometry and pharmacy degree courses are illustrated in figures 4.3 and 4.4 below.

Figure 4.3: The proportion of male applicants to degree courses in dentistry, medicine, optometry and pharmacy from 1998 to 2005.
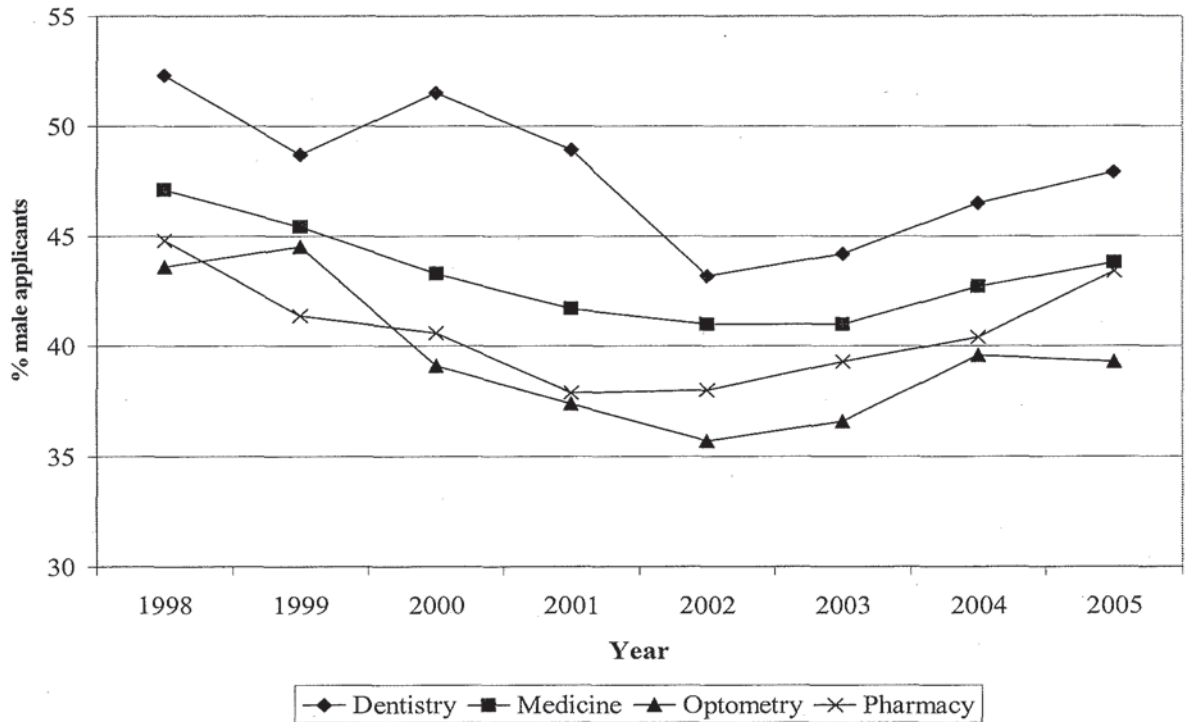
Figure 4.4: The proportion of female applicants to dentistry, medicine, optometry and pharmacy degree courses 1998 to 2005.
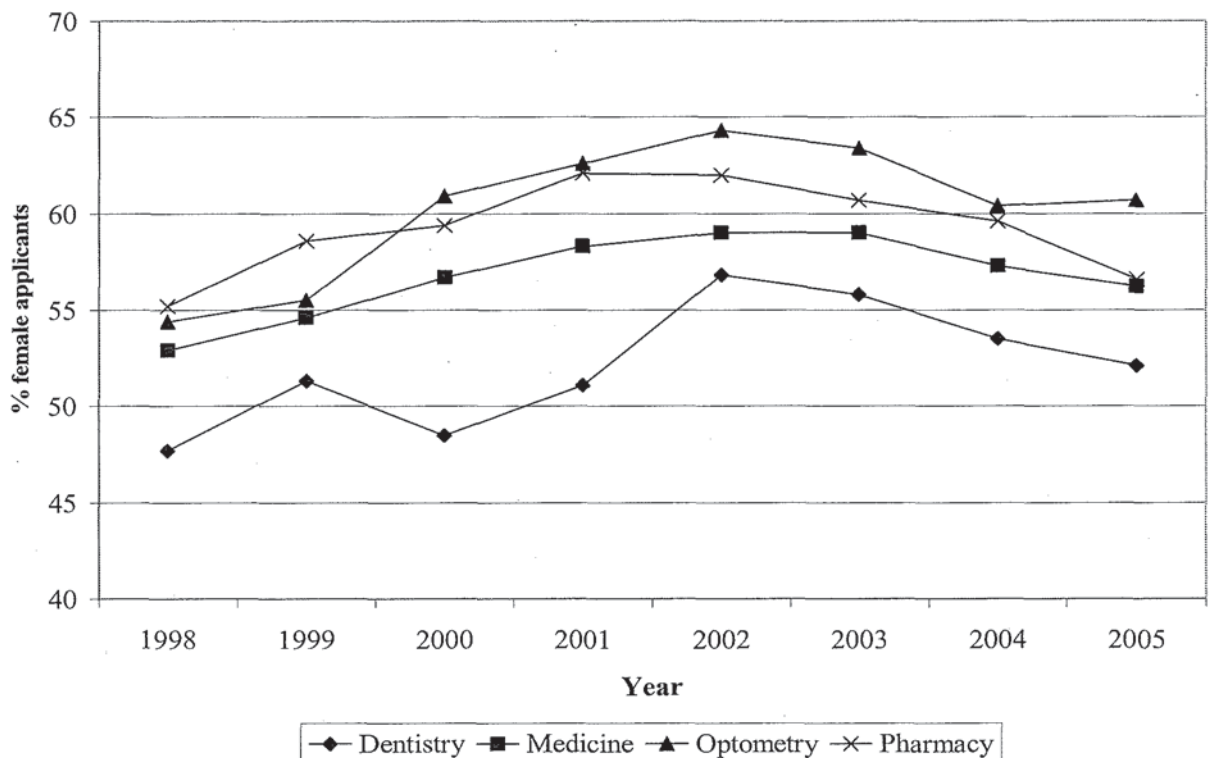
In 1998, dentistry was the only course where the majority of applicants (52.3%) were male. From 1998 to 2002, there was a notable decrease in the proportion of male applicants to all four courses, a trend which began to reverse in 2003. Despite this reverse, all four courses

have become feminised in their applicant pool and in 2005 the majority of applicants were female. This is particularly the case in optometry where over 60% of applicants since 2000 have been female. Pharmacy has also experienced a majority of female applicants, peaking at 62% in 2002. The proportion of male applicants to pharmacy has increased since then and is now approaching the proportion seen in 1998, a pattern that is not seen for the other three courses. The data suggests that although there was a decrease in the number of female applicants in each of the courses to the years mentioned in 4.1 above, the decrease in the number of male applicants was greater and therefore had a greater effect on the overall decrease in the number of applicants. Likewise, there has been a greater increase in the numbers of male applicants than female applicants and this may be having a greater positive effect on applicant numbers for the four courses. Tables 4.4 and 4.5 summarise the data

Table 4.4: Male and female applicants to dentistry, medicine, optometry and pharmacy 1998 – 2001.

	% of applicants							
	1998		**1999**		**2000**		**2001**	
Course	Male	Female	Male	Female	Male	Female	Male	Female
Dentistry	52.3% (n=1278)	47.7% (n=1165)	48.7% (n=1014)	51.3% (n=6628)	51.5% (n=1084)	48.5% (n=1021)	48.9% (n=886)	51.1% (n=925)
Medicine	47.1% (n=5998)	52.9% (n=1067)	45.4% (n=5318)	54.6% (n=6386)	43.3% (n=4687)	56.7% (n=6128)	41.7% (n=4515)	58.3% (n=6313)
Optometry	43.6% (n=944)	54.4% (n=1221)	44.5% (n=925)	55.5% (n=1153)	39.1% (n=695)	60.9% (n=1083)	37.4% (n=591)	62.6% (n=989)
Pharmacy	44.8% (n=2133)	55.2% (n=2629)	41.4% (n=1867)	58.6% (n=2632)	40.6% (n=1870)	59.4% (n=2735)	37.9% (n=1587)	62.1% (n=2604)

Table 4.5: Male and female applicants to dentistry, medicine, optometry and pharmacy 2002 – 2005.

	% of applicants							
	2002		**2003**		**2004**		**2005**	
Course	Male	Female	Male	Female	Male	Female	Male	Female
Dentistry	43.2% (n=826)	56.8% (n=1087)	44.2% (n=966)	55.8% (n=1218)	46.5% (n=1200)	53.5% (n=1380)	47.9% (n=1558)	52.1% (n=1694)
Medicine	41% (n=5200)	59% (n=7491)	41% (n=6510)	59% (n=9380)	42.7% (n=8133)	57.3% (n=10194)	43.8% (n=9151)	56.2% (n=11745)
Optometry	35.7% (n=528)	64.3% (n=950)	36.6% (n=583)	63.4% (n=1010)	39.6% (n=728)	60.4% (n=1113)	39.3% (n=741)	60.7% (n=1143)
Pharmacy	38% (n=1569)	62% (n=2557)	39.3% (n=1839)	60.7% (n=2840)	40.4% (n=2229)	59.6% (n=3292)	43.4% (n=2862)	56.6% (n=3740)

The trends in male applicants to all four subjects does not reflect the overall UCAS applicant pool where there was a very slight decrease in the percentage of male applicants to UCAS overall during this period (from 47.6% in 1998 to 45.7% in 2005).

4.3 Ethnic Origin of Applicants

Ethnic origin data supplied by UCAS is based upon home domiciled applicants only. All overseas applicants have been classified as of "unknown" ethnic origin as have any home applicants who declined to indicate their ethnic origin on their UCAS application form. The analysis in this section is therefore only based upon those home applicants who declared their ethnic origin on their UCAS application form.

Since 1998, UCAS have changed and increased the categories available for the declaration of ethnic origin several times. A more generic scheme has therefore been adopted to map to all the UCAS classification systems resulting in the following aggregated categories:

- Asian (including Chinese);
- Black;
- White;
- Mixed race (data only provided from 2001 onwards) and;
- "Other".

The first three categories have been used to report general trends in applicant numbers. As the mixed race data is incomplete and contains only a very few applicants, it has been excluded from the analysis.

Table 4.6 shows a comparison of the proportions of ethnic minorities in the United Kingdom population (taken from the 2001 census data)(72) and the proportions of ethnic minority applicants through UCAS (averaged over the years 2002 to 2006)(73).

Table 4.6: The proportions of ethnic minorities in the United Kingdom population (2001 census) compared to the proportions of ethnic minority applicants to UCAS (2002-2006).

Ethnic group	% of United Kingdom population	% of applicants to UCAS
White	92%	76%
Asian	4%	9.5%
Black	2%	4.6%
Chinese	0.4%	- *
Mixed race	1.2%	2.3%
Other	0.4%	0.9%

*Chinese is counted in Asian data by UCAS

It can be seen that the proportions of applicants from the minority ethnic groups (i.e. non-White) to UCAS are greater than the proportions within the general United Kingdom population. There are also disparities within the proportions of White, Black and Asian applicants to the four healthcare professions under discussion here.

4.3.1 General trends - Asian applicants

The percentage of applicants declaring their ethnic origin to be Asian for each of the four degree courses is illustrated in figure 4.5.

Figure 4.5: The percentage of applicants to dentistry, medicine, optometry and pharmacy declaring their ethnic origin as "Asian" from 1998 to 2005.
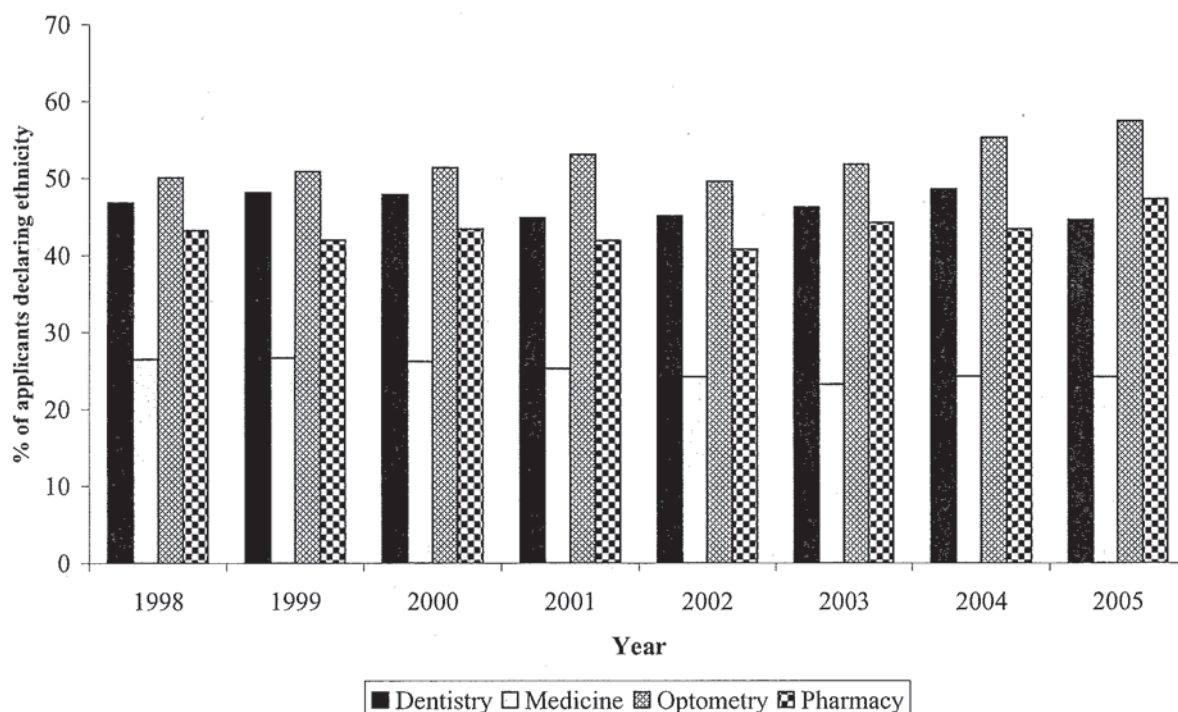
It can be seen that Asian applicants constitute nearly 10% of the total UCAS applicant pool but over 40% of applicants to dentistry, optometry and pharmacy and one quarter of

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applicants to medicine. Of particular note is that for optometry consistently 50% or more of applicants are of Asian origin and the proportion appears to have been increasing over the last three years of the period analysed above. Both dentistry and pharmacy consistently attract over 40% of their applicants from the Asian applicant pool but these proportions appear to be remaining constant. On the other hand, medicine appears to attract far fewer Asian applicants, with only around 25% of its applicants coming from this ethnic subgroup. Although the differences are not large, all four courses show a dip in the numbers of Asian applicants in 2002, which does not occur in the overall UCAS applicant figures.

4.3.2 General trends – Black applicants

The percentage of applicants declaring their ethnic origin to be Black for each of the four degree courses is illustrated in figure 4.6.

Figure 4.6: The percentage of applicants to dentistry, medicine, optometry and pharmacy declaring their ethnic origin as "Black" from 1998 to 2005.
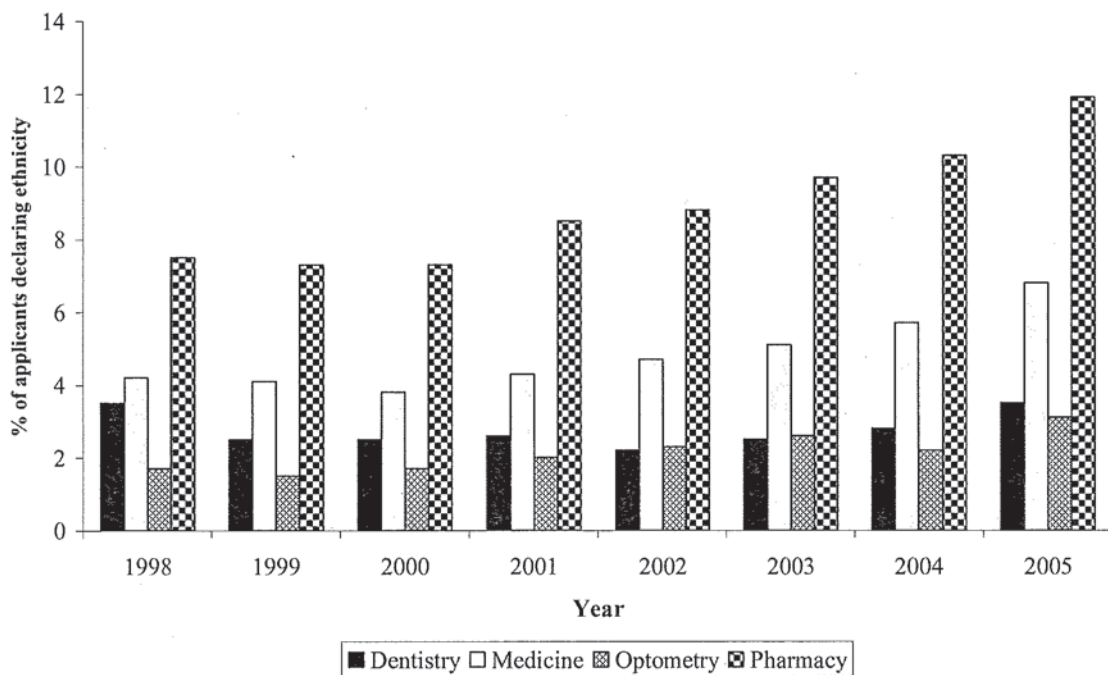
It can be seen that pharmacy degree courses attract the largest proportion of black applicants and the figure has been rising steadily since 2001, to a point where nearly 12% of applicants to pharmacy degree courses are of black origin. This is much greater than the 4% overall UCAS figure, although like pharmacy the UCAS figures show a gradual increase in the proportion of Black applicants (from 3.9% in 1998 to 5.5% in 2005). It has to be remembered that this is not due to overseas applicants as these are excluded from these data. Medicine is the next most popular course for black applicants, although only as

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a small proportion of its total applicant pool and again, the figure has been rising since 2001. Both dentistry and optometry attract very few black applicants.

4.3.3 General trends – White applicants

The percentage of applicants declaring their ethnic origin to be White for each of the four degree courses is illustrated in figure 4.7.

Figure 4.7: The percentage of applicants to dentistry, medicine, optometry and pharmacy declaring their ethnic origin as "White" from 1998 to 2005.
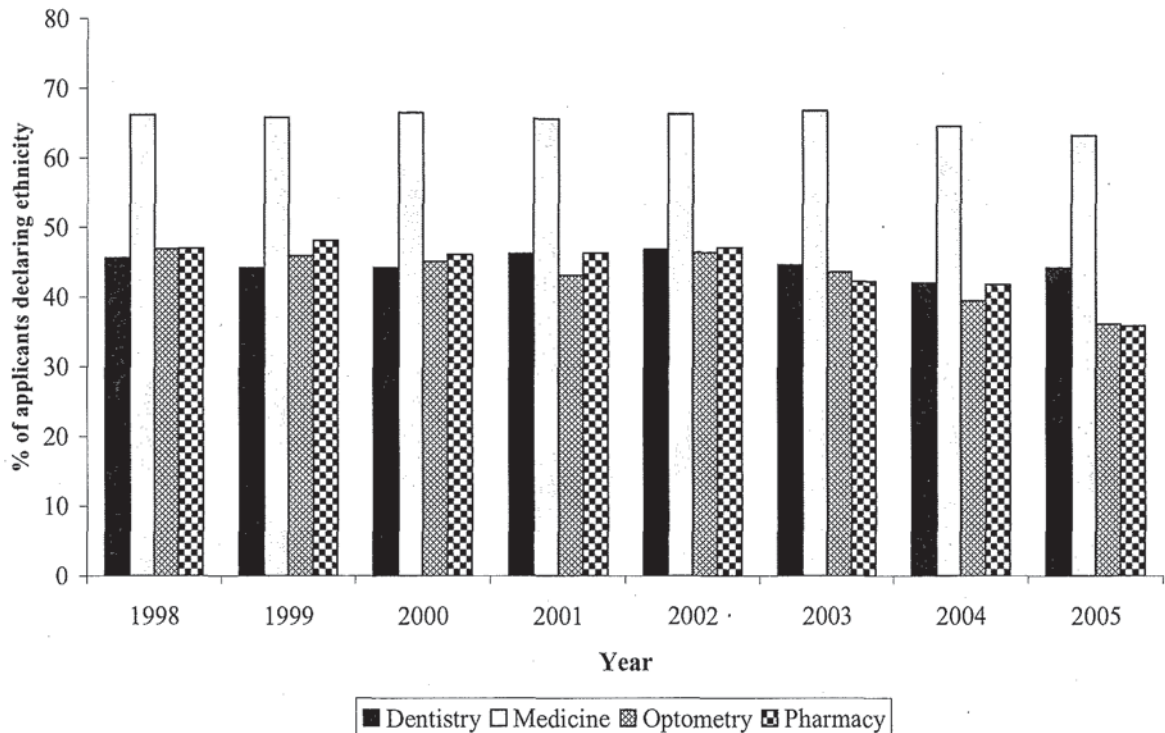
It can be seen that the large majority of applicants for places on medical degrees are White, with over 60% of the total applicants being from this ethnic sub-group every year. This figure is still less than the proportion of applicants to UCAS who are White. White applicant numbers to each of the other three courses under consideration here were consistently above 40% until 2005 where a considerable decline in the proportion of White applicants to both optometry and pharmacy can be seen.

4.3.4 Ethnic origin of applicants to dentistry

The trends in the ethnic origin of applicants for places at university to study dentistry are illustrated in figure 4.8 below.

Figure 4.8: The proportion of applicants to dentistry declaring their ethnic origin as "Asian", "Black" or "White" from 1998 to 2005.
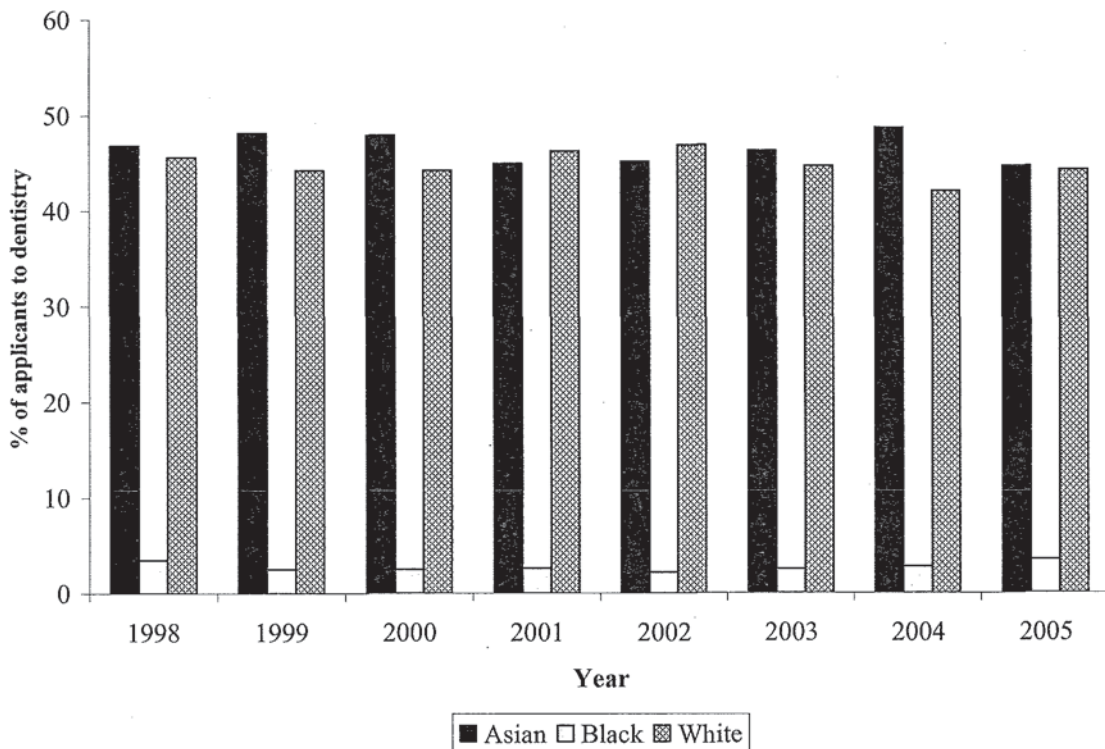
It can be seen that the proportion of all three ethnic sub-groups applying to study dentistry have remained consistent since 1998. When the data is examined taking the gender of applicants into account, some interesting changes have occurred over this 8 year period. In 1998, 27.7% of applicants (n=535) to dentistry were Asian males, with 23.7% White males (n=458), 21.9% White females (n=423) and 19.1% Asian females (n=369). In 2002, when there was a large drop in male applicants to all four health professions under examination here, these figures were reversed with 28.2% of applicants being White females (n=460), 23.8% Asian females (n=389), 21.3% Asian males (n=348) and 18.6% White males (n=304). By 2005, the proportion of applicants from each of these groups had become much more even, with the White male sub-group taking the longest to recover. The fluctuations in applicant numbers are illustrated in figure 4.9. The proportions of male / female applicants in the black sub-group have remained even over this same period and so are not included in the figure.

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Figure 4.9: The numbers of male and female applicants to dentistry from the Asian and White ethnic sub-groups from 1998 to 2005.
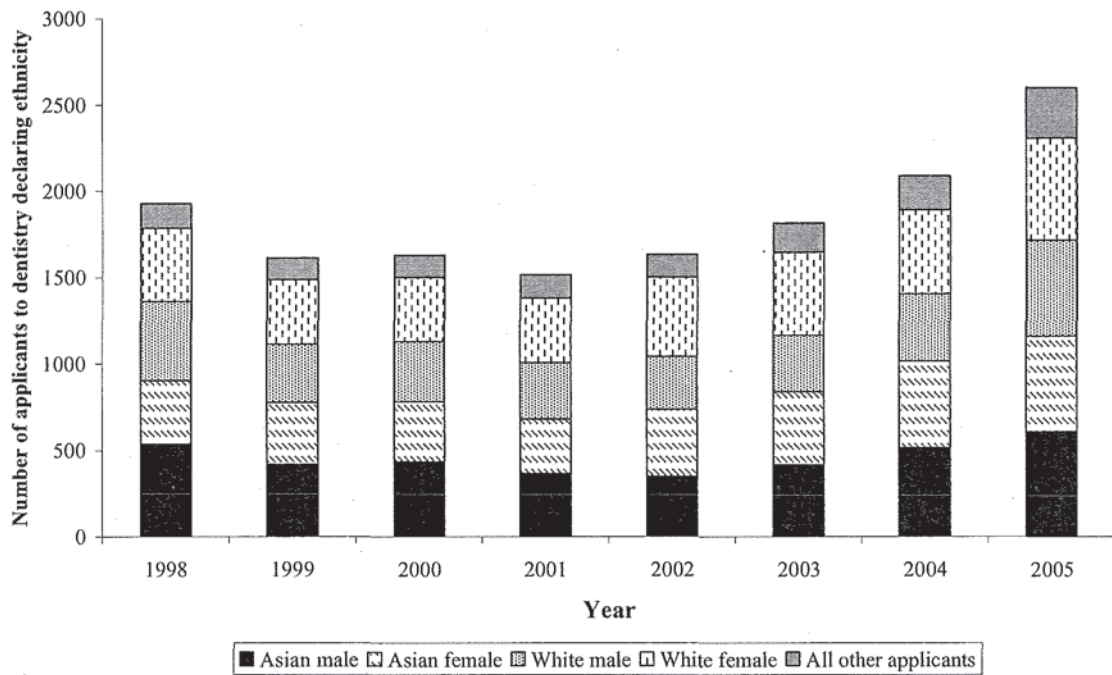
4.3.5   Ethnic origin of applicants to medicine.

The trends in the ethnic origin of applicants for places at university to study medicine are illustrated in figure 4.10 overleaf. The majority of applicants to study medicine are White, with over 60% of applicants belonging to this ethnic sub-group every year. When the data is examined in more detail in conjunction with the gender of applicants, it can be seen that White females make up the largest group of applicants, with 37% (n=3475) of the total applicants in 1998, peaking at 41.8% (n=4098) in 2002. Once again, a fall in the proportion of male applicants is evident. In 1998, 29.2% of applicants (n=2749) to medicine were White males, and 15% Asian males (n=1409). By 2002, these numbers had fallen to 24.5% (n=2396) White males and 11.2% (n=1133) Asian males. The proportion of White male applicants has risen steadily since the low point in 2002 reaching 26.3% (n=4312) in 2005. However, the proportion of Asian male applicants for medicine has not recovered to the same extent with only 12.2% of applicants (n=1994) to medicine in 2005 being Asian males. The proportion of Asian female applicants to medicine has remained relatively constant over the 8 year period as have the proportions of Black applicants, both male and female. These fluctuations in Asian and White applicants are illustrated graphically in figure 4.11.

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Figure 4.10: The proportion of applicants to medicine declaring their ethnic origin as "Asian", "Black" or "White" from 1998 to 2005.
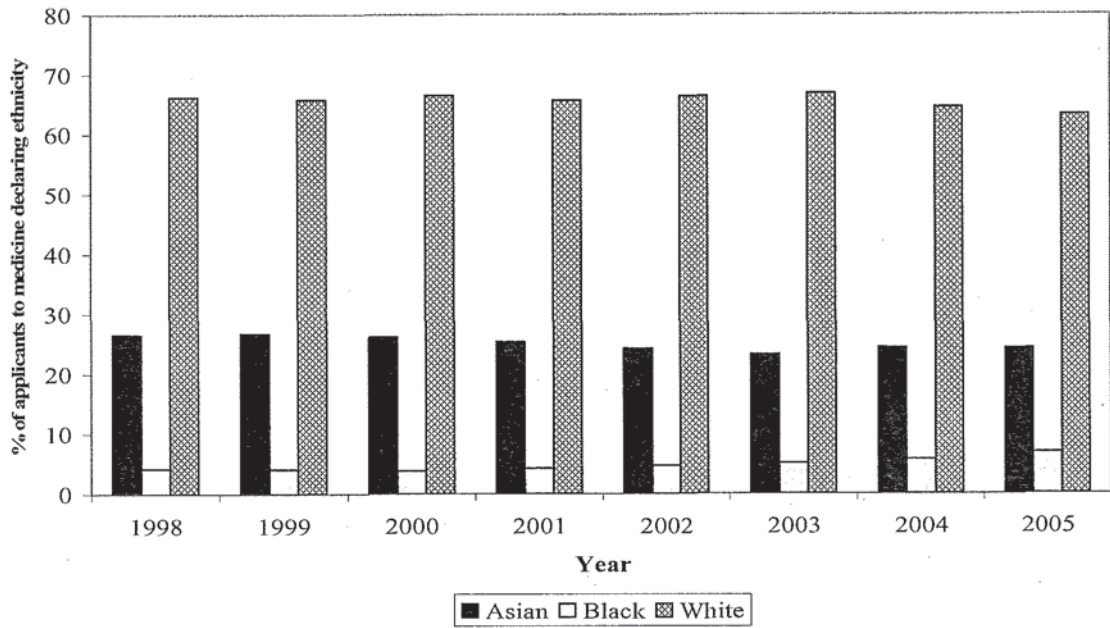
Figure 4.11: The numbers of male and female applicants to medicine from the Asian and White ethnic sub-groups from 1998 to 2005.

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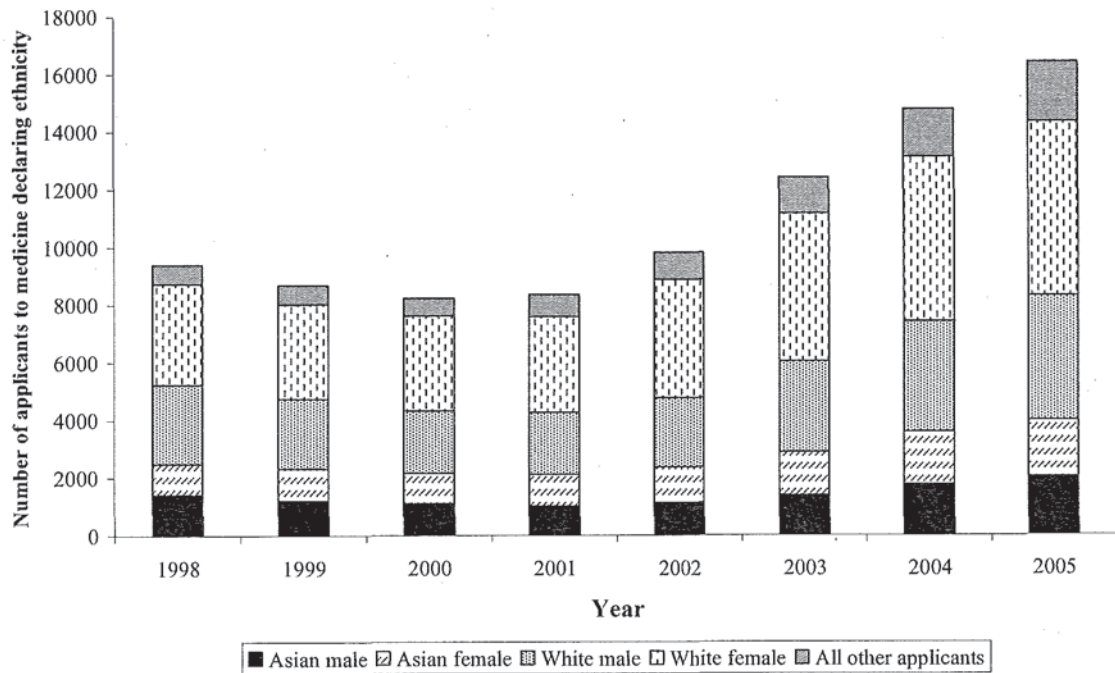
4.3.6 Ethnic origin of applicants to optometry.

The trends in the ethnic origin of applicants for places at university to study optometry are illustrated in figure 4.12 below.

Figure 4.12: The proportion of applicants to optometry declaring their ethnic origin as "Asian", "Black" or "White" from 1998 to 2005.
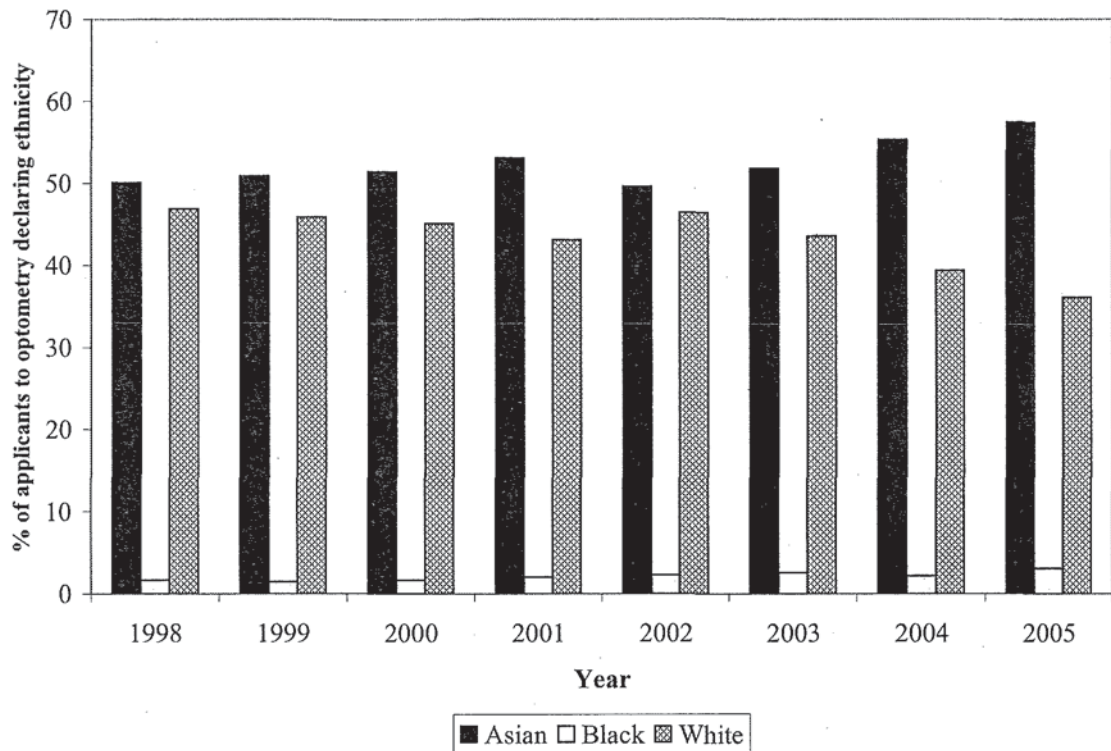
It can be seen that since 1998 approximately 50% or more of applicants to study optometry have been from the Asian sub-group. This proportion appears to be increasing, with a corresponding decrease in White applicants. The proportion of Black applicants to optometry has consistently been low, with between 1.5% and 3% of the total applicant pool. As reported in section 4.2, the majority of applicants to study optometry have been female, with over 50% of applicants each year, peaking in 2002 with 64.3%. Between 1998 and 2003, the proportions of Asian and White females remained roughly equal with about 30% of the applicant pool attributable to each of these sub-groups. However, in 2004, the proportions diverged, with an increase in Asian female applicant numbers and a corresponding decrease in White female applicants. In 2005, the proportion of White female applicants stood at 23.3% (n=385) whilst Asian females had reached 33.2% (n=548). The proportion of Asian male applicants decreased from 24% (n=441) in 1998 to 18.9% (n=247) in 2002, but have since steadily recovered until 2005 where the figure was 24.2% (n=399). The proportion of White male applicants has been falling steadily from

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19.6% (n=360) in 1998 to just 12.8% (n=211) in 2005. The fluctuations in the numbers of Asian and White applicants are illustrated in figure 4.13.

Figure 4.13: The numbers of male and female applicants to optometry from the Asian and White ethnic sub-groups from 1998 to 2005.
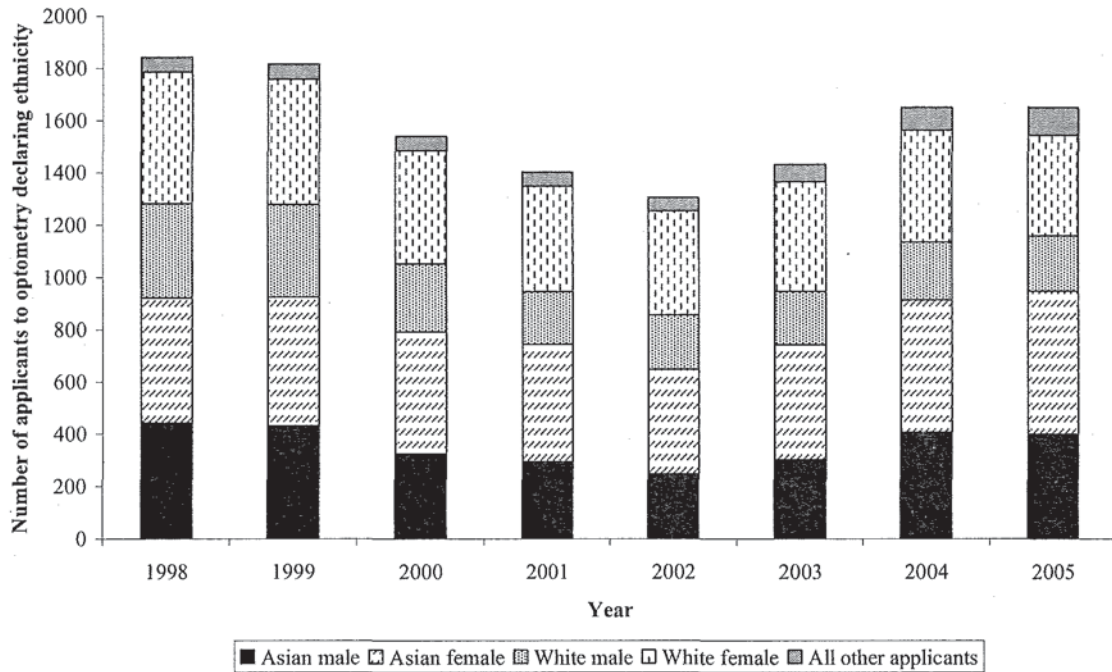
4.3.7 Ethnic origin of applicants to pharmacy.

The trends in the ethnic origin of applicants for places at university to study pharmacy are illustrated in figure 4.14 overleaf. It can be seen that until 2002, the largest ethnic group applying to study pharmacy was that of White applicants, although the difference in numbers was small.

Figure 4.14: The proportion of applicants to pharmacy declaring their ethnic origin as "Asian", "Black" or "White" from 1998 to 2005.
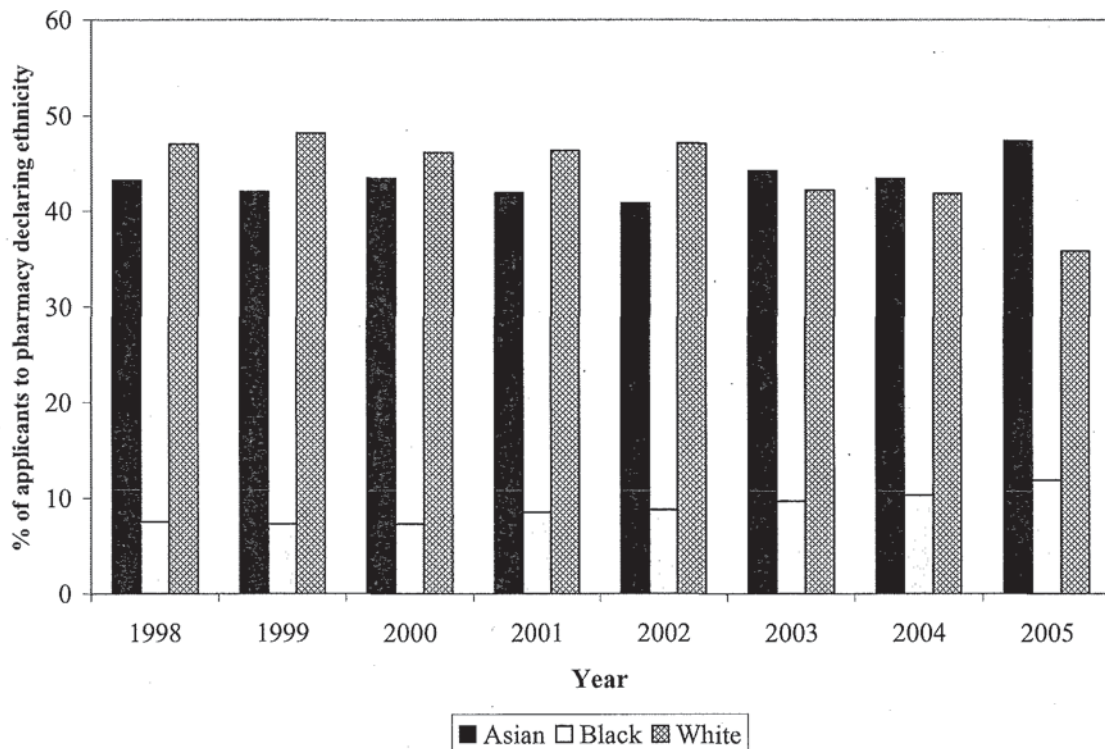
Once again, as with medicine and optometry, the lowest proportion of Asian applicants was seen in 2002. In 2003, the trend was reversed with the proportion of both Asian and Black applicants rising with a corresponding fall in the proportion of White applicants. The trend in the increase in proportion of Black applicants has continued, whilst the proportion of Asian and White applicants remained steady in 2004. However, the proportion of Asian applicants rose further in 2005, with a large fall of 6% in the proportion of White applicants (down from 41.8% in 2004 to 35.8% in 2005).

Until 2004, the largest sub-group of applicants to study pharmacy was that of White females, with 27.6% (n=1025) of the total applicants in 1998, rising to 30.7% of the total applicants in 2001 (n=1043) and 2002 (n=992). These figures have been falling since 2003 and there was a drop of 5% between 2004 and 2005, which accounts for the large fall in the proportion of White applicants overall. As with dentistry, the proportion of White male applicants has been falling over the 8 year period from 19.4% (n=722) in 1998 to 14.5% (n=734) in 2005. Again, as with medicine and optometry, the proportion of Asian male applicants reached its lowest point in 2002, but has steadily increased until, in 2005 the proportion (22.6%, n=1141) was greater than that of White females. The proportion of

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Asian female applicants has gradually increased from 19.7% (n=733) in 1998 to 24.7% (n=1248) in 2005. When the absolute numbers are examined in isolation, it can be seen that the numbers of White male and female applicants have remained constant whilst the numbers of Asian male and female applicants have increased since 1998.

The proportion of Black male applicants to pharmacy is lower than that of Black female applicants, but both have been rising steadily since 1998 and pharmacy is the only one of the four courses where Black applicants make up a significant proportion of the total applicant pool. The fluctuations in the numbers of Asian, Black and White applicants by gender are illustrated in figure 4.15.

Figure 4.15: The numbers of male and female applicants to pharmacy from the Asian, Black and White ethnic sub-groups from 1998 to 2005.
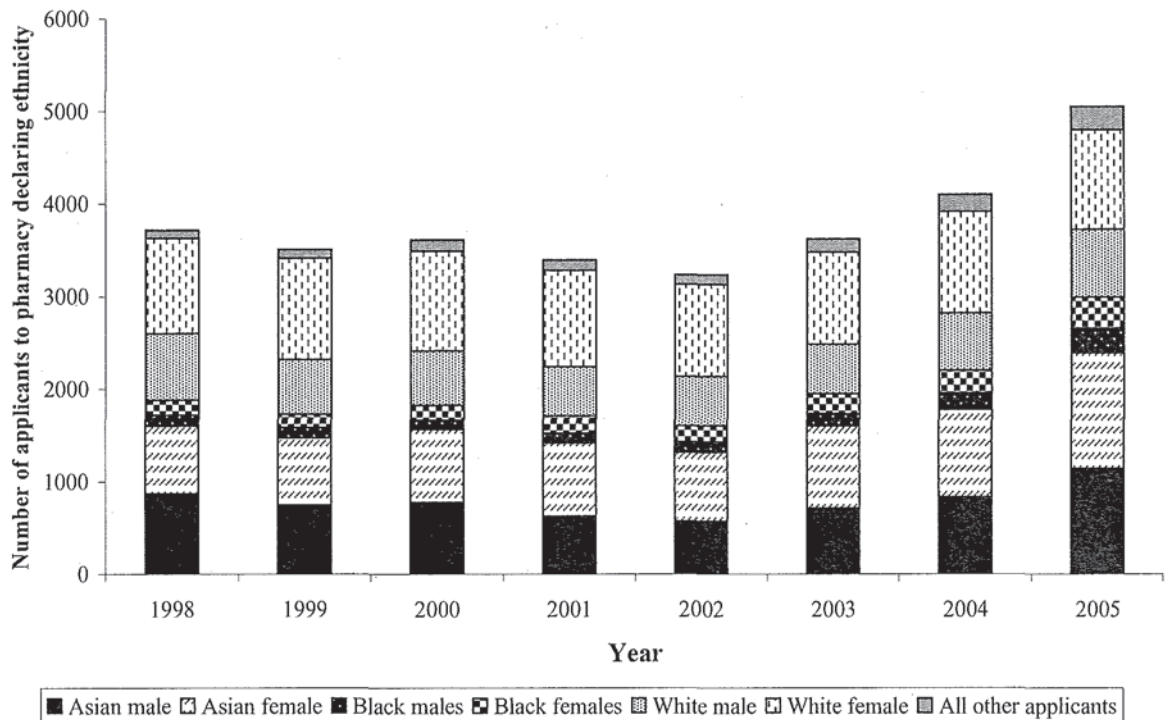
4.4   Socio-economic status of applicants

Social Class and NS-SEC are based on an applicant's parental occupation (or the occupation of the person contributing the highest income to the household if the applicant is aged 21 years or over). The NS-SEC categories used are given in table 4.7.

Table 4.7: NS-SEC (Eight-class version) as used by UCAS.

NS-SEC Classification	Description
1	Higher managerial and professional occupations
2	Lower managerial and professional occupations
3	Intermediate occupations
4	Small employers and own-account workers
5	Lower supervisory and technical occupations
6	Semi-routine occupations
7	Routine occupations

Examples of the types of professions / jobs included in each classification include:

- Classification 1: Medical practitioners, dentists, pharmacists, barristers;

- Classification 2: Ophthalmic opticians, school teachers, social workers, laboratory technicians;

- Classification 3: Dispensing optician, accounts clerk, draughtsperson;

- Classification 4: Bricklayer, plasterer;

- Classification 5: Radio, TV and video engineers, toolmaker;

- Classification 6: Scaffolder, sheet metal worker;

- Classification 7: Glazier, welder, sewing machinist, butcher.

Table 4.8 shows the proportions of applicants to UCAS for a place to study in higher education between 2002 and 2006.

Table 4.8: The average proportions of applicants to UCAS from each of the seven NS-SEC socio-economic classifications used by UCAS from 2002 to 2006.(74)

	NS-SEC classification	Average proportion of applicants to UCAS 2002-2006
1	Higher managerial and professional occupations	16.6%
2	Lower managerial and professional occupations	24.1%
3	Intermediate occupations	11.9%
4	Small employers and own account workers	5.9%
5	Lower supervisory and technical occupations	3.8%
6	Semi-routine occupations	11%
7	Routine occupations	4.7%

From these tables, it can be seen that a disproportionately large number of applicants to UCAS are from NS-SEC Classification 1 – double the proportion within the general population of England and Wales.

4.4.1 General trends in socio-economic status of applicants

When the four healthcare courses under consideration in this study are compared with respect to the socio-economic status of their applicants over the period 1998 to 2005, it can be seen that both dentistry and medicine attract a large proportion of their applicants from the first NS-SEC class of higher managerial and professional occupations. Approximately one third of dentistry applicants are placed in this classification, with medicine attracting over 40% of its applicants from this classification. Both optometry and pharmacy attract approximately one quarter of their applicants from this particular socio-economic background. All four courses have attracted similar proportions of applicants from NS-SEC classes 2 and 3, but optometry and pharmacy attract a larger proportion of applicants from the last three NS-SEC classes. Nearly 15% of pharmacy applicants come from NS-SEC class 6 – semi-routine occupations. These figures are summarized in figure 4.16.

Figure 4.16: The average percentage of applicants from each NS-SEC classification to dentistry, medicine, optometry and pharmacy from 1998 to 2005.
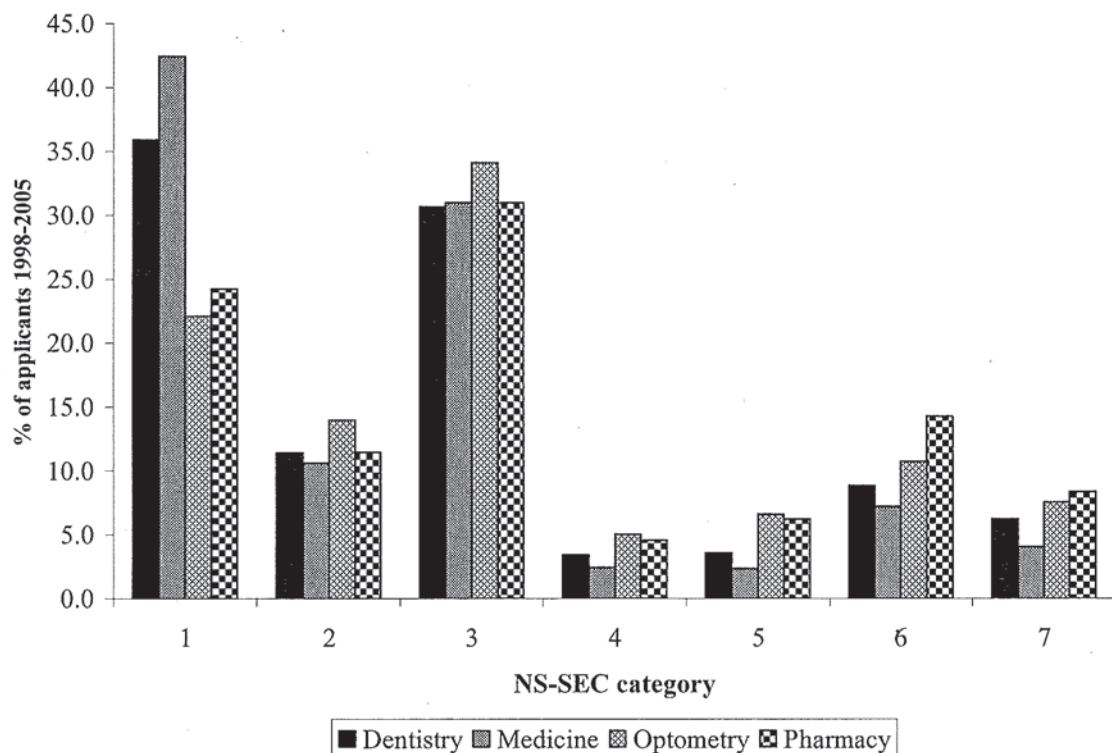
4.4.2   Socio-economic status of Asian applicants

The socio-economic status of Asian applicants to all four courses is illustrated in figure 4.17. Medicine attracts the largest proportion of its Asian applicants from NS-SEC class 1 – higher managerial and professional occupations, which includes medical practitioners, dentists and pharmacists. This suggests that these applicants are aiming to enter the same profession as their parents, or a profession of similar socio-economic status (e.g. the profession of medicine being a family occupation, or other courses being perceived as "easier" and of lower socio-economic status). Apart from Asian applicants from NS-SEC class 3, medicine attracts similar proportions of Asian applicants to the overall trend from each of the social classification groups as shown in figure 4.17.

Figure 4.17: The socio-economic status of Asian applicants to dentistry, medicine, optometry and pharmacy from 1998 to 2005.
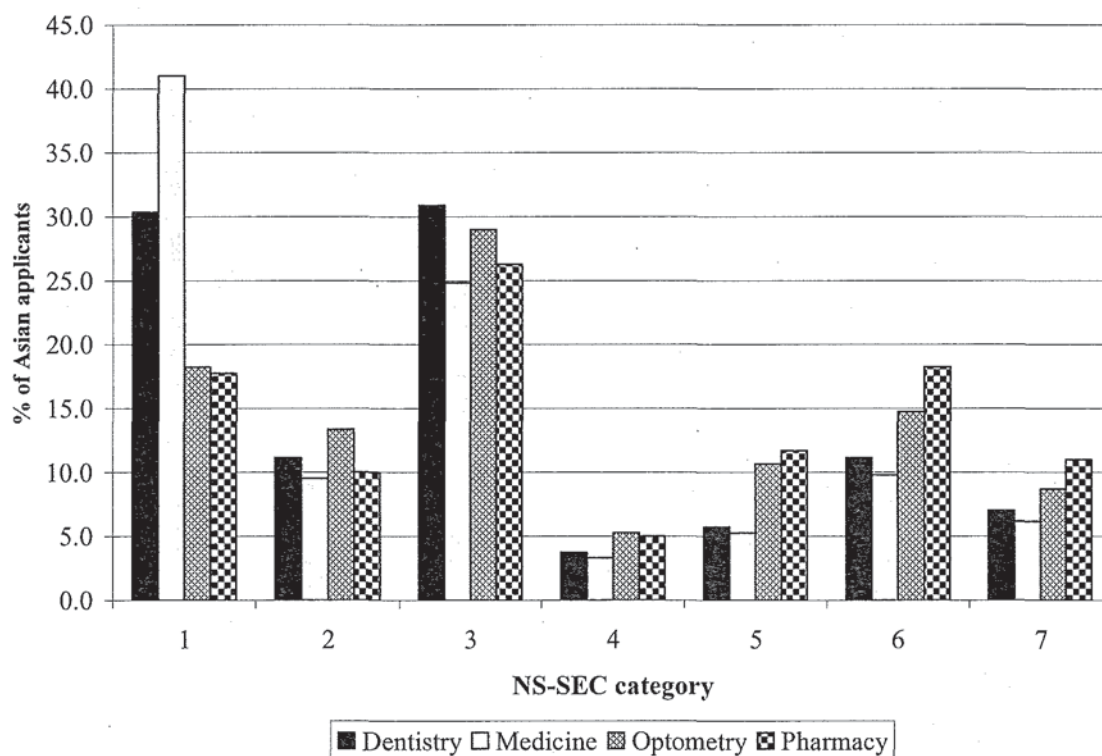
Fewer Asians from NS-SEC class 3 apply to medicine than the overall trend in applicants. The proportion of Asian applicants to dentistry from each of the social classification groups is similar to the overall trend in applicants. All four courses attract approximately one quarter of their Asian applicants from NS-SEC class 3, suggesting that there is an aspirational element for these applicants, wanting to better themselves. Both pharmacy and optometry attract nearly one third of their Asian applicants from NS-SEC classes 5 and 6, approximately double that of the overall trend in applicants and of both dentistry and

medicine. This suggests that these courses are possibly seen as more achievable to applicants from these particular socio-economic backgrounds.

4.4.3 Socio-economic status of White applicants

The socio-economic status of White applicants to all four courses is illustrated in figure 4.18.

Figure 4.18: The socio-economic status of White applicants to dentistry, medicine, optometry and pharmacy from 1998 to 2005.
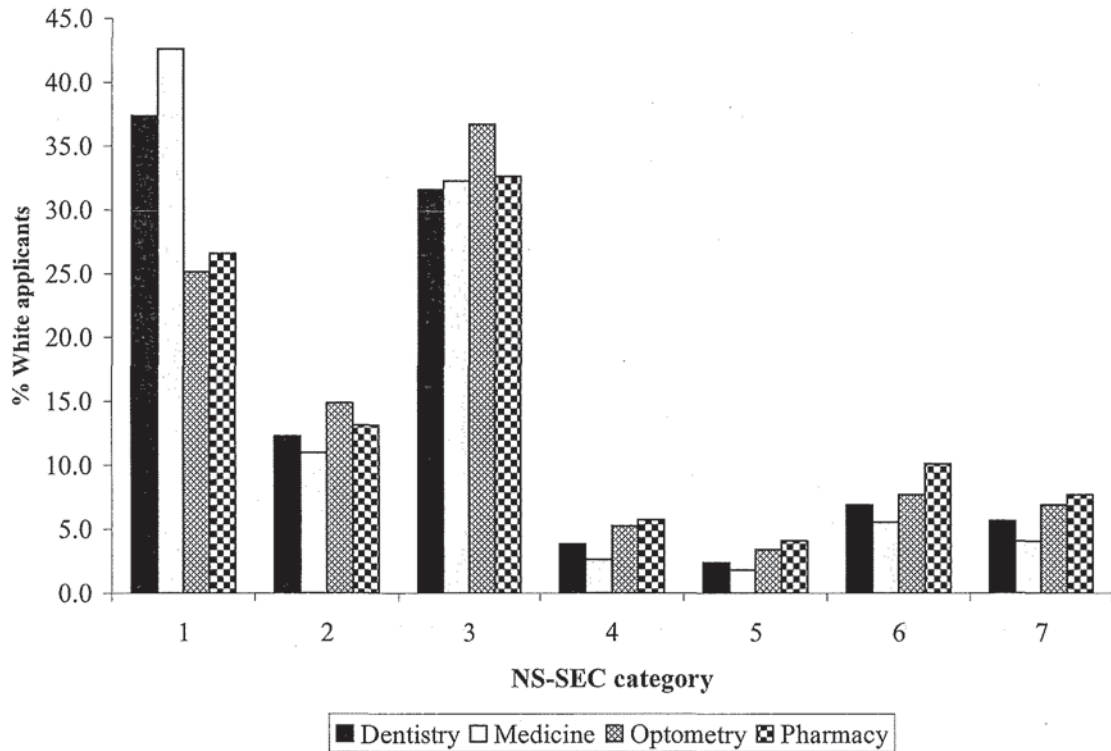
Once again, medicine attracts the largest proportion of its White applicants from NS-SEC class 1. White applicants to dentistry differ in their proportions, with approximately 5% more coming from NS-SEC class 1 than NS-SEC class 2 unlike the Asian applicant pool which provided equal numbers of applicants to dentistry from each of these classes. With medicine, optometry and pharmacy, there are higher proportions of White applicants from NS-SEC class 3 than Asian applicants from this class, whilst the proportion is the same for dentistry; again suggesting an aspirational element in the application to study for these professions. There are correspondingly lower proportions of White applicants from NS-SEC classes 5 and 6 for all four courses.

4.5 Key Findings

The following is a summary of the key findings of the analysis of the UCAS data:

- There was a steady decline in the number of applicants to all four healthcare courses under consideration to a low point between 2000 and 2001. Since this point there has been an increase in the number of applicants to all four courses. In dentistry, medicine and pharmacy, the number of applicants in 2005 exceeded the number of applicants in 1998. This is not the case for optometry.

- Approximately one third of applicants to pharmacy over the period under consideration appear to be using the course as a "back up" to medicine or dentistry.

- By 2005, the majority of applicants to all four healthcare courses were female.

- Medicine attracts the highest proportion of White applicants and pharmacy the highest proportion of Black applicants. Over 40% of applicants to dentistry, optometry and pharmacy and one quarter of applicants to medicine were Asian.

- The largest sub-group of applicants to medicine was White females. The largest sub-group of applicants to dentistry was Asian males whilst in both pharmacy and optometry it was Asian females.

- Medicine and dentistry had the largest proportion of applicants from NS-SEC Classification 1 (higher managerial and professional occupations). Optometry and Pharmacy attracted a higher proportion of applicants from NS-SEC Classification 3 (intermediate occupations).

- Approximately 90% of White applicants to medicine were from NS-SEC Classifications 1, 2 and 3. Approximately 75% of White applicants to pharmacy were from the same Classifications.

- Approximately 75% of Asian applicants to medicine were from NS-SEC Classifications 1, 2 and 3. Approximately 50% of Asian applicants to pharmacy were from the same Classifications.

Chapter 5:   Year 13 questionnaire results

This chapter presents the results of the self-completion questionnaire administered to those Year 13 students who had expressed an interest through the UCAS Card scheme in studying pharmacy.

1569 questionnaires were posted in August 2005, resulting in 245 returned. 3 questionnaires were returned as the recipient was no longer known at that address. A second mailing was sent in January 2006 to those who had not responded to the August administration, resulting in a further 239 returned. In this second mailing, a reply slip was included giving the respondent an opportunity to inform the researcher as to the reason why they did not wish to complete the questionnaire. Of 1321 questionnaires posted in the second mailing, 179 respondents returned a reply slip. The response rate is summarized below.

Table 5.1: Summary of responses to Year 13 questionnaire distribution.

Total questionnaires distributed	**1569**
Number returned after first mailing	245
Number returned after second mailing	239
Total returned after second mailing	**484**
Number of reply slips returned	179
Total number of responses	**663**
Number returned unopened	3
Valid sample size	**1566**
Response rate	**42.3%**

The responses of the 179 respondents who returned a reply slip from the second mailing are shown in table 5.2.

Table 5.2: Summary of reasons given for non-response to the Year 13 questionnaire.

Reason	Number of responses	% of responses
I was never interested in studying pharmacy at university	34	19%
I was interested in applying to study pharmacy, but have since decided that I will not be doing so	126	70.4%
I do not like completing questionnaires	11	6.1%
Other	8	4.5%
Total	**179**	**100%**

5.1 Choice of course to study

The first question of the survey was designed to identify and eliminate those students who had decided that they did not wish to study pharmacy. Several options were presented to determine whether the respondent was considering applying to pharmacy only or whether pharmacy was amongst other courses being considered. These options are summarized in table 5.3. Medicine and dentistry were specifically given as options as analysis of UCAS application data (see page 107) would suggest that these are the most likely alternatives to the study of pharmacy. Those respondents who selected the final option "I will definitely not be applying to pharmacy" did not have to complete the main body of the questionnaire except for the demographic questions (Q19-26). Instead, these respondents were asked to complete two separate questions, the responses to which are analysed on page 128.

Table 5.3: The percentage and number of Year 13 respondents and the course(s) to which they had considered applying.

Subject(s) considered	Number (n=482)	% of respondents
I am going to apply to pharmacy only and no other subject	142	29.5
Pharmacy is my first choice but applying to other subjects	102	21.2
Medicine first choice, but also pharmacy	43	8.9
Dentistry first choice, but also pharmacy	17	3.5
I will be applying to pharmacy among other subjects	48	10.0
I am not sure whether I will be applying to pharmacy	42	8.7
I will definitely not be applying to pharmacy	88	18.3

Approximately two thirds of respondents indicated that they were considering applying to pharmacy and approximately half stated that pharmacy was their first choice.

5.2 Non Pharmacy respondents

Those respondents who selected option g) in question 1 – "I will definitely not be applying to pharmacy" – were asked to answer two different questions to other respondents. These were designed to investigate whether they would still be applying to study at university (see table 5.4), to which courses they were considering applying (see table 5.5) and why they were not applying to pharmacy.

Table 5.4: **The percentage and number of Year 13 respondents making an application through UCAS for 2006 entry to university (n=88).**

Response	Percentage of respondents (n = 88)
Yes	96.6 (n = 85)
No	3.4 (n = 3)

95.5% of respondents (n=84) provided an answer to the question on preferred subject(s) of study. An analysis of the responses is shown in table 5.5. This was a free format question and each respondent could list as many options as they wished. Only the ten most popular courses have been included in this table. 28 other subjects were mentioned by respondents to this question.

Table 5.5: **The number of choices of courses of Year 13 respondents who were definitely not going to apply to study pharmacy at university.**

Subject	Number
Medicine	25
Chemistry	8
Biochemistry	6
Maths	6
Biomedical Science	5
Biological Sciences	4
Chemical engineering	4
Optometry	4
Natural Sciences	3
Pharmacology	3

Approximately one third (29.8%) of those who were definitely not going to apply to pharmacy degree courses stated that they were considering applying for a place at medical school. 15 respondents (18%) stated that they were considering more than one subject for study at degree level.

87 respondents provided an answer to this free format question giving reasons for not choosing to study pharmacy. Five distinct themes emerged from the content analysis of these responses.

a)   Wanted to study another subject / never wanted to study pharmacy

40 respondents gave a reason that fits with the theme of having chosen to study another subject. Medicine was the most common example given.

"I am interested only in medicine. I do not want to do anything else."

"I have always wanted to do medicine and so applied to that. After working for one and a half years in a pharmacy, I would like to experience a different career in future."

b)   More career opportunities / wanting to keep career options open

12 respondents gave a reason that fits with this theme, with several stating that pharmacy was too specialized for them as a subject of study at university and that they were not yet sure that this was the direction in which they wanted to go.

"I would rather keep my options open than specialize at this stage as I am unsure whether or not pharmacy is for me. I feel that by studying chemistry, I could still go into pharmacy later on if I wished."

This latter comment may show that there is a possible misunderstanding of the nature of the career of pharmacy by some respondents.

c)   Positive or negative reinforcement of work experience

Eight of the ten respondents who gave this as a reason had work experience within pharmacy, varying from one day to one and a half years. The remaining two respondents who gave this as a reason had work experience within a medical environment. One respondent had undertaken work experience in both pharmacy and in accountancy and preferred the latter.

"I did some work experience at both a pharmacy and at an accountant's office. I enjoyed the work at the accountant's more than at the pharmacy. Also my experience at a hospital pharmacy was not as expected and the job of a pharmacist seemed repetitive"

In all cases, work experience helped these respondents to decide not to study pharmacy.

"Spent a weeks work experience in a pharmacy and decided the job did not suit me as there is not much hands on action."
"I cannot see myself doing it for the rest of my life after doing 3 months of weekend work experience at a pharmacy."

d)   Not enjoying chemistry / too much chemistry in the degree

This was cited by nine respondents as the reason they had chosen not to study pharmacy.

"It involves a lot of chemistry which I'm not too keen on."
"Optometry as it is not chemistry based."

e)   Grade requirements are too high / studying for the wrong qualifications

Nine respondents gave responses that fit within this theme as the reason for deciding not to apply to study pharmacy.

> *"Because I was not capable of getting a high enough grade in chemistry at A level."*

> *"Could not get the grades, and so like to keep my options open."*

A summary of the reasons given is shown in figure 5.1. None of the respondents gave more than one reason for choosing not to apply to study pharmacy.

Figure 5.1: Reasons given for not wishing to apply to study pharmacy and the number of respondents giving those reasons.
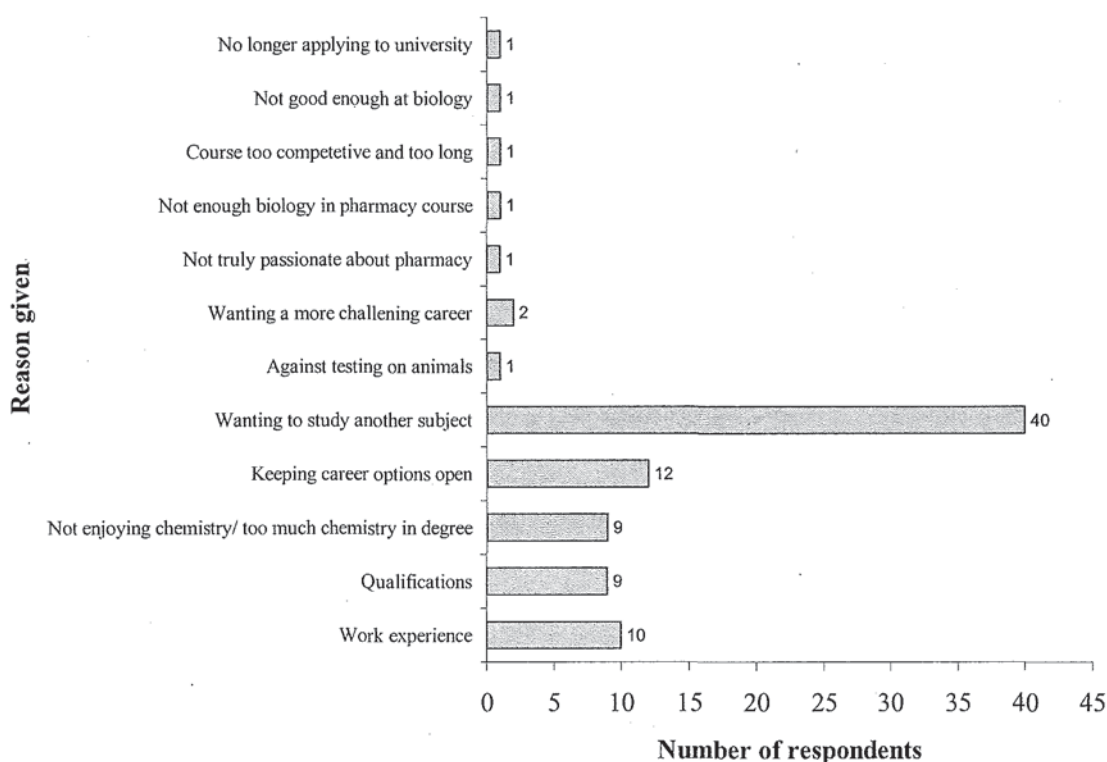
5.3   Sample Demography

5.3.1   Gender of respondents

392 respondents provided an answer to this question – see table 5.6.

Table 5.6:   The gender of Year 13 respondents (n=392).

Gender	Percentage of respondents (n=392)
Male	26.5% (n=104)
Female	73.5% (n=288)

5.3.2 Ethnic origin of respondents

392 respondents provided an answer to the question on ethnic background. The data is summarized in table 5.7.

Table 5.7: The percentage and number of male, female and total Year 13 respondents from each ethnic background (n=392).

Ethnic background	Male	Female	Total respondents
White	33.7% n=35	38.9% n=112	37.5% n=147
Black or Black British	5.8% n=6	10.1% n=29	8.9% n=35
Dual Heritage	4.8% n=5	2.4% n=7	3.1% n=12
Asian	43.3% n=45	37.2% n=107	38.8% n=152
Chinese or other ethnic group	11.5% n=12	9.7% n=28	10.2% n=40
Do not want to say	0.9% n=1	1.7% n=5	1.5% n=6
Total (gender)	**100% n=104**	**100% n=288**	**100% n=392**

When the ethnicity of the respondents to the questionnaire is compared to that of the total applicants to pharmacy in 2005 (the latest UCAS figures available), it can be seen that the two are very similar. It can be construed therefore that the respondents to the survey analysed in this chapter are representative of the applicant pool for pharmacy. The data is shown in table 5.8. UCAS data includes Chinese within the Asian sub-group and so the data from this questionnaire has been merged in a similar fashion.

Table 5.8: The percentage of male, female and total Year 13 respondents compared to the percentage of male, female and total applicants to pharmacy in 2005 from White, Black, Asian or dual heritage backgrounds.

Ethnic background	Male		Female		Total	
	UCAS 2005	Questionnaire	UCAS 2005	Questionnaire	UCAS 2005	Questionnaire
White	32.6%	33.7%	38.5%	38.9%	35.6%	37.5%
Black / Black British	11.8%	5.8%	12%	10.1%	11.9%	8%
Asian	50.6%	54.8%	44.6%	46.9%	47.6%	50.9%
Dual Heritage	1.9%	4.8%	1.7%	2.4%	1.8%	3.6%

5.3.3 Residential status

393 respondents provided an answer to the question on residential status. 95.7% of respondents (n = 377) were UK or EU based, with 4.1% (n = 16) stating that their permanent home was outside the EU.

5.3.4 Subjects being offered at A level for entry to university

This question was designed to find the nature of qualifications offered by respondents and for those studying A levels, the subjects of study. Respondents were asked to state the subjects they were studying at A level. A predetermined list of A level subjects was given based upon the researcher's experience with pharmacy admissions applications. These were chemistry (which is mandatory for the study of pharmacy), mathematics, physics and information technology (IT). Space was given for respondents to list any other subjects they were studying. 398 respondents provided answers to the question of current subjects of study, of whom 393 were studying at least one A level. Table 5.9 summarises the A level subjects being offered by respondents. Table 5.10 summarises all other qualifications being offered by respondents.

Table 5.9: A level subjects offered by Year 13 respondents.

A level subject	Number	A level subject	Number
Chemistry	385	Art / Fine Art	4
Biology	361	Further Maths	3
Maths	212	Law	3
Physics	78	Politics	3
Psychology	60	Arabic	3
IT	39	Urdu	3
English (Language or Literature)	34	Music	2
Geography	26	Philosophy and Ethics	2
Business Studies	22	Irish	2
History	23	Media Studies	2
French	15	Classics	1
Sociology	15	Textiles	1
Economics	14	Accounts	1
Religious Studies	13	Biblical Hebrew	1
Physical Education / Sports Studies	7	Film Studies	1
German	7	Geology	1
Home Economics	8	Latin	1
Chinese	6	Persian	1
Spanish	4	Technology	1

Table 5.10: Non-A level subjects offered by Year 13 respondents.

Non-A level subject	Number
AVCE Health and Social Care	4
BTEC ND Science	2
AVCE Science	2
AVCE Business	-1
Access to Life Science	1
BTEC NC Medical Science	1
BTEC NC Pharmacy Services	1
BTEC ND Forensic and Industrial Science	1

Of those studying at least one A level subject, 98% of were studying chemistry. Five respondents were only studying one science A level of which three were not studying chemistry. 98.7% of respondents studying A levels (n=388) were studying at least two pure science subjects (chemistry, biology, mathematics, physics) and 239 respondents (60.8%) were studying three pure science subjects at A level. Psychology was the fifth most popular subject, being studied by 16% of respondents. Three subjects which are more discursive in nature namely English (language or literature), geography and history are within the top ten most popular subjects of study by this cohort. However, each of these subjects was being studied by less than 10% of respondents. These results would suggest that pharmacy is considered very much as a scientific subject and so the majority of those considering applying to study pharmacy were studying pure science subjects.

The typical requirement for admission to a school of pharmacy is three A levels, with Chemistry being compulsory. The most common combination of 3 A level subjects being offered by this cohort was that of Chemistry, Biology and Mathematics with 187 respondents (47% of all respondents) indicating that they were studying this combination of A level subjects. 88.4% of all respondents (n = 352) were offering a combination of Chemistry and Biology A levels. A total of 38 A level subjects and 8 non-A level subjects were being offered by the respondents. Of the 398 respondents to this question, 5 were not studying for qualifications that would make them eligible for entry to an MPharm programme.

5.3.5 Other courses considered

Respondents were asked to identify any other university courses for which they had considered applying. This was a free type answer, allowing the respondents to inform the

researcher of all the courses that had been considered. 385 respondents provided this information, the majority of whom had considered more than one course; the results are summarized in table 5.11. A total of 66 other university courses had been considered by the respondents, with 28% having considered applying to medicine. Just over half this number had considered applying to dentistry (15%) and a similar number (14%) optometry, but other healthcare professions (physiotherapy, radiography and nursing) were considered by less than 10% of respondents each. Straight sciences, including chemistry, pharmacology and biological sciences were more popular than these latter healthcare professions, with chemistry (19%) the second most popular to medicine as an alternative subject for consideration for the respondents. This implies that those respondents who were considering pharmacy as a subject for study at university were interested in scientific subjects rather than just healthcare professions.

Table 5.11: Other courses considered for study at university by Year 13 respondents.

Subject	No.	Subject	No.	Subject	No.
Medicine	108	Business Studies	8	Sports Science	3
Chemistry	73	Chemical Engineering	7	Art	2
Biomedical Science	64	Genetics	7	English	2
Dentistry	57	Microbiology	7	Environmental Science	2
Biochemistry	55	Teaching	7	German	2
Optometry	54	French	6	Occupational Therapy	2
Pharmacology	37	Other healthcare	6	Zoology	2
Biology	36	Engineering	5	Anthropology	1
Pharmacy only	30	Natural Sciences	5	Cancer Biology	1
Maths	24	Toxicology	5	Civil Engineering	1
Chemical and Pharmaceutical Sciences	18	Audiology	4	Crime Scene Investigation	1
Forensic Science	18	Finance	4	Criminology	1
Physiotherapy	17	Medical Sciences	4	Electrical Engineering	1
Psychology	15	Neuroscience	4	Fashion	1
Medicinal Chemistry	13	Veterinary Science	4	Geography	1
Radiography	13	Architecture	3	Geology	1
Computing	12	Forensic Pathology	3	Journalism	1
Dietetics and Nutrition	11	History	3	Material Science	1
Law	11	Molecular Biology	3	Music	1
Nursing	11	Physics	3	Philosophy	1
Accountancy	9	Physiology	3	Religious Studies	1
Biological Science	8	Speech Therapy	3	Sociology	1

This impression is reinforced when the responses of those who had selected option 1 for question 1, *"I am going to apply to pharmacy only and no other subject"* are analysed. These responses are summarized in table 5.12.

Table 5.12: The alternative courses considered for study by Year 13 respondents at university prior to the decision to only apply to study pharmacy.

Subject	Number	Subject	Number
Medicine	30	Genetics	2
No other subject	30	Law	2
Dentistry	25	Physiotherapy	2
Chemistry	24	Spanish	2
Optometry	23	Teaching	2
Biochemistry	19	Architecture	1
Biology	14	Art / Design	1
Biomedical Science	12	Biochemical Engineering	1
Maths	10	Business	1
Pharmacology	10	Clinical Science	1
Forensic Science	7	Dietitics / Nutrition	1
Pharmaceutical Science	7	Economics	1
Psychology	6	Finance	1
Radiography	4	Journalism	1
Accountancy	3	Material Science	1
Computing	3	Medicinal Chemistry	1
Microbiology	3	Neuroscience	1
Chemical Engineering	2	Nursing	1
French	2	Sociology	1

Of the 142 respondents to the survey who were intending to only apply to study pharmacy, 138 gave an answer to this question. Of these, 22% stated that they had not considered any other subject for study at university and the same number stated that they had considered applying for medicine. Dentistry had been considered by slightly fewer respondents (18%) and 17% had considered chemistry before making their decision to apply only for pharmacy. Optometry was the only other healthcare profession that had attracted any consideration. The remaining most popular subjects that had been considered were very much from the biological sciences field – biochemistry, biology, biomedical science and pharmacology with mathematics being the only exception. This reflects the predominance of the combination of chemistry and biology A levels being studied by the respondents as shown in the responses to question 24.

5.4 Reasons for choosing to study pharmacy

Questions 4 – 6 were designed to investigate any influencing factors or reasons for choosing to study pharmacy. The questions were based upon a review of the literature (see chapter 2). In each of these questions, a four point rating scale was used to eliminate neutral answers. Overall mean rank scores were calculated for each statement. A Mann-Whitney U test and a two-factor ANOVA were performed using SPSS v12.0.1 for each question to test for significant differences in responses.

5.4.1 General influences

Question 4 investigated the perceived influence of seventeen factors upon the decision to choose to apply to study pharmacy. Table 5.13 overleaf summarises the data. A mean rating value of 2.5 (the mathematical mid-point on the four point Likert scale used in the questionnaire) indicates neutrality. A low mean rating score indicates a higher influence upon respondents. Figure 5.2 illustrates the data graphically by examining the differences between the two extremes of the Likert scale used for the question (i.e. the difference between the percentage of respondents indicating that a factor was a strong influence and the percentage of respondents indicating that a factor was not a strong influence upon their decision). The strength of responses (either positive or negative) shown in the figure correspond to the mean rating based upon the Likert rating for each statement (where 1 = strong and 4 = not strong).

Table 5.13: The perceived influence of seventeen factors upon Year 13 pupils' decision to apply to study pharmacy.

Statement	Degree of Influence				Total	Mean rating	Rank*
	Strong	2	3	Not strong			
I like science / am good at science at school	70.6% (n=278)	27.7% (n=109)	1.5% (n=6)	0.3% (n=1)	100% (n=394)	1.31	3
I want to do a science based course	74.3% (n=292)	21.9% (n=86)	3.3% (n=13)	0.5% (n=2)	100% (n=393)	1.30	2
I want to work in a well respected profession	70.1% (n=276)	24.6% (n=97)	4.8% (n=19)	0.5% (n=2)	100% (n=394)	1.36	5
I want to work in a well paid profession	54.5% (n=214)	34.9% (n=137)	10.2% (n=40)	0.5% (n=2)	100% (n=393)	1.57	7
I want a job with good career opportunities	75.9% (n=299)	22.3% (n=88)	1.5% (n=6)	0.3% (n=1)	100% (n=394)	1.26	1
I think pharmacy will be intellectually satisfying	50.1% (n=196)	38.9% (n=152)	9.5% (n=37)	1.5% (n=6)	100% (n=391)	1.62	8
I want a job where I am socially useful	56.7% (n=223)	33.6% (n=132)	8.1% (n=32)	1.5% (n=6)	100% (n=393)	1.54	6
I want to work with patients	50% (n=196)	33.9% (n=133)	12.2% (n=48)	3.8% (n=15)	100% (n=392)	1.70	9
I want to own my own business	19.4% (n=76)	30.1% (n=118)	28.3% (n=111)	22.2% (n=87)	100% (n=392)	2.53	15
I want the opportunity for self employment	20.1% (n=79)	34% (n=134)	26.4% (n=104)	19.5% (n=77)	100% (n=394)	2.45	14
I want the opportunity for part time work	17.3% (n=68)	26% (n=102)	29.7% (n=117)	27% (n=106)	100% (n=393)	2.67	16
I am attracted by the financial rewards	29.2% (n=115)	40.6% (n=160)	22.6% (n=89)	7.6% (n=30)	100% (n=394)	2.09	12
I want flexible working hours	33.3% (n=131)	36.9% (n=145)	21.4% (n=84)	8.4% (n=33)	100% (n=393)	2.05	11
I want a profession where you can always get a job	71.8% (n=283)	22.1% (n=87)	4.8% (n=19)	1.3% (n=5)	100% (n=394)	1.35	4
I am not sure that I will work (within paid employment)	1.3% (n=5)	6.3% (n=24)	22.1% (n=85)	70.3% (n=270)	100% (n=384)	3.61	17
I want to work with medicine or in the medical profession	47.4% (n=184)	35.6% (n=138)	12.1% (n=47)	4.9% (n=19)	100% (n=388)	1.74	10
I want to study medicine / dentistry or another medically related subject	30.8% (n=121)	25.2% (n=99)	20.6% (n=81)	23.4% (n=92)	100% (n=393)	2.36	13

*Rank is based upon the mean rating for the factor.

Figure 5.2: Influence of seventeen factors on Year 13 respondents' decision to apply to study pharmacy. Results are shown as the difference between the % of respondents who rated as strong and the % of respondents who rated as not strong.
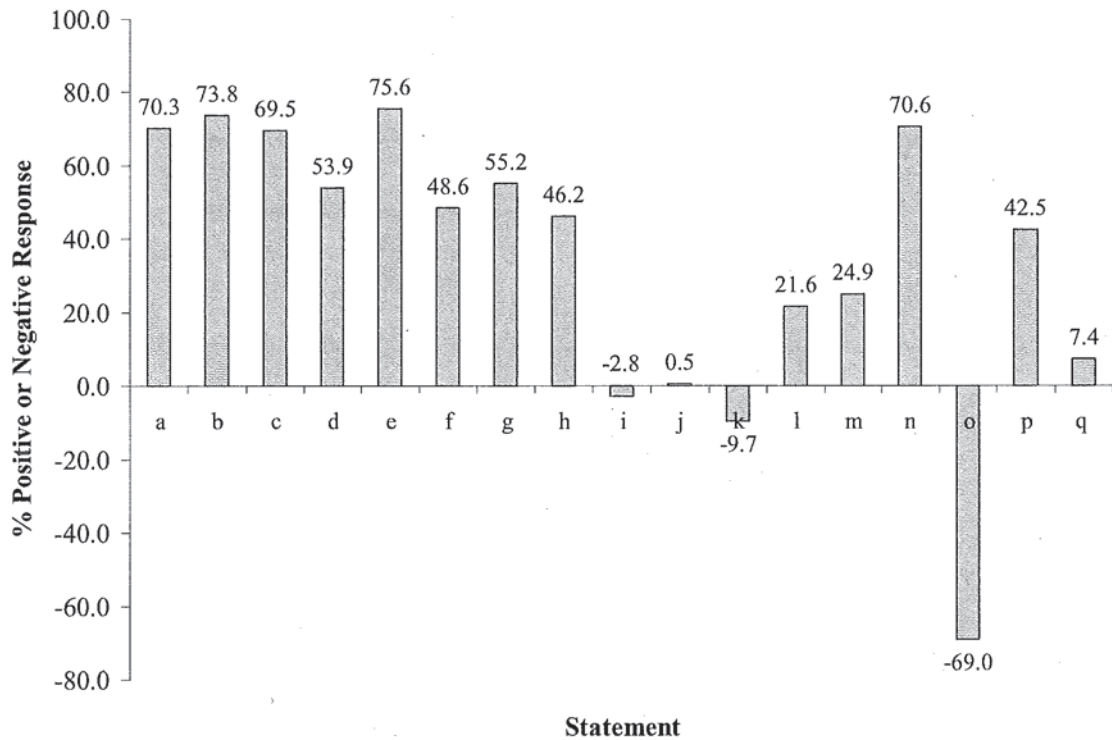
Key:

a	I like science / am good at science at school	j	I want the opportunity for self employment
b	I want to do a science based course	k	I want the opportunity for part time work
c	I want to work in a well respected profession	l	I am attracted by the financial rewards
d	I want to work in a well paid profession	m	I want flexible working hours
e	I want a job with good career opportunities	n	I want a profession where you can always get a job
f	I think pharmacy will be intellectually satisfying	o	I am not sure that I will work (within paid employment)
g	I want a job where I am socially useful	p	I want to work with medicine or in the medical profession
h	I want to work with patients	q	I want to study medicine / dentistry or another medically related subject
i	I want to own my own business		

It can be seen that the graphical illustration of the extremes of the data (figure 5.2) are a good fit with the mathematical analysis of the data as shown in table 5.13. It is reasonable to suggest that the method of analysis of extremes of data can reliably show trends evident in the mathematical data.

Five statements showed a strongly net positive result of 70% or more. Two of these (statements **a** and **b**) were related to the perceived scientific nature of the course (*"I like science / am good at science at school"*; *"I want to do a science based course"*), with the remaining three (statements **c**, **e** and **n**) all related to job and career opportunities (*"I want to work in a well respect profession"*; *"I want a job with good career opportunities"*; *"I want a profession where you can always get a job"*). The strongest net positive result was that of wanting a job with good career opportunities (+75.6%) and this statement also had the strongest mean rating (1.26). Three quarters of respondents stated that that was a strongly influencing factor and only one respondent stated that this was not a strongly influencing factor upon their decision to apply to study pharmacy. Only three options resulted in a net negative result. Option (o) ("I am not sure that I will work (within paid employment)) was included to establish whether respondents were choosing to study pharmacy for the sake of the course only and this gained the highest net negative result. The opportunity for part time work resulted in the next highest negative result (-9.7%, mean rating 2.67).

It would appear from these results that the main general drivers for choosing to study pharmacy were the desire to study a scientific subject and the desire to work in a respected profession that offers good job and career opportunities. Social usefulness, working with patients and pay, whilst being positive factors, were not the most important drivers and those factors associated with future work / life balance were the least important.

Some significant differences were observed between the responses of Asian and White respondents and between the responses of male and female respondents. These are summarized in tables 5.14 and 5.15.

Table 5.14: A summary of the significance of differences in the perceived influence of seventeen factors upon the decision of White and Asian Year 13 respondents to apply to study pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
I like science / am good at science at school	1.18	1.35	**0.001**
I want to do a science based course	1.30	1.29	0.869
I want to work in a well respected profession	1.46	1.27	**0.020**
I want to work in a well paid profession	1.61	1.54	0.407
I want a job with good career opportunities	1.29	1.24	0.601
I think pharmacy will be intellectually satisfying	1.77	1.48	**0.001**
I want a job where I am socially useful	1.64	1.44	**0.008**
I want to work with patients	1.81	1.58	**0.015**
I want to own my own business	2.83	2.29	**≤ 0.001**
I want the opportunity for self employment	2.72	2.23	**≤ 0.001**
I want the opportunity for part time work	2.67	2.64	0.792
I am attracted by the financial rewards	2.07	2.06	0.913
I want flexible working hours	2.22	1.89	**0.003**
I want a profession where you can always get a job	1.36	1.34	0.549
I am not sure that I will work (within paid employment)	3.75	3.51	**0.001**
I want to work with medicine or in the medical profession	1.72	1.75	0.887
I want to study medicine / dentistry or another medically related subject	2.52	2.34	0.175

White respondents appear to attach more importance to liking or being good at science as a reason for choosing to study pharmacy than Asian respondents. Asian respondents appear to attach more importance to factors directly related to the profession of pharmacy: a well respected profession, intellectual satisfaction, social usefulness and working with patients. Asian respondents also attached more importance to owning a business and self employment than White respondents.

Table 5.15: A summary of the significance of differences in the perceived influence of seventeen factors upon the decision of male and female Year 13 respondents to apply to study pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
I like science / am good at science at school	1.37	1.29	0.278
I want to do a science based course	1.39	1.27	0.126
I want to work in a well respected profession	1.44	1.33	0.157
I want to work in a well paid profession	1.57	1.57	0.946
I want a job with good career opportunities	1.30	1.24	0.239
I think pharmacy will be intellectually satisfying	1.62	1.62	0.918
I want a job where I am socially useful	1.60	1.53	0.423
I want to work with patients	1.84	1.65	**0.026**
I want to own my own business	2.32	2.61	**0.016**
I want the opportunity for self employment	2.29	2.52	**0.048**
I want the opportunity for part time work	3.00	2.55	**≤ 0.001**
I am attracted by the financial rewards	1.96	2.14	0.086
I want flexible working hours	2.12	2.02	0.270
I want a profession where you can always get a job	1.28	1.38	0.389
I am not sure that I will work (within paid employment)	3.64	3.61	0.773
I want to work with medicine or in the medical profession	1.77	1.74	0.548
I want to study medicine / dentistry or another medically related subject	2.29	2.39	0.489

Working with patients and part time work were of more importance to female respondents than males. These could be classified as stereo-typically "female" responses. Male respondents ranked business ownership and self-employment as more important than female respondents.

No significant interactions between the gender and ethnic background of respondents were found when ANOVA was performed.

5.4.2   Careers Information Related Influences

Question 5 explored the perceived influence of nine careers information related factors upon the decision to choose to apply to study pharmacy. The responses are summarized in table 5.16 and are illustrated in figure 5.3.

Table 5.16: **The perceived importance of nine careers information related influences upon Year 13 respondents' decision to apply to study pharmacy.**

| Statement | Degree of importance | | | | Total | Mean rating | Rank* |
	Important	2	3	Not important			
A subject teacher at school / college	21.6% (n=85)	28.2% (n=111)	25.4% (n=100)	24.8% (n=98)	100% (n=394)	2.53	7
A careers teacher at school / college	14% (n=55)	26.1% (n=103)	32.2% (n=127)	27.7% (n=109)	100% (n=394)	2.73	8
A visit to a careers fair / conference	21.4% (n=84)	32.1% (n=126)	29.2% (n=114)	17.3% (n=68)	100% (n=392)	2.42	5
A visit to a university open day	25.5% (n=100)	34.2% (n=134)	26.3% (n=103)	14% (n=55)	100% (n=392)	2.28	4
A university website	43.9% (n=173)	32.3% (n=127)	12.9% (n=51)	10.9% (n=43)	100% (n=394)	1.91	2
A university prospectus	44.2% (n=174)	39.1% (n=154)	12.2% (n=48)	4.5% (n=18)	100% (n=394)	1.77	1
RPSGB literature	18.8% (n=73)	34.4% (n=134)	24.9% (n=97)	21.9% (n=85)	100% (n=389)	2.49	6
Radio or TV programme	7.9% (n=31)	23.7% (n=93)	37.4% (n=147)	31% (n=122)	100% (n=393)	2.91	9
Careers leaflets or booklets	31.6% (n=124)	45% (n=177)	17.3% (n=68)	6.1% (n=24)	100% (n=393)	1.97	3

*Rank is based upon mean rating score.

The factors related to careers information appear to be less influential upon this group of respondents than some of the general factors involving science and job security. The top three mean ratings for factors relating to careers information are 1.77, 1.91 and 1.97 respectively, with the mean rating for the top ten general factors (see table 5.13) were all lower than these indicating a higher degree of influence. Five of the careers information related factors attracted overall positive responses. University prospectuses and open days had the two highest net positive responses, with over 40% of respondents indicating that these were important influencing factors upon their decision to study pharmacy. Fewer than 5% of respondents indicated that university prospectuses were not an important influencing factor. It would appear that externally produced material (i.e. material produced by universities) has the largest influence upon this group of Year 13 students. This means that the image of pharmacy as a career as portrayed by universities is possibly one of the strongest images of the profession of pharmacy available to this group of students.

Figure 5.3: **Perceived importance of nine careers information related influences on the decision of Year 13 respondents to apply to study pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.**

Key:
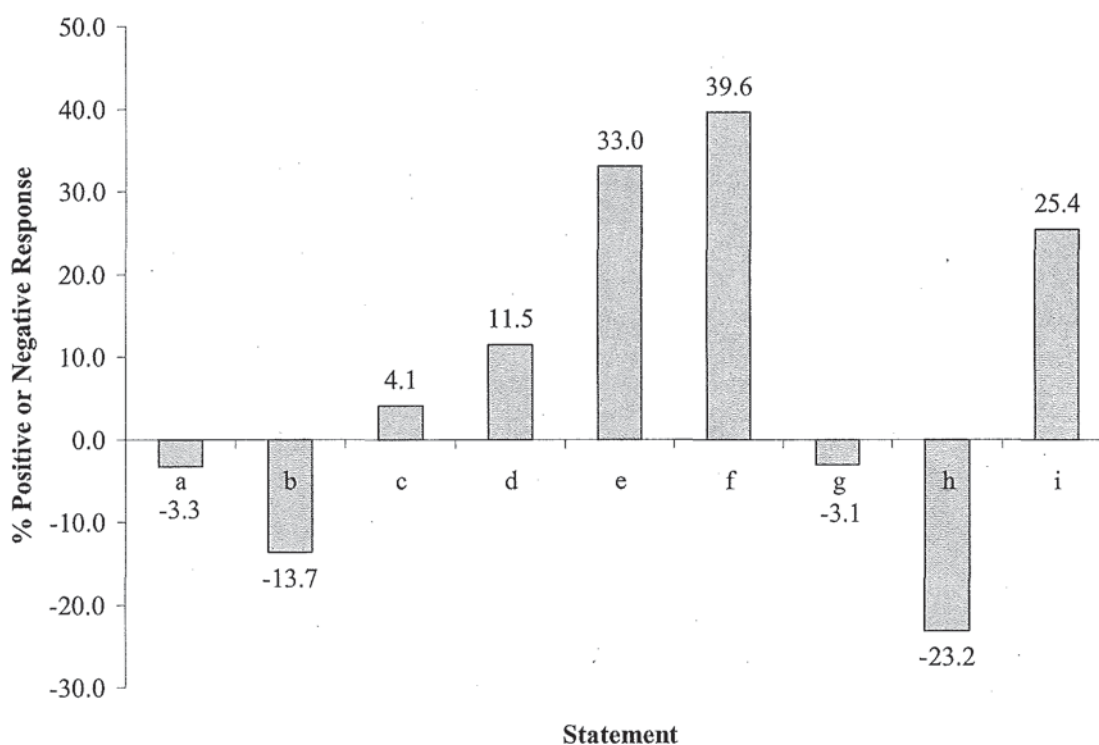
a	A subject teacher at school / college	f	From a university prospectus
b	A careers teacher at school / college	g	From RPSGB literature
c	A visit to a careers fair / conference	h	A radio or TV programme
d	A visit to a university open day	i	Careers leaflets or booklets
	e	A university website	

The least influential sources of information about pharmacy as a career were those of radio or TV programmes, possibly reflecting the lack of a presence of the pharmacy profession and pharmacists within popular media. Careers teachers appear to be less influential in the decision to study pharmacy than subject teachers at school or college but the difference is not significant. This implies that these subject teachers, who are most likely to be chemistry or biology teachers as shown by the A level subjects being offered by the respondents to this survey, may be presenting an idea that pharmacy is a scientific career with good prospects to their students.

Some significant differences were observed between the responses of Asian and White respondents but none between the responses of male and female respondents. These are summarized in tables 5.17 and 5.18.

Table 5.17: A summary of the significance of differences in the perceived importance of nine careers information related influences upon the decision of White and Asian Year 13 respondents to apply to study pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
A subject teacher at school / college	2.82	2.40	**0.001**
A careers teacher at school / college	2.97	2.64	**0.005**
A visit to a careers fair / conference	2.54	2.41	0.253
A university website	2.51	2.13	**0.001**
A visit to a university open day	2.10	1.73	**0.003**
From a university prospectus	1.85	1.61	**0.006**
From RPSGB literature	2.68	2.30	**0.002**
A radio or TV programme	3.08	2.83	**0.016**
Careers leaflets or booklets	2.10	1.87	**0.026**

From these results, it would appear that Asian respondents attribute more importance to careers information related influencing factors than White respondents, with one exception, that of a visit to a careers fair or conference.

Table 5.18: A summary of the significance of differences in the perceived importance of nine careers information related influences upon the decision of White and Asian Year 13 respondents to apply to study pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
A subject teacher at school / college	2.53	2.53	0.998
A careers teacher at school / college	2.69	2.75	0.514
A visit to a careers fair / conference	2.42	2.41	0.911
A university website	2.45	2.23	0.058
A visit to a university open day	2.07	1.84	0.066
From a university prospectus	1.89	1.73	0.079
From RPSGB literature	2.58	2.46	0.314
A radio or TV programme	2.95	2.90	0.644
Careers leaflets or booklets	1.97	1.98	0.961

No significant interactions were observed between the gender and ethnic background of respondents when ANOVA was performed.

5.4.3 Personal influences

Table 5.19 shows the responses to the perceived importance of six personal influences upon the decision to apply to study pharmacy.

Table 5.19: The perceived importance of six personal influences upon Year 13 respondents' decision to apply to study pharmacy.

Statement	Degree of importance				Total	Mean rating	Rank*
	Important	2	3	Not important			
My parents are encouraging me to choose pharmacy	22.1% (n=87)	31.5% (n=124)	26.4% (n=104)	20% (n=79)	100% (n=394)	2.44	3
My family is encouraging me to choose pharmacy	16.5% (n=65)	31.7% (n=125)	28.2% (n=111)	23.6% (n=93)	100% (n=394)	2.58	4
Someone in my family who owns a pharmacy influenced me	9.5% (n=37)	14.6% (n=57)	18.4% (n=72)	57.5% (n=225)	100% (n=391)	3.23	5
I am influenced by a pharmacist I know, as a role model	28.8% (n=113)	26.5% (n=104)	17.3% (n=68)	27.4% (n=107)	100% (n=392)	2.42	2
My friends influenced me	4.2% (n=16)	14.5% (n=57)	31.6% (n=124)	49.7% (n=195)	100% (n=392)	3.27	6
I was influenced by pharmacy work experience	52.3% (n=205)	16.1% (n=63)	12.7% (n=50)	18.9% (n=74)	100% (n=392)	1.98	1

*Rank is based upon the mean rating score.

Figure 5.4 shows the net differences in responses, based upon the two extremes of the rating scale, to each of the six personal influences upon their decision to choose to apply to study pharmacy.

Figure 5.4: Perceived importance of six personal influences upon Year 13 respondents' decision to apply to study pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.
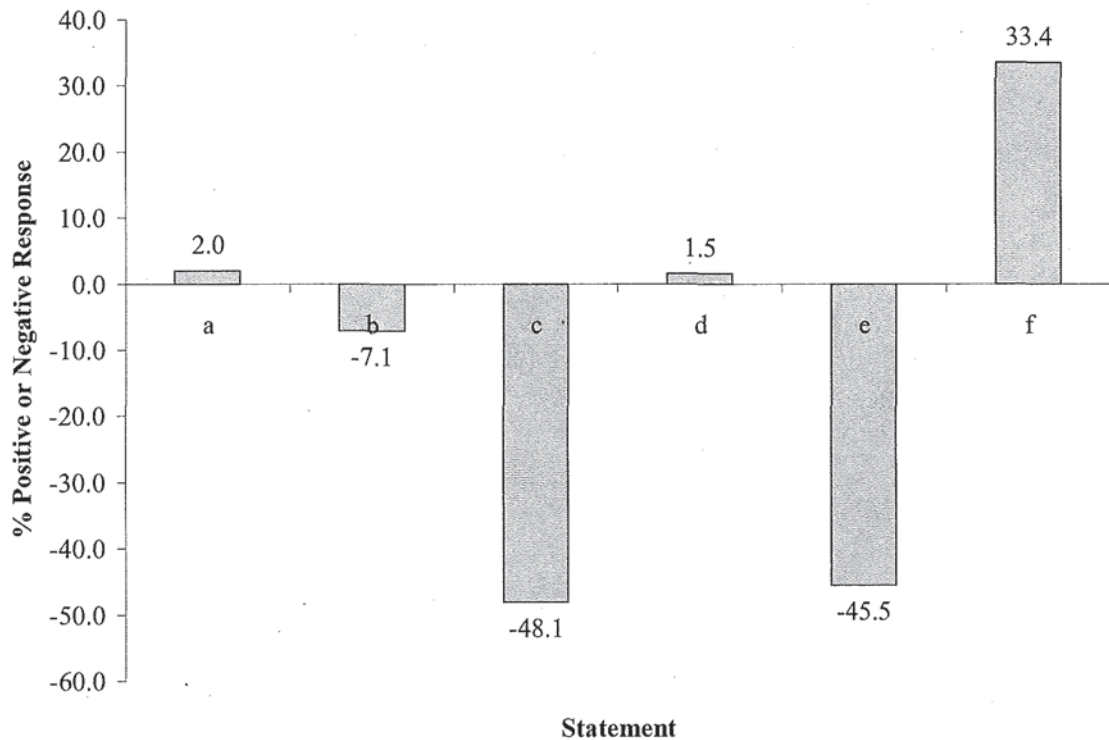
Key:

a	My parents are encouraging me to choose pharmacy
b	My family is encouraging me to choose pharmacy
c	Someone in my family owns a pharmacy
d	I am influenced by a pharmacist I know
e	My friends influence me
f	I was influenced by pharmacy work experience

Over 50% of respondents stated that pharmacy work experience was an important influence upon their decision to study pharmacy. This was the most important influencing factor (mean rating 1.98) of the six given in this question. Two factors were cited by approximately 50% of the respondents as not having been important to their decision to study pharmacy, namely a person in their family owning a pharmacy, and friends. For both of these factors, fewer than 10% of respondents stated that they were an important influence upon their decision.

Some significant differences were observed between the responses of Asian and White respondents. No significant differences were observed between the responses of male and female respondents. These are summarized in tables 5.20 and 5.21.

Table 5.20: A summary of the significance of differences in the perceived importance of six personal influences upon the decision of White and Asian Year 13 respondents to apply to study pharmacy (Mann-Whitney U test).

	White	Asian	
Statement	Mean rating	Mean rating	p
My parents are encouraging me to choose pharmacy	2.62	2.37	**0.040**
My family is encouraging me to choose pharmacy	2.83	2.48	**0.005**
Someone in my family owns a pharmacy	3.55	2.90	**≤ 0.001**
I am influenced by a pharmacist I know	2.61	2.18	**0.002**
My friends influence me	3.44	3.18	**0.014**
I was influenced by pharmacy work experience	1.85	1.97	0.459

It would appear that Asian respondents are more influenced by personal factors, particularly the influence of a person within the family owning a pharmacy, than White respondents. The importance of a person within the family owning a pharmacy was much less for White respondents (mean rating 3.55) than Asian respondents (mean rating 2.90). It should be remembered that not all of the respondents will know a pharmacist or have a family member who is a pharmacist. Therefore it could be expected that these two factors would be of lower importance than others. These results appear to suggest that Asian respondents may be more likely to have a family member or a friend who owns a pharmacy. Pharmacy work experience appears to have been of importance to both groups.

Table 5.21: A summary of the significance of differences in the perceived importance of six personal influences upon the decision of male and female Year 13 respondents to apply to study pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
My parents are encouraging me to choose pharmacy	2.59	2.38	0.064
My family is encouraging me to choose pharmacy	2.68	2.55	0.256
Someone in my family owns a pharmacy	3.20	3.25	0.496
I am influenced by a pharmacist I know	2.38	2.43	0.744
My friends influence me	3.15	3.31	0.128
I was influenced by pharmacy work experience	2.11	1.93	0.157

No significant interactions between the gender and ethnic background of respondents were observed when ANOVA was performed.

5.4.4 Interest in pharmacy

394 respondents provided an answer to the question on interest in pharmacy as a subject or as a career. 70.3% (n=277) stated that they were both interested in the pharmacy degree course and wanted to work as a pharmacist. 15% (n=59) indicated that they were only interested in the pharmacy degree course and a similar number (14.7%, n=58) stated only that they wanted to work as a pharmacist. It would appear from these results that interest in studying pharmacy of Year 13 pupils is due to both an interest in the course itself and the career of pharmacy.

5.5 Choice of school of pharmacy

This section of the questionnaire dealt with the choice of a school of pharmacy at which to study. The aim was to investigate the perceptions of potential influences behind the choice of a particular school of pharmacy for the respondent. Respondents were given a series of fourteen aspects which may have some influence over their choice of school of pharmacy based upon previous research (as outlined in the Methods chapter – see page 69) and the researcher's own experience in the field of pharmacy admissions.

5.5.1 Influencing factors on choice of school of pharmacy

Table 5.22 summarises the perceived influence of fourteen factors on the choice of school of pharmacy.

Table 5.22: The perceived importance of fourteen influencing factors upon Year 13 pupils' choice of school of pharmacy (SOP).

Statement	Degree of importance				Total	Mean rating	Rank*
	Important	2	3	Not important			
My parents want me to attend this SOP	5.1% (n=20)	12.7% (n=50)	26.2% (n=103)	56% (n=220)	100% (n=394)	3.33	13
Family at this university	2.8% (n=11)	10% (n=39)	26% (n=102)	61.2% (n=240)	100% (n=393)	3.46	14
Friends at pharmacy school	13.5% (n=53)	26.5% (n=104)	32.4% (n=127)	27.6% (n=108)	100% (n=392)	2.74	12
Personal recommendation	29.2% (n=115)	49% (n=193)	17.3% (n=68)	4.5% (n=18)	100% (n=394)	1.97	8
Location of the university in relation to where I live	27.4% (n=108)	21.1% (n=83)	18.5% (n=73)	33% (n=130)	100% (n=394)	2.57	11
Availability of accommodation	33.3% (n=131)	34.4% (n=135)	17.3% (n=68)	15% (n=59)	100% (n=393)	2.14	9
Matching entrance grades to predicted expectations	53.8% (n=212)	31% (n=122)	8.9% (n=35)	6.3% (n=25)	100% (n=394)	1.68	6
An open day visit to the university	60.6% (n=238)	28.8% (n=113)	8.1% (n=32)	2.5% (n=10)	100% (n=393)	1.53	3
Nature of the course as described in the prospectus	59.1% (n=233)	34% (n=134)	5.8% (n=23)	1.1% (n=4)	100% (n=392)	1.49	2
School of pharmacy website	23.2% (n=91)	38.2% (n=150)	27.2% (n=107)	11.5% (n=45)	100% (n=393)	2.27	10
Reputation of the school of pharmacy	58.6% (n=229)	30.9% (n=121)	8.2% (n=32)	2.3% (n=9)	100% (n=391)	1.54	4
Reputation of the university	65.6% (n=258)	27.7% (n=109)	4.1% (n=16)	2.6% (n=10)	100% (n=393)	1.44	1
Reputation of the city / town where the university is located	39.3% (n=155)	37.6% (n=148)	16.8% (n=66)	6.3% (n=25)	100% (n=394)	1.90	7
University facilities	53.5% (n=210)	37.5% (n=147)	7.7% (n=30)	1.3% (n=5)	100% (n=392)	1.57	5

*Rank is based upon the mean rating score.

Figure 5.5 shows the net differences in responses, based upon the two extremes of the rating scale, to the importance of each of the fourteen factors involved in the choice of school of pharmacy. There is evidence of good correlation between the method of comparing extremes of responses and the mathematical analysis of data. The graphical illustration allows a quick and simple interpretation of the data.

Figure 5.5: Perceived importance of fourteen influencing factors on the choice of school of pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.
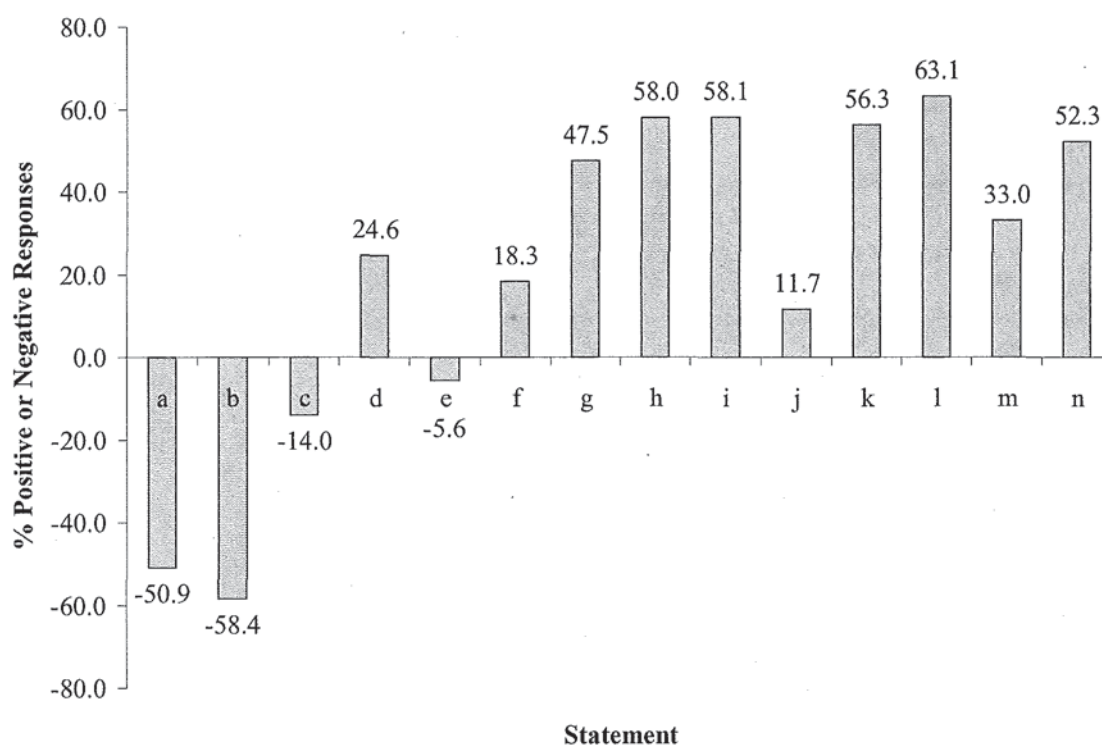
Key:

a	My parents want me to attend a particular school of pharmacy	h	An open day visit to the university
b	Family at a university	i	Nature of the course as described in the prospectus
c	Friends at pharmacy school	j	School of pharmacy website
d	Personal recommendation	k	Reputation of the school of pharmacy
e	The university is near to where I live	l	Reputation of the University
f	Availability of accommodation	m	Reputation of the city / town where the university is located
g	Matching entrance grades to predicted expectations	n	University facilities

The influencing factors that appear to be of least importance to respondents when considering their choice of school of pharmacy were those relating to the influence of parents and family both of which attracted net negative responses as shown in figure 5.5.

The reputation of a school of pharmacy, the reputation of a university and university facilities appear to be of greater importance to respondents than family and friends when considering which school of pharmacy to apply to. Respondents also indicated that open

150

day visits to universities and university prospectuses would be of importance to them when making their decision about where to apply to study pharmacy as would the entrance grades (based upon A level results) for a particular school of pharmacy. School of pharmacy websites appear to be of less importance than both a university prospectus and an open day visit to a university.

Some significant differences were observed between the responses of Asian and White respondents and between the responses of male and female respondents. These are summarized in tables 5.23 and 5.24.

Table 5.23: A summary of the significance of differences in the perceived importance of fourteen influencing factors upon the choice of school of pharmacy of White and Asian Year 13 respondents (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
My parents want me to attend a particular school of pharmacy	3.62	3.10	≤ 0.001
Family at a university	3.70	3.27	≤ 0.001
Friends at pharmacy school	3.06	2.53	≤ 0.001
Personal recommendation	2.18	1.81	≤ 0.001
The university is near to where I live	2.61	2.29	0.022
Availability of accommodation	2.02	2.28	0.056
Matching entrance grades to predicted expectations	1.75	1.57	0.017
An open day visit to the university	1.44	1.53	0.314
Nature of the course as described in the prospectus	1.51	1.47	0.834
School of pharmacy website	2.36	2.28	0.416
Reputation of the school of pharmacy	1.55	1.51	0.802
Reputation of the University	1.49	1.39	0.341
Reputation of the city / town where the university is located	1.89	1.91	0.976
University facilities	1.68	1.51	0.017

It appears from these results that Asian respondents are more influenced by personal factors than White respondents – friends and family, personal recommendation and the location of the university with respect to their home. Asian respondents were also more strongly influenced by university facilities and the likely grade offer from a university when compared to their predicted A-level expectations. Whilst these differences are significant, the mean ratings for each factor are within the same level of importance for both White and Asian respondents.

Table 5.24: A summary of the significance of differences in the perceived importance of fourteen influencing factors upon the choice of school of pharmacy of male and female Year 13 respondents (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
My parents want me to attend a particular school of pharmacy	3.40	3.30	0.293
Family at a university	3.55	3.42	0.218
Friends at pharmacy school	2.65	2.77	0.354
Personal recommendation	2.07	1.94	0.108
The university is near to where I live	2.63	2.55	0.609
Availability of accommodation	2.15	2.13	0.743
Matching entrance grades to predicted expectations	1.85	1.62	**0.003**
An open day visit to the university	1.63	1.49	0.207
Nature of the course as described in the prospectus	1.61	1.44	**0.007**
School of pharmacy website	2.34	2.24	0.295
Reputation of the school of pharmacy	1.58	1.52	0.162
Reputation of the University	1.42	1.44	0.429
Reputation of the city / town where the university is located	1.91	1.90	0.874
University facilities	1.50	1.58	0.557

Two factors directly related to a university or a school of pharmacy were more important to female respondents, namely information about the course contained in the prospectus and the likely grade offer from a school of pharmacy when compared to their own predicted A-level expectations.

Significant interactions were observed when ANOVA was used. Asian males (mean = 1.39) were more influenced by the reputation of the school of pharmacy ($F = 4.345$, 1 df, $p \leq 0.05$). White males were more influenced by the university facilities ($F = 8.043$, 1 df, $p \leq 0.05$). Asian females were more influenced by a personal recommendation ($F = 4.625$, 1 df, $p \leq 0.05$).

5.6 Future career aspirations

This section of the survey (questions 9 – 15) was designed to investigate what the respondents thought of their future career within the pharmacy profession, their commitment to the profession of pharmacy and also their thoughts on work / life balance issues.

5.6.1 Pre-registration training

392 respondents provided an answer to the question on choice of sector for pre-registration training. Respondents were asked to select only one option for this question. However, 16 respondents selected more than one option, contrary to the guidance given. These 16 cases have been removed from any further analysis based upon the responses to this question. Figure 5.6 illustrates the data.

68 respondents (18.1%) indicated that they were not yet sure in which sector of the profession they would like to complete their pre-registration training. Over 80% of respondents had an idea of where they would like to complete their pre-registration training with nearly one quarter (86) selecting a hospital / community split post. 24% of respondents selected community pharmacy, either with a multiple or an independent pharmacy, with 15% of respondents indicating that they would like to complete their pre-registration training in a hospital / pharmaceutical industry split post and in hospital pharmacy.

Further analysis of the results shows that Asian respondents (8.4%, n=12) were three times more likely than White respondents (25%, n=38) to select a pre-registration placement in a community retail chain / multiple setting ($\chi^2 = 12.458$, $p < 0.001$, phi = 0.204). White respondents (34.3%, n=49) were more likely to select a hospital pre-registration placement than Asian respondents (15.1%, n=23) ($\chi^2 = 15.355$, $p < 0.001$, phi = 0.227).

Only one significant difference was observed in the responses of male and female respondents. 17.1% (n=49) of female respondents indicated that they would like to complete their pre-registration placement in a hospital setting compared to 8.7% (n=9) of male respondents ($\chi^2 = 4.160$, $p = 0.05$, phi = 0.103).

Figure 5.6:   The choice of sector of pre-registration training of Year 13 students (n=376).

Key:
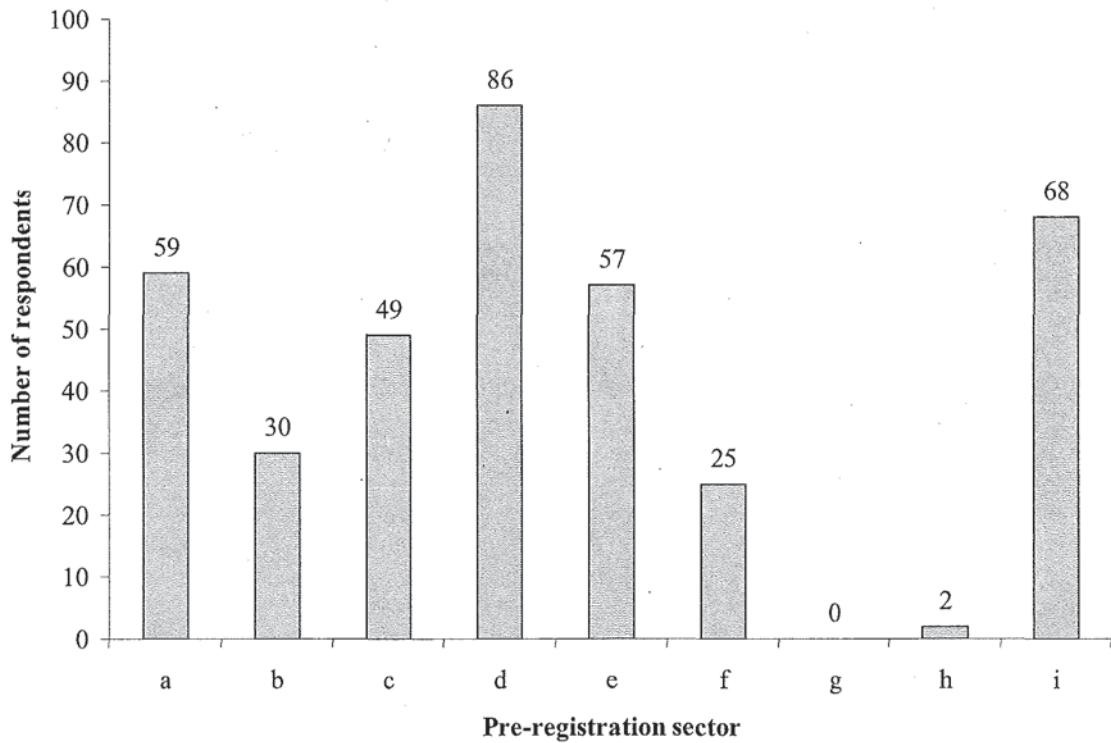
a	Community retail chain / multiple
b	Community retail independent
c	Hospital
d	Hospital / community split post
e	Hospital / pharmaceutical industry split post
f	Community / pharmaceutical industry split post
g	I do not want to complete pre-registration training
h	Other
i	Not sure yet

5.6.2   Field of practice once qualified

392 respondents provided an answer to the question of sector of practice once qualified (i.e. looking ahead to the respondents' first job once they have completed their pre-registration placement). Respondents were allowed to choose as many options as they felt relevant to themselves and figure 5.7 illustrates the data.

Figure 5.7: **The choice of field of practice of Year 13 respondents once the pre-registration year is completed.**

Choice of sector of practice once qualified

Key:
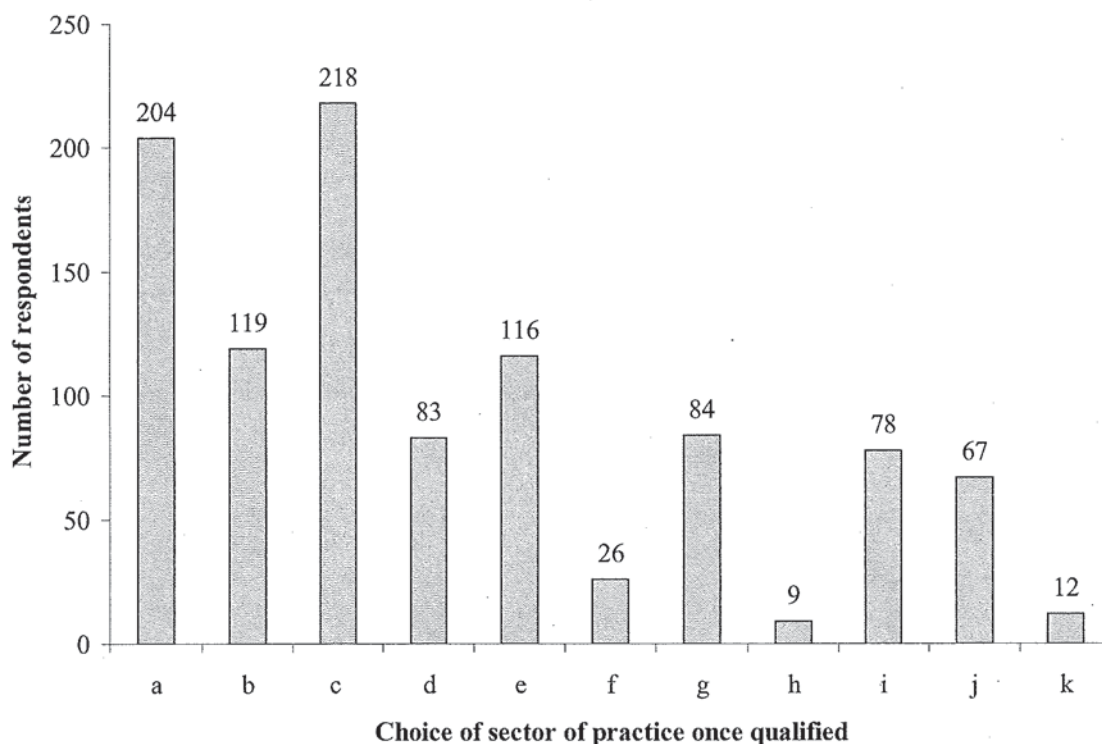
a	Community retail (chain / multiple)	g	Research
b	Community retail (independent)	h	Pharmacy policy development
c	Hospital	i	Own my own pharmacy business
d	Primary care trust	j	Self-employed
e	Pharmaceutical industry	k	Not sure yet
f	Academia		

Only 12 respondents were not sure in which sector of pharmacy they would look for employment following their pre-registration placement, meaning that 97% of respondents had some idea of where they would like to work once qualified. 55% of respondents indicated that they would possibly seek work within the hospital sector, with a similar number (52%) indicating that they would possibly seek work within community pharmacy (chain or multiples). 30% of respondents indicated that they would consider working in the pharmaceutical industry, with one fifth indicating that they would be interested in working in research. Academic pharmacy attracted only 7% of respondents. Only pharmacy policy development attracted fewer respondents (2%). 20% of respondents indicated that they would like to own their own business and self employment also attracted 20% of respondents.

The main area of difference within the sample was the option of owning a business; this appears to be much more a male and an Asian option than a White, female option (only 9% of White females selected this option, compared to 36.4% Asian males, 25.7% White males and 20.6% Asian females). Approximately 40% of those respondents who had indicated that owning their own business was a strong motivating factor for wishing to study pharmacy, indicated that they would seek to complete their pre-registration training in a community pharmacy setting (17.1% chain /multiple, 22.4% independent), compared to only 3.9% of the same group of respondents who indicated that they would seek a pre-registration placement within the hospital pharmacy sector.

Two significant differences were observed in the responses of White and Asian respondents. The data are summarised in table 5.25.

Table 5.25: A summary of significant differences in the choice of sector of practice once the pre-registration year is completed of White and Asian Year 13 students.

Statement	White	Asian	χ^2	p	phi
Community retail (chain / multiple)	49.7% (n=73)	59.2% (n=90)	2.749	0.097	0.096
Community retail (independent)	38.1% (n=56)	33.6% (n=51)	0.671	0.413	0.047
Hospital	59.9% (n=88)	48.7% (n=74)	3.762	**0.052**	0.112
Primary care trust	23.1% (n=34)	17.8% (n=27)	1.325	0.250	0.067
Pharmaceutical industry	26.5% (n=39)	27.6% (n=42)	0.046	0.830	0.012
Academia	5.4% (n=8)	8.6% (n=13)	1.107	0.293	0.061
Research	25.2% (n=37)	19.1% (n=29)	1.612	0.204	0.073
Pharmacy policy development	2% (n=3)	1.3% (n=2)	0.239*	0.625	0.028
Own my own pharmacy business	12.9% (n=19)	25.7% (n=39)	7.749	**0.005**	0.161
Self-employed (i.e. working as a locum)	16.3% (n=24)	20.4% (n=31)	0.824	0.364	0.052
Not sure yet	12.9% (n=19)	12.5% (n=19)	0.012	0.912	0.006

*Chi squared invalid as two cells contain expected values below 5.

Significantly more White respondents than Asian respondents indicated that they would consider working in hospital pharmacy. Significantly more Asian respondents stated that they would possibly seek to own their own pharmacy business upon registration.

Only one significant difference was observed in the responses of male and female respondents as shown in table 5.26.

Table 5.26: A summary of significant differences in the choice of sector of practice once the pre-registration year is completed of male and female Year 13 students.

Statement	Male	Female	χ^2	p	phi
Community retail (chain / multiple)	53.4% (n=55)	51.9% (n=149)	0.067	0.796	0.013
Community retail (independent)	31.1% (n=32)	30.3% (n=87)	0.020	0.887	0.007
Hospital	47.6% (n=49)	58.5% (n=168)	3.691	0.055	0.097
Primary care trust	18.4% (n=19)	22% (n=63)	0.561	0.454	0.038
Pharmaceutical industry	35% (n=36)	27.5% (n=79)	2.010	0.156	0.072
Academia	5.8% (n=6)	7% (n=20)	0.159	0.690	0.020
Research	27.2% (n=28)	19.5% (n=56)	2.640	0.104	0.082
Pharmacy policy development	3.9% (n=4)	1.7% (n=5)	1.542*	0.214	0.063
Own my own pharmacy business	31.1% (n=32)	15.7% (n=45)	11.328	**0.001**	0.170
Self-employed (i.e. working as a locum)	19.4% (n=20)	16.4% (n=47)	0.493	0.483	0.036
Not sure yet	14.6% 9n=150	11.1% (n=32)	0.833	0.361	0.046

*Chi squared invalid as one cell contains an expected value below 5.

Significantly more males than females saw themselves owning their own business upon registration.

The responses from respondents who selected the three main areas of pre-registration employment were investigated further to explore where they would seek to work once newly qualified. These respondents included:

- Community retail (chain / multiple) (n=59);
- Community retail (independent) (n=30);
- Hospital pharmacy (n=49)

This analysis is illustrated in figure 5.8 below. As each respondent was allowed to select as many options as they felt were applicable to them for where they would seek work once they had completed their pre-registration training, the total for each pre-registration sector does not equal 100%.

Figure 5.8: The choices of sector of practice once newly qualified for those Year 13 respondents who chose community retail (chain / multiple), community pharmacy (independent) and hospital pharmacy as their preferred pre-registration sector of employment.

Sector of practice in which respondents would seek to work once qualified

■ Community (chain / multiple) pre-registration □ Community (independent) pre-registration ▨ Hospital pre-registration

Key:
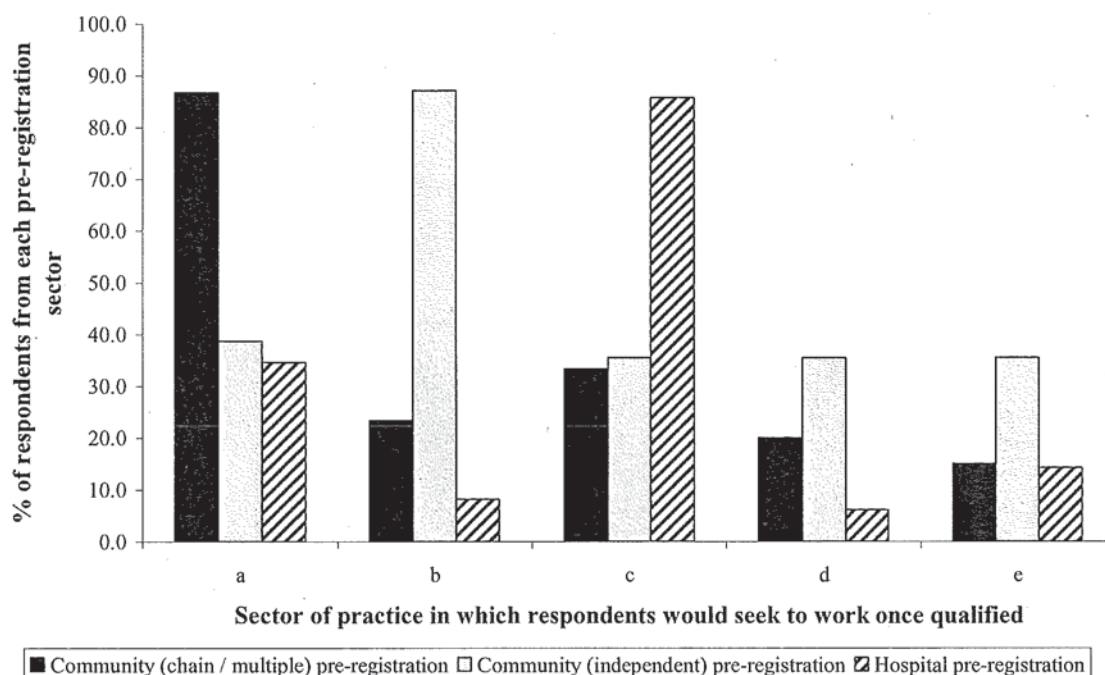
a	Community retail (chain / multiple)	d	Own my own pharmacy business
b	Community retail (independent)	e	Self-employed (i.e. work as a locum)
c	Hospital		

It should be remembered that these respondents were thinking about their potential careers six years after completion of the questionnaire when the results of this analysis are considered. High sector loyalty is evident within the cohort as over 85% of all respondents indicated that they would consider remaining within the same sector of practice as their pre-registration training. Exactly the same proportion of respondents (35.5%) from the independent pre-registration group indicated that they would consider seeking work in hospital pharmacy, as a locum or would seek to own their own business. Fewer than 10% of the hospital pharmacy pre-registration group stated that they would seek to own their own business upon registration with the Royal Pharmaceutical Society.

44.7% of those who indicated that owning their own business was a strong motivating factor for wishing to study pharmacy (see question 4 analysis, page 137) stated that they wished to own their own business upon qualification as a pharmacist. 38% of those respondents who stated that the opportunity for self-employment was a strongly motivating

factor in their decision to study pharmacy stated that they wished to own their own business upon qualification as a pharmacist, with one quarter stating that they would seek employment as a locum at this point in time. These results suggest that there is some degree of recognition within the cohort that business ownership immediately upon registration as a pharmacist is perhaps not a realistic ambition.

5.6.3   Commitment to pharmacy as a career.

Table 5.27 summarises the responses to three career commitment statements taken from Rascati (see Methods, page 73).

Table 5.27: The perceived strength of commitment to pharmacy as a career of Year 13 students.

Statement	Strength of agreement				
	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree	Total
I will be proud to tell others that I am studying pharmacy	78.1% (n=307)	20.1% (n=79)	1.3% (n=5)	0.5% (n=2)	100% (n=393)
I am strongly committed to the values and ideals of the pharmacy profession	64.8% (n=254)	32.9% (n=129)	2.3% (n=9)	0% (n=0)	100% (n=392)
Being a pharmacist is an important part of who I want to be	46.1% (n=181)	39.4% (n=155)	13.2% (n=52)	1.3% (n=5)	100% (n=393)

It would appear from these results that the respondents are committed to pharmacy as a profession and would be proud to state that this is their choice of career. Over 85% were in some degree of agreement that being a pharmacist was an important part of who they want to be and this could be interpreted that the respondents saw pharmacy as a vocation. Further analysis of the results shows that there are two significant differences in the responses of White and Asian respondents. These are summarized in table 5.28.

Table 5.28: A summary of the significance of differences in the responses of White and Asian Year 13 respondents to three vocational statements concerning pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
I will be proud to tell others I am studying pharmacy	1.24	1.20	0.124
I am strongly committed to the values and ideals of the pharmacy profession	1.44	1.30	**0.007**
Being a pharmacist is an important part of who I want to be	1.83	1.53	**< 0.001**

From these results, it would appear that Asian respondents are more committed to a career in pharmacy than White respondents. There were no significant differences in the responses of male and female respondents.

The responses to the three career commitment statements adapted from Rascati's earlier work (see Methods page 73) are summarized in table 5.29.

Table 5.29: The perceived strength of agreement of Year 13 students to three attitudinal statements regarding pharmacy as a career.

Statement	Strength of agreement				Total
	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree	
I definitely want a career in pharmacy	53.3% (n=209)	32.7% (n=128)	13.7% (n=54)	0.3% (n=1)	100% (n=392)
Pharmacy is the ideal profession for life	42.9% (n=168)	45.2% (n=177)	11.4% (n=45)	0.5% (n=2)	100% (n=392)
I intend to undertake a second, undergraduate degree after pharmacy	6.6% (n=26)	23% (n=90)	44.1% (n=173)	26.3% (n=103)	100% (n=392)

The overall mean commitment score for the cohort was 5.4 (see Methods, page 73 for calculation), indicating a high degree of commitment to pharmacy as a career (a score of 3 indicates the highest degree of commitment and a score of 12 the lowest degree of commitment). There were no significant differences between the responses when analysed by either ethnic background (White mean = 5.2, Asian mean = 5.2) or gender (male mean = 5.4, female mean = 5.4). The responses are shown in figures 5.9 and 5.10.

Figure 5.9: The mean career commitment scores of White and Asian Year 13 respondents.
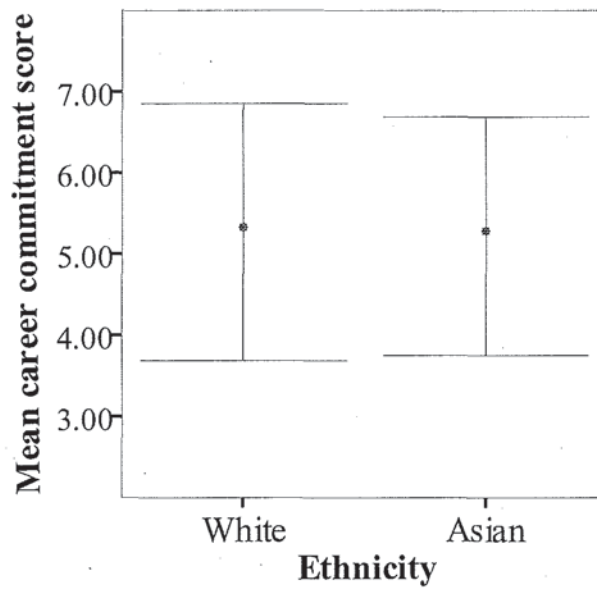
Figure 5.10: The mean career commitment scores of male and female Year 13 respondents.
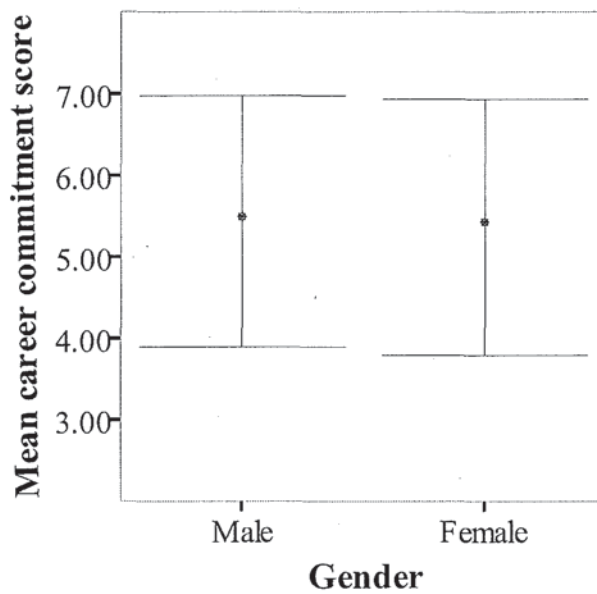
5.7 Future work / life plans

This section of the questionnaire was designed to investigate how the respondents envisaged their future work / life balance.

5.7.1 Future Plans

393 respondents provided an answer to the question of future working plans. Respondents were allowed to select as many options as they felt relevant to themselves and thus the data represents their possible choices in the future. The data are illustrated in figure 5.11.

Figure 5.11: Future work / life plans of Year 13 students.

Key:
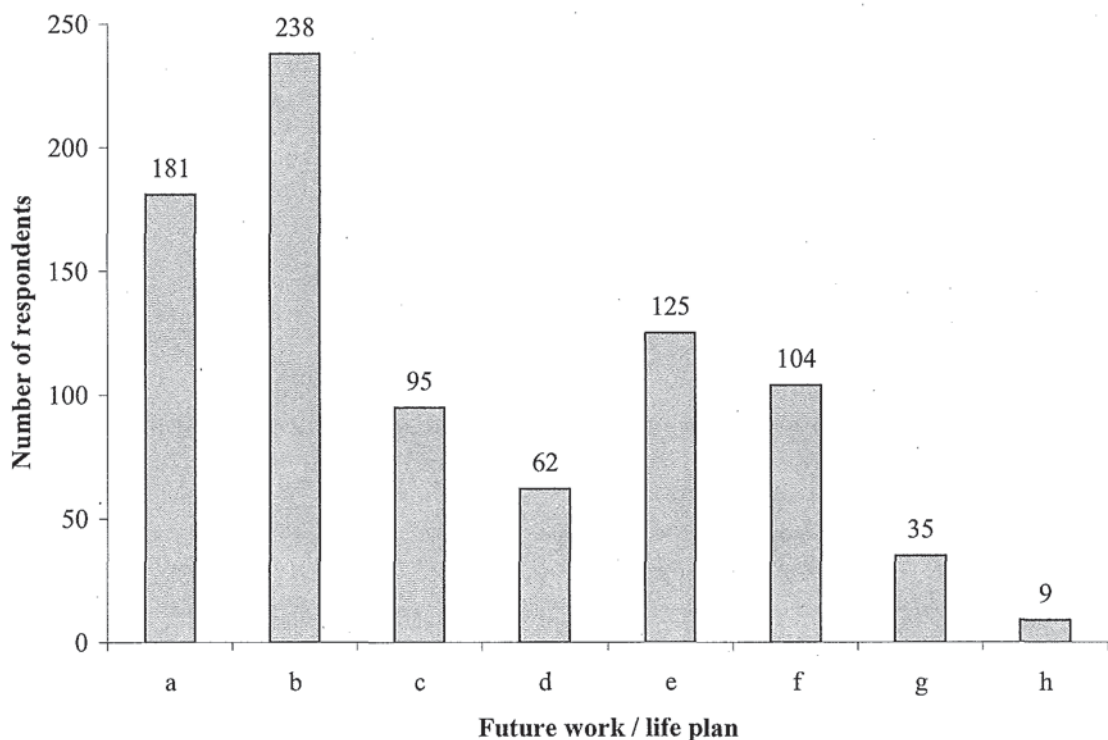
a	Full time career until typical retirement age (65)	e	Intend to buy my own business
b	Work full time, then part time if I have a family	f	Work abroad
c	Intend to travel, working holidays	g	No clear intention yet
d	Intend to work as a locum	h	Other

60% of all respondents indicated that their future work / life plans would possibly include working full time and then part time if they had a family. As there were more female than male respondents to the survey (see page 129), this is likely to be a biased result as 72.6% of female respondents selected this option compared to 27.6% of male respondents. The difference between male and female respondents to this option is not a surprising result, as those who take time out from a career to raise a family are predominantly women. 45% of

all respondents indicated that their potential future work / life plans included working full time until typical retirement age. 72.4% of males selected this option, compared to 36.5% of females. As there is some overlap between the female respondents to this option and that of working full time and then part time if they have a family, there appears to be a proportion of female respondents who do not yet see themselves as definitely being in a position to take time out of their career to raise a family.

The possibility of owning a business was selected by a third of respondents, with 40% of male respondents choosing this option.

Significant differences between the responses of White and Asian respondents were observed. These are summarized in table 5.30.

Table 5.30: A summary of significant differences in the work / life choices of White and Asian Year 13 students.

Statement	White	Asian	χ^2	p	phi
Full time career until typical retirement age (65)	48% (n=71)	42.2% (n=65)	10.13	0.314	0.058
Work full time, then part time if I have a family	62.2% (n=92)	58.4% (n=90)	0.436	0.509	0.038
Intend to travel, working holidays	19.6% (n=29)	30.5% (n=47)	4.783	**0.029**	0.126
Intend to work as a locum	15.5% (n=23)	19.5% (n=30)	0.810	0.368	0.052
Intend to buy my own business	25% (n=23)	39.6% (n=61)	7.349	**0.007**	0.156
Work abroad	23% (n=34)	25.3% (n=39)	0.228	0.633	0.027
No clear intention yet	6.1% (n=9)	10.4% (n=16)	1.845	0.174	0.078
Other	2% (n=3)	1.3% (n=2)	0.246*	0.620	0.029

*Chi squared not valid as two cells contain expected values below 5.

Asian respondents were twice as likely as White respondents to indicate that they would consider buying their own business. Significantly more Asian respondents than White respondents stated that they would consider travelling or taking working holidays.

Table 5.31: Summary of significant differences in the work / life choices of male and female Year 13 students.

Statement	Male	Female	χ^2	p	phi
Full time career until typical retirement age (65)	72.4% (n=76)	36.5% (n=105)	39.966	≤ 0.001	0.319
Work full time, then part time if I have a family	27.6% (n=29)	72.6% (n=209)	65.093	≤ 0.001	0.407
Intend to travel, working holidays	27.6% (n=29)	22.6% (n=65)	1.078	0.299	0.052
Intend to work as a locum	18.1% (n=19)	14.9% (n=14.9)	0.580	0.446	0.038
Intend to buy my own business	40% (n=42)	28.5% (n=82)	4.735	0.030	0.110
Work abroad	28.6% (n=30)	25.7% (n=74)	0.327	0.567	0.029
No clear intention yet	9.5% (n=10)	8.7% (n=25)	0.067	0.795	0.013
Other	2.9% (n=3)	1.7% (n=5)	0.485*	0.486	0.035

*Chi squared not valid as one cell contained an expected value below 5

Male respondents were 4.5 times more likely than female respondents to be considering working full time until retirement age as shown in table 5.33. Conversely, female respondents were 6.5 times more likely than male respondents to indicate that they would consider working full time and then part time if they have a family. Significantly more males than females indicated that they would like to buy their own business.

5.7.2 Career Ambitions

393 respondents answered the question of the highest level they would like to attain in their pharmacy career. Respondents were presented with a selection of fourteen possible "career highs" and were asked to select up to, but no more than, three. However, this latter instruction was either not read, or was misinterpreted and many respondents selected more than three options. Figure 5.12 illustrates the data.

Figure 5.12: **The career aims of Year 13 students.**

Key:
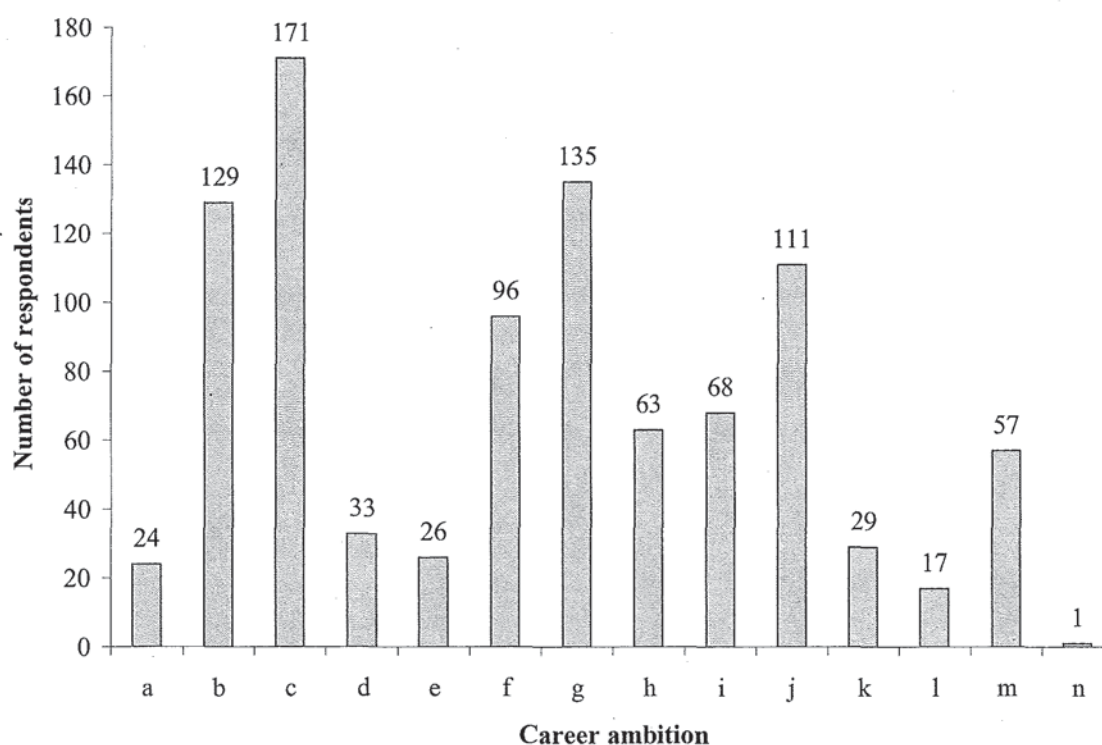
a	Employee in community retail pharmacy	h	Research pharmacist in an industrial pharmacy company
b	Manager in community retail pharmacy	i	Commercial or management pharmacist in an industrial pharmacy company
c	Owner of a community retail pharmacy	j	Chief pharmacist
d	Non-store based manager in a major multiple pharmacy company	k	Academic pharmacist
e	Primary care trust pharmacist	l	A position outside pharmacy
f	Hospital pharmacist	m	Not sure yet
g	Hospital pharmacy manager	n	Other

Over 40% of respondents stated that one of their ambitions was to own their own community pharmacy business. Management positions both in hospital and community pharmacy were selected by 35% of respondents, whilst one third of respondents indicated that one of their career ambitions was to be a chief pharmacist. This latter term is very vague with the implication on the part of the researchers of a chief pharmacist in hospital pharmacy. However, this may not have been clear to the respondents and so this may have affected the number of respondents selecting this option as one of their career aims.

There appears to be little interest from the respondents in being an employee with only 6% choosing option (a) - employee in community retail pharmacy. There also appears to be little interest in working in a non-pharmacist capacity with less than 10% of respondents selecting option (d) - non-store based manager in a major multiple pharmacy company and less than 5% stating that they were aiming for a career outside pharmacy despite the former option having the potential to be a very senior post within the structure of a pharmacy company.

Less than one fifth of respondents stated that one of their career aims was a position within the pharmaceutical industry either in a research capacity (option (h) – research pharmacist in an industrial pharmacy company) or in another pharmacist position (option (i) – commercial or management pharmacist in an industrial pharmacy company).

Less than 10% of respondents indicated that a career aim was to become a primary care trust pharmacist (option (e)), but this may be due to a lack of information about such a position or lack of knowledge amongst the cohort of this particular sector of practice.

Significant differences were observed between the responses of White and Asian respondents and also between the responses of male and female respondents. The results of the Chi squared analyses are shown in tables 5.32 and 5.33.

Asian respondents were significantly more likely than White respondents to be aiming to own their own pharmacy business. White respondents were more likely than Asians to be aiming to become a hospital pharmacy manager.

Male respondents were more likely than females to be aiming for a position as a commercial or management pharmacist in an industrial pharmacy company. Female respondents were more likely than males to be aiming for a position as a hospital pharmacist.

Table 5.32: Summary of significant differences in the future career aims of White and Asian Year 13 students.

Statement	White	Asian	χ^2	p	phi
Employee in community retail pharmacy	7.4% (n=11)	5.9% (n=9)	0.275	0.600	0.030
Manager in community retail pharmacy	31.1% (n=46)	37.5% (n=57)	1.370	0.242	0.068
Owner of a community retail pharmacy	39.9% (n=59)	53.9% (n=82)	5.970	**0.015**	0.141
Non-store based manager in a major multiple pharmacy company	6.1% (n=9)	7.2% (n=11)	0.161	0.688	0.023
Primary care trust pharmacist	7.4% (n=11)	3.9% (n=6)	1.704	0.192	0.075
Hospital pharmacist	25.7% (n=38)	21.1% (n=32)	0.896	0.344	0.055
Hospital pharmacy manager	40.5% (n=60)	27% (n=41)	6.180	**0.013**	0.144
Research pharmacist in an industrial pharmacy company	16.9% (n=25)	15.8% 9n=24)	0.067	0.796	0.015
Commercial or management pharmacist in an industrial pharmacy company	14.9% (n=22)	18.4% (n=28)	0.683	0.409	0.048
Chief pharmacist	28.4% (n=42)	22.4% (n=34)	1.432	0.231	0.069
Academic pharmacist	6.1% (n=9)	9.9% (n=15)	1.461	0.227	0.070
A position outside pharmacy	6.1% (n=9)	2% (n=3)	3.294	0.070	0.105
Not sure yet	13.5% (n=20)	15.8% (n=24)	0.310	0.577	0.032

Table 5.33: Summary of significant differences in the future career aims of male and female Year 13 students.

Statement	Male	Female	χ^2	p	phi
Employee in community retail pharmacy	4.8% (n=5)	6.6% (n=19)	0.426	0.514	0.033
Manager in community retail pharmacy	32.7% (n=34)	33% (n=95)	0.003	0.956	0.003
Owner of a community retail pharmacy	50% (n=52)	41.3% (n=119)	2.341	0.126	0.077
Non-store based manager in a major multiple pharmacy company	7.7% (n=8)	8.7% (n=25)	0.097	0.756	0.016
Primary care trust pharmacist	2.9% (n=3)	8% (n=23)	3.211	0.073	0.091
Hospital pharmacist	14.4% (n=15)	28.1% (n=81)	7.757	**0.005**	0.141
Hospital pharmacy manager	29.8% (n=31)	36.1% (n=104)	1.345	0.246	0.059
Research pharmacist in an industrial pharmacy company	20.2% (n=21)	14.6% (n=42)	1.782	0.182	0.067
Commercial or management pharmacist in an industrial pharmacy company	25% (n=26)	14.6% (n=42)	5.782	**0.016**	0.121
Chief pharmacist	31.7% (n=33)	27.1% (n=78)	0.813	0.367	0.046
Academic pharmacist	10.6% (n=11)	6.3% (n=18)	2.088	0.148	0.073
A position outside pharmacy	1.9% (n=2)	5.2% (n=15)	1.988*	0.159	0.071
Not sure yet	14.4% (n=15)	14.6% (n=42)	0.002	0.968	0.002

*Chi squared not valid as one cell had an expected value below 5.

5.8   Key Findings

The following is a summary of the key findings of the questionnaire administered to Year 13 students who had expressed an interest through the UCAS card scheme in studying pharmacy.

- The ethnic composition of the sample was similar to the ethnic composition of UCAS applicants to pharmacy in 2005. Results of any analyses based upon the ethnic background of respondents can be said to be representative of the applicant pool for pharmacy.

- Two thirds of respondents were considering applying to study pharmacy. Approximately half of these stated that pharmacy was their first choice of course of

study with medicine, chemistry and biomedical sciences the most popular alternative degree courses.

- Just over 10% of those respondents who indicated that they were no longer interested in studying pharmacy stated that work experience was the reason. However half of those respondents who indicated that they were going to apply to study pharmacy stated that work experience had been an important influence upon their decision.

- Approximately two thirds of respondents were studying three science A level subjects (from chemistry, biology, mathematics and physics).

- The most influential factors upon a decision to apply to study pharmacy were that pharmacy was a science based course and that there were good job and career opportunities upon qualification. Asian respondents attached more importance to job and career related factors, including business ownership and self-employment, than White respondents. Male respondents attached more importance to business ownership and self-employment than female respondents.

- Externally produced careers information related material (university prospectuses, university open days) were of greater importance to the decision-making processes of respondents than subject teachers or careers advisors at school. Significantly more Asian respondents than White respondents rated the influence of a family member owning a pharmacy as important. This suggests that possibly more Asian respondents have a family member who owns a pharmacy.

- Factors relating directly to a school of pharmacy or its parent institution were rated as the most important potential influences upon the choice of which school of pharmacy to study at. These included the reputation of the university, the reputation of the school of pharmacy, a prospectus entry, an open day visit and university facilities.

- There was a high degree of commitment to pharmacy as a career for all respondents.

- The most popular choices of potential pre-registration training placements were: a hospital / community pharmacy split post followed by community pharmacy (chain / multiple) and hospital pharmacy. Asian respondents were more likely than White respondents to select community pharmacy (chain / multiple) as their choice of pre-registration placement. White respondents were more likely than Asian

respondents to select hospital pharmacy as their preferred pre-registration placement. Female respondents were more likely than male respondents to indicate that hospital pharmacy was their preferred sector of choice for pre-registration training.

- Approximately half of respondents indicated that once qualified they would consider seeking work within community pharmacy (chain / multiple) or hospital pharmacy. One third of respondents indicated that they would consider seeking work within the pharmaceutical industry.

- One third of respondents indicated that they would consider buying their own business upon qualification. 40% of respondents stated that owning their own pharmacy business was a career aim. More Asian respondents showed an interest in business ownership upon qualification, four years after qualification and indicated that business ownership was a career aim than White respondents.

- Three quarters of male respondents indicated that they saw themselves working full time until typical retirement age. Three quarters of female respondents indicated that they saw themselves working full time, then part time if they had a family.

Chapter 6: 1st Year MPharm questionnaire results

This chapter presents the results of the self-completion questionnaire sent to all first year MPharm students enrolled at 14 schools of pharmacy in the United Kingdom.

6.1 Administration and analysis of the survey

6.1.1 Administration of the survey

The questionnaire was sent out during March and April 2005 to a named contact at each of the 14 schools of pharmacy which had agreed to participate in the survey. The questionnaire was then administered to first year MPharm students at each institution according to the preferred method of that institution (see page 72). A total of 1878 questionnaires were sent for completion by first year MPharm students. 660 first year students completed the questionnaire, resulting in a response rate of 35%.

6.2 Sample Demography

6.2.1 Gender of respondents

656 respondents provided an answer to this question – see table 6.1.

Table 6.1: The gender of 1st year MPharm respondents (n=656).

Gender	Percentage of respondents (n=656)
Male	31.9% (n=209)
Female	68.1% (n=447)
Total	**100% (n=656)**

6.2.2 Ethnic origin of respondents

653 respondents provided an answer to the question of ethnic background. The data are summarized in table 6.2.

Table 6.2: The percentage and number of male, female and total 1ˢᵗ year MPharm respondents from each ethnic background (n=653).

Ethnic background	Male	Female	Total respondents
White	35.4% n=73	46.3% n=207	**42.9% n=280**
Black or Black British	8.7% n=18	9.4% n=42	**9.2% n=60**
Dual Heritage	2.9% n=6	0.7% n=3	**1.4% n=9**
Asian	37.4% n=77	30.4% n=136	**32.6% n=213**
Chinese or other ethnic group	13.1% n=27	13.2% n=59	**13.2% n=86**
Do not want to say	2.5% n=5	0% n=0	**0.7% n=5**
Total (gender)	**100% n=206**	**100% n=447**	**100% n=653**

6.2.3 Residential status

653 respondents provided an answer to the question on residential status. 81.9% (n=535) were UK or EU students, whilst 18.1% (n=118) stated that they were overseas students. The ethnic background of overseas respondents is summarized in table 6.3.

Table 6.3: The percentage and number of overseas 1ˢᵗ year MPharm respondents from each ethnic background (n=118).

Ethnic background	Total overseas respondents
White	2.5% n=3
Black or Black British	13.6% n=16
Dual Heritage	0% n=0
Asian	33.1% n=39
Chinese or other ethnic group	49.2% n=58
Do not want to say	1.7% n=2
Total	**100% n=118**

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6.3 Reasons for choosing to study pharmacy

Questions 1 – 3 were designed to investigate any influencing factors or reasons for choosing to study pharmacy. The questions were based upon a review of the literature (see chapter 2). In each of these questions, a four point rating scale was used to eliminate neutral answers. Overall mean rank scores were calculated for each statement. A Mann-Whitney U test and a two-factor ANOVA were performed using SPSS v12.0.1 for each question to test for significant differences in responses.

A mean rating value of 2.5 (the mathematical mid-point on the four point Likert scale used in the questionnaire) indicates neutrality. A low mean rating score indicates a higher influence upon respondents. Figure 6.1 illustrates the data graphically by examining the differences between the two extremes of the Likert scale used for the question (i.e. the difference between the percentage of respondents indicating that a factor was an important influence and the percentage of respondents indicating that a factor was not an important influence upon their decision). The strength of responses (either positive or negative) shown in the figure correspond to the mean rating based upon the Likert rating for each statement.

6.3.1   General Influences

Question 3 explored the perceptions of the strength of influence of fifteen general factors upon the decision to study pharmacy – as shown in table 6.3.

Table 6.4: The perceived influence of fifteen general factors upon 1st year MPharm students' decision to study pharmacy.

Statement	Degree of influence					Mean rating	Rank*
	Strong	2	3	Not strong	Total		
I liked science/was good at science at school	73.6% (n=484)	21.1% (n=139)	4.7% (n=31)	0.6% (n=4)	100% (n=658)	1.32	5
I wanted to do a science based course	77.2% (n=507)	16.4% (n=108)	4.3% (n=28)	2.1% (n=14)	100% (n=657)	1.31	=3
I wanted to work in a well respected profession	75.1% (n=491)	20% (n=131)	3.7% (n=24)	1.2% (n=8)	100% (n=654)	1.31	=3
I wanted a job with good career opportunities	83.8% (n=550)	14.3% (n=94)	1.4% (n=9)	0.5% (n=3)	100% (n=656)	1.18	1
I thought pharmacy would be intellectually satisfying	49.8% (n=326)	38.4% (n=251)	9.2% (n=60)	2.6% (n=17)	100% (n=654)	1.65	=7
I wanted a job where I am socially useful	52.4% (n=342)	32.3% (n=211)	12.9% (n=84)	2.5% (n=16)	100% (n=653)	1.65	=7
I wanted to work with patients	48.5% (n=318)	33.6% (n=220)	13.6% (n=89)	4.3% (n=28)	100% (n=655)	1.74	9
I wanted to own my own business	27.9% (n=182)	24.5% (n=160)	25.7% (n=168)	21.9% (n=143)	100% (n=653)	2.42	14
I wanted the opportunity for self-employment	31.7% (n=207)	23.9% (n=156)	26.3% (n=172)	18.2% (n=119)	100% (n=654)	2.31	12
I wanted the opportunity for part time work	22.7% (n=148)	30.8% (n=201)	23.1% (n=151)	23.4% (n=153)	100% (n=653)	2.47	15
I was attracted by the financial rewards	43.9% (n=286)	34.3% (n=223)	16.9% (n=110)	4.9% (n=32)	100% (n=651)	1.83	10
I wanted flexible working hours	35.7% (n=234)	32.1% (n=210)	22.1% (n=145)	10.1% (n=66)	100% (n=655)	2.07	11
I wanted a profession where you can always get a job	76.8% (n=500)	19.5% (n=127)	2.6% (n=17)	1.1% (n=7)	100% (n=651)	1.28	2
I wanted to work with medicine or in the medical profession	65.2% (n=425)	25.3% (n=165)	7.7% (n=50)	1.8% (n=12)	100% (n=652)	1.46	6
I wanted to study medicine / dentistry or another medically related subject	35.4% (n=232	20.4% (n=134)	16.3% (n=107)	27.9% (n=183)	100% (n=656)	2.37	13

*Rank is based upon mean rating score.

Figure 6.1: Perceived strength of influence of 15 general influencing factors on a decision to study pharmacy. Results are shown as the difference between the % of respondents who rated as strong and the % of respondents who rated as not strong.

Key:

a	I liked science / was good at science at school	i	I wanted the opportunity for self employment
b	I wanted to do a science based course	j	I wanted the opportunity for part time work
c	I wanted to work in a well respected profession	k	I was attracted by the financial rewards
d	I wanted a job with good career opportunities	l	I wanted flexible working hours
e	I thought pharmacy would be intellectually satisfying	m	I wanted a profession where you can always get a job
f	I wanted a job where I am socially useful	n	I wanted to work with medicine or in the medical profession
g	I wanted to work with patients	o	I wanted to study medicine / dentistry or another medically related subject
h	I wanted to own my own business		

It can be seen that the graphical illustration of the extremes of the data (figure 6.1) are a good fit with the mathematical analysis of the data as shown in table 6.4. It is reasonable to suggest that the method of analysis of extremes of data can reliably show trends evident in the mathematical data.

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All factors emerge with net positive results (as shown in figure 6.1) with one exception. Factors relating to pharmacy being a science based course and job opportunities generated strongly net positive results (over 70%).

Factors relating to the type of work and the rewards from work also generated positive responses (as illustrated in figure 6.1), but less strongly than those related to the science based nature of the course and the job opportunities available. Work related factors and reward related factors included being socially useful, working with patients, having an intellectually satisfying job, having the potential for flexible working hours and financial rewards.

Only one factor generated a net negative response, that of a desire to work part time. It is likely that work/life balance issues were not under consideration at this point in the respondents' academic careers.

Significant differences were observed in the responses of White and Asian respondents as shown in table 6.5 overleaf. Working opportunities including business ownership, self employment and flexible working hours were all significantly more important to Asian respondents whereas a liking for or an ability in science was more important to White respondents. However the differences in mean rating values are not large indicting that a similar degree of importance was attached to these factors by both groups of respondents.

Table 6.5: A summary of the significance of differences in the perceived strength of influence of fifteen general influencing factors upon the decision of White and Asian 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
I liked science / was good at science at school	1.26	1.35	**0.030**
I wanted to do a science based course	1.34	1.27	0.695
I wanted to work in a well respected profession	1.32	1.31	0.379
I wanted a job with good career opportunities	1.19	1.17	0.215
I though pharmacy would be intellectually satisfying	1.61	1.66	0.422
I wanted a job where I am socially useful	1.66	1.64	0.790
I wanted to work with patients	1.75	1.66	0.208
I wanted to own my own business	2.69	2.25	**≤ 0.001**
I wanted the opportunity for self employment	2.53	2.15	**≤ 0.001**
I wanted the opportunity for part time work	2.49	2.30	0.055
I was attracted by the financial rewards	1.73	1.87	0.104
I wanted flexible working hours	2.23	1.89	**≤ 0.001**
I wanted a profession where you can always get a job	1.32	1.24	0.166
I wanted to work with medicine or in the medical profession	1.56	1.47	0.278
I wanted to study medicine / dentistry or another medically related subject	2.68	2.35	**0.004**

Some significant differences in responses were also observed when the responses of male and female respondents were compared. These are summarised in table 6.6 overleaf. Work related opportunities (business ownership and self employment) were a stronger influence upon male respondents in the decision to study pharmacy. Female respondents rated working with patients, working with medicine or in the medical profession and part time working as stronger influencing factors than males.

Table 6.6: A summary of the significance of differences in the perceived strength of influence of fifteen general influencing factors upon the decision of male and female 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
I liked science / was good at science at school	1.31	1.33	0.583
I wanted to do a science based course	1.27	1.33	0.641
I wanted to work in a well respected profession	1.35	1.29	0.590
I wanted a job with good career opportunities	1.23	1.16	0.229
I though pharmacy would be intellectually satisfying	1.72	1.61	0.098
I wanted a job where I am socially useful	1.73	1.62	0.078
I wanted to work with patients	1.94	1.64	**<0.001**
I wanted to own my own business	2.23	2.50	**0.004**
I wanted the opportunity for self employment	2.14	2.39	**0.008**
I wanted the opportunity for part time work	2.75	2.33	**≤ 0.001**
I was attracted by the financial rewards	1.78	1.84	0.430
I wanted flexible working hours	2.16	2.02	0.067
I wanted a profession where you can always get a job	1.29	1.27	0.687
I wanted to work with medicine or in the medical profession	1.54	1.43	**0.037**
I wanted to study medicine / dentistry or another medically related subject	2.31	2.40	0.382

There were no significant interactions between the gender and ethnic background of respondents when ANOVA was performed.

Significant differences were observed when the responses of Home/EU and overseas respondents were compared – see table 6.7. Business ownership and self employment were significantly more important to overseas respondents than Home/EU respondents as was a desire to work with medicine or study medicine / dentistry. This would appear to be a cultural effect as the majority of overseas students were of Chinese origin. This was not a large ethnic group within the Home/EU cohort.

Table 6.7: A summary of the significance of differences in the perceived strength of influence of fifteen general influencing factors upon the decision of Home/EU and overseas 1st year MPharm students to study pharmacy (Mann-Whitney *U* test).

Statement	Home/EU Mean rating	Overseas Mean rating	p
I liked science / was good at science at school	1.30	1.40	0.138
I wanted to do a science based course	1.32	1.29	0.503
I wanted to work in a well respected profession	1.32	1.30	0.828
I wanted a job with good career opportunities	1.20	1.14	0.152
I though pharmacy would be intellectually satisfying	1.66	1.61	0.430
I wanted a job where I am socially useful	1.68	1.57	0.088
I wanted to work with patients	1.73	1.75	0.908
I wanted to own my own business	2.52	1.98	$\leq$ **0.001**
I wanted the opportunity for self employment	2.40	1.92	$\leq$ **0.001**
I wanted the opportunity for part time work	2.47	2.53	0.583
I was attracted by the financial rewards	1.81	1.89	0.349
I wanted flexible working hours	2.12	1.86	**0.011**
I wanted a profession where you can always get a job	1.29	1.22	0.355
I wanted to work with medicine or in the medical profession	1.51	1.29	**0.002**
I wanted to study medicine / dentistry or another medically related subject	2.50	1.78	$\leq$ **0.001**

6.3.2 Careers information related influences

Question 1 explored the perceptions of the influence of eight careers information related factors upon the decision to choose to study pharmacy. Table 6.8 summarises the data.

Table 6.8: The perceived importance of eight careers information related factors upon 1st year MPharm students' decision to study pharmacy.

Statement	Degree of Influence				Total	Mean rating	Rank
	Important	2	3	Not important			
A subject teacher at school / college	21.4% (n=140)	25.5% (n=167)	19.9% (n=130)	33.2% (n=217)	100% (n=654)	2.65	4
A careers teacher at school / college	12.5% (n=82)	23.4% (n=153)	26.1% (n=171)	38% (n=249)	100% (n=655)	2.90	7
A visit to a careers fair / conference	15.8% (n=103)	28.7% (n=187)	23.9% (n=156)	31.6% (n=206)	100% (n=652)	2.71	5
A visit to a university open day	35% (n=228)	28.5% (n=186)	17% (n=111)	19.5% (n=127)	100% (n=652)	2.21	2
A university prospectus	41.7% (n=272)	30.6% (n=200)	14.5% (n=95)	13.2% (n=86)	100% (n=653)	1.99	1
RPSGB literature	13.7% (n=89)	22.7% (n=148)	27.3% (n=178)	36.3% (n=236)	100% (n=651)	2.86	6
Radio or TV programme	6.7% (n=44)	19.8% (n=129)	28.6% (n=187)	44.9% (n=293)	100% (n=653)	3.12	8
Careers leaflets or booklets	28.5% (n=187	32.9% (n=216)	18.8% (n=123)	19.8% (n=130)	100% (n=656)	2.30	3

Only three influencing factors attracted overall positive responses: (e) "a university prospectus", (d) "a visit to a university open day", and (h) "careers leaflets or booklets". However, one fifth of respondents indicated that the latter two sources were not an important influence upon their decision to study pharmacy. Overall, respondents indicated that both subject teachers at school or college (mean rating 2.65) and careers teachers (mean rating 2.90) were not an important influence upon their decision to study pharmacy. Careers fairs (mean rating 2.71) and Royal Pharmaceutical Society literature (mean rating 2.86) were also rated as unimportant by respondents. 45% of respondents stated that radio or TV programmes were not important influences in their decision-making process.

Figure 6.2: Perceived importance of eight careers information related factors on a decision to study pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.

Statement

Key:

a	A subject teacher at school / college	e	From a university prospectus
b	A careers teacher at school / college	f	From RPSGB literature
c	A visit to a career fair / conference	g	Radio or TV programme
d	A visit to a university open day	h	Careers leaflets or booklets

Significant differences were observed when comparing the responses of White and Asian respondents. These are summarised in table 6.9.

Table 6.9: A summary of the significance of differences in the perceived importance of eight careers information related factors upon the decision of White and Asian 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Factor	White Mean rating	Asian Mean rating	p
A subject teacher at school / college	2.77	2.66	0.298
A careers teacher at school / college	3.06	2.86	**0.039**
A visit to a career fair / conference	2.90	2.67	**0.021**
A visit to a university open day	2.24	2.12	0.398
From a university prospectus	1.96	1.96	0.944
From RPSGB literature	3.04	2.75	**0.003**
Radio or TV programme	3.44	2.89	**≤ 0.001**
Careers leaflets or booklets	2.53	2.14	**≤ 0.001**

Asian respondents appear to more influenced by educational factors than White respondents with every factor (except university prospectuses) being ranked higher by Asian respondents than White. This would appear to suggest that White respondents made their career decisions more independently than Asian respondents.

Only two significant differences were observed in the responses of male and female respondents namely: subject teachers at school or college (rated as more important by males than females) and visits to university open days (rated as more important by females than males). These differences are summarised in table 6.10.

Table 6.10: A summary of the significance of differences in the perceived influence of eight careers information related factors upon the decision of male and female 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Factor	Male Mean rating	Female Mean rating	p
A subject teacher at school / college	2.52	2.72	**0.042**
A careers teacher at school / college	2.86	2.92	0.188
A visit to a career fair / conference	2.83	2.66	**0.052**
A visit to a university open day	2.32	2.16	0.116
From a university prospectus	2.06	1.95	0.156
From RPSGB literature	2.87	2.87	0.936
Radio or TV programme	3.18	3.09	0.288
Careers leaflets or booklets	2.40	2.25	0.079

No significant interactions between the gender and ethnic background of respondents were found when ANOVA was performed.

Significant differences were observed in the responses of Home/EU and overseas respondents. These are summarised in table 6.11.

Table 6.11: A summary of the significance of differences in the perceived influence of eight careers information related factors upon the decision of Home/EU and overseas 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Factor	Home/EU Mean rating	Overseas Mean rating	p
A subject teacher at school / college	2.74	2.28	≤ 0.001
A careers teacher at school / college	3.00	2.45	≤ 0.001
A visit to a career fair / conference	2.82	2.28	≤ 0.001
A visit to a university open day	2.16	2.48	0.003
From a university prospectus	2.01	1.95	0.731
From RPSGB literature	2.96	2.47	≤ 0.001
Radio or TV programme	3.24	2.61	≤ 0.001
Careers leaflets or booklets	2.37	2.03	0.002

From these results, it would appear that overseas students attached significantly more importance than Home/EU students to six of the careers information related factors. Home/EU students attached more importance to a visit to a university open day. This is not surprising in that those overseas students who did not reside in the United Kingdom prior to their university studies were unlikely to have had the opportunity to participate in university open days. Therefore it could be construed that other sources of information become more important to this group of students.

6.3.3 Personal influences

The responses to the question of the perceived importance of six personal influencing factors are shown in table 6.12.

Table 6.12: **The perceived importance of six personal influencing factors upon 1st year MPharm students' decision to study pharmacy.**

Statement	Degree of Influence				Total	Mean rating	Rank*
	Import ant	2	3	Not important			
My parents encouraged me to choose pharmacy	30.5% (n=200)	30.9% (n=203)	19.1% (n=125)	19.5% (n=128)	100% (n=656)	2.28	2
My family encouraged me to choose pharmacy	21.7% (n=142)	31.4% (n=205)	23.3% (n=152)	23.6% (n=154)	100% (n=653)	2.49	=3
Someone in my family who owns a pharmacy influenced me	11.7% (n=200)	14.5% (n=94)	18% (n=117)	55.8% (n=362)	100% (n=649)	3.18	5
I was influenced by a pharmacist I know, as a role model	30.5% (n=199)	21.1% (n=138)	17.3% (n=113)	31.1% (n-203)	100% (n=653)	2.49	=3
My friends influenced me	5.9% (n=38)	16.9% (n=110)	24% (n=156)	53.2% (n=345)	100% (n=649)	3.24	6
I was influenced by pharmacy work experience	41.3% (n=270)	20.7% (n=135)	13.6% (n=89)	24.3% (n=159)	100% (n=653)	2.21	1

*Rank is based upon mean rating score.

The differences in the extremes of responses are illustrated in figure 6.3. Only two factors generated overall positive responses namely parental influence and pharmacy work experience, but these appear to be weak when compared to the more general influencing factors as previously reported (page 174). Parental influence and pharmacy work experience were rated as important factors in the respondents' decision to study pharmacy. One third of respondents indicated that encouragement from their parents to choose pharmacy was an important influence upon their decision, and 40% of respondents stated that pharmacy work experience was an important influence upon their decision. Two factors were rated as not important by a majority of respondents: "someone in my family who owns a pharmacy" (55%, mean rating 3.18) and "my friends influenced me" (53%, mean rating 3.24).

Figure 6.3: Perceived importance of six personal influencing factors on a decision to study pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.

Key:

a	My parents encouraged me to choose pharmacy	d	I was influenced by a pharmacist I know, as a role model
b	My family encouraged me to choose pharmacy	e	My friends influenced me
c	Someone in my family who owns a pharmacy influenced me	f	I was influenced by pharmacy work experience

Significant differences in the responses of White and Asian respondents and the responses of male and female respondents were observed. These are summarised in tables 6.13 and 6.14.

Table 6.13: A summary of the significance of differences in the perceived importance of six personal influencing factors upon the decision of White and Asian 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
My parents encouraged me to choose pharmacy	2.45	2.20	**0.013**
My family encouraged me to choose pharmacy	2.65	2.34	**0.001**
Someone in my family who owns a pharmacy influenced me	3.46	2.91	**≤ 0.001**
I was influenced by a pharmacist I know, as a role model	2.50	2.35	0.209
My friends influenced me	3.32	3.17	0.083
I was influenced by pharmacy work experience	2.06	2.14	0.327

Table 6.14: A summary of the significance of differences in the perceived importance of six personal influencing factors upon the decision of male and female 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
My parents encouraged me to choose pharmacy	2.30	2.25	0.432
My family encouraged me to choose pharmacy	2.44	2.50	0.610
Someone in my family who owns a pharmacy influenced me	3.03	3.25	**0.035**
I was influenced by a pharmacist I know, as a role model	2.58	2.44	0.179
My friends influenced me	3.20	3.27	0.490
I was influenced by pharmacy work experience	2.40	2.13	**0.010**

The influence of family members (either parents or other members of family) appears to be stronger for Asian respondents than White respondents. The influence of family ownership of a pharmacy was stronger for males than females. It should be remembered however that not all respondents are likely to either have a family member who owns a pharmacy or to know a pharmacist. Therefore the overall importance of these two factors is low as shown by the mean ratings. Female respondents were more influenced by pharmacy work experience than males.

No significant interactions between the gender and ethnic background of respondents were found when ANOVA was performed.

Significant differences were observed when the responses of Home/EU and overseas respondents are compared. These are shown in table 6.15.

Table 6.15: A summary of the significance of differences in the perceived importance of six personal influencing factors upon the decision of Home/EU and overseas 1st year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	Home/EU Mean rating	Overseas Mean rating	p
My parents encouraged me to choose pharmacy	2.41	1.64	≤ 0.001
My family encouraged me to choose pharmacy	2.57	2.05	≤ 0.001
Someone in my family who owns a pharmacy influenced me	3.25	2.84	≤ 0.001
I was influenced by a pharmacist I know, as a role model	2.45	2.67	0.098
My friends influenced me	3.28	3.05	**0.025**
I was influenced by pharmacy work experience	2.13	2.53	**0.001**

Overseas respondents appear to attach more importance to the influence of family and friends, including family members owning a pharmacy. Home/EU students appear to rate work experience as more important. This could be due to Home/EU students having had more of an opportunity to participate in pharmacy work experience through school work experience programmes.

6.4 Choice of school of pharmacy

This section of the survey was designed to investigate the route of entry to the respondents' school of pharmacy and how their choice of school of pharmacy may have been influenced. Respondents were asked to indicate their route of entry to their school of pharmacy via the UCAS system and also to rate the importance of each of fourteen factors which may have influenced their choice of school of pharmacy. These fourteen factors were taken from a review of the literature (see Methods, page 72) and the researcher's own experience in the field of pharmacy admissions.

6.4.1 Entry to school of pharmacy

647 respondents provided an answer to the question on the route of entry to their school of pharmacy. The data are summarised in table 6.16.

Table 6.16: The route of entry of 1st year MPharm students to their school of pharmacy.

UCAS entry route	Responses
Your firm choice (CF)	72.3% (n=468)
Your insurance choice (CI)	13.6% (n=88)
Entry through clearing	14.1% (n=91)
Total	**100% (n=647)**

The majority of respondents were enrolled at their first choice school of pharmacy.

6.4.2 Choice of school of pharmacy

In this question, a four point rating scale was used to eliminate neutral answers. Overall mean rank scores were calculated for each statement. A Mann-Whitney U test and a two-factor ANOVA were performed using SPSS v12.0.1 for each question to test for significant differences in responses.

Table 6.17 summarises the perceived importance of each of fourteen influencing factors on a decision to enrol at a particular school of pharmacy. Figure 6.4 illustrates the above data by examining the differences between the responses at the two extremes of the Likert scale. There is evidence of good correlation between the method of comparing extremes of responses and the mathematical analysis of data. The graphical illustration allows a quick and simple interpretation of the data.

Factors relating to the influence of family and friends appeared to be least important to the respondents with all three family and friends related factors showing net negative responses. Eight factors generated net positive results as shown in figure 6.4. Three factors namely the reputation of the school of pharmacy, the reputation of the university and the nature of the course as described in the prospectus generated the largest net positive results.

Table 6.17: The perceived influence of fourteen factors upon 1st year MPharm students' choice of school of pharmacy (SOP).

Statement	Degree of Influence				Total	Mean rating	Rank*
	Important	2	3	Not important			
My parents wanted me to attend this SOP	8.6% (n=55)	15.1% (n=97)	25.2% (n=162)	51.1% (n=328)	100% (n=642)	3.19	12
Family at this university	4% (n=26)	7% (n=45)	12.1% (n=78)	76.9% (n=495)	100% (n=644)	3.62	14
Friends at pharmacy school	8.9% (n=57)	18.2% (n=117)	21.5% (n=138)	51.5% (n=331)	100% (n=643)	3.16	11
Personal recommendation	35.3% (n=229)	32.7% (n=212)	18.2% (n=118)	13.7% (n=89)	100% (n=648)	2.10	5
Location of the university in relation to where I lived	41.5% (n=229)	17% (n=110)	15.3% (n=99)	26.2% (n=170)	100% (n=648)	2.26	7
Availability of accommodation	21.6% (n=139)	21.9% (n=141)	18.9% (n=122)	37.7% (n=243)	100% (n=645)	2.73	10
Matching entrance grades to predicated expectations	20.7% (n=134)	29.4% (n=190)	19.2% (n=124)	30.7% (n=198)	100% (n=646)	2.60	9
An open day visit to the university	39.1% (n=252)	24.8% (n=160)	15.1% (n=97)	21% (n=135)	100% (n=644)	2.18	6
Nature of the course as described in the prospectus	44% (n=285)	36.3% (n=235)	12.5% (n=81)	7.3% (n=47)	100% (n=648)	1.83	3
This was the only place I could get into	10% (n=64)	9.8% (n=62)	16% (n=103)	64.2% (n=412)	100% (n=642)	3.34	13
Reputation of the school of pharmacy	59% (n=382)	30.6% (n=198)	7.1% (n=46)	3.4% (n=22)	100% (n=648)	1.55	1
Reputation of the university	51.7% (n=336)	31.2% (n=203)	11.4% (n=74)	5.7% (n=37)	100% (n=650)	1.71	2
Reputation of the city / town where the university is located	28.5% (n=184)	33.3% (n=215)	20.7% (n=134)	17.5% (n=113)	100% (n=646)	2.27	8
University facilities	34.5% (n=223)	36% (n=233)	18.5% (n=120)	11% (n=71)	100% (n=647)	2.06	4

Personal recommendation showed a net positive response as did the location of the university in relation to the respondents' homes and university facilities.

Figure 6.4: Perceived influence of 14 factors upon 1st year MPharm students' choice of school of pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.

Key:

a	My parents wanted me to attend this SOP	h	An open day visit to the university
b	Family at this university	i	Nature of the course as described in the prospectus
c	Friends at pharmacy school	j	This was the only place I could get into
d	Personal recommendation	k	Reputation of the school of pharmacy
e	Location of the university in relation to where I lived	l	Reputation of the university
f	Availability of accommodation	m	Reputation of the city / town where the university is located
g	Matching entrance grades to predicted expectations	n	University facilities

Academic ability or attainment did not appear to be an important influence upon the respondents with the factor of matching predicted grades to school of pharmacy entry requirements generating a net negative result.

Significant differences were observed in the responses of White and Asian respondents, as shown in table 6.18.

Table 6.18: A summary of the significance of differences in the perceived influence of fourteen factors upon White and Asian 1st year MPharm students' choice of school of pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
My parents wanted me to attend this school of pharmacy	3.41	2.95	≤ 0.001
Family at this university	3.77	3.45	≤ 0.001
Friends at pharmacy school	3.43	2.89	≤ 0.001
Personal recommendation	2.27	1.98	**0.002**
Location of the university in relation to where I lived	2.22	2.04	0.127
Availability of accommodation	2.74	2.76	0.821
Matching entrance grades to predicted expectations	2.73	2.52	**0.043**
An open day visit to the university	1.97	2.19	**0.014**
Nature of the course as described in the prospectus	1.87	1.75	0.199
This was the only place I could get into	3.47	3.27	**0.011**
Reputation of the school of pharmacy	1.58	1.47	0.310
Reputation of the university	1.79	1.56	**0.001**
Reputation of the city / town where the university is located	2.26	2.11	0.078
University facilities	2.24	1.92	≤ 0.001

White respondents rated an open day visit to a university as a more important influence upon their choice of pharmacy than Asian respondents. This was the only factor that was significantly more important to White respondents. The reputation of the university in which the school of pharmacy was located was more important to Asian respondents, as was a personal recommendation. The influence of family and friends and grades achieved were all significantly less important to White than Asian respondents.

Some significant differences were also observed when the results are analysed by gender as shown in table 6.19.

Table 6.19: A summary of the significance of differences in the perceived influence of fourteen factors upon male and female 1st year MPharm students' choice of school of pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
My parents wanted me to attend this school of pharmacy	3.08	3.24	**0.051**
Family at this university	3.48	3.68	**0.003**
Friends at pharmacy school	2.96	3.24	**0.001**
Personal recommendation	2.06	2.13	0.353
Location of the university in relation to where I lived	2.34	2.22	0.264
Availability of accommodation	2.77	2.70	0.589
Matching entrance grades to predicted expectations	2.73	2.53	**0.037**
An open day visit to the university	2.11	2.21	0.402
Nature of the course as described in the prospectus	1.94	1.77	**0.024**
This was the only place I could get into	3.33	3.36	0.807
Reputation of the school of pharmacy	1.58	1.54	0.437
Reputation of the university	1.81	1.66	0.114
Reputation of the city / town where the university is located	2.32	2.24	0.327
University facilities	2.02	2.07	0.407

Female respondents rated two factors significantly more important in their choice of school of pharmacy than male respondents – the nature of the course as described in the prospectus and matching entrance grades to predicted expectations. Female respondents stated that the influence of family and friends was significantly less important to them than it was to male respondents.

No significant interactions between ethnic background and gender of respondents were observed to this question when ANOVA was performed.

Significant differences were observed in the responses of Home/EU and overseas respondents as shown in table 6.20.

Table 6.20: A summary of the significance of differences in the perceived influence of fourteen factors upon Home/EU and overseas 1st year MPharm students' choice of school of pharmacy (Mann-Whitney U test).

Statement	Home/EU Mean rating	Overseas Mean rating	p
My parents wanted me to attend this school of pharmacy	3.24	2.99	**0.012**
Family at this university	3.66	3.44	**0.003**
Friends at pharmacy school	3.24	2.82	**≤ 0.001**
Personal recommendation	2.17	1.81	**≤ 0.001**
Location of the university in relation to where I lived	2.15	2.79	**≤ 0.001**
Availability of accommodation	2.81	2.38	**≤ 0.001**
Matching entrance grades to predicted expectations	2.67	2.25	**≤ 0.001**
An open day visit to the university	2.03	2.89	**≤ 0.001**
Nature of the course as described in the prospectus	1.84	1.78	0.378
This was the only place I could get into	3.37	3.22	0.068
Reputation of the school of pharmacy	1.55	1.51	0.655
Reputation of the university	1.73	1.61	0.161
Reputation of the city / town where the university is located	2.26	2.35	0.308
University facilities	2.13	1.76	**≤ 0.001**

Home/EU respondents attached significantly less importance to the influence of family and friends than overseas respondents, although both cohorts rated these factors as not important (mean scores below 2.5, with a mean score of 4 indicating the extreme of not important). The location of the university in relation to home was significantly more important for Home/EU students than for overseas respondents. This finding is possibly not surprising as considering the location of a university relative to home would only have relevance to a person living in the United Kingdom. An open day visit to a university was also significantly more important to Home/EU respondents than overseas respondents. Again, this is to be expected as an overseas student is less likely to have the opportunity to visit universities within the United Kingdom and so will rely on other sources of information. Such sources may include personal recommendation which was significantly more important to overseas respondents than Home/EU respondents.

Availability of accommodation was significantly more important to overseas respondents. This can be explained by the fact that overseas students are less likely to have a place to live, either with family or friends, within the United Kingdom.

6.5 Commitment to Pharmacy

This section of the survey (questions 4, 5, 8 – 11) was designed to investigate the respondents' commitment to a career in pharmacy both prior to commencing their studies and following the start of their studies.

6.5.1 Commitment to Pharmacy prior to studies

658 respondents provided an answer to the question about their commitment to pharmacy prior to the commencement of their studies. 72.6% (n=478) indicated that pharmacy was their first and only choice of subject of study at university. 80% (n=224) of White respondents indicated that this was the case, compared to 71.5% (n=153) of Asian respondents, a difference that is significant (χ^2 = 4.854, p= 0.028). Responses from male and female respondents were similar.

The 180 respondents who indicated that pharmacy was not their first and only choice of subject of study at university were then asked to complete a further question designed to explore which other courses or options the respondents had considered. Table 6.21 summarises their responses. Eight respondents did not provide an answer to this question.

Table 6.21: The percentage and number of responses to six options regarding the subject of study at university if pharmacy was not the first and only choice of the respondents (n=172)

Option	Responses
Pharmacy was my second choice to medicine	49.4% (n=85)
Pharmacy was my second choice to dentistry	15.7% (n=27)
Pharmacy was my second choice to another science degree	7.6% (n=13)
I wanted to work in any health related field	14% (n=24)
I came into pharmacy through clearing	10.4% (n=18)
Pharmacy matched the A levels I was taking	2.9% (n=5)
Total	100% (n=172)

For half of those who had indicated that they had considered another subject in preference to pharmacy, medicine was their first choice of subject of study. No significant differences were observed in the responses of male and female respondents, but the responses of White and Asian respondents were significantly different. 51.7% (n=31) of Asian respondents to

this question stated that pharmacy was their second choice to medicine compared to 35.8% (n=19) of White respondents. More Asian respondents (26.7%, n=16) stated that pharmacy was their second choice to dentistry than White respondents (9.4%, n=5).

656 respondents answered the questions regarding the strength of desire to study pharmacy and to become a pharmacist prior to the commencement of their MPharm studies. The results are shown in table 6.22.

Table 6.22: The perceived strength of desire to both study pharmacy and be a pharmacist at the start of the degree studies of 1ˢᵗ year MPharm students.

	Strength of desire				Total	Mean rating
	Very strong	Fairly strong	Not very strong	Not at all strong		
Desire to study pharmacy	56.6% n=371	36.6% n=240	5.3% n=35	1.5% n=10	100% n=656	1.52
Desire to be a pharmacist	60.7% n=398	31.3% n=205	6.7% n=44	1.4% n=9	100% n=656	1.49

It is clear from these results that the respondents generally had a strong desire both to study pharmacy and to be a pharmacist at the end of their studies. There was no significant difference in the overall responses to both questions. The responses of White and Asian respondents to the question of desire to study pharmacy were significantly different (White mean rank = 1.38, Asian mean rank = 1.60, p = 0.001). The responses of male and female respondents were similar. No significant interactions between the gender and ethnic background of respondents were found when ANOVA was performed.

The responses of Home/EU and overseas respondents to both questions were significantly different as shown in table 6.23.

Table 6.23: A summary of the significance of differences in the responses of Home/EU respondents and overseas respondents to questions of commitment to studying pharmacy and being a pharmacist (Mann-Whitney U test).

	Home/EU	Overseas	
	Mean rating	Mean rating	p
Desire to study pharmacy	1.49	1.65	0.005
Desire to be a pharmacist	1.47	1.56	0.052

6.5.2 Commitment to pharmacy as a career

Table 6.24 summarises the responses to three commitment statements.

Table 6.24: The perceived strength of commitment to pharmacy as a career of 1st year MPharm students.

Statement	Strength of agreement				Total	Mean rating
	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree		
I am proud to tell others that I am studying pharmacy	75.5% n=495	22.6% n=148	1.6% n=11	0.3% n=2	100% n=656	1.27
I am strongly committed to the values and ideals of the pharmacy profession	60% n=394	38.1% n=250	1.8% n=12	0.1% n=1	100% n=657	1.42
Being a pharmacist is an important part of who I want to be	51.1% n=336	41% n=270	6.8% n=45	1.1% n=7	100% n=658	1.58

From these results it would appear that the respondents have a high degree of commitment to pharmacy as a career, with less than 2% of respondents disagreeing with the first two statements regarding the study of pharmacy and the values and ideals of the profession of pharmacy. Agreement appears to be less strong with the third statement – "Being a pharmacist is an important part of who I want to be" – with more respondents (but still less than 10%) being in disagreement with this statement. Analysis using a dependent t-test showed that there were significant differences between the mean ratings for each statement ($p \leq 0.001$). However, these respondents were only in the first year of their studies and were not yet near to becoming pharmacists, so the statements concerning their future professional identity may well carry less weight with them.

The first statement, "I am proud to tell others I am studying pharmacy", produced significantly different responses when analysed by ethnic background (White mean rating = 1.21, Asian = 1.32, $p = 0.02$) and when analysed by gender (female mean rating = 1.23, male mean rating = 1.36, $p = 0.001$). No significant differences were observed between the responses of Home/EU and overseas respondents. No significant interactions between the ethnic background and gender of respondents to the statements were observed when ANOVA was performed.

The responses to six career commitment statements adapted from Rascati's earlier work (see page 73) are shown in table 6.25.

Table 6.25: The perceived strength of agreement of 1st year MPharm students to six attitudinal statements regarding pharmacy as a career.

| Statement | Strength of Agreement | | | | Total |
	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree	
If I could pick a different occupation which paid the same amount, I would probably change degree.	2.2% n=15	9.8% n=64	44.4% n=291	43.6% n=286	100% n=656
I definitely want a career in pharmacy	57.8% n=380	37.1% n=244	4.6% n=30	0.5% n=3	100% n=657
If I could do it all over again, I would choose to study for the same profession	44.9% n=294	40.9% n=268	11.3% n=74	2.9% n=19	100% n=655
Pharmacy is the ideal profession for life	45% n=295	46.8% n=307	7.1% n=47	1.1% n=7	100% n=656
I regret that I entered pharmacy school	1.1% n=7	3.3% n=22	20.9% n=137	74.7% n=491	100% n=657
I intend to undertake a second degree after completing pharmacy	4.6% n=30	17.3% n=113	34.7% n=226	43.4% n=283	100% n=652

The overall mean commitment score for the cohort was 9.69 (see Methods, page 73 for calculation), indicating a high degree of commitment to pharmacy as a career (a score of 6 indicates the highest degree of commitment and a score of 24 the lowest degree of commitment). Figures 6.5 and 6.6 show the mean career commitment scores by ethnic background and gender obtained by the calculation outlined on page 73.

Figure 6.5: Mean career commitment scores of 1st year MPharm White and Asian respondents
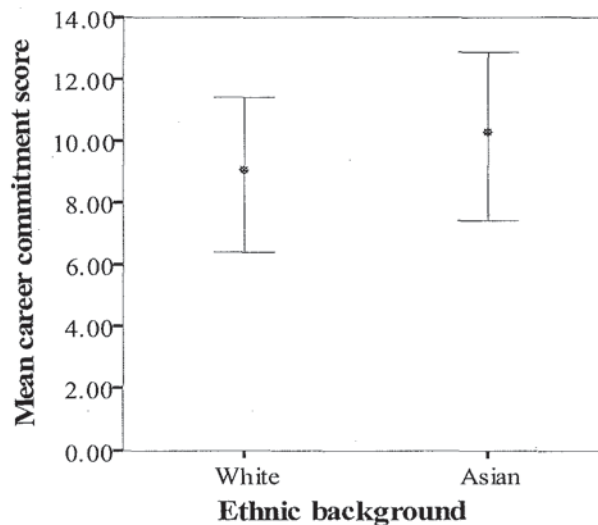
The difference in the mean career commitment scores of White respondents (mean = 8.9, sd = 2.5) and Asian respondents (mean = 10.13, sd =2.71) was highly significant (Mann-Whitney U test, 1df, $p \leq 0.001$). This implies that White students are more committed to a career in pharmacy than Asian students.

Figure 6.6: Mean career commitment scores of 1st year MPharm male and female respondents
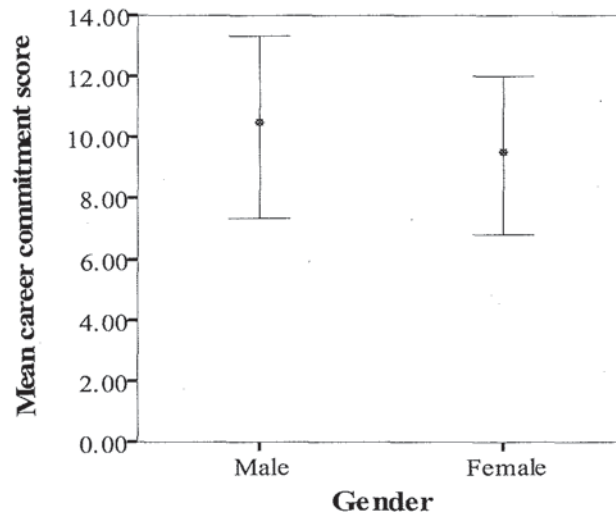
There was a highly significant difference in the career commitment scores of male respondents (mean = 10.34, sd = 3) and female respondents (mean = 9.39, sd = 2.6) (Mann-Whitney U test, 1 df, $p \leq 0.001$), implying that female students are more committed to a career in pharmacy than male students.

No significant interaction between ethnic background and gender of respondents was observed when ANOVA was performed.

Figure 6.7 shows the mean commitment scores by place of domicile of respondents (Home/EU or overseas).

Figure 6.7: Mean career commitment scores of 1st year MPharm Home/EU and overseas respondents
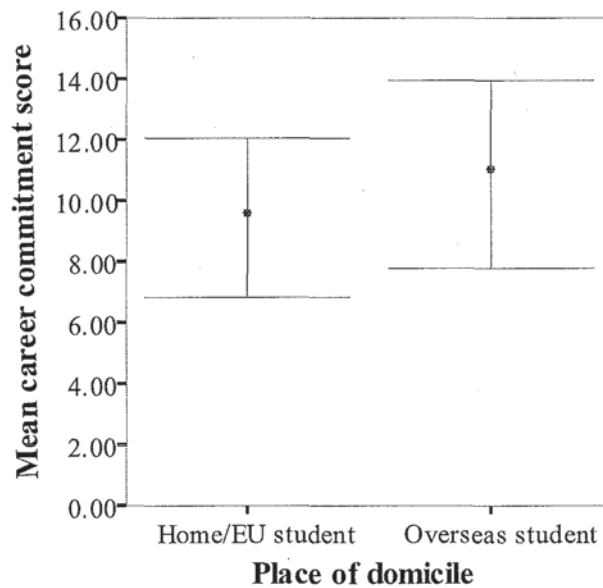
The difference in career commitment scores of Home/EU respondents (score = 9.41, sd = 2.62) and overseas respondents (score = 10.84, sd = 3.07) was highly significant (Mann-Whitney U test, 1 df, $p \leq 0.001$). This implies that Home/EU respondents are more committed to a career in pharmacy than overseas respondents.

6.6   Future Career Aspirations

This section of the survey (questions 12 – 15) was designed to investigate what the respondents thought of their future career within the pharmacy profession, their commitment to the profession of pharmacy and also their thoughts on work / life balance issues.

6.6.1   Pre-registration training

631 respondents answered the question regarding the preferred sector of practice in which to complete pre-registration training. Figure 6.8 illustrates the data.

Figure 6.8: Preferred sector of pre-registration training of 1st year MPharm students.

Key:

a	Community retail – *Chain/Multiple*	f	Community / Industry split post
b	Community retail – *Independent*	g	Not sure yet
c	NHS Hospital	h	I do not want to complete pre-registration training
d	Hospital / Community split post	i	Other
e	Hospital / Industry split post		

One fifth of respondents were unsure of the sector of practice in which they would like to complete their pre-registration year. One quarter stated that community retail (chain / multiple) pharmacy was their choice, with one fifth indicating that they would like to complete their pre-registration training in a hospital pharmacy / community pharmacy split post. Fewer than 10% of respondents wanted to complete their pre-registration year in hospital pharmacy, community (independent) pharmacy or hospital / industry and community / industry split posts. Only one respondent indicated that they did not wish to complete a pre-registration year – this was a Home/EU respondent.

When the results were analysed by ethnic background of respondents, three significant differences were observed. More Asian respondents (36.1%, n=74) indicated that they

wished to complete their pre-registration training in the community pharmacy (chain / multiple) sector than White respondents (19.8%, n=53) (χ^2 = 15.754, p $\leq$ 0.001). One quarter of White respondents (25%, n=67) compared to 17.6% (n=36) of Asian respondents indicated that they wished to complete their pre-registration year in a hospital / community split post (χ^2 = 3.773, p = 0.052).

The responses of male and female respondents were similar with two exceptions. One third of male respondents compared to one fifth (21.7%, n=93) of female respondents (33.2%, n=66) chose a community pharmacy (chain / multiple) placement (χ^2 = 9.487, p = 0.002). One quarter of female respondents (24.2%, n=104) compared to 12.1% (n=24) of male respondents chose a hospital pharmacy / community pharmacy split post (χ^2 = 12.161, p $\leq$ 0.001).

No significant differences were observed between the responses of Home/EU and overseas respondents.

6.6.2   Sector of practice upon qualification

660 respondents provided an answer to the question of sector of practice upon qualification. Respondents were allowed to choose as many options as they felt relevant to themselves. Figure 6.9 overleaf illustrates the data.

15% of respondents stated that they were not yet sure as to which sectors of pharmacy they would seek work in. Over half the respondents indicated that they would consider working in community pharmacy for a chain or a multiple. Approximately 40% of respondents stated that they would consider working in independent community pharmacy (n=258), hospital pharmacy (n=267) and as a locum (n=248). 20% of respondents stated that they would consider working as a consultant pharmacist, a term that has different meanings across the different sectors of practice. A similar number indicated that industry was a sector in which they would possibly seek work. Pharmacy policy development, non-pharmacy work and not working within paid employment were each selected by less than 5% of respondents.

Figure 6.9: The choice of field of practice of 1st year MPharm students once the pre-registration training year is completed.

Key:

a	Community retail – *Chain/Multiple*	h	Pharmacy policy development
b	Community retail – *Independent*	i	Non-pharmacy
c	NHS hospital	j	Consultant pharmacist
d	NHS Primary Care Trust	k	Not sure yet
e	Industry	l	Work as a locum pharmacist
f	Academia (university)	m	Own my own pharmacy business
g	Research	n	I am not sure I will work (within paid employment)

Significant differences were observed in the responses of White and Asian respondents as shown in table 6.26.

Table 6.26: Summary of significant differences in the choice of sector of practice once the pre-registration year is completed of White and Asian 1st year MPharm students.

Statement	White	Asian	χ^2	p	phi
Community retail – *Chain/Multiple*	54.4% (n=153)	56.1% (n=120)	0.130	0.719	0.016
Community retail – *Independent*	47.3% (n=133)	36.4% (n=78)	5.883	**0.015**	0.109
NHS hospital	44.5% (n=125)	31.8% (n=68)	8.248	**0.004**	0.129
NHS Primary Care Trust	20.6% (n=58)	14.5% (n=31)	3.120	0.077	0.079
Industry	13.5% (n=38)	21% (n=45)	4.903	**0.027**	0.100
Academia (university)	6.4% (n=18)	6.5% (n=14)	0.004	0.951	0.003
Research	10% (n=28)	11.2% (n=24)	0.202	0.653	0.020
Pharmacy policy development	1.8% (n=5)	2.3% (n=5)	0.190	0.663	0.020
Non-pharmacy	0.4% (n=1)	1.4% (n=3)	1.658	0.198*	0.058
Consultant pharmacist	19.6% (n=55)	13.1% (n=28)	3.665	0.056	0.086
Not sure yet	15.3% (n=43)	15.4% (n=33)	0.001	0.971	0.002
Work as a locum pharmacist	42% (n=118)	41.1% (n=88)	0.038	0.846	0.009
Own my own pharmacy business	28.1% (n=79)	30.4% (n=65)	0.301	0.583	0.025

*Chi squared not valid as expected values in two cells were below 5.

Significantly more White respondents than Asian respondents indicated that when newly qualified working within the community pharmacy (independent) sector and within NHS hospital practice were possibilities.

More Asian respondents than White respondents indicated that they would consider working within the pharmaceutical industry.

Significant differences were observed when the results were analysed by the gender of respondents.

Table 6.27: Summary of significant differences in the choice of sector of practice once the pre-registration year is completed of male and female 1st year MPharm students.

Statement	Male	Female	χ^2	p	phi
Community retail – *Chain/Multiple*	49.8% (n=104)	54.8% (n=245)	1.458	0.227	0.047
Community retail – *Independent*	40.7% (n=85)	38.7% (n=173)	0.231	0.631	0.019
NHS hospital	32.5% (n=68)	44.1% (n=197)	7.871	**0.005**	0.110
NHS Primary Care Trust	14.8% (n=31)	19.2% (n=86)	1.887	0.170	0.054
Industry	26.8% (n=56)	19.2% (n=86)	4.792	**0.029**	0.085
Academia (university)	4.3% (n=9)	7.2% (n=32)	1.978	0.160	0.055
Research	15.8% (n=33)	11.2% (n=50)	2.731	0.098	0.065
Pharmacy policy development	3.3% (n=7)	2% (n=9)	1.068	0.301	0.040
Non-pharmacy	1.9% (n=4)	1.1% (n=5)	0.666	0.415*	0.032
Consultant pharmacist	18.7% (n=39)	21% (n=94)	0.494	0.482	0.027
Not sure yet	15.8% (n=33)	15.4% (n=69)	0.014	0.907	0.005
Work as a locum pharmacist	37.3% (n=78)	37.8% (n=169)	0.014	0.905	0.005
Own my own pharmacy business	33.5% (n=70)	28.4% (n=127)	1.750	0.186	0.052

More female respondents than male respondents indicated that they would contemplate working within the NHS hospital sector when newly qualified. More male respondents than females stated that they would possibly seek work within the pharmaceutical industry.

Significant differences were also observed when the responses of Home/EU and overseas respondents were analysed. These are summarized in table 6.28.

Table 6.28: Summary of significant differences in the choice of sector of practice once the pre-registration year is completed of Home/EU and overseas 1st year MPharm students.

Statement	Home/EU	Overseas	χ^2	p	phi
Community retail – *Chain/Multiple*	54.2% (n=290)	48.3% (n=57)	1.352	0.245	0.045
Community retail – *Independent*	40.7% (n=218)	32.2% (n=38)	2.961	0.085	0.067
NHS hospital	40.9% (n=219)	38.1% (n=45)	0.314	0.575	0.022
NHS Primary Care Trust	19.4% (n=104)	11.9% (n=14)	3.747	**0.053**	0.076
Industry	20.6% (n=110)	27.1% (n=32)	2.443	0.118	0.061
Academia (university)	5.8% (n=31)	8.5% (n=10)	1.180	0.277	0.043
Research	12.3% (n=66)	14.4% (n=17)	0.373	0.541	0.024
Pharmacy policy development	2.4% (n=13)	2.5% (n=3)	0.005*	0.943	0.003
Non-pharmacy	1.3% (n=7)	1.7% (n=2)	0.106*	0.744	0.013
Consultant pharmacist	20.2% (n=108)	20.3% (n=24)	0.001	0.970	0.001
Not sure yet	14.2% (n=76)	22.9% (n=27)	5.477	**0.019**	0.092
Work as a locum pharmacist	41.1% (n=220)	21.2% (n=25)	16.389	**≤ 0.001**	0.158
Own my own pharmacy business	29.3% (n=157)	32.2% (n=38)	0.377	0.539	0.024

*Chi squared not valid as one cell had an expected value of less than 5.

Significantly more Home/EU respondents than overseas respondents indicated that they would possibly seek work within an NHS Primary Care Trust or to work as a locum pharmacist. Overseas respondents were more likely to be unsure of where they would seek work upon qualification.

The responses from respondents who selected the three main areas of pre-registration employment were investigated further to explore where they would seek work once newly qualified. These respondents included:

- community retail (chain / multiple) (n=159);
- community retail (independent) (n=60);
- NHS hospital pharmacy (n=61).

As each respondent was allowed to select as many options as they felt were applicable to them for where they would seek work upon registration, the total for each pre-registration sector does not equal 100%. The results of this analysis are shown in figure 6.10.

Figure 6.10: The choices of sector of practice once newly qualified for those 1ˢᵗ year MPharm respondents who chose community retail (chain / multiple), community pharmacy (independent) or hospital pharmacy as their pre-registration placement.

Sector of practice in which respondents would seek to work once qualified

■ Community (chain / multiple) pre-registration □ Community (independent) pre-registration ▨ NHS Hospital pre-registration

Key:
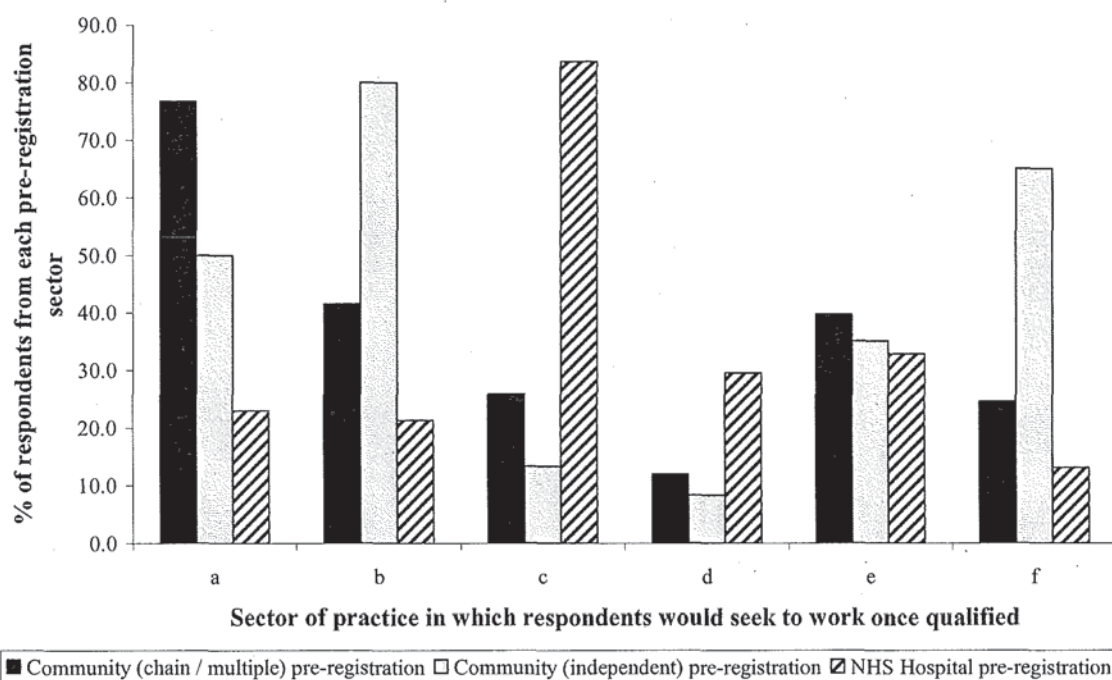
a	Community retail – *Chain/Multiple*	d	NHS Primary Care Trust
b	Community retail – *Independent*	e	Work as a locum pharmacist
c	NHS hospital	f	Own my own pharmacy business

Potential sector loyalty was evident in this cohort as over 75% of respondents indicated that they would seek to remain within the same sector of practice as their pre-registration training.

Almost 30% of those respondents who had chosen hospital pharmacy as their preferred pre-registration placement indicated that they would consider working within an NHS Primary Care trust; only 12% of community (chain / multiple) and 8% of community (independent) respondents stated that this was the case for them. This would suggest that those respondents who would like to undertake their pre-registration training within the NHS would possibly remain within the NHS once qualified. This ambition may be

problematic for these respondents as it may be that there are fewer jobs for newly qualified pharmacists within the NHS than there are pre-registration placements.

Similar proportions (approximately one third) of all three groups of respondents indicated that they would consider work as a locum pharmacist upon registration. 65% of those whose preferred pre-registration placement would be in independent community pharmacy, stated that they would seek to own their own pharmacy business upon registration. This is compared to one quarter of community pharmacy (chain / multiple) respondents and only 10% of hospital respondents. This appears to suggest that those who would like to undertake an independent pre-registration placement would consider retaining this independence once qualified.

6.7   Future work / life plans

This section of the questionnaire was designed to investigate how the respondents envisaged their future work / life balance.

6.7.1   Future Plans

656 respondents answered the question regarding their future working plans. The data is illustrated in figure 6.11.

Figure 6.11: The future work / life plans of 1st year MPharm students.
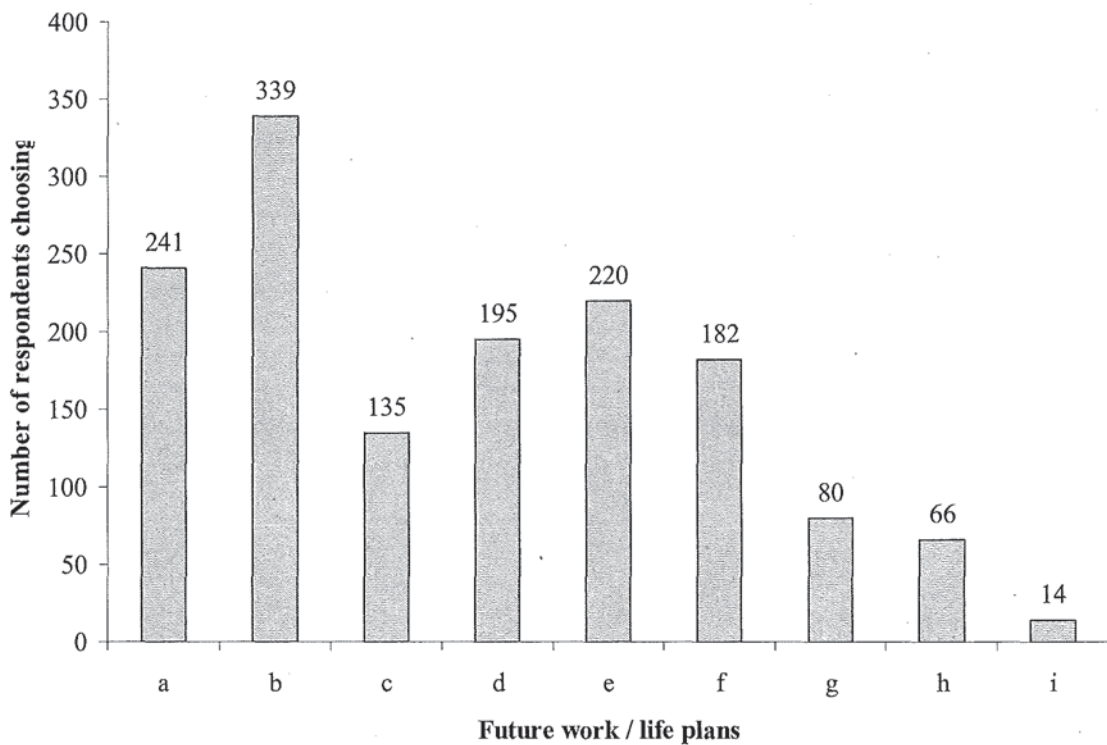
Key:

a	Full time career until typical retirement age (65)	f	Work abroad
b	Work full time, then part time if I have a family	g	Practice/PCT pharmacist
c	Intend to travel, working holidays	h	No clear intention yet
d	Intend to work as a locum	i	Other
e	Intend to buy my own business		

Over half of the respondents to this question indicated that they would consider working full time, then part time if they had a family. 37% stated that they possibly intended to work full time until typical retirement age. One third of respondents expressed an interest in buying their own business. Similar numbers (approximately 30% of respondents) indicated that working as a locum or working abroad were potential career options.

The responses of White and Asian responses were similar as shown in table 6.29.

Table 6.29: Summary of significant differences in the work / life choices of White and Asian 1st year MPharm students.

Statement	White	Asian	χ^2	p	phi
Full time career until typical retirement age (65)	37% (n=104)	33.3% (n=71)	0.716	0.397	0.038
Work full time, then part time if I have a family	54.1% (n=152)	53.8% (n=114)	0.005	0.944	0.003
Intend to travel, working holidays	19.9% (n=56)	17.8% (n=38)	0.343	0.558	0.026
Intend to work as a locum	29.9% (n=84)	35.7% (n=76)	1.853	0.173	0.061
Intend to buy my own business	26.7% (n=75)	32.4% (n=69)	1.909	0.167	0.062
Work abroad	26% (n=73)	22.6% (n=48)	0.727	0.394	0.038
No clear intention yet	11.7% (n=33)	9% (n=19)	0.991	0.320	0.045

Two highly significant differences in the responses of male and female respondents were observed. The data is shown in table 6.30.

Table 6.30: Summary of significant differences in the work / life choices of male and female 1st year MPharm students.

Statement	Male	Female	χ^2	p	phi
Full time career until typical retirement age (65)	53.6% (n=112)	28.5% (n=127)	38.479	≤ 0.001	0.243
Work full time, then part time if I have a family	22% (n=46)	65.8% (n=292)	108.967	≤ 0.001	0.408
Intend to travel, working holidays	22.5% (n=47)	19.8% (n=88)	0.639	0.424	0.031
Intend to work as a locum	28..7% (n=60)	30.1% (n=134)	0.134	0.714	0.014
Intend to buy my own business	38.8% (n=81)	31.2% (n=139)	3.603	0.058	0.074
Work abroad	30.6% (n=64)	26.4% (n=117)	1.294	0.255	0.045
No clear intention yet	10% (n=21)	10.1% (n=45)	0.001	0.972	0.001

Male respondents were three times more likely than females to indicate that working full time until typical retirement age was an option for them. Conversely, female respondents were seven times more likely to indicate that they would consider working full time, then part time if they had a family.

Significant differences were also observed when the responses of Home/EU and overseas respondents were analysed. These are summarized in table 6.31.

Table 6.31: Summary of significant differences in the work / life choices of Home/EU and overseas 1st year MPharm students.

Statement	Home/EU	Overseas	χ^2	p	phi
Full time career until typical retirement age (65)	36.3% (n=193)	39.8% (n=47)	0.532	0.469	0.028
Work full time, then part time if I have a family	53.5% (n=284)	44.9% (n=53)	2.840	0.092	0.066
Intend to travel, working holidays	18.6% (n=99)	30.5% (n=36)	8.310	**0.004**	0.113
Intend to work as a locum	32.9% (n=175)	13.6% (n=16)	17.401	**≤ 0.001**	0.164
Intend to buy my own business	32.3% (n=172)	39.8% (n=47)	2.431	0.119	0.061
Work abroad	25.4% (n=135)	39.8% (n=47)	9.930	**0.002**	0.124
No clear intention yet	10% (n=53)	10.2% (n=12)	0.004	0.951	0.002

Overseas respondents were significantly more likely to indicate that they would consider travel or working abroad. Overseas respondents were also more likely to indicate that they would possibly work as a locum.

6.7.2 Career Ambitions

660 respondents answered the question regarding the highest level they would like to attain in their pharmacy career. Respondents were presented with a selection of twelve possible "career highs" and were asked to select up to, but no more than, three. However, this instruction was either not read, or was misinterpreted and many respondents selected more than three options. The data are illustrated in figure 6.12.

Figure 6.12: The career aims of 1st year MPharm students.

Key:

a	Employee in community retail pharmacy	g	Hospital pharmacy manager
b	Manager in community retail pharmacy	h	Chief Pharmacist
c	Owner of a community retail pharmacy	i	Academic pharmacist
d	Multiple community retail management / administration	j	A position outside pharmacy
e	Practice / PCT pharmacy	k	Not sure yet
f	Hospital pharmacist	l	Other

13% (n=85) of respondents stated that they were not yet sure which was the highest level they wished to achieve in their careers. Over 50% indicated that one option they would consider would be to become the owner of a community pharmacy business. Just over one third of respondents (36.7%, n=242) stated that becoming a manager within community pharmacy was a career aim and a similar number indicated that a career aim was to become a Chief Pharmacist. These three results suggest that this cohort has high ambitions with only 12% content to become an employee pharmacist. Fewer than one fifth (18.5%, n=122) of respondents stated that they were aiming for a management position outside of pharmacy practice and only 4.5% of respondents were aiming to be in a position outside the profession of pharmacy itself. Academia and PCT work were both selected by fewer than 10% of respondents.

Significant differences were observed in the responses of White and Asian respondents as shown in table 6.32.

Table 6.32: Summary of significant differences in the future career aims of White and Asian 1st year MPharm students.

Statement	White	Asian	χ^2	p	phi
Employee in community retail pharmacy	11% (n=31)	15.9% (n=34)	2.511	0.113	0.071
Manager in community retail pharmacy	40.9% (n=114)	38% (n=81)	0.405	0.525	0.029
Owner of a community retail pharmacy	48.8% (n=137)	51.4% (n=110)	0.341	0.559	0.026
Multiple community retail management / administration	15.7% (n=44)	21% (n=45)	2.319	0.128	0.069
Practice / PCT pharmacy	12.5% (n=35)	6.5% (n=14)	4.819	**0.028**	0.099
Hospital pharmacist	20.1% (n=56)	17.8% (n=38)	0.420	0.517	0.029
Hospital pharmacy manager	29.7% (n=83)	17.3% (n=37)	10.209	**0.001**	0.144
Chief pharmacist	33.8% (n=95)	28% (n=60)	1.881	0.170	0.062
Academic pharmacist	10% (n=28)	8.4% (n=18)	0.348	0.555	0.027
A position outside pharmacy	2.1% (n=6)	2.8% (n=6)	0.230	0.632	0.022
Not sure yet	13.5% (n=38)	14% (n=40)	0.025	0.874	0.007
Other	3.2% (n=9)	2.3% (n=5)	0.332	0.565	0.026

White respondents were more likely than Asian respondents to indicate that positions within the NHS, practice or PCT pharmacy and hospital pharmacy manager, were career aims.

Significant differences were also observed in the responses of male and female respondents – see table 6.33.

Table 6.33: Summary of significant differences in the future career aims of male and female 1st year MPharm students.

Statement	Male	Female	χ^2	p	phi
Employee in community retail pharmacy	12.9% (n=27)	11.4% (n=51)	0.310	0.578	0.022
Manager in community retail pharmacy	38.8% (n=81)	36% (n=160)	0.479	0.489	0.027
Owner of a community retail pharmacy	57.7% (n=120)	49.2% (n=219)	4.082	**0.043**	0.079
Multiple community retail management / administration	19.6% (n=41)	17.7% (n=79)	0.345	0.557	0.023
Practice / PCT pharmacy	8.1% (n=17)	10.3% (n=46)	0.793	0.373	0.035
Hospital pharmacist	14.8% (n=31)	20.9% (n=93)	3.360	0.067	0.072
Hospital pharmacy manager	21.1% (n=44)	28.3% (n=126)	3.899	**0.048**	0.077
Chief pharmacist	35.9% (n=74)	34.4% (n=153)	0.147	0.701	0.015
Academic pharmacist	7.7% (n=16)	9% (n=40)	0.314	0.575	0.022
A position outside pharmacy	6.2% (n=13)	3.8% (n=17)	1.889	0.169	0.054
Not sure yet	9.6% (n=20)	14.6% (n=65)	3.156	0.076	0.069
Other	4.3% (n=9)	2.7% (n=12)	1.197	0.274	0.043

Male respondents were significantly more likely than female respondents to indicate that a career aim was to own their own pharmacy business. Significantly more female than male respondents indicated that hospital pharmacy management was a career aim.

When the results were analysed by place of domicile, four significant differences were observed. These are summarized in table 6.34.

Table 6.34: Summary of significant differences in the future career aims of Home/EU and overseas 1st year MPharm students.

Statement	Home/EU	Overseas	χ^2	p	phi
Employee in community retail pharmacy	12.5% (n=67)	8.5% (n=10)	1.524	0.217	0.048
Manager in community retail pharmacy	38.1% (n=204)	29.7% (n=35)	2.989	0.084	0.068
Owner of a community retail pharmacy	51.2% (n=272)	55.9% (n=66)	0.858	0.354	0.036
Multiple community retail management / administration	17.6% (n=94)	23.7% (n=28)	2.414	0.120	0.061
Practice / PCT pharmacy	11.2% (n=60)	4.2% (n=5)	5.251	**0.022**	0.090
Hospital pharmacist	17.6% (n=94)	25.4% (n=30)	3.876	**0.049**	0.077
Hospital pharmacy manager	26.4% (n=141)	25.4% (n=30)	0.043	0.835	0.008
Chief pharmacist	33.6% (n=180)	38.1% (n=45)	0.863	0.353	0.036
Academic pharmacist	7.3% (n=39)	13.6% (n=16)	4.927	**0.026**	0.087
A position outside pharmacy	3.6% (n=19)	9.3% (n=11)	7.345	**0.007**	0.106
Not sure yet	13.3% (n=71)	10.2% (n=12)	0.838	0.360	0.036
Other	3.6% (n=19)	1.7% (n=2)	1.071*	0.301	0.040

*Chi squared not valid as two cells had an expected value of less than 5.

Overseas respondents were significantly more likely than Home/EU respondents to indicate that their career ambitions included being a hospital pharmacist, working within academia or taking a position outside pharmacy although the proportions are small for these latter two options.

6.8 Key Findings

The following is a summary of the key findings of the questionnaire administered to 1st Year MPharm students.

- The most important influences upon the decision of 1st year MPharm students to study pharmacy were that pharmacy was a science based course and offered good job and career prospects.

- The opportunity for business ownership and self employment were stronger influencing factors upon the decision to study pharmacy for Asian respondents than White respondents. The same two factors were stronger influences upon the decision to study pharmacy of overseas respondents than Home/EU respondents

and for male respondents when compared to female respondents. The science based nature of the course was a stronger influencing factor upon the decision to study pharmacy for White respondents than Asian respondents. More Asian respondents than White respondents rated the factor of a family member owning a pharmacy as being an important influence upon their decision to study pharmacy. The same was true for overseas respondents when compared to Home/EU students.

- Pharmacy work experience was an important influence upon the decision to study pharmacy for 40% of respondents. It was a more important influencing factor for female respondents than male respondents and for Home/EU respondents when compared to overseas respondents.

- Factors relating to the school of pharmacy or its parent institution (the reputation of the school of pharmacy, the reputation of the university, university facilities and university prospectuses) were the most important influences upon the choice of school of pharmacy at which to study. Personal recommendation, the availability of accommodation and matching entrance requirements to predicted A level grades were all factors that were more important to overseas respondents than Home/EU respondents. The location of a school of pharmacy in relation to home and an open day visit to a university were more important to Home/EU respondents than overseas respondents.

- Over 70% of respondents indicated that pharmacy was their first and only choice of subject to study at university. Of those who indicated that pharmacy was not their first and only choice, 50% indicated that pharmacy was their second choice of subject after medicine. Overseas respondents were more likely to indicate that they had wanted to study medicine, dentistry or a medically related subject.

- A high degree of commitment to pharmacy as a career was shown by all respondents. White respondents were more committed to pharmacy as a career than Asian respondents. Female respondents were more committed than male respondents to pharmacy as a career. Home/EU respondents were more committed than overseas respondents to pharmacy as a career.

- The most popular sector for pre-registration training was community pharmacy (chain / multiple), followed by a hospital / community pharmacy split post and hospital pharmacy. More Asian respondents than White indicated that they would prefer to undertake their pre-registration training in community pharmacy (chain / multiple). The same sector of practice was the preferred choice of male

respondents when compared to females. More female respondents than male respondents indicated that a hospital / community pharmacy split post would be their preferred choice of pre-registration training.

- More White respondents than Asians and more female respondents than males indicated that they would consider working within the hospital sector upon qualification. More Asian respondents than White respondents and more male respondents than female respondents indicated that they would consider working within the pharmaceutical industry upon qualification. At this point in their future careers there were no differences, based upon either ethnic background or gender, in the desire to own a pharmacy business.

- Just over half of male respondents indicated that working full time until typical retirement age was a possible career path. 65% of female respondents indicated that they saw themselves working full time, then part time if they had a family. One third of overseas respondents indicated that they would consider travelling or take working holidays, significantly more than Home/EU respondents. 40% of overseas respondents indicated that they would consider working abroad. More Home/EU than overseas respondents indicated that they would consider working as a locum.

- Over 50% of all respondents indicated that a career aim was to own their own business. Significantly more male than female respondents stated that this was the case, but there was no significant difference in the responses of respondents from different ethnic backgrounds.

Chapter 7: 4th Year MPharm questionnaire results

This chapter presents the results of a questionnaire administered to final year (4th year) MPharm undergraduates at schools of pharmacy in the United Kingdom.

7.1 Administration of the survey

The questionnaire was sent out during March and April 2005 to a named contact at each of the 13 schools of pharmacy which had agreed to participate in the survey. The questionnaire was then administered to final year MPharm students at each institution according to the preferred method of that institution (see page 72). A total of 1428 questionnaires were sent for completion by final year MPharm students. 506 final year students completed the questionnaire, resulting in a response rate of 35.4%.

7.2 Sample Demography

7.2.1 Gender of respondents

500 respondents provided an answer to this question as shown in table 7.1.

Table 7.1: The gender of respondents (n=500)

Gender	Percentage of respondents (n=500)
Male	27.6% (n=138)
Female	72.4% (n=362)
Total	**100% (n=500)**

7.2.2 Ethnic origin of respondents

494 respondents provided an answer to the question of ethnicity and table 7.2 summarises the data.

Table 7.2: The percentage and number of male, female and total respondents from each ethnic background (n=494)

Ethnic background	Male	Female	Total respondents
White	47.8% n=65	58.7% n=210	**55.7% n=275**
Black or Black British	5.9% n=8	4.7% n=17	**5.1% n=25**
Dual Heritage	0.7% n=1	1.7% n=6	**1.4% n=7**
Asian	41.9% n=57	27.9% n=100	**31.8% n=157**
Chinese or other ethnic group	1.5% n=2	6.1% n=22	**4.9% n=24**
Don't want to say	2.2% n=3	0.8% n=3	**1.2% n=6**
Total	**100% n=136**	**100% n=358**	**100% n=494**

7.2.3 Residential status

488 respondents provided an answer to the question of residential status. 94.1% (n=459) were UK or EU students, whilst 5.9% (n=29) stated that they were overseas students.

7.3 Reasons for choosing to study pharmacy

Questions 1 – 3 were designed to investigate any influencing factors or reasons for choosing to study pharmacy. The questions were based upon a review of the literature (see chapter 2). In each of the questions, a four point rating scale was used to eliminate neutral answers. Overall mean rank scores were calculated for each statement. A Mann-Whitney U test and a two-factor ANOVA were performed using SPSS v12.0.1 for each question to test for significant differences in responses.

7.3.1 Careers information related influences

Question 1 explored the perceptions of the importance of eight careers information related influencing factors upon the decision to choose to study pharmacy. The data is summarised in table 7.3. A mean rating value of 2.5 (the mathematical mid-point on the four point Likert scale used in the questionnaire) indicates neutrality. A low mean rating score indicates a higher influence upon respondents. Figure 7.1 illustrates the data graphically by examining the differences between the two extremes of the Likert scale used for the question (i.e. the difference between the percentage of respondents indicating that a factor was an important influence and the percentage of respondents indicating that a factor was not an important influence upon their decision). The strength of responses (either positive or negative) shown in the figure correspond to the mean rating based upon the Likert rating for each statement.

Table 7.3: The perceived importance of careers information related factors upon 4th year MPharm students' decision to study pharmacy.

Statement	Degree of Importance				Total	Mean rating	Rank *
	Important	2	3	Not important			
A subject teacher at school / college	17.3% (n=88)	17.7% (n=90)	21.1% (n=107)	43.9% (n=223)	100% (n=508)	2.93	5
A careers teacher at school / college	13.8% (n=70)	21.7% (n=110)	18.1% (n=92)	46.5% (n=236)	100% (n=508)	2.98	6
A visit to a careers fair / conference	15.2% (n=76)	21.6% (n=108)	19.8% (n=99)	43.3% (n=216)	100% (n=499)	2.91	4
A visit to a university open day	31.1% (n=156)	25.9% (n=130)	14.5% (n=73)	28.5% (n=143)	100% (n=502)	2.39	2
A university prospectus	34.6% (n=174)	33% (n=166)	13.5% (n=68)	18.9% (n=95)	100% (n=503)	2.15	1
RPSGB literature	10.3% (n=52)	19.3% (n=97)	21.5% (n=108)	48.9% (n=246)	100% (n=503)	3.09	7
Radio or TV programme	5.7% (n=29)	14.1% (n=71)	25.7% (n=130)	54.5% (n=275)	100% (n=505)	3.29	8
Careers leaflets or booklets	22.8% (n=116)	34.3% (n=174)	16.1% (n=82)	26.8% (n=136)	100% (n=508)	2.47	3

*Rank is based upon mean rating score.

Only two factors attracted net positive responses: university prospectuses and visits to university open days. Both factors were important to approximately one third of respondents. These two factors were also the only two factors that generated a net positive response as shown in figure 7.1. Careers leaflets or booklets generated an overall net negative response with a mean rating of 2.47. Over one half of respondents stated that a "radio or TV programme" was not an important influence and over 40% of respondents indicated that teachers (either subject or careers) at school or college, visits to careers fairs and RPSGB literature were not important influences upon their decision to choose to study pharmacy. The net differences in the extremes of responses are shown in figure 7.1.

Figure 7.1: Perceived importance of eight careers information related factors upon 4th year MPharm students' decision to study pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.

Key:
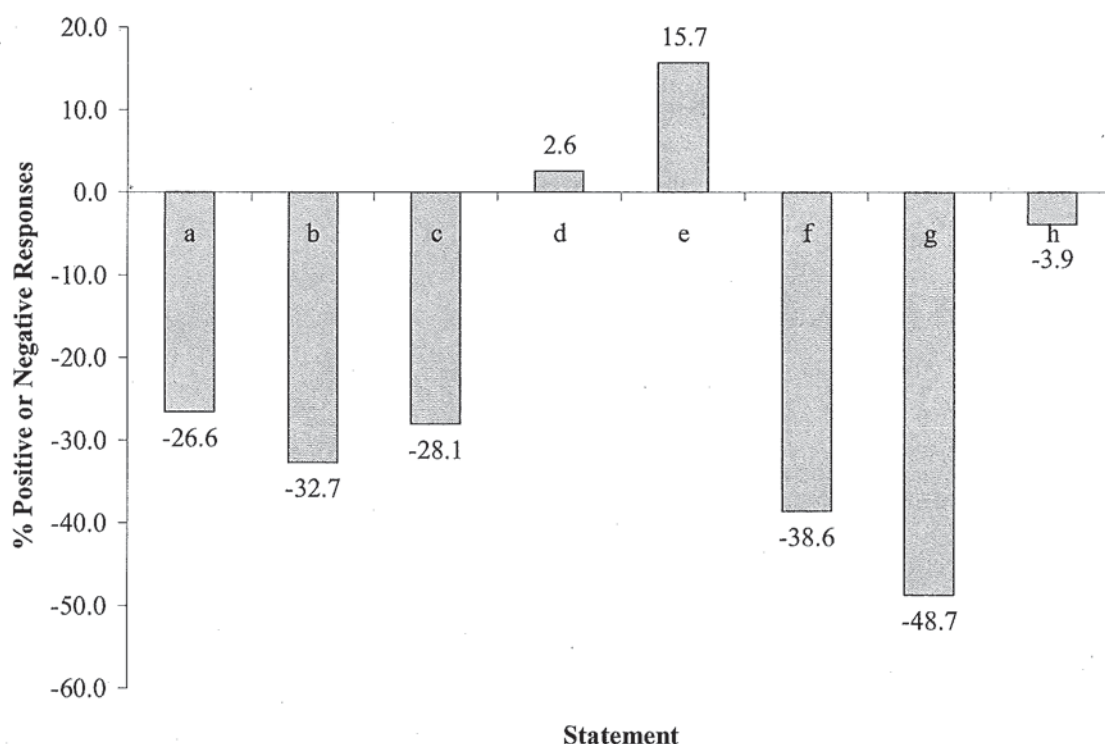
a	A subject teacher at school / college	e	From a university prospectus
b	A careers teacher at school / college	f	From RPSGB literature
c	A visit to a career fair / conference	g	Radio or TV programme
d	A visit to a university open day	h	Careers leaflets or booklets

Significant differences were observed when comparing the responses of White and Asian respondents – see table 7.4.

Table 7.4: A summary of the significance of differences in the perceived importance of eight careers information related factors upon the decision of White and Asian 4th year MPharm students to study pharmacy (Mann-Whitney U test).

	White	Asian	
Factor	Mean rating	Mean rating	P
A subject teacher at school / college	3.03	2.75	**0.018**
A careers teacher at school / college	3.09	2.73	**0.003**
A visit to a career fair / conference	3.10	2.56	**≤ 0.001**
A visit to a university open day	2.46	2.13	**0.005**
From a university prospectus	2.20	1.92	**0.007**
From RPSGB literature	3.24	2.80	**≤ 0.001**
Radio or TV programme	3.43	3.04	**≤ 0.001**
Careers leaflets or booklets	2.65	2.18	**≤ 0.001**

From these results it would appear that Asian respondents were significantly more influenced by all of the factors included in the question.

No significant differences were observed in the responses of male and female respondents – see table 7.5.

Table 7.5: A summary of the significance of differences in the perceived importance of eight careers information related factors upon the decision of male and female 4th year MPharm students to study pharmacy (Mann-Whitney *U* test).

	Male	Female	
Factor	Mean rating	Mean rating	p
A subject teacher at school / college	2.80	2.97	0.112
A careers teacher at school / college	2.93	2.99	0.498
A visit to a career fair / conference	2.84	2.93	0.425
A visit to a university open day	2.50	2.36	0.303
From a university prospectus	2.30	2.10	0.052
From RPSGB literature	3.06	3.11	0.800
Radio or TV programme	3.26	3.30	0.773
Careers leaflets or booklets	2.50	2.46	0.784

7.3.2 Personal influences

Question 2 explored the perceptions of six personal influencing factors upon the decision to study pharmacy. The results are summarised in table 7.6. The net differences in the extremes of responses are shown in figure 7.2.

Table 7.6: The perceived importance of six personal influencing factors upon 4th year MPharm students' decision to study pharmacy.

Statement	Degree of Importance				Total	Mean rating	Rank*
	Important	2	3	Not important			
My parents encouraged me to choose pharmacy	29.3% (n=149)	24.8% (n=126)	18.5% (n=94)	27.4% (n=139)	100% (n=508)	2.44	2
My family encouraged me to choose pharmacy	22.2% (n=112)	25.5% (n=129)	19.6% (n=99)	32.7% (n=165)	100% (n=505)	2.63	4
Someone in my family who owns a pharmacy influenced me	12.5% (n=63)	10.1% (n=51)	12.9% (n=65)	64.5% (n=325)	100% (n=504)	3.29	5
I was influenced by a pharmacist I know, as a role model	25% (n=126)	23.7% (n=119)	15.3% (n=77)	36% (n=181)	100% (n=503)	2.62	3
My friends influenced me	4.2% (n=21)	13.8% (n=70)	25.5% (n=129)	56.5% (n=286)	100% (n=506)	3.34	6
I was influenced by pharmacy work experience	43.5% (n=220)	21.5% (n=109)	10.1% (n=51)	24.9% (n=126)	100% (n=506)	2.16	1

*Rank is based upon the mean rating score.

Overall, the highest net postive personal influencing factor for this cohort was that of pharmacy work experience, with nearly half (43.5%) rating this as important. One quarter of respondents stated that pharmacy work experience was not an important influence on their decision to study pharmacy. Overall, two factors —"someone in my family who owns a pharmacy influenced me" (mean rating 3.29) and "my friends influenced me" (mean rating 3.34) – were rated as not important by over 55% of respondents.

Figure 7.2: Perceived importance of six personal influencing factors on a decision to study pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.

Key:

a	My parents encouraged me to choose pharmacy	d	I was influenced by a pharmacist I know, as a role model
b	My family encouraged me to choose pharmacy	e	My friends influenced me
c	Someone in my family who owns a pharmacy influenced me	f	I was influenced by pharmacy work experience

Significant differences in the responses of White and Asian respondents were observed. These are shown in table 7.7.

Table 7.7: A summary of the significance of differences in the perceived importance of six personal influencing factors upon the decision of White and Asian 4th year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
My parents encouraged me to choose pharmacy	2.61	2.21	**0.001**
My family encouraged me to choose pharmacy	2.83	2.33	**≤ 0.001**
Someone in my family who owns a pharmacy influenced me	3.49	2.92	**≤ 0.001**
I was influenced by a pharmacist I know, as a role model	2.60	2.61	0.929
My friends influenced me	3.40	3.18	**0.015**
I was influenced by pharmacy work experience	1.99	2.24	**0.016**

Asian respondents were significantly more influenced by close family and friends than White respondents, but the influence of a pharmacist known to the respondents was the same for both groups. White respondents were significantly more influenced by pharmacy work experience than Asian respondents.

Some significant differences were also observed in the responses of male and female respondents – see table 7.8.

Table 7.8: A summary of the significance of differences in the perceived importance of six personal influencing factors upon the decision of male and female 4th year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	Male Mean rating	Female Mean rating	p
My parents encouraged me to choose pharmacy	2.31	2.50	0.095
My family encouraged me to choose pharmacy	2.53	2.68	0.189
Someone in my family who owns a pharmacy influenced me	3.03	3.39	**0.001**
I was influenced by a pharmacist I know, as a role model	2.50	2.66	0.162
My friends influenced me	3.13	3.43	**0.001**
I was influenced by pharmacy work experience	2.40	2.06	**0.006**

Male respondents were more influenced by a family member owning a pharmacy than females. Female respondents were significantly less influenced by their friends than Asian respondents and significantly more influenced by pharmacy work experience.

7.3.3 General Influences

Question 3 explored the perceptions of the influence of fifteen non-educational factors upon the decision to study pharmacy. The results are shown in table 7.9. Figure 7.3 illustrates the differences in the extremes of responses to this question.

Table 7.9: The perceived influence of fifteen general factors upon 4th year MPharm students' decision to study pharmacy.

| Statement | Degree of influence | | | | Total | Mean rating | Rank* |
	Strong	2	3	Not strong			
I liked science/was good at science at school	72.6% (n=369)	22.4% (n=114)	3% (n=15)	2% (n=10)	100% (n=508)	1.34	3
I wanted to do a science based course	76.1% (n=386)	18.9% (n=96)	2.8% (n=14)	2.2% (n=11)	100% (n=507)	1.31	2
I wanted to work in a well respected profession	68% (n=345)	23.9% (n=121)	5.7% (n=29)	2.4% (n=12)	100% (n=507)	1.42	5
I wanted a job with good career opportunities	80.3% (n=408)	16.3% (n=83)	2.4% (n=12)	1% (n=5)	100% (n=508)	1.24	1
I thought pharmacy would be intellectually satisfying	51.6% (n=262)	35.4% (n=180)	8.5% (n=43)	4.5% (n=23)	100% (n=508)	1.66	7
I wanted a job where I am socially useful	51.6% (n=262)	32.3% (n=164)	11.8% (n=60)	4.3% (n=22)	100% (n=508)	1.69	8
I wanted to work with patients	52.3% (n=265)	28.4% (n=144)	9.5% (n=48)	9.9% (n=50)	100% (n=507)	1.77	9
I wanted to own my own business	15.9% (n=81)	17.3% (n=88)	24.8% (n=126)	41.9% (n=213)	100% (n=508)	2.93	15
I wanted the opportunity for self-employment	18.5% (n=94)	23.1% (n=117)	23.9% (n=121)	34.5% (n=175)	100% (n=507)	2.74	14
I wanted the opportunity for part time work	26.5% (n=134)	28.1% (n=142)	21% (n=106)	24.4% (n=123)	100% (n=505)	2.43	12
I was attracted by the financial rewards	40% (n=203)	34.1% (n=173)	16.6% (n=84)	9.3% (n=47)	100% (n=507)	1.95	10
I wanted flexible working hours	34.5% (n=174)	30.5% (n=154)	21.8% (n=110)	13.3% (n=67)	100% (n=505)	2.14	11
I wanted a profession where you can always get a job	70.4% (n=357)	21.5% (n=109)	6.3% (n=32)	1.8% (n=9)	100% (n=507)	1.39	4
I wanted to work with medicine or in the medical profession	61.7% (n=313)	25.2% (n=128)	8.7% (n=44)	4.3% (n=22)	100% (n=507)	1.56	6
I wanted to study medicine / dentistry or another medically related subject	28.3% (n=143)	16.2% (n=82)	18.6% (n=94)	37% (n=187)	100% (n=506)	2.64	13

*Rank is based upon mean rating score.

Figure 7.3: Importance of 15 non-educational influencing factors on a decision to study pharmacy. Results are shown as the difference between the % of respondents who rated as strong and the % of respondents who rated as not strong.

Key:

a	I liked science/was good at science at school	i	I wanted the opportunity for self-employment
b	I wanted to do a science based course	j	I wanted the opportunity for part time work
c	I wanted to work in a well respected profession	k	I was attracted by the financial rewards
d	I wanted a job with good career opportunities	l	I wanted flexible working hours
e	I thought pharmacy would be intellectually satisfying	m	I wanted a profession where you can always get a job
f	I wanted a job where I am socially useful	n	I wanted to work with medicine or in the medical profession
g	I wanted to work with patients	o	I wanted to study medicine / dentistry or another medically related subject
h	I wanted to own my own business		

It can be seen that the graphical illustration of the extremes of the data (figure 7.3) are a good fit with the mathematical analysis of the data as shown in table 7.9. It is reasonable to suggest that the method of analysis of extremes of data can reliably show trends evident in the mathematical data.

Factors related to job and career opportunities available within the pharmacy profession and to pharmacy being a science based course generated net positive responses as shown in figure 7.3. 80% of respondents indicated that "I wanted a job with good career opportunities" was a strong influence upon their decision to choose to study pharmacy and 70% stated that "I wanted a profession where you can always get a job" and "I wanted to work in a well respected profession" were important to them when they made their decision. Over 70% of respondents rated "I wanted to do a science based course" and "I liked science / was good at science at school" as important.

Factors related to the benefits and rewards of the profession, both personal and financial, also generated net positive responses as shown in figure 7.3. These included wanting a job where the respondent was socially useful, a job that is intellectually satisfying, working with patients, having the potential for flexible working hours or part time work and the financial rewards.

Three factors generated net negative responses (see figure 7.3), with 42% of respondents rating "I wanted to own my own business" as not important (mean rating 2.93). 35% of respondents indicated that "I wanted the opportunity for self-employment" (mean rating 2.74) and "I wanted to study medicine / dentistry or another medically related subject" (mean rating 2.64) were not important factors in their decision to choose to study pharmacy.

Significant differences were observed in the responses of White and Asian respondents and male and female respondents. These are summarised in tables 7.10 and 7.11.

Table 7.10: A summary of the significance of differences in the perceived influence of fifteen general factors upon the decision of White and Asian 4th year MPharm students to study pharmacy (Mann-Whitney U test).

Statement	White Mean rating	Asian Mean rating	p
I liked science / was good at science at school	1.37	1.30	0.273
I wanted to do a science based course	1.38	1.23	**0.047**
I wanted to work in a well respected profession	1.51	1.28	**0.007**
I wanted a job with good career opportunities	1.25	1.23	0.993
I though pharmacy would be intellectually satisfying	1.65	1.65	0.678
I wanted a job where I am socially useful	1.68	1.64	0.861
I wanted to work with patients	1.79	1.66	0.303
I wanted to own my own business	3.13	2.71	**≤ 0.001**
I wanted the opportunity for self employment	2.96	2.41	**≤ 0.001**
I wanted the opportunity for part time work	2.56	2.20	**0.001**
I was attracted by the financial rewards	1.99	1.84	0.084
I wanted flexible working hours	2.34	1.76	**≤ 0.001**
I wanted a profession where you can always get a job	1.45	1.28	**0.025**
I wanted to work with medicine or in the medical profession	1.59	1.48	0.139
I wanted to study medicine / dentistry or another medically related subject	2.89	2.32	**≤ 0.001**

Asian respondents were significantly more influenced than White respondents by factors concerning working hours and conditions (business ownership, self employment, part time and flexible working, the ability to get a job, working in a respected profession). Asian respondents were also significantly more influenced to choose pharmacy by wanting to do a science based course and by having wanted to study medicine or dentistry.

Table 7.11: **A summary of the significance of differences in the perceived influence of fifteen general factors upon the decision of male and female 4th year MPharm students to study pharmacy (Mann-Whitney U test).**

Statement	Male Mean rating	Female Mean rating	p
I liked science / was good at science at school	1.28	1.36	0.477
I wanted to do a science based course	1.25	1.33	0.485
I wanted to work in a well respected profession	1.44	1.42	0.738
I wanted a job with good career opportunities	1.32	1.21	**0.026**
I though pharmacy would be intellectually satisfying	1.72	1.63	0.430
I wanted a job where I am socially useful	1.82	1.63	**0.013**
I wanted to work with patients	1.96	1.69	**0.003**
I wanted to own my own business	2.49	3.10	**≤ 0.001**
I wanted the opportunity for self employment	2.25	2.94	**≤ 0.001**
I wanted the opportunity for part time work	2.68	2.35	**0.003**
I was attracted by the financial rewards	1.89	1.99	0.272
I wanted flexible working hours	2.28	2.10	0.054
I wanted a profession where you can always get a job	1.40	1.39	0.810
I wanted to work with medicine or in the medical profession	1.67	1.51	**0.049**
I wanted to study medicine / dentistry or another medically related subject	2.55	2.67	0.318

Female respondents appear to be more influenced by factors related to the nature of working as a pharmacist – working with patients, being socially useful, working with medicine. They were also more influenced in their choice of pharmacy by wanting a job with good career prospects than male respondents. Male respondents were significantly more influenced by business ownership and self employment than female respondents.

Following analysis using ANOVA, three significant interactions were observed between the ethnic background and gender of respondents. Asian females (mean = 1.56) were significantly more likely to rate flexible working hours as an important factor in their decision to choose pharmacy as a career ($F = 4.84$, df = 1, p = 0.028). Asian females were also significantly more likely to cite "a profession where you can always get a job" as an important factor (mean = 1.21) ($F = 4.063$, df = 1, p = 0.044). The same group (Asian females, mean = 2.23) rated "wanted to study medicine or dentistry" as more important than the other subgroups analysed ($F = 5.026$, df = 1, p = 0.025).

7.4 Choice of school of pharmacy

This section of the survey was designed to investigate the route of entry to the respondents' school of pharmacy and explore the influence upon choice of school of pharmacy. Respondents were asked to indicate their route of entry to their school of pharmacy via the UCAS system and also to rate the importance of each of fourteen factors which may have influenced their choice of school of pharmacy. These fourteen factors were taken from a review of the literature (see Methods, page 72) and the researcher's own experience in the field of pharmacy admissions.

7.4.1 Entry to school of pharmacy

503 respondents provided an answer to the question of their route of entry to their particular school of pharmacy – see table 7.12.

Table 7.12: The route of entry of 4th year MPharm students to their school of pharmacy.

UCAS entry route	Responses
Your firm choice (CF)	68.8% (n=346)
Your insurance choice (CI)	12.1% (n=61)
Entry through clearing	19.1% (n=96)
Total	**100% (n=503)**

The majority of respondents were enrolled at their first choice school of pharmacy.

7.4.2 Choice of school of pharmacy

In this question, a four point rating scale was used to eliminate neutral answers. Overall mean rank scores were calculated for each statement. A Mann-Whitney U test and a two-factor ANOVA were performed using SPSS v12.0.1 for each question to test for significant differences in responses.

Table 7.13 summarises the perceived influence of each of fourteen factors involved in the choice of school of pharmacy.

Table 7.13: The perceived importance of fourteen influencing factors upon 4th year MPharm students' choice of school of pharmacy (SOP).

Statement	Degree of Importance				Total	Mean rating	Rank*
	Important	2	3	Not important			
My parents wanted me to attend this SOP	6.6% (n=33)	8.2% (n=41)	17.9% (n=90)	67.3% (n=338)	100% (n=502)	3.46	13
Family at this university	2.8% (n=14)	4% (n=20)	11.2% (n=56)	82% (n=411)	100% (n=501)	3.72	14
Friends at pharmacy school	8.8% (n=44)	9.8% (n=49)	19.2% (n=96)	62.1% (n=310)	100% (n=499)	3.35	12
Personal recommendation	24.2% (n=1221)	27.5% (n=138)	23.2% (n=116)	25.1% (n=126)	100% (n=501)	2.49	8
Location of the university in relation to where I lived	38% (n=190)	20.4% (n=102)	12.4% (n=62)	29.2% (n=146)	100% (n=500)	2.33	5
Availability of accommodation	20.2% (n=101)	23.8% (n=119)	18.2% (n=91)	37.8% (n=189)	100% (n=500)	2.74	10
Matching entrance grades to predicated expectations	21.3% (n=107)	25.9% (n=130)	18.5% (n=93)	34.3% (n=172)	100% (n=502)	2.66	9
An open day visit to the university	41.7% (n=209)	20% (n=100)	14.8% (n=74)	23.6% (n=118)	100% (n=501)	2.20	4
Nature of the course as described in the prospectus	38.2% (n=192)	32.1% (n=161)	14.1% (n=71)	15.5% (n=78)	100% (n=502)	2.07	3
This was the only place I could get into	14.5% (n=73)	9% (n=45)	14.1% (n=71)	62.4% (n=313)	100% (n=502)	3.24	11
Reputation of the school of pharmacy	47.2% (n=237)	28.3% (n=142)	11.4% (n=57)	13.1% (n=66)	100% (n=502)	1.90	1
Reputation of the university	41.5% (n=2096)	30.6% (n=154)	14.3% (n=72)	13.7% (n=69)	100% (n=504)	2.00	2
Reputation of the city / town where the university is located	25.8% (n=129)	30.6% (n=153)	21.4% (n=107)	22.2% (n=111)	100% (n=500)	2.40	6
University facilities	22.3% (n=112)	31.5% (n=158)	22.7% (n=114)	23.5% (n=118)	100% (n=502)	2.47	7

*Rank is based upon the mean rating score.

Figure 7.4 illustrates the differences in the extremes of responses for each of the statements in the question.

Figure 7.4: Perceived importance of fourteen influencing factors upon 4th year MPharm students' choice of school of pharmacy. Results are shown as the difference between the % of respondents who rated as important and the % of respondents who rated as not important.

Key:

a	My parents wanted me to attend this SOP	h	An open day visit to the university
b	Family at this university	i	Nature of the course as described in the prospectus
c	Friends at pharmacy school	j	This was the only place I could get into
d	Personal recommendation	k	Reputation of the school of pharmacy
e	Location of the university in relation to where I lived	l	Reputation of the university
f	Availability of accommodation	m	Reputation of the city / town where the university is located
g	Matching entrance grades to predicated expectations	n	University facilities

From these results, it would appear that factors directly related to the school of pharmacy or the university were important to the respondents when they were making their decision as to which school of pharmacy they would like to attend. These were the only factors that generated net positive results as shown in figure 7.4. Nearly 50% of all respondents indicated that the reputation of the school of pharmacy was an important factor and over

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40% of all respondents stated that the reputation of the university was an important factor to them. Nearly two-fifths of respondents (38%) rated the nature of the course as describe in the prospectus as important to them. Open day visits to universities, the location of universities in relationship to the respondents' homes and the reputation of the city or town in which a university is located were all positive factors in the choice of school of pharmacy. The reputation of the school of pharmacy generated the lowest mean rating (1.9) (i.e. it was of high importance to the respondents).

Personal influencing factors (family and friends) generated net negative results as illustrated in figure 7.4. Over 80% of respondents indicated that having family at a university was not an important factor in their choice of school of pharmacy and over 60% of respondents rated parents and friends as not important. Two other factors directly related to Schools of Pharmacy also generated net negative responses, namely the availability of accommodation and matching entrance grades to predicted expectations. Over 60% of respondents indicated that they were not studying at their particular school of pharmacy because it was the only place they could get into, which corresponds with the results found in the responses to question 7 (see page 228).

When the responses of White and Asian respondents were compared, some significant differences were observed – see table 7.14.

Table 7.14: A summary of the significance of differences in the perceived importance of fourteen influencing factors upon White and Asian 4th year MPharm students' choice of school of pharmacy (Mann-Whitney _U_ test).

Statement	White Mean rating	Asian Mean rating	p
My parents wanted me to attend this school of pharmacy	3.64	3.16	≤ 0.001
Family at this university	3.85	3.55	≤ 0.001
Friends at pharmacy school	3.50	3.11	≤ 0.001
Personal recommendation	2.60	2.28	**0.004**
Location of the university in relation to where I lived	2.41	2.13	**0.043**
Availability of accommodation	2.80	2.57	0.054
Matching entrance grades to predicted expectations	2.74	2.53	0.077
An open day visit to the university	2.13	2.25	0.211
Nature of the course as described in the prospectus	2.09	2.01	0.377
This was the only place I could get into	3.40	3.06	**0.001**
Reputation of the school of pharmacy	1.96	1.85	0.210
Reputation of the university	2.16	1.78	≤ 0.001
Reputation of the city / town where the university is located	2.46	2.28	0.101
University facilities	2.60	2.22	≤ 0.001

Asian respondents were significantly more influenced by personal factors than White respondents; namely close family and friends, personal recommendation and the location of the university in relation to their home. Asian respondents were also significantly more influenced by university related factors than White respondents – facilities and reputation. Asian respondents were more likely to be studying at their school of pharmacy because it was the only place they could get into, although this was not a strongly influencing factor.

Some significant differences were also observed in the responses of male and female students as shown in table 7.15.

Table 7.15: A summary of the significance of differences in the perceived importance of fourteen influencing factors upon male and female 4th year MPharm students' choice of school of pharmacy (Mann-Whitney *U* test).

Statement	Male Mean rating	Female Mean rating	p
My parents wanted me to attend this school of pharmacy	3.39	3.49	0.229
Family at this university	3.60	3.76	**0.015**
Friends at pharmacy school	3.21	3.40	0.114
Personal recommendation	2.55	2.46	0.436
Location of the university in relation to where I lived	2.65	2.20	**≤ 0.001**
Availability of accommodation	2.77	2.71	0.698
Matching entrance grades to predicted expectations	2.68	2.64	0.788
An open day visit to the university	2.46	2.10	**0.002**
Nature of the course as described in the prospectus	2.23	2.01	**0.028**
This was the only place I could get into	2.94	3.38	**≤ 0.001**
Reputation of the school of pharmacy	2.05	1.83	**0.010**
Reputation of the university	2.26	1.90	**≤ 0.001**
Reputation of the city / town where the university is located	2.61	2.30	**0.006**
University facilities	2.58	2.42	0.165

Female respondents were significantly less influenced than male respondents in their choice of school of pharmacy by the presence of a member of family at a school of pharmacy, but were more influenced by university related factors – location in relation to home, reputation of the school of pharmacy, reputation of the university, reputation of the city or town, an open day visit and the nature of the course as described in the prospectus. Male respondents were more likely to be studying at their school of pharmacy because it was the only place they could get into.

Two significant interactions between the gender and ethnic background of respondents were observed following analysis using ANOVA. Asian males (mean = 1.96) and White females (mean = 1.97) were significantly more influenced by the prospectus entry for pharmacy at their university when compared to Asian females (mean = 2.03) and White males (mean = 2.48) ($F = 6.198$, df = 1, p = 0.013).

White females (mean = 1.97) were significantly more likely to have been influenced by a visit to a university open day than any other sub group ($F = 7.446$, df = 1, p = 0.007).

7.5 Commitment to Pharmacy

This section of the survey (questions 4, 5, 8 – 11) was designed to investigate the respondents' commitment to a career in pharmacy both prior to commencing their studies and following the start of their studies.

7.5.1 Commitment to Pharmacy prior to studies

508 respondents provided an answer to the question of their commitment to pharmacy prior to commencement of their undergraduate studies. 71.1% (n=361) indicated that pharmacy was their first and only choice of subject of study at university. 75.1% of White respondents (n=208) indicated that this was the case compared to 65.6% of Asian respondents (n=103), a difference that was significant ($\chi^2 = 4.439$, p = 0.035). Responses from male and female respondents were similar.

The 147 respondents who indicated that pharmacy was not their first and only choice of subject of study at university were then asked to complete question 5 which was designed to explore which other courses or options these respondents had considered. The responses are summarised in table 7.16.

Table 7.16: The percentage and number of responses to six options regarding the subject of study at university if pharmacy was not the first and only choice of the respondents (n=134)

Option	Percent responses
Pharmacy was my second choice to medicine	35.8% (n=48)
Pharmacy was my second choice to dentistry	11.9% (n=16)
Pharmacy was my second choice to another science degree	23.9% (n=32)
I wanted to work in any health related field	16.4% (n=22)
I came into pharmacy through clearing	9% (n=12)
Pharmacy matched the A levels I was taking	3% (n=4)
Total	**100% (n=134)**

Just over one third of those respondents who had indicated that pharmacy was not their first choice of subject of study stated that they had wanted to study medicine as their first choice. More Asian respondents (40.4%, n=21) than White (26.2%, n=16) stated that they had wanted to study medicine as their first choice.

509 respondents answered the questions regarding the strength of desire to study pharmacy and to become a pharmacist prior to the commencement of their MPharm studies. The results are shown in table 7.17.

Table 7.17: The perceived strength of desire to both study pharmacy and be a pharmacist at the start of the degree studies of 4ᵗʰ year MPharm students.

	Strength of desire				
	Very strong	**Fairly strong**	**Not very strong**	**Not at all strong**	**Total**
Desire to study pharmacy	54.6% n=278	33.4% n=170	9.6% n=49	2.4% n=12	100% **n=509**
Desire to be a pharmacist	52.4% n=267	35.2% n=179	10.4% n=53	2% n=10	100% **n=509**

From these results it is clear that the respondents generally had a strong desire both to study pharmacy and to be a pharmacist at the end of their studies. There was no significant difference in the patterns of responses to both statements. White respondents appear to have had a stronger desire than Asian respondents both to study pharmacy (White mean rank = 1.51, Asian mean rank = 1.72, p = 0.012) and to be a pharmacist (White mean rank = 1.55, Asian mean rank = 1.70, p = 0.02). No significant differences were observed in the responses of male and female respondents. No significant interactions between the gender and ethnic background of respondents were found when ANOVA was performed.

7.5.2 Commitment to pharmacy as a career

Table 7.18 summarises the responses to three career commitment statements.

Table 7.18: The perceived strength of commitment to pharmacy as a career of 4ᵗʰ year MPharm students.

	Strength of agreement				
Statement	**Strongly agree**	**Tend to agree**	**Tend to disagree**	**Strongly disagree**	**Total**
I am proud to tell others that I am studying pharmacy	72.4% n=367	23.9% n=121	3.3% n=17	0.4% n=2	100% **n=507**
I am strongly committed to the values and ideals of the pharmacy profession	52.7% n=268	43% n=219	3.7% n=19	0.6% n=3	100% **n=509**
Being a pharmacist is an important part of who I want to be	45.3% n=230	39.4% n=200	11.8% n=60	3.5% n=18	100% **n=508**

It would appear from these results that this cohort of respondents have a high degree of commitment to pharmacy as a career as less than 5% of respondents disagreed with the first two statements and over 70% of respondents were in strong agreement with the first statement – "I am proud to tell others that I am studying pharmacy". Agreement appears to

be less strong with the final statement – "Being a pharmacist is an important part of who I want to be" – with more respondents in disagreement with this statement, although this figure is less than 15%.

Only one significant difference was observed when the data was analysed by gender or ethnic background. White respondents were in stronger agreement with the statement "I am proud to tell others that I am studying pharmacy" (mean = 1.28) than Asian respondents (mean = 1.37) (p = 0.032).

The responses to the career commitment statements adapted from Rascati's earlier work (see page 73) are summarised in table 7.19.

Table 7.19: The perceived strength of agreement of 4th year MPharm students to six attitudinal statements regarding pharmacy as a career.

Statement	Strength of Agreement				
	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree	Total
If I could pick a different occupation which paid the same amount, I would probably change degree	4.1% n=21	13.8% n=70	39.9% n=203	42.2% n=215	100% n=509
I definitely want a career in pharmacy	50.4% n=256	37.4% n=190	10.4% n=53	1.8% n=9	100% n=508
If I could do it all over again, I would choose to study for the same profession	44.2% n=224	38.1% n=193	15% n=76	2.8% n=14	100% n=507
Pharmacy is the ideal profession for life	40.9% n=206	45.8% n=231	11.9% n=60	1.4% n=7	100% n=504
I regret that I entered pharmacy school	0.8% n=4	4.5% n=23	23.7% n=120	70.9% n=359	100% n=506
I intend to undertake a second degree after completing pharmacy	4.3% n=22	13.4% n=68	31.4% n=159	50.9% n=258	100% n=507

The overall mean commitment score for the cohort was 9.9 (see Methods, page 73 for calculation), indicating a high degree of commitment to pharmacy as a career (a score of 6 indicates the highest degree of commitment and a score of 24 indicates the lowest degree of commitment). White respondents (mean = 9.49) were significantly more committed to pharmacy as a career than Asian respondents (mean = 10.5) (Mann-Whitney U test, 1 df, p = 0.002). Female respondents were significantly more committed to pharmacy as a career (mean = 9.62) than males (mean = 10.63) (Mann-Whitney U test, 1 df, p = 0.001). No significant interaction between the gender and ethnic background of respondents was

observed when ANOVA was performed. The differences in responses are shown in figures 7.5 and 7.6.

Figure 7.5: Mean career commitment scores of White and Asian respondents
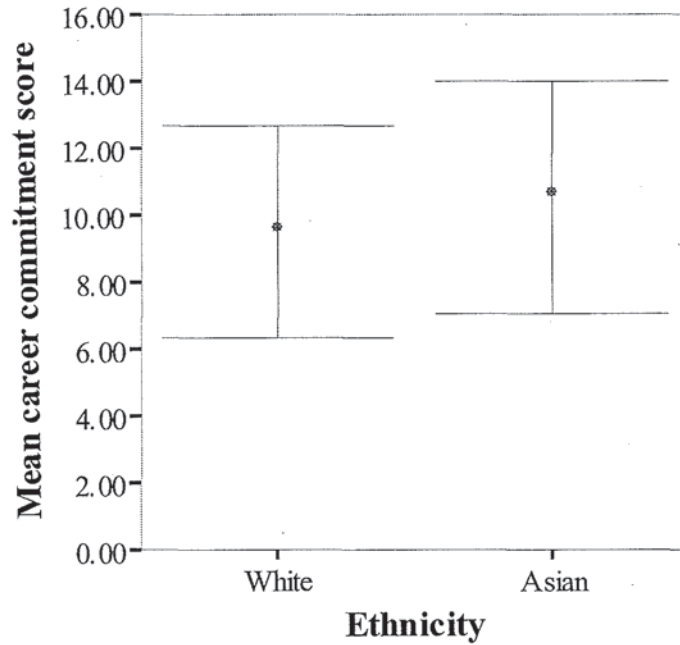
Figure 7.6: Mean career commitment scores of male and female respondents
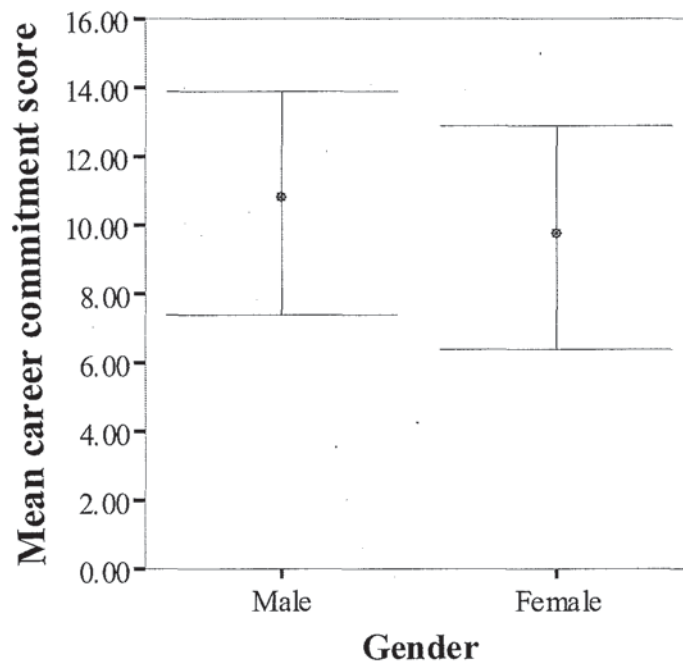
7.6 Future Career Aspirations

This section of the survey (questions 12 – 15) was designed to investigate what the respondents thought of their future career within the pharmacy profession, their commitment to the profession of pharmacy and also their thoughts on work / life balance issues.

7.6.1 Pre-registration training

507 respondents provided an answer to the question of preferred sector of practice in which to complete their pre-registration training. The data is illustrated in figure 7.7.

Figure 7.7: Preferred sector of pre-registration training of 4th year MPharm students.

Figure 7.7: Preferred sector of pre-registration training of 4th year MPharm students.

Key:

a	Community retail – *Chain/Multiple*	f	Community / Industry split post
b	Community retail – *Independent*	g	Not sure yet
c	NHS hospital	h	I do not want to complete pre-registration training
d	Hospital / Community split post	i	Other
e	Hospital / Industry split post		

The responses of this, the final year MPharm cohort, provide a good indication for the true distribution of pre-registration training as at this point in their academic career the majority of these respondents would already know where they will be engaged for their pre-

registration training. Hence, these responses should not be aspirational as with the Year 13 and 1st year MPharm cohorts.

40% of respondents indicated that they would be completing their pre-registration training in the community pharmacy (chain / multiple) sector of pharmacy. A similar number (37%) would be working in the NHS hospital sector of practice. These two sectors of pre-registration training account for the majority of this cohort. Approximately one fifth of respondents indicated that they would be employed within independent community pharmacy for their pre-registration training.

The responses of White and Asian respondents were similar with three exceptions. 61.8% of Asian respondents (n=97) indicated that they would be completing their pre-registration training in community pharmacy (chain / multiple) compared to 28.5% of White respondents (n=79) (χ^2 = 45.991, p $\leq$ 0.001). 39 White respondents (14.1%) stated that they would be working in the independent community pharmacy sector for their pre-registration year compared to 11 Asian respondents (7%) (χ^2 = 4.918, p $\leq$ 0.05). 46.2% (n=128) of White respondents would be completing their pre-registration training in NHS hospital pharmacy compared to 21.7% (n=34) of Asian respondents (χ^2 = 25.823, p $\leq$ 0.001).

Two significant differences between the responses of male and female respondents were observed. 21.2% of male respondents (n=29) stated that they would be completing their pre-registration training in independent community pharmacy compared to 8.3% of female respondents (n=30) (χ^2 = 15.72, p $\leq$ 0.001). 41.3% (n=149) of female respondents indicated that their pre-registration placements would be in NHS hospital pharmacy compared to 26.3% (n=36) of male respondents.

7.6.2   Sector of practice upon qualification

509 respondents provided an answer to the question of sector of practice once qualified. Respondents were allowed to choose as many options as they felt relevant to themselves. Figure 7.8 illustrates the data.

Figure 7.8: Choice of sector of practice of 4th year MPharm students once the pre-registration year is completed.

Key:

a	Community retail – *Chain / Multiple*	h	Pharmacy policy development
b	Community retail – *Independent*	i	Non-pharmacy
c	NHS hospital	j	Consultant pharmacist
d	NHS Primary Care Trust	k	Not sure yet
e	Industry	l	Work as a locum pharmacist
f	Academia (university)	m	Own my own pharmacy business
g	Research	n	I am not sure I will work (within paid employment)

Over 50% of respondents indicated that they would consider working in community retail (chain / multiple) and NHS hospital pharmacy. 45% of respondents indicated that they would consider working as a locum pharmacist upon graduation. 35% of respondents stated that work within independent community pharmacy was a possibility for them. One fifth of respondents indicated that they would possibly seek work in an NHS Primary Care Trust and a similar number (19%) indicated that purchasing their own pharmacy business was an option. Fewer than 10% of respondents indicated that they were not yet sure of where they would seek work once they were qualified.

Significant differences were observed in the responses of White and Asian respondents. These are summarised in table 7.20.

Table 7.20: **Summary of significant differences in the choice of sector of practice once the pre-registration year is completed of White and Asian 4th year MPharm students.**

Statement	White	Asian	χ^2	p	phi
Community retail – *Chain / Multiple*	46.9% (n=130)	67.1% (n=106)	16.471	$\leq$ **0.001**	0.195
Community retail – *Independent*	39.4% (n=109)	30.4% (n=48)	3.51	0.061	0.09
NHS hospital	56.3% (n=156)	39.9% (n=63)	10.883	**0.001**	0.158
NHS Primary Care Trust	22% (n=61)	22.8% (n=36)	0.034	0.854	0.009
Industry	9% (n=25)	9.5 (n=15)	0.026	0.871	0.008
Academia (university)	13.7% (n=38)	15.2% (n=24)	0.178	0.673	0.02
Research	11.6% (n=32)	8.9% (n=14)	0.771	0.380	0.042
Pharmacy policy development	4% (n=11)	2.5% (n=4)	0.626	0.429	0.038
Non-pharmacy	6.1% (n=17)	6.3% (n=10)	0.006	0.936	0.04
Consultant pharmacist	15.9% (n=44)	13.9% (n=22)	0.3	0.584	0.026
Not sure yet	9% (n=25)	6.3% (n=10)	0.989	0.320	0.048
Work as a locum pharmacist	41.9% (n=116)	54.4% (n=86)	6.374	**0.012**	0.121
Own my own pharmacy business	15.4% (n=42)	21.5% (n=34)	2.819	0.093	0.081

Asian respondents were significantly more likely than White respondents to seek work in community pharmacy (chain / multiple), and as a locum. White respondents were more likely to seek work within the NHS hospital sector.

Significant differences were also observed when the results are analysed by gender. These are summarised in table 7.21.

Table 7.21: Summary of significant differences in the choice of sector of practice once the pre-registration year is completed of male and female 4th year MPharm students.

Statement	Male	Female	χ^2	p	phi
Community retail – *Chain / Multiple*	60.1% (n=83)	52.4% (n=189)	2.443	0.118	0.070
Community retail – *Independent*	38.4% (n=53)	34.1% (n=123)	0.821	0.365	0.041
NHS hospital	37% (n=51)	55.7% (n=201)	13.999	≤ **0.001**	0.167
NHS Primary Care Trust	11.6% (n=16)	26.9% (n=97)	13.299	≤ **0.001**	0.163
Industry	10.9% (n=15)	10.8% (n=39)	0.000	0.983	0.001
Academia (university)	13.8% (n=19)	13.1% (n=47)	0.044	0.834	0.009
Research	12.3% (n=17)	10.2% (n=37)	0.443	0.506	0.030
Pharmacy policy development	3.6% (n=5)	3.9% (n=14)	0.018	0.894	0.006
Non-pharmacy	10.1% (n=14)	5% (n=18)	4.427	0.035	0.094
Consultant pharmacist	12.3% (n=17)	16.1% (n=58)	1.098	0.295	0.047
Not sure yet	10.9% (n=15)	8.3% (n=30)	0.797	0.372	0.040
Work as a locum pharmacist	39.1% (n=54)	49% (n=177)	3.936	**0.047**	0.089
Own my own pharmacy business	26.8% (n=37)	16.3% (n=59)	7.041	**0.008**	0.119

Female respondents were significantly more likely than males to seek work within the NHS, either in hospital or primary care. They were also significantly more likely to seek work as a locum pharmacist than males. Male respondents were more likely to seek to own their own business than female respondents.

The responses from respondents who selected the three main areas of pre-registration employment were investigated further to explore where they would seek work once newly qualified. These respondents included:

- community retail (chain / multiple) (n=206);
- community retail (independent) (n=60);
- NHS hospital pharmacy (n=187).

As each respondent was allowed to select as many options as they felt were applicable to them for where they would seek work upon registration, the total for each pre-registration sector does not equal 100%. The results of this analysis are shown in figure 7.9.

Figure 7.9: The choices of sector of practice once newly qualified for those 4th year MPharm respondents who chose community retail (chain / multiple), community pharmacy (independent), or hospital pharmacy as their pre-registration placement.

Sector of practice in which respondents would seek to work once qualified

■ Community (chain / multiple) pre-registration □ Community (independent) pre-registration ▨ NHS Hospital pre-registration

Key:
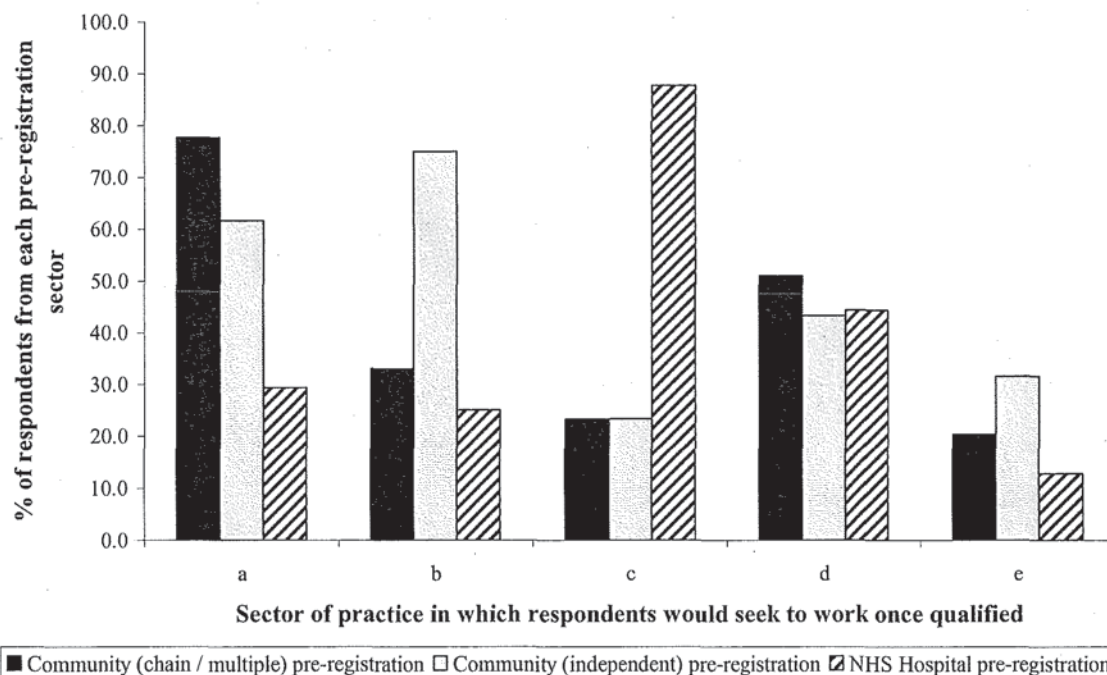
a	Community retail – *Chain/Multiple*
b	Community retail – *Independent*
c	NHS hospital
d	Work as a locum pharmacist
e	Own my own pharmacy business

From these results it can be seen that there appears to be high sector loyalty with 78% of community pharmacy (chain / multiple) pre-registration students stating that they would consider working within the same sector, 75% of independent community pre-registration students possibly remaining in the same sector and 88% of hospital pre-registration students considering work within the hospital sector. Work as a locum pharmacist upon registration attracted similar proportions from each of the different pre-registration sectors. Owning a pharmacy business appears to be more attractive to those who will complete their pre-registration training within independent community pharmacy.

7.7 Future work / life plans

This section of the questionnaire was designed to investigate how the respondents envisaged their future work / life balance.

7.7.1 Future Plans

508 respondents answered the question regarding their future working plans. Respondents were allowed to select as many options as they felt relevant to themselves. The data is illustrated in figure 7.10.

Figure 7.10: The future work / life plans of 4th year MPharm students.
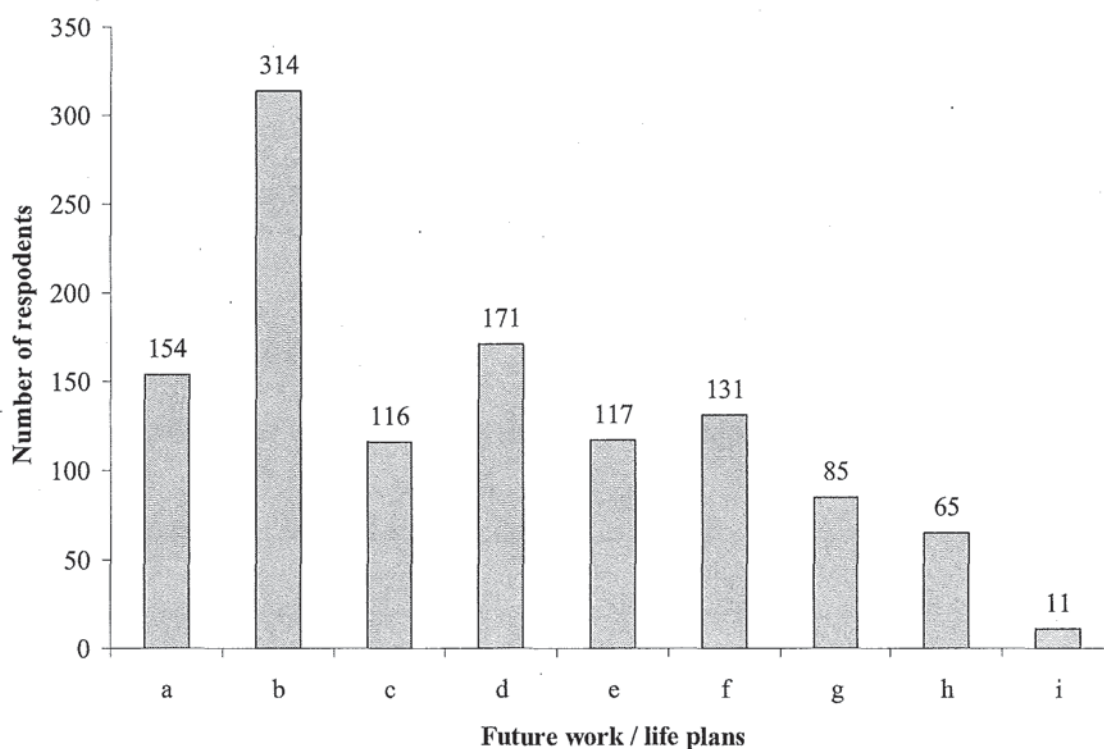
Key:

a	Full time career until typical retirement age (65)	f	Work abroad
b	Work full time, then part time if I have a family	g	Practice/PCT pharmacist
c	Intend to travel, working holidays	h	No clear intention yet
d	Intend to work as a locum	i	Other
e	Intend to buy my own business		

Over 60% of respondents to this question indicated that they had an interest in working full time, then part time if they had a family. This may be due to the high proportion of female respondents (72%) to the questionnaire. 30% stated that they would consider working full time until typical retirement age and similar number indicated that they would consider locum work. One quarter expressed an interest in working abroad at some point in their

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career. 23% indicated that owning their own business was a career aim and a similar number that they would possibly travel or take working holidays.

Significant differences were observed in the responses of White and Asian respondents. These are summarised in table 7.22.

Table 7.22: Summary of significant differences in the work / life choices of White and Asian 4th year MPharm students.

Statement	White	Asian	χ^2	p	phi
Full time career until typical retirement age (65)	27.2% (n=75)	35.8% (n=57)	3.592	0.058	0.091
Work full time, then part time if I have a family	63.8% (n=176)	59.1% (n=94)	0.926	0.336	0.046
Intend to travel, working holidays	23.9% (n=66)	21.4% (n=34)	0.365	0.546	0.029
Intend to work as a locum	29.3% (n=81)	42.1% (n=67	7.352	**0.007**	0.130
Intend to buy my own business	16.3% (n=45)	30.2% (n=48)	11.570	**0.001**	0.163
Work abroad	26.8% (n=74)	21.4% (n=34)	1.593	0.207	0.061
No clear intention yet	13.8% (n=38)	11.3% (n=18)	0.539	0.463	0.035

Asian respondents were significantly more likely to state an interest in working in an independent manner, either as a locum or by purchasing their own business than White respondents.

The results of the Chi squared analysis by gender are shown in table 7.23.

Table 7.23: Summary of significant differences in the work / life choices of male and female 4th year MPharm students.

Statement	Male	Female	χ^2	p	phi
Full time career until typical retirement age (65)	55.1% (n=76)	20.8% (n=75)	55.647	$\leq$ **0.001**	0.334
Work full time, then part time if I have a family	17.4% (n=24)	79.8% (n=288)	165.836	$\leq$ **0.001**	0.576
Intend to travel, working holidays	16.7% (n=23)	25.5% (n=92)	4.377	**0.036**	0.094
Intend to work as a locum	30.4% (n=42)	34.9% (n=126)	0.893	0.345	0.042
Intend to buy my own business	34.8% (n=48)	18.3% (n=66)	15.420	$\leq$ **0.001**	0.176
Work abroad	22.5% (n=31)	27.1% (n=98)	1.142	0.285	0.048
No clear intention yet	17.4% (n=24)	10.8% (n=39)	3.928	**0.047**	0.089

More male respondents than female respondents stated that they would possibly work full time until retirement age, although the proportion of male respondents selecting this option was only just over half of the male respondents. More female respondents stated that they would consider full time work, then part time if they had a family than male respondents. Both differences were highly significant. Female respondents were also more likely to express an interest in taking working holidays. More males indicated that purchasing their own business was a career aim than females.

The fact that 80% of female respondents indicated that they would possibly work full time and then part time if they have a family could explain the high number of responses in the overall sample to this option as there were more female than male respondents to the survey (see page 216).

7.7.2   Career Ambitions

510 respondents provided an answer to the question of the highest level they would like to attain in their pharmacy career. Respondents were presented with a selection of twelve possible "career highs" and were asked to select up to, but no more than, three. However, this latter instruction was either not read, or was misinterpreted and many respondents selected more than three options. The data are illustrated in figure 7.11.

Nearly 40% of respondents stated that a career aim was to own their own pharmacy business. Approximately one third of respondents stated that they were interested in becoming a manager in a community pharmacy or a chief pharmacist. This latter description is vague and was intended to reflect a senior position within hospital pharmacist, but it cannot be determined whether this was the interpretation made by these respondents. Hospital pharmacy positions, either as a hospital pharmacist or a hospital pharmacy manager, attracted one quarter of respondents. One fifth of respondents stated that a career aim was to work in practice or PCT pharmacy. 18% of respondents indicated that they would consider entering academia. 10% of respondents were aiming to be in a position outside the profession of pharmacy itself and 18% stated that one career aim was to remain within the community pharmacy sector, not necessarily as a pharmacist, but within community retail management or administration.

Figure 7.11: The career aims of 4th year MPharm students.

Key:

a	Employee in community retail pharmacy	g	Hospital pharmacy manager
b	Manager in community retail pharmacy	h	Chief pharmacist
c	Owner of a community retail pharmacy	i	Academic pharmacist
d	Multiple community retail management / administration	j	A position outside pharmacy
e	Practice / PCT pharmacy	k	Not sure yet
f	Hospital pharmacist	l	Other

Significant differences were observed between the responses of White and Asian respondents and also between the responses of male and female respondents. The results of the Chi squared analyses are shown in tables 7.23 and 7.24.

Table 7.24: Summary of significant differences in the future career aims of White and Asian 4th year MPharm students.

Statement	White	Asian	χ^2	p	phi
Employee in community retail pharmacy	6.9% (n=19)	10.1% (n=16)	1.404	0.236	0.057
Manager in community retail pharmacy	33.8% (n=93)	43.4% (n=69)	3.951	**0.047**	0.095
Owner of a community retail pharmacy	33.6% (n=93)	45.3% (n=72)	5.888	**0.015**	0.116
Multiple community retail management / administration	13.4% (n=37)	25.2% (n=40)	9.672	**0.002**	0.149
Practice / PCT pharmacy	24.2% (n=67)	19.5% (n=31)	1.276	0.259	0.054
Hospital pharmacist	28.5% (n=79)	19.5% (n=31)	4.360	**0.037**	0.100
Hospital pharmacy manager	27.8% (n=77)	16.4% (n=26)	7.334	**0.007**	0.130
Chief pharmacist	30.4% (n=84)	32.7% (n=52)	0.242	0.623	0.024
Academic pharmacist	21.7% (n=60)	13.2% (n=21)	4.772	**0.029**	0.105
A position outside pharmacy	7.9% (n=22)	10.7% (n=17)	0.938	0.333	0.046
Not sure yet	10.8% (n=30)	8.8% (n=14)	0.457	0.499	0.032
Other	6.1% (n=17)	3.1% (n=5)	1.888	0.169	0.066

Asian respondents were significantly more likely than White respondents to be aiming to be in a management position within community retail pharmacy or the owner of a community retail pharmacy. White respondents were more likely to be aiming for positions within the public sector: namely, hospital pharmacist, hospital pharmacy manager or academic pharmacist. These results appear to show that Asian respondents are much more inclined to a career within community pharmacy, whilst White respondents are more likely to see themselves working within the public sector.

Table 7.25: Summary of significant differences in the future career aims of male and female 4th year MPharm students.

Statement	Male	Female	χ^2	p	phi
Employee in community retail pharmacy	10.9% (n=15)	6.6% (n=24)	2.497	0.114	0.071
Manager in community retail pharmacy	38.4% (n=53)	34.5% (n=125)	0.655	0.419	0.036
Owner of a community retail pharmacy	47.8% (n=66)	35.4% (n=128)	6.540	**0.011**	0.114
Multiple community retail management / administration	18.8% (n=26)	17.5% (n=63)	0.131	0.717	0.016
Practice / PCT pharmacy	8% (n=11)	26% (n=94)	19.504	**≤ 0.001**	0.198
Hospital pharmacist	12.3% (n=17)	29.9% (n=108)	16.468	**≤ 0.001**	0.182
Hospital pharmacy manager	15.9% (n=22)	26.8% (n=97)	6.490	**0.011**	0.114
Chief pharmacist	29.7% (n=41)	33.4% (n=121)	0.630	0.427	0.035
Academic pharmacist	15.2% (n=21)	18.8% (n=68)	0.869	0.351	0.042
A position outside pharmacy	13.8% (n=19)	9.1% (n=33)	2.320	0.128	0.068
Not sure yet	13% (n=18)	9.4% (n=34)	1.406	0.236	0.053
Other	5.8% (n=8)	5% (n=18)	0.138	0.710	0.017

Male respondents were significantly more likely than female respondents to be aiming to become the owner of a community pharmacy business. Female respondents were more likely than males to want to achieve a position within the public sector: namely practice / PCT pharmacy, hospital pharmacist and hospital pharmacy manager.

7.8 Key Findings

This section presents the key findings of the questionnaire administered to 4th year MPharm students.

- The most important influences upon the decision to choose to study pharmacy for the whole cohort were the science based nature of the course and the job and career prospects. Business ownership and self employment were more important influences upon the decision to study pharmacy for Asian respondents than White respondents. The same two factors were also more important to male than female respondents. Over 40% of all respondents indicated that pharmacy work

experience was a strong influence upon their decision to study pharmacy. The importance of pharmacy work experience was greater for White respondents than Asians and for female respondents than males.

- Factors related to a school of pharmacy or its parent institution (the reputation of a school of pharmacy, the reputation of the university, the prospectus entry and an open day visit to a university) were the most important influences upon the decision to choose a particular school of pharmacy.

- Over 70% of respondents indicated that pharmacy was their first and only choice of course to study at university. Of those who had considered other subjects of study, 35% indicated that pharmacy was their second choice to medicine. There was a high degree of commitment to pharmacy as a career from the whole cohort. White respondents were more committed than Asians and female respondents were more committed than males.

- 40% of respondents indicated that they were undertaking a pre-registration placement within community pharmacy (chain / multiple) and a similar proportion (37%) indicated that their pre-registration placement was within the hospital sector. More Asian respondents than White indicated that that their pre-registration placement was within community pharmacy (chain / multiple) and more White respondents than Asian indicated that their pre-registration placement was within the hospital pharmacy sector. More females were undertaking a hospital pharmacy pre-registration placement than male respondents.

- Upon qualification, 50% of all respondents stated that they would consider working within the community pharmacy (chain / multiple) sector or within hospital pharmacy. 45% of all respondents stated that they would consider work as a locum. More Asian respondents than White expressed an interest in working within the community pharmacy (chain / multiple) sector. More White respondents than Asians stated that they would consider working within hospital pharmacy. More female than male respondents also indicated that they would consider working within hospital pharmacy and as a locum. More male respondents than female indicated that they had an interest in owning their own business.

- More Asian respondents than White respondents stated that working as a locum or owning their own business were future work plans. 40% of all respondents indicated that it was a career aim to own their own business. More Asian

respondents than White respondents and more male respondents than female indicated that this was a career aim. Working full time until typical retirement age was a career aim for more male respondents than female. Conversely working full time and then part time if they had a family was a career aim for more female respondents than male.

Chapter 8   Discussion

This section presents the discussion of the results of the UCAS data analysis and the questionnaires distributed to Year 13 school pupils, 1st year MPharm students and 4th year MPharm students.

8.1   Scope of the study

With the number of schools of pharmacy in the United Kingdom increasing and assuming that existing schools maintain their intake size and none close, the number of students studying pharmacy must necessarily increase. Currently there is no published examination of the applicant pool for places upon MPharm degree programmes in the United Kingdom. This study was designed to examine the nature of the applicant pool for pharmacy and to compare this with the applicant pools for subjects that could be considered as "competitors" to pharmacy. Medicine, dentistry and optometry were chosen as the "competitor" courses for this analysis. These three courses have similar entry requirements to pharmacy in both the A level (or equivalent) subjects and the grades needed for entry. The researcher's personal experience within the field of admissions to an MPharm course also suggested that these were the alternative courses to which MPharm applicants most commonly applied.

In determining the nature of the applicant pool for MPharm studies, it was also necessary to examine reasons for applying for entry to and enrolling on an MPharm degree course. Previous studies conducted in the United Kingdom were small and restricted to a single cohort of pharmacy students at individual schools of pharmacy. These studies are also somewhat dated and undertaken prior to the expansion of the Higher Education sector and the introduction of tuition fees. This may mean that the motivations behind the choice of pharmacy as a career have changed. This is the first study to be carried out across multiple schools of pharmacy and to try to capture the views of students both before application to study pharmacy and at the beginning and end of their MPharm studies. This study was also designed to widen the scope of the questions asked with respect to the influencing factors upon a decision to choose to study pharmacy.

The future career plans of pharmacy students (and also of potential pharmacy students) are also of interest with respect to future retention within the pharmacy workforce. There is

little published work on the career aspirations of United Kingdom pharmacy students and none on the career aspirations for potential pharmacy students. If the career aspirations of these groups do not match the reality of the profession of pharmacy and planned changes within the profession in the United Kingdom then there may be problems with the job satisfaction, and hence the retention, of practising pharmacists in the future.

Little is known of the work / life balance aspirations of these groups of potential and current pharmacy students. Factors such as part time working and early retirement have an impact on the future workforce requirements of the profession within the United Kingdom. This study was designed to examine work / life balance issues within the groups of students surveyed.

What follows is a discussion of each of the stated objectives of the study. Two key themes emerged from the research namely the feminisation of pharmacy and other healthcare professions, and the commercial perception of pharmacy as a career. These will be discussed separately in more detail.

8.2   Limitations of the study

8.2.1   Year 13 questionnaire

The survey of Year 13 students who had expressed an interest in studying pharmacy through the UCAS Card scheme was conducted as a postal questionnaire. This method was chosen as the simplest, least expensive and least time consuming way of conducting the research over the whole of the United Kingdom. A usable questionnaire response rate of 31% was achieved. This falls within the typical response rate range for postal questionnaires (30 to 40 per cent) as postulated by McNeill and Chapman(53) and Burkell(57). The reasons for this low response rate include:

Lack of interest in pharmacy as a career: 89.4% of respondents who returned a reply slip following the second mailing (n = 160) stated that they no longer had an interest in pharmacy or had never had an interest in pharmacy as a career. Lack of interest in the subject matter of a questionnaire is a common reason for non response(57). It is possible that because of this, respondents did not open up the questionnaire booklet and therefore did not see that their responses to the first and last sections of the questionnaire were

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valuable. This was a problem inherent in the sample methodology. Emphasising the importance of reasons for not choosing pharmacy as a subject of study at university in the covering letters sent with the questionnaires may have made this aspect more prominent and may have increased the response rate of usable questionnaires.

Timing of administration: The first mailing of the questionnaire was in August 2005 with the aim of capturing the opinions of Year 13 students before they started the UCAS application cycle. However this coincided with the end of the summer holiday period and the recipients either may not have been at home or may have felt that there was no urgency to respond. The second mailing took place in January 2006. This coincided with the A level modular examinations which could possibly have influenced the respondents' priorities at the time. With more careful consideration, the timing of the administration of both mailings could have been better controlled.

Length of the questionnaire: The length of a questionnaire has been cited as a reason for non-completion(57). The questionnaire used in the survey of Year 13 respondents consisted of 26 questions on 12 pages. A long questionnaire may be off-putting to respondents for two reasons. Firstly the number of questions requiring thought and completion may be unattractive and secondly the time required to complete the questionnaire may be thought to be unreasonable. Following piloting it was determined that approximately 30 minutes would be required to complete the Year 13 questionnaire and this was clearly stated on the front cover. It is possible that this piece of information may have resulted in respondents not completing the questionnaire rather than providing reassurance. 11 respondents who returned a reply slip following the second mailing (6.1%) stated that they did not like completing questionnaires, an issue that is very difficult to deal with as a researcher.

8.2.2   1st year MPharm and 4th year MPharm questionnaires

Similar response rates of 35% (1st year) and 35.4% (4th year) were achieved. The different methods used by the participating schools of pharmacy in the administration of these surveys led to a variation in overall response rates. Eleven of the participating schools of pharmacy distributed the questionnaires to individuals allowing the students to complete the survey in their own time. Three schools of pharmacy administered the questionnaire in timetabled sessions resulting in higher response rates. However, this latter method of

ostensibly "forcing" respondents to complete the questionnaire may alter the responses obtained. It should also be noted that a separate study, also using a questionnaire, had been conducted a short time before the present study using the same cohorts of students. This may have resulted in questionnaire fatigue and a reluctance to participate in this study. These problems highlighted the difficulty in accessing the pharmacy undergraduate pool to conduct large scale surveys within all Schools of Pharmacy

Low response rates to questionnaires lead to a problem with generalisation of results. It cannot be proven by researchers that those who did not respond to a survey would be of similar opinions to those who did respond and so the results obtained can only be confidently stated to be those of the respondents and not the whole of the sample population. This is certainly true of the 1st and 4th year MPharm surveys. However, it is not known how many of the 1569 Year 13 students surveyed really had an interest in studying pharmacy and so had opinions that needed to be tested. At the time of sampling the UCAS Card system asked participating students to select six subjects of interest. One student who returned a reply slip stating that they had never been interested in pharmacy indicated that they had only ticked the box to complete the UCAS Card application form. Even taking this factor into account, it is fair to say that if all 1569 participants had been interested in applying to study pharmacy they would only have represented one quarter of the total applicant pool for pharmacy and so would not necessarily have been a representative sample. However, this is the first large scale survey of the opinions of pre-university students who may have had an interest in studying pharmacy at university and even if the results are not generalisable to the student population as a whole, they are still of importance.

8.2.3 Survey questions

Most of the questions used in the three questionnaires were answered fully and produced usable data. However, with hindsight, some questions would possibly have been better structured or the data collected in different ways. Regarding possible future career plans, data was collected by presenting respondents with as wide a range as possible of sectors of pharmacy practice immediately after qualification. Respondents were asked to indicate as many of these as they thought when considering where they would seek work once qualified. The data gathered presented a picture of the sectors of practice that were most likely to attract interest from the respondents in their future careers and identified differences in the responses of different genders and ethnic backgrounds. The same

method was used to examine the work / life balance plans of the respondents and again this question generated usable data and identified differences in the potential career plans of male and female respondents and White and Asian respondents. It must be remembered when interpreting the data generated by both of these questions that the responses are not definite choices being made by the respondents, but potential choices.

The question of the career ambitions of respondents was explored by presenting the respondents with fourteen possible "career highs" that they might reasonably expect to attain in their pharmacy career. Respondents were asked to select up to three of these "career highs" and in the pilot phase, this was done correctly. The reason for setting the limit at three options was to try to discover what the most common career goals of the three cohorts would be. However, in the study phase all three cohorts either did not read or misinterpreted the instruction and many respondents selected many more than three options. This did not prevent analysis of the data and interesting results were obtained. To gather data on the most common or most important career goals it possibly would have been better to ask the respondents to rank the options given in order of what they would most like to achieve. Another issue with this question was that of terminology. One of the options offered was that of "Chief Pharmacist" which, in the experience of the researcher, has the connotation of a senior manager within hospital pharmacy. With hindsight, this term is very vague and would either have merited an explanation of what was meant or should have been rephrased in some way or not included.

Three statements were used to explore the vocational commitment of the respondents to pharmacy as a career. These were drawn from previous work by Rascati who has studied career commitment in pharmacy undergraduates in the United States. The first of the three statements used was "I am / will be proud to tell others that I am / will be studying pharmacy" (the semantic differences are from the 1st / 4th year MPharm and the Year 13 questionnaires). This generated a strong degree of agreement amongst all the respondents and appears to have been easily interpreted. The second two statements – "I am strongly committed to the values and ideals of the pharmacy profession" and "Being a pharmacist is an important part of who I want to be" – may have been more problematic for the respondents to interpret. The Royal Pharmaceutical Society has recently consulted upon a Draft Pharmacy Practice Framework exploring the knowledge, skills and attitudes expected of a practicing pharmacist.(75) It is reasonable to state that if the profession is

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debating what knowledge, skills and attitudes pharmacists need to have then it was possibly expecting too much of the respondents to be able to interpret the first of the two statements outlined above. The second of the two questions – "Being a pharmacist is an important part of who I want to be" – is much more philosophical and would probably only be answerable by qualified pharmacists, not those who have not yet been through their undergraduate studies, let alone reached practice.

A novel approach to the graphical presentation of data obtained from Likert scales was attempted in this study. Questions concerning the influence of factors upon the decision to study pharmacy and the choice of school of pharmacy used a Likert scale to determine the degree of influence. It was decided with these questions to try a method used by MORI – the market research organisation – of analysing the extremes of response on the four point Likert scale used.(76) This was done by subtracting the negative extreme (i.e. not a strong influence or not an important influence) from the positive extreme (i.e. a strong influence or an important influence) and producing a bar chart from the results. This resulted in either a positive or negative spike which can be used to give a quick and simple idea of which factors were the most influential. This novel method of presenting the data was a good fit to the more mathematical analysis of scoring each point of the Likert scale and gaining a mean rating for a factor based upon the number of respondents selecting each point on the scale. There is good evidence in this study therefore to suggest that this method of data presentation is suitable for ease of reference when interpreting Likert data.

8.2.4 The influence of overseas students

Students enrolled upon degree studies in higher education are classified as either Home / EU or overseas. Nearly one fifth of the 1st year MPharm respondents were overseas students. It was decided to analyse the responses of this subgroup of respondents to eliminate any possible bias in the overall analysis of the responses to the 1st year MPharm questionnaire. However, it should be remembered that it is not possible to disaggregate the views of EU based students and so there is potential bias in any of the three cohorts surveyed. Overseas respondents were significantly more likely to have chosen pharmacy because of the potential for business ownership and self-employment. These were also career aims for significantly more overseas students than Home/EU students. The career aims of business ownership and self-employment of Asian respondents is discussed later in this chapter. The overseas subgroup was also significantly less committed to pharmacy as

a career. One third of the overseas cohort was of Asian origin and it could be inferred that this may have contributed to the lower degree of career commitment of Asian respondents when compared to White respondents. However, the reverse could be the case in that the apparent lower commitment of Asian respondents may have influenced the overseas cohort.

8.3   The size of the applicant pool to pharmacy

On the surface, the applicant pool for pharmacy appears to be buoyant. Following a decline to a low point in 2002, applicant numbers for pharmacy had increased by 50 per cent to over 6500 in 2005. However, upon deeper analysis of the available UCAS data it can be seen that this apparent buoyancy may be a false picture of the true situation. When the "core" applicants to pharmacy (defined by UCAS as having selected pharmacy for 50 per cent or more of their choices) are considered, the number in 2005 is closer to 4500. This may imply that around one third of applicants to pharmacy through UCAS are selecting pharmacy amongst other subjects, that pharmacy is not necessarily their first choice of subject of study, or that they are not confident of gaining an offer of a place to study pharmacy.

At the time of writing, there are 24 schools of pharmacy in the United Kingdom, a figure that is likely to rise further. If each school of pharmacy takes an average of 120 students into a year cohort, in five years time there will be approximately 3000 undergraduate places available. It cannot be assumed that all 4500 "core" applicants to pharmacy will either be predicted or achieve the required A level grades for entry to MPharm degree courses. It can be argued however that the new schools of pharmacy have brought extra applicants to the pool, particularly students who had not considered studying pharmacy because there was no school of pharmacy close to their home. A new school of pharmacy opening within the locality of this type of student may encourage them to apply as pharmacy has become accessible to them in terms of location.

Despite the factor of new schools introducing new applicants to the pool, it would seem reasonable to state that the applicant pool for pharmacy is nearing parity with the number of places available. If more schools of pharmacy are opened, or established schools further increase their intake significantly, it would possibly be necessary to decrease either the

entry requirements for MPharm degree courses or take more students with lower grades than those originally offered to them at Clearing to fill the available undergraduate places.

Another factor is that of widening participation. In 1999, Prime Minister Tony Blair announced at the Labour Party Annual Conference that there would be a Government target of widening participation in higher education to 50% of 18-30 year olds by 2010.(77) If this policy succeeds, which now appears to be unlikely, it has implications for both the type and quality of qualifications offered by applicants. The majority of A level applicants to MPharm degree courses will be aged between 18 and 20. It is likely that mature students will offer different qualifications from A levels such as BTEC National Certificates and Diplomas. These qualifications have a UCAS point tariff which makes them comparable to A levels. However, they are taught and assessed very differently to A levels and may consist solely of coursework assessments, with no examined components. This will have an impact upon degree level education where there is a mixture of coursework assessment and examinations. Students who have chosen an alternative path to A levels in their post-16 education, possibly because they found examinations an obstacle to progression, may find degree level studies more difficult than those students who have taken a more traditional route into Higher Education.

As pharmacy is a demanding, scientific course, decreasing the quality of students entering MPharm programmes has implications for the nature and standard of teaching upon those courses as postulated by Taylor and Bates.(45) If academic standards are maintained, it is reasonable to assume that some schools of pharmacy will become non-viable in terms of student numbers as competition to attract suitably qualified candidates increases. This may well lead to the closure of some schools of pharmacy in the United Kingdom, thus restoring the equilibrium between the applicant pool and the number of places available.

8.3.1 Gender of applicants

Analysis of the UCAS data (page 109) has shown that the majority of applicants to all four courses under consideration in this section of the study (dentistry, medicine, optometry and pharmacy) are female. This is particularly the case with optometry where over 60% of applicants since 2000 have been female. Analysis of the UCAS figures shows that dentistry was the slowest of the four courses to feminise. In all cases, a low point of male

applicants was in 2002 and since this time the proportions of male applicants to all four courses have risen steadily.

Despite the commonality in the general patterns of male and female applicant numbers across these four healthcare courses, further analysis shows different patterns within the gender pools. Within medicine, White female applicants outnumber Asian females and the same is true for White and Asian males. Within optometry the numbers of White female applicants has remained constant and has been gradually overtaken by both Asian female and Asian male applicants. The largest group of applicants to pharmacy was that of White females until 2005 when the numbers of Asian males and Asian females were greater. Within dentistry the numbers of White and Asian male and female applicants are much more evenly distributed.

These figures imply that, based on current trends, medicine appears to be most attractive to White females and has been so for the period under investigation in this study. Pharmacy and optometry were both White female dominated professions until the later years in this study when both have attracted larger numbers of both male and female Asian applicants. Dentistry has retained consistent proportions of applicants from each of these gender/ethnic background subgroups. The analysis also suggests that healthcare courses are less attractive to White males than the other subgroups. The reasons for this are unknown and are worthy of further investigation.

In the years 2001 and 2002 there was a drop in the number of applicants to all four healthcare courses. Over the 9 year period under discussion here the drop in total applicant numbers in the early years of the 21st century appears to have been due to a fall in the numbers of Asian males applying to study on these courses whilst the numbers of female applicants (both White and Asian) have remained fairly constant. This fall is consistent with a fall in Asian male applicant numbers to UCAS overall. In 2001 there were 18,644 Asian male applicants to UCAS which fell by 5.6% to 17598 in 2002. The drop in the proportion of male applicants to dentistry, optometry and pharmacy may be accounted for by the corresponding fall in overall numbers of Asian male applicants to UCAS in the same year. The fall in the number of White male applicants was much smaller (0.9%) and so this is unlikely to have had a large effect upon applicant numbers to dentistry, optometry and pharmacy.

The low point in applicant numbers to medicine occurred in 2001 which was a peak year for Asian male applicant numbers to UCAS. As Asian males are not the largest subgroup in the applicant pool for medicine, it is unlikely that any fluctuations in applicant numbers to medicine can be explained by fluctuations in Asian male applicant numbers. What may have been of direct influence upon applications to medicine in this year were the ongoing inquiries into medical malpractice at the time. Both the Redfern and the Kennedy reports were published in 2001. The Kennedy report investigated failings in paediatric heart surgery at the Bristol Royal Infirmary and the Redfern report investigated unethical organ removal and storage at the Alder Hey Children's Hospital. Each report led to headlines concerning the integrity of the medical profession and resulted in doctors being subject to disciplinary procedures by the General Medical Council. It is possible that this negative publicity surrounding the medical profession affected the desirability of medicine as a career for potential students. However since 2001 the numbers of applicants to medicine have recovered and exceeded previous levels.

The feminisation of healthcare professions in the United Kingdom as shown in the UCAS data is reflected throughout the Western English speaking world. In 2002 McMurray and co-workers published a comparison of the proportions of women in medicine in four English speaking countries, namely Australia, Canada, the United States and the United Kingdom.(78) This work demonstrated that by 1998, there were similar proportions of women enrolled in medical schools in each of the four countries. By 2005, over 50% of all students enrolling at medical schools in the United States, Canada, Australia and the United Kingdom were female.(79-81) A similar picture exists in the dental profession. Of the four courses analysed in this study dentistry was the slowest to feminise in terms of applicant numbers but a majority of female applicants has been seen consistently since 2001. In both Canada and Australia the majority of applicants to dental school are female.(82;83) The exception is the United States where female applicants to dental school are in the minority at 40%.(84) Optometry is also a majority female profession in these same four countries.(85;86) The UCAS data analysed for this study do not suggest that this situation is likely to change. In all four professions this increase in the numbers of women applying to study at university and then entering the professions themselves has implications for the future workforce. The implications for the pharmacy profession are discussed later in this chapter.

8.3.2 Ethnic background of applicants

Shiner and Modood found that medicine, dentistry and subjects allied to medicine were popular choices for Asian and Black Caribbean pupils.(87) Siann and Knox found similar results in their study with Muslim and non-Muslim girls in Scotland where 20% of Muslim girls stated that they wished to study medicine compared to only 3% of non-Muslims.(88) The UCAS data analysed in this study has shown that there is a proportionately large number of Asian applicants to all four healthcare courses when compared to the proportion of Asian and Black applicants to UCAS in general (see page 110). As discussed later, this may, in part, be due to the social dynamics (i.e. upward mobility) of Asian families. When the figures for pharmacy are considered, the analysis of the UCAS data has shown that the rise in numbers of applicants to pharmacy seen since a low point in 2002 is due to increasing numbers of male and female applicants from minority ethnic groups. The absolute numbers of White applicants to pharmacy have remained steady. The increase in the number of minority ethnic students applying to study pharmacy merits further investigation as this study cannot show whether this is a short term or long term trend.

What is of particular note is that over 10% of applicants to United Kingdom pharmacy courses are of black origin, a figure that has been increasing steadily since 1998. Of the four healthcare degree courses under consideration here, pharmacy has the lowest standard A level grade offer for entry to university. Typically, medical schools require A level grades of AAA to AAB with a suite of GCSE grades of A and A*. Dental and optometry schools typically require A level grades of AAB to ABB with a similar set of good GCSE results to medicine. As there are few of both types of schools - 14 dental schools (1 graduate entry) and seven optometry schools - competition for places is high. A typical offer for a place at one of the increasing number of schools of pharmacy in the United Kingdom varies from ABB to BBC, giving a much wider scope of grades for potential pharmacy students. It appears reasonable to suggest that, as discussed later, because black pupils perform less well than other ethnic groups at both GCSE and A level, pharmacy would be a popular choice of course for this group of applicants who wish to have a career within healthcare. It may also be that pharmacy is attractive to this group as it is more accessible than medicine or dentistry and may offer the chance for upward social mobility.

8.3.3 Socioeconomic background of applicants

The analysis of the UCAS data has shown that over 40% of applicants to medicine in the period covered by this study (1998-2005) were from socio-economic Classification 1, compared to 25% of applicants to pharmacy in the same period. This would appear to imply that the children of doctors, dentists, pharmacists and other professions are more inclined to apply to study medicine than pharmacy. However, the proportion of applicants from NS-SEC Classification 1 for all four courses is greater than the proportion of total applicants to UCAS from this socio-economic background (16.6%).

Almost 15% of applicants to pharmacy from 1998 – 2005, compared to only 7% of applicants to medicine, were from Classification 6 – semi-routine occupations. This classification includes occupations such as scaffolder, sheet-metal worker and implies that for those that aspire to climb socially, pharmacy is seen as a better option than medicine. Proportionally, there are more applicants to pharmacy from this socio-economic classification than to UCAS (15% of applicants to pharmacy, 11% of total applicants to UCAS).(74)

These findings from the analysis of the UCAS data are consistent with the work of Van de Werfhorst and co-workers.(89) In their review of the sociological literature they argue that parents' interests are communicated to their children and that therefore the children are likely to choose to study subjects related to these interests. They also argue that children are more likely to choose to study subjects that are linked to their parents' positions within the cultural and economic hierarchy of society. Van de Werfhorst and co-workers then analysed longitudinal data from the 1958 British birth cohort and concluded that there was not a significant association between social class and degree subject chosen. However, upon further analysis, they did find that children from professional class backgrounds were significantly over-represented within the group of children who went on to study medicine or law at university.

Van de Werfhorst and co-workers argue that as medicine and law degrees are of a longer duration than a standard three year British undergraduate degree this may have had financial implications that were off-putting to those children from a working class background. The MPharm degree is somewhat of an anomaly when taking this factor into account. Medicine and law studies last for five years before paid employment can be

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undertaken, whilst standard Batchelor degree studies are for three years before paid employment is undertaken. The MPharm programme falls between the two at four years study before paid employment (the pre-registration year). This may have an influence upon career choice within the healthcare environment as pharmacy offers a well paid career in a shorter time frame than medicine. They also postulate that children from professional backgrounds may have chosen subjects such as medicine or law as these subjects would maintain their parents' social position. The proportion of applicants to medicine in the period 1998-2005 from the higher socioeconomic classes may well be due to either of these factors.

Van de Werfhorst and colleagues acknowledge that the data collected concerned entry to university in the mid 1970s when the higher education sector was relatively small compared to today's situation. They go on to suggest that at the time the data was collected (approximately 1976) simply attaining a place at university was sufficient to maintain or increase social status, regardless of the subject studied. In today's climate, they argue, with the expansion of the higher education sector the subject of study has become more important with regard to social status.

Greenhalgh and co-workers in their focus group study of Year 11 pupils in London (aged 15 to 16 years) also found that the socioeconomic background of pupils influenced their opinions of medicine as a subject of study.(90) They found that students from lower socioeconomic groups perceived medicine as having extrinsic rewards (e.g. monetary security) but required personal sacrifices (in terms of length of study, difficulty of study and lack of a social life) that would be prohibitive to them. In contrast, students from higher socioeconomic backgrounds perceived medicine as having challenging career options associated with intrinsic rewards (such as personal fulfilment and achievement).

Breen and Goldthorpe (1997) argue that the priority of students and their parents is to avoid downward social movement rather than achieve upward social movement. This could account for the relatively large proportions of Classification 1 applicants to medicine when compared to those from Classification 6; the evidence is that more applicants wish to maintain their social status than advance it by very much.

The uneven proportions of applicants from Classification 1 to the four healthcare courses discussed here (dentistry, medicine, optometry and pharmacy) may be explained by work published by Ball and co-workers.(91;92) In their work with minority ethnic sixth form students in London, they examined the sociological theory that may explain why there is a difference in the proportions of entrants to higher education from different socio-economic backgrounds. They assert that the choice to enter higher education and the choice of higher education institution takes place within two "registers of meaning and action".(91) They describe the first register as cognitive / performative where the student will relate their academic performance to the perceived or actual selectivity of higher education institutions and higher education courses. The second register is described as social / cultural where the students will base their decision to enter higher education and their choice of higher education institution upon their own social class and the perceived social class of a higher education institution.

As Hodkinson and Sparkes have proposed, the higher education decision-making process is complex and other factors come into play.(12) DuBois-Reymond (1998) postulated that young people have two types of biography – a normal biography or a choice biography.

> *"Normal biographies are linear, anticipated and predictable, unreflexive transitions, often gender and class specific, rooted in well-established life-worlds. They are often driven by an absence of decision."(93)*

> *"Choice biographies are by no means purely based on freedom and own choices… young people are forced to reflect on the available options and justify their decisions…it is the tension between option / freedom and legitimation / coercion which marks choice biographies."(93)*

Ball and co-workers propose that because of the expectations placed upon students from middle class backgrounds, they are performing within a normal biography and have less choice about attending university than students from working class backgrounds who may be working from a choice biography.(91) They also found that social class was the main predictor of the type of school attended and GCSE attainment and that GCSE attainment was the main predictor for choosing high status and professionally related courses such as medicine. It is therefore not surprising that there are high proportions of students from NS-SEC Classification 1 applying to medicine and dentistry during the period examined in this study.

When examining the decision-making process of minority ethnic students, the studies described above led to the construction by Ball and co-workers of two contrasting types of "ideal" minority ethnic choosers. These are essentially socio-economic class based.(92) These two types of choosers are described below:

Contingent choosers

Minority ethnic contingent choosers, as described by Ball, Reay and David, have the following attributes:(92)

- They are a first generation applicant to higher education;
- Their parents were educated outside the United Kingdom;
- Their parents are working class with low incomes;
- There is little financial support available from the family for higher education;
- There are high levels of expectation and encouragement from the family;
- They know little about their chosen higher education institutions;
- They have a need or desire to live at home;
- They often work (in paid employment) in term time.

Ball and co-workers suggest that contingent choosers in higher education are in some sense breaking away and becoming different from their family and peers.

Embedded choosers

Minority ethnic embedded choosers, as described by Ball, Reay and David, have the following attributes:(92)

- They are middle class;
- Their parents attended university;
- They have other relatives or friends who have experience of higher education;
- Going to university is expected of them (i.e. not going to university is unacceptable);
- Going to university is often linked to a career trajectory;
- They have career aspirations that are often long standing;
- Their family is supportive in the provision of information and advice;
- It is expected that the student will leave home to attend the "right" institution;
- They do not work (in paid employment) during term time.

Ball and co-workers suggest that embedded choosers are part of a natural progression into higher education and are in a class setting where they are comfortable.

The social class of these minority ethnic "choosers" as described by Ball and co-workers provides a possible explanation for the proportions of students applying through UCAS to each of the four healthcare courses under investigation in this study. Middle class choosers are more likely to be embedded choosers from a good educational background. They are likely to have had a career in mind for some time and will apply to the best institutions to study for that particular career. It is reasonable to suggest therefore that these embedded choosers are more likely to apply for the "high status" healthcare fields of medicine and dentistry.

Working class choosers from any ethnic background, on the other hand, are likely to be breaking the mould with respect to higher education as far as their family is concerned. They are likely to have the support of their family but little information provision and are likely to have a poorer educational background. Hence, it would seem reasonable to suggest that these students are more likely to apply to study pharmacy as this has lower entrance requirements (in terms of GCSE and A level attainment). For entry to an MPharm degree programme in 2008 however, the average UCAS tariff required is 310 points (A level grades of between ABB and BBB), approaching the requirements for both optometry and dentistry.(36) These higher grade requirements may change the nature of the applicant pool for pharmacy, competing more directly with dentistry and optometry and this in turn could have two consequences. Firstly, a reduction in the number of students from lower socio-economic backgrounds applying to study pharmacy, and secondly a reduction in the applicant pool overall for pharmacy as increased A level requirements may result in a smaller pool of suitable students.

8.3.4 Widening participation

The social class of applicants to the four degree courses under discussion in this thesis is important to the parent institutions. There is a Government target to widen participation in higher education to 50% of 18 to 30 year olds by the year 2010.(94) This means that new students will have to be recruited from under-represented groups.(95) Gilchrist, Phillips and Ross have shown that 90% of middle class students who enter higher education will have enrolled by the age of 20, whilst students from other socio-economic backgrounds

take much longer. For example, it is not until the age of 24 that 90% of those students from Classification 3 (Non-Manual) who will enter higher education have enrolled.(96) This means therefore that it is the lower socioeconomic groups that form the largest potential for expansion of numbers in higher education after the age of 21.

Gilchrist, Phillips and Ross suggest five reasons for the relative lack of working class participation in Higher Education.

1. There is a lack of information available about Higher Education opportunities;
2. Students from a working class background may not feel that Higher Education has sufficient value to be worth the time and effort;
3. Students from a working class background may lack the necessary normal entry qualifications;
4. The financial commitment may be seen as too great, seen as too risky or be insufficiently understood;
5. Higher education may be seen as a threat to their working class identity.(96)

8.3.5 Types of information used by applicants from different socio-economic backgrounds

The results of the three surveys conducted for this study suggest that applicants to MPharm programmes are more influenced by the results of their own research than by careers teachers. This is possibly a reflection of the socio-economic background of the respondents as students from higher socio-economic classifications are more likely to rely upon "cold" knowledge. "Cold" knowledge is defined as information provided by official sources, such as universities, the government, the RPSGB, which have no personal interest in the recipient of such information.(95)

The three cohorts in the present study rated the information found in university prospectuses or from a university open day visit as most influential upon their choice of career. However, prospectuses may be seen as not very useful by students from a working class background. Archer reports that working class non-participants (in higher education) thought that prospectuses contained the wrong types of information for them and that they were self-serving and biased towards the institution concerned.(95)

It has been argued that working class students rely on "hot" knowledge in order to make decisions about whether to study for a higher qualification and where to study. "Hot" knowledge is defined as coming from people rather than literature and that working class students are more likely to rely upon what they are told by people they like, trust or perceive to have experience in higher education.(95) Sources of "hot" knowledge include parents and teachers, rather than careers advisors.

The parents of respondents were the second most influential personal factor in each of the three surveys conducted for this thesis. Parental influence was stronger for Asian respondents than White respondents and also for females than for males. Similar findings are reported by Greenwood and Bithell.(97) The least influential factors were those of someone within the family of the respondents owning a pharmacy and friends of the respondents. This implies that, for the respondents to the three surveys, not all "hot" knowledge is relied upon.

The socio-economic background of respondents was not sought in the present study. Further study would be merited to examine whether there are any effects of socio-economic background evident in the sources of information used.

8.3.6 Financial commitment

Another possible reason for the disparity in the proportions of applicants from a middle class background compared to a working class background to the four healthcare degree courses analysed in the UCAS data is that of the financial commitment required. Medicine and dentistry are both five year degree course, pharmacy is of four years duration and optometry three years. Financial arrangements for working class students are more complex than for those from the higher social classes. Middle class students tend to pay their fees and take out loans whilst working class students, who are more likely to be mature students (i.e. aged over 21 upon entry to higher education), may be eligible for extra sources of funding. These include Hardship Funds, Childcare Grants and Opportunity Bursaries. This complexity may lead to misunderstandings about monies available to students from lower socio-economic backgrounds and the necessity to pay tuition fees up front and take out loans may be very off putting to such students. This is particularly the case with longer degree courses such as medicine, dentistry and pharmacy

and so may have an impact on the numbers of students from lower socio-economic backgrounds applying to these degree courses.

The degree of financial commitment to a course of study often includes rent for accommodation either in student Halls of Residence or other student accommodation. Once again, with longer degree courses, the amount to be spent on accommodation increases which will have an impact on the amount of debt a student will attain.

8.4   Influences upon the decision to choose to study pharmacy

The surveys undertaken for the present study investigated the perceived influence of nearly 30 factors upon respondents' decisions to study pharmacy at three separate points in the academic career: Year 13 (final year of A level study, aged 17 or 18), 1st year MPharm and 4th (final) year MPharm. The surveys were designed to widen the scope of previous work and so the questions exploring influencing factors were derived from previous studies in the United Kingdom, the United States, Australia and Canada (see Methods page 69).

The influencing factors under investigation were divided into three groupings:
- careers related;
- personal;
- general.

8.4.1   The perceived influence of careers related factors.

The careers related factors investigated in this study included school or college based careers information sources (careers teachers, subject teachers) and externally produced careers information sources such as university produced material (open day visits, prospectuses or websites), media sources (radio or TV programmes) and other sources of information (RPSGB literature and careers leaflets or booklets). These were developed from previously published work (see Methods page 69) and were designed to explore the influence of as many of the available careers information resources as possible. The potential influence of university websites was not examined in the two MPharm undergraduate questionnaires. These were administered before the Year 13 questionnaire, to which this information source was added.

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Guidance produced by the National Institute for Careers Education and Counselling in 1996 based upon a literature review of career decision-making processes suggested that the following factors were influential upon the career decision-making process of young people:

- parents and relatives;
- friends and peer groups;
- careers advisors;
- subject teachers;
- contacts with employers;
- work experience;
- printed material.(65)

The influence of employers was not explored within the surveys used in this study. In the responses of the three cohorts surveyed in this study, it would appear that careers advisors did not have a great deal of influence upon the decisions of the three groups and subject teachers were only a little more influential. It would therefore seem that students are much more influenced by externally produced material, often from a school of pharmacy or its parent institution. Of the printed material that is available, the results suggest that careers leaflets or booklets are very influential. The question did not ask about the source of these careers leaflets or booklets and so it is not known by whom they were written. Information which was found in university prospectuses or upon visiting a university for an open day were the most influential careers information related factors upon the choice of career for all three groups of respondents. Only the Year 13 respondents were asked about university website material and this was found to be less influential than printed prospectuses or open day material.

This reliance upon printed or pre-produced careers material has the obvious implication that such material must be timely and accurate so as to give a true picture of the profession of pharmacy to potential students. The Royal Pharmaceutical Society has produced a leaflet which is available to download from their website(98). This is colourful and contains up-to-date and useful information. However it is not clear whether the Royal Pharmaceutical Society distribute this leaflet to careers advice centres to secondary schools in the United Kingdom, or whether it is expected that students interested in a career in pharmacy will seek information through the RPSGB website and so find the leaflet. If the

latter is the case then this relies upon an interest in pharmacy leading to the leaflet to obtain further information rather than the leaflet sparking an interest in pharmacy as a career in students. Analysis of the UCAS data has shown that in the future there may not be sufficient students of a suitable calibre applying to study pharmacy to meet the demand created by new schools of pharmacy opening. If the profession wishes to encourage more students of a sufficient calibre to apply to study pharmacy, more effort needs to be made to publicise the career in an appropriate fashion. The leaflet produced by the RPSGB distributed to appropriate careers centres and/or advisors would be a step in this direction.

The three surveys showed that university produced material, such as a university prospectus, was more influential upon the decision to apply to study pharmacy than careers leaflets or booklets. It should be remembered that university prospectus entries are not written entirely with a view to advertising pharmacy as a career. Instead, they are written to attract potential students to apply for a place at that particular institution and so the emphasis is much more upon the degree course rather than the profession of pharmacy itself. The results of the surveys of Year 13 and 1st year MPharm students suggest that these cohorts perceive that there are many opportunities to work within research in the pharmaceutical industry. This may be due to an emphasis upon research contained within university prospectuses (both the research profile of the school of pharmacy and the range of research projects available to final year MPharm students). To give a more accurate picture of the career opportunities available within pharmacy ideally materials produced by universities should possibly contain more than just information about the MPharm degree course on offer at that particular institution. However providing accurate careers information is not the responsibility of the Higher Education sector.

A series of short, unstructured visits was undertaken to four centres of careers information within Birmingham to explore the availability of printed careers material concerning pharmacy. The visits discovered that information upon the numbers and locations of Schools of Pharmacy within the UK and entry requirements for MPharm degree courses was current as all centres held copies of the latest UCAS information. However, compared to medicine, there was a shortage of current printed material available to prospective pharmacy students giving information about careers in pharmacy (approximately one third of that available on the subject of medicine). Indeed at one centre (an inner city sixth form centre), some material was ten years out of date. This would mean that any person

consulting such material would not gain a true impression of the profession of pharmacy, particularly following changes such as the introduction of both supplementary and independent pharmacist prescribing. Information about salaries available to qualified pharmacists will also be out of date. These factors could be of long term detriment to the profession in that students could potentially enter their studies with little or no knowledge of what a career in pharmacy entails in today's climate leading to potential future dissatisfaction and perhaps retention problems within pharmacy.

Of particular note was that at none of the careers information centres visited was there any sort of information produced by the Royal Pharmaceutical Society. Whilst the RPSGB website contains detailed careers and education information, unless there are direct pointers readily available to potential students, then this source of information may be missed. The results of the questionnaires showed that although the RPSGB does provide careers information, both on its website and as a leaflet, it would appear that this information is either not used or that the respondents were not aware of its existence. In the three surveys conducted for this study RPSGB literature was shown not to have a strong influence upon the respondents' career decisions.

8.4.2   The perceived influence of personal factors

Personal influences included those factors linked to the respondents' home and personal life: parents, other family members (including those who own a pharmacy business), other pharmacists who may have been a role model, friends and pharmacy work experience. These factors were taken from previously published studies (see Methods page 69) and were designed to encapsulate as many personal influences upon the career decision-making process.

Of the six personal influencing factors upon career choice investigated within the three surveys, pharmacy work experience was found to be the most influential followed by parents of respondents. The least influential of the personal factors was that of someone within the family of the respondents owning a pharmacy.

The findings of these surveys reinforce the findings of previous studies as to the importance of pharmacy work experience upon the respondents' decision to choose to study pharmacy, particularly for female respondents. Pharmacy work experience was

significantly more important for female respondents than males in both the Year 13 and 4th year MPharm cohorts. Pharmacy work experience appeared to be more important to female respondents than males in the 1st year MPharm cohort, although the difference was not significant. The difference in the influence of work experience on male and female respondents could be due to the fact that girls are more likely than boys to take up work experience placements within a healthcare setting. Hillage and Kodz found that most work experience placements in healthcare settings at the age of 14 or 15 are taken by girls.(19) However, Greenwood and Bithell found that students of the 16 – 17 year old age group think that pharmacy is a job suited more to men than women, which may have been the result of work experience but is not fully explained.(97) The tendency for work experience placements in a healthcare setting to be taken by female students may go some way to explaining the increase in the numbers of females who apply to study not only pharmacy but also medicine, dentistry and optometry. A continuance of this trend may reinforce the continued entry of more females than males to the profession of pharmacy. This in turn may lead to future workforce shortages with the preponderance of female pharmacists considering working part time and taking time out to raise families as discussed later in this chapter. It would seem reasonable to suggest therefore, that the profession as a whole, led by the RPSGB, needs to encourage more boys to take up work experience placements within a pharmacy setting.

It should also be noted that work experience can have a negatively reinforcing effect as found by Hodkinson.(11) The focus groups conducted with Year 12 students had uncovered a perception that pharmacy was not an interesting or demanding job (see Chapter 3 page 86). There is evidence from those Year 13 survey respondents who had decided not to apply to study pharmacy to support these findings from the focus groups. Eight respondents had undertaken work experience in a pharmacy setting which had either helped them to make their decision or had reinforced their decision. One respondent (who had taken part in a hospital pharmacy placement) stated that their experience was not as expected and that the job of a pharmacist seemed *"repetitive"*. Another respondent stated that pharmacy was not for them because there was not much *"hands on action"* whilst a third stated that after three months work experience in a pharmacy they couldn't see themself *"doing it for the rest of my life"*. One respondent stated that pharmacy was too specialized and that they preferred to study chemistry to keep their options open – *"I feel that by studying chemistry, I could still go into pharmacy later on if I wished"*. It is not

possible to ensure that every student who undertakes a work experience placement in a pharmacy setting finds it interesting as each individual has different likes and dislikes. However, the perceived lack of "hands on" activity and the perception of repetition of the tasks of a pharmacist do need to be addressed in some way. Unfortunately, day to day work in a pharmacy dispensary does involve repetition of tasks. A way to address this issue may be to produce a set of guidelines of tasks that can reasonably be undertaken or witnessed by work experience students. This set of guidelines would necessarily be constrained by the need to have trained staff and issues of confidentiality. Pharmacists who take on work experience students could then adapt these guidelines to their own setting to try to ensure as positive a work experience as possible.

8.4.3   The perceived influence of general factors

General influencing factors were those factors that concerned the nature of pharmacy as an educational subject and as a potential career. These included factors that reflected the science based nature of an MPharm degree course (liking science / being good at science at school and wanting to study a science based course), the nature of the work of a pharmacist (a socially useful job, wanting to work with patients, an intellectually satisfying job), job prospects (a well paid profession, good career opportunities, financial rewards, a profession where one can always get a job), work / life balance issues (the opportunity for business ownership, self-employment, part time working, flexible working hours) and the fact that pharmacy is a medically related profession.

Early work with pharmacy undergraduates in the United Kingdom exploring their motivations for applying to study pharmacy was undertaken by Booth and co-workers in 1984 and Rees in 1985.(24;25) Both studies were relatively small and based upon one institution, introducing potential bias to the results. Booth surveyed 299 applicants to the School of Pharmacy at Bradford University and obtained 164 responses.(24) Rees surveyed 80 first year pharmacy undergraduates on their first day at Manchester University.(25) Both studies showed that the two most important non-educational factors influencing the decision to study pharmacy were the nature of the work and employment prospects. In Booth's study, the phrase "nature of the work" is not defined and so it is not known exactly what the respondents interpreted this to mean.(24) In Rees' study, "a job that helps and meets people" is given as an influencing factor.(25) The study undertaken for this thesis has expanded the number of influencing factors in an attempt to quantify the

"nature of the job" and has also expanded the numbers and variety of respondents. Twenty years on from these surveys, it would appear that the perceived employment prospects remain an important influence. All three cohorts in this study rated the career opportunities available within pharmacy as the most important factor in the decision to choose to study pharmacy. The perceived job availability and the perception that pharmacy is a well respected career were also rated as important influences by all three cohorts. The science based nature of the course was also an important influence to all three cohorts as was an ability for or liking of science at school.

In Rees' study, "a job that helps and meets people" was the third most important factor in the decision to study pharmacy.(25) The two factors in the present study which were related directly to the nature of the work of a pharmacist were "I want a job where I am socially useful" and "I want to work with patients". The first of these two statements was ranked, out of the 17 factors explored in this section, as the 6th most influential factor by the Year 13 cohort and 7th by the 1st and 4th year MPharm respondents. The second of these two statements was ranked 9th by the Year 13 and 4th year MPharm cohort and 8th by the 1st year MPharm respondents. This study shows that patient related factors have less influence upon a decision to study pharmacy than the pragmatic, rational factors of job security, financial remuneration, and a scientific background.

Hodkinson and Sparkes proposed the theory of "careership" whereby individuals make pragmatic, rational career decisions based upon their personal experiences and personal influences (i.e. their social and cultural networks).(12) Hemsley-Brown and Foskett supported this theory of careership and found in their own research that students refine their early career aspirations according to their own developing skills and their awareness of the potential within the labour market.(15) The results of this study suggest that the respondents have placed pragmatic reasons (career opportunity and ability in science) for choosing to study pharmacy above more altruistic reasons such as a desire to work with patients.

Job and career opportunities within pharmacy have emerged in previous studies as influencing factors upon a decision to study pharmacy. In early studies (Booth and co-workers, Rees and co-workers(24;25)) these factors were not of great importance. Both these studies were conducted before the economic recession of the mid 1980's and the

introduction of tuition fees. In later studies (Willis and co-workers, Davey(30;31)) job and career opportunities emerged as being more important than other, altruistic factors such as a desire to work with patients. This study has also shown that job and career opportunities are of greater importance in the decision to study pharmacy than altruistic factors. This may be due to the cost of Higher Education and the level of potential debt faced by university students, which has been estimated to be as much as £17,000 at the end of a three year degree course.(99) This view of the profession of pharmacy providing good job prospects is supported by Hodkinson and Sparkes' "horizons for action" where students choose a career based upon their personal experiences, abilities and the ease of obtaining a job in their chosen career. The level of potential debt may be a driver for students to choose to study for degree course which they perceive to have good job and career opportunities. It is possible that pharmacy is now viewed as a secure future career rather than an opportunity to work in a healthcare environment. Providing that pharmacy can continue to offer good job prospects to potential students, this may have a positive effect on applicant numbers, meaning that some of the concerns regarding applicant numbers failing to meet the needs of the increasing number of pharmacy schools in the United Kingdom may be alleviated.

The importance of liking or being good at science should not be overlooked. This study has shown that for Year 13 respondents this is the third strongest influencing factor upon their decision to apply to study pharmacy. This implies that at the age of 17, the idea that pharmacy is very much a science based course is already well established. Greenwood and Bithell's work shows that this is present one year earlier, at Year 12 (aged 16) where pharmacists were perceived as needing to be good at chemistry and scientific.(97) This is a realistic perception as the entry requirements for most MPharm courses require a good A level grade (i.e. grade A-C) in chemistry and at least one other science.

The perception of pharmacy being a science-based course, along with the general perceptions of the Year 12 focus group participants that pharmacists either work in a shop or in a laboratory, reinforces the lack of perception of a patient focus to pharmacy as a profession amongst students of this age (16 to 18 years). It would appear that there is a need to promote pharmacy as a patient-centred profession much earlier, possibly at or before GCSE level to attract those individuals who may wish to have a career with patient contact but feel that pharmacy is too scientific for this.

Over three quarters of all respondents to the three surveys indicated that pharmacy was their first choice of subject to study at university. Approximately 10% of respondents in each of the three cohorts indicated that pharmacy was their second choice of subject to medicine. Less than 5% of all respondents stated that dentistry was their first choice. This is consistent with the UCAS analysis (see page 107) which showed that pharmacy may be used as a "back up" option to these two subjects when applying for a place at university.

Nearly 30% of respondents to the Year 13 questionnaire had also considered applying to study medicine. However, this was the only healthcare career that was considered as an alternative by more Year 13 respondents than a degree in chemistry. It is clear from the results of the study that potential applicants to pharmacy are more likely to have considered scientific subjects such as chemistry, biomedical science or pharmacology than healthcare subjects. In other words, applicants to pharmacy may well be science students who are exploring the possibilities of a career in a healthcare profession rather than applicants who are interested solely in working in the healthcare arena. This is not unexpected as these are students studying A level sciences (the most common combination being chemistry, biology and mathematics). This is supported by Hemsley-Brown and Foskett's findings that students make career decisions based upon their horizons for action (as proposed by Hodkinson and Sparkes) and their perceived skills and abilities.(15) Hence, if a student perceives him/herself to be good at science they are likely to apply to study science based subjects.

Of the other possible healthcare careers, only dentistry and optometry were in the top nine alternatives to pharmacy after medicine. Both dentistry and optometry are similar to pharmacy – they are relatively commercial in nature and are only contracted to the NHS. It may be the case that these careers (dentistry, optometry and pharmacy) are perceived as being better in terms of status and job and career prospects than a career in a pure science area.

8.5 Commitment to pharmacy as a career

Three career commitment statements, derived from previous work by Rascati were provided in the questionnaires to examine the respondents' commitment to pharmacy as a career. The first – "I am (will be) proud to tell others that I am (will be) studying pharmacy" – generated strong agreement amongst over three quarters of all three cohorts. However the next two statements – "I am strongly committed to the values and ideals of the pharmacy profession" and "Being a pharmacist is an important part of who I want to be" – generated less strength of agreement. This is possibly because of a lack of comprehension of the meaning of the statements. This has been discussed earlier in this chapter (see page 256).

A final measure of career commitment was that generated by the statements associated with the career commitment scale. This was developed by Blau in the United States for administration to nurses.[63] Blau created a series of eight items to measure career commitment. These eight items were taken from a review of the literature at the time to measure professional commitment, occupational commitment and career orientation. The items were measured on a five point Likert scale (1 = strongly disagree, 5 = strongly agree) and then summed to create a career commitment score (see Methods page 73). Rascati, in her study, adapted the statements to apply to pharmacy undergraduates and calculated Chronbach's alpha to assess the reliability of the career commitment scale.[26]

For the purposes of this study, six of the eight items were retained for the 1st and 4th year MPharm surveys:

- I definitely want a career in pharmacy;
- Pharmacy is the ideal profession for life;
- I intend to undertake a second degree after completing pharmacy;
- If I could pick a different occupation which paid the same amount, I would probably change degree;
- If I could do it all over again, I would choose to study for the same profession;
- I regret that I entered pharmacy school.

For the Year 13 questionnaire only the first three statements were included as the latter three would not be applicable to the cohort being studied. This could mean that the

reliability of the scale is compromised for this group of respondents but an impression of the career commitment of the cohort has been obtained.

All three cohorts showed a high degree of commitment to a career in pharmacy. In the Year 13 group, no differences were seen in the responses of ethnic or gender sub groups. Differences were seen in the responses within the 1st and 4th year MPharm cohorts. In both cases, White respondents were significantly more committed than Asian respondents to a career in pharmacy. The reason for this may be that significantly fewer Asian respondents in each cohort indicated that pharmacy was their first and only choice of subject of study at university. When this was further examined, significantly more Asian than White respondents indicated that pharmacy was their second choice to medicine or dentistry and so Asian respondents may well be less committed to their second choice career.

8.6   Choice of school of pharmacy

The reputation of a school of pharmacy and its parent institution were the most positive influences on all three cohorts of respondents (i.e. they attracted the lowest mean rating scores on the Likert scale meaning that they were of greater influence in the decision-making process). The perceived reputation of either a school of pharmacy or its parent institution may arise either through indirect knowledge (e.g. friends or relatives studying of having studied at a particular institution) or through published information. The latter consists of various league tables produced by national newspapers; the best known examples of which are those produced by The Times and the Guardian. Each league table is calculated using different criteria, meaning that league tables are not comparable with each other. Hence a particular school of pharmacy is likely to appear at different positions in different published league tables. However, all league tables include exit qualifications (i.e. the number of degrees awarded in each class) in their calculations. This means that new schools of pharmacy, which have not yet graduated their first cohorts, will not be included within these league tables whilst their parent institutions are.

A larger proportion of Year 13 respondents stated that a visit to a university open day would be an important influence on their choice of school of pharmacy than the two undergraduate groups, although this factor was an important influence upon the decisions of the two MPharm cohorts. The reason for this disparity may be due to the fact that the

Year 13 group would have only just participated in university visits or open days thus increasing the immediacy of the effect on this group of respondents. The nature of the course as described in the prospectus was a more important influence than university open day visits to all three groups which reinforces the importance of these documents both for the choice to study pharmacy and the school of pharmacy at which to study as discussed earlier (page 272).

The influence of parents appears to be of little importance in all three groups and the same is true for the influence of family members and friends. Personal recommendation was a positive influence overall for both Year 13 and 1st year respondents, but neutral for 4th year respondents. It would therefore appear that for all three groups of respondents the influence of personal factors such as the wishes of parents and family or friends and the location of a school of pharmacy, in relation to the family home are less important than those directly connected to the school of pharmacy either through material produced by these or their reputation. Attendance at a particular school of pharmacy with a good reputation may convey prestige upon the student or their family, or could be seen to enhance employment prospects once qualified. Whether this is actually the situation in the work place, for example at the time of pre-registration recruitment, has not been investigated.

Pharmacy is a degree course which attracts a high number of Asian applicants, both male and female (see UCAS analysis page 120) and it could be construed that the location of a particular school of pharmacy relative to the respondents' home is important. Culturally, it has been expected in certain Asian communities that girls should remain within their home environment. This factor was a negative (i.e. not important) influence upon the Year 13 cohort but a positive influence for the two undergraduate groups. This is despite the fact that the cohort with the highest proportion of Asian female respondents was the Year 13 sample. At the time of response to the questionnaire within this group, proximity to home may not yet have featured in this group's choices as they may not have received all their offers from potential places of study and so may not have had to make a definite decision as to which school of pharmacy at which to study.

The age of students may also have an impact on this factor with mature students more likely to wish to remain at home due to family commitments. However, the proportion of

mature students within each of the samples was very similar. This therefore does not account for the differences in responses.

8.7   Work and life choices - pre-registration and beyond

8.7.1   Pre-registration training

The results of the three surveys show that a larger number of respondents selected community pharmacy (either as part of a chain / multiple or independent) as their preferred sector of practice for their pre-registration year than any other sector of practice. This was particularly the case for Asian respondents and for male respondents. Similar results in qualified pharmacists were reported by Hassell in 1996, where 60% of minority pharmacists stated that their intended sector of practice had been community pharmacy compared to 18% who had wished to enter hospital pharmacy.(69) A possible explanation for this is the Asian propensity for entering business which is discussed elsewhere in this chapter.

The proportion of respondents selecting community pharmacy as their choice of sector of practice may reflect their perceptions of where pharmacists work and therefore where they are most likely to get work themselves. It is certainly a reflection of the reality of pharmacist employment where over 70% of registered pharmacists in the United Kingdom are employed within the community pharmacy sector.(70)

A community and hospital pharmacy split pre-registration post was selected by the second largest proportion of both the Year 13 and 1st year MPharm survey respondents. This may be because at this point in their academic and pharmacy careers these respondents are selecting their "ideal" pre-registration placement and are not aware of the number and types of placement available. It is also possible that these respondents view a split post as covering both of the main sectors of pharmacist employment and so is seen as "ideal" as it could increase their employment chances once qualified. Further work is needed to investigate the reasons for the popularity of the community and hospital pharmacy split pre-registration placement at this very early time.

The responses of both the Year 13 and 1st year MPharm respondents to this question of preferred sector of pre-registration training suggest that at this point in their academic and

pharmacy career there is a lack of awareness of the availability and range of pre-registration training placements. It would appear that they are selecting placements that reflect the highest profile sector of pharmacy practice (community pharmacy) and that could represent, to them, the best placement to train them for the future workplace (a split community and hospital training post). This is not unreasonable as there is no reason why students should be aware of the availability of pre-registration placements at this stage in their academic career.

In June 2006 there were 3359 sites eligible to train pre-registration pharmacists, 3056 of which were in community pharmacy (100). 296 Hospital sites were eligible (100) and as these sites often take multiple pre-registration pharmacists, there were 609 hospital pre-registration placements available.(101) This meant that in June 2006, 83.5% of available pre-registration placements were in community pharmacy and 16.4% in the hospital sector. However, it must be remembered that not all eligible sites, particularly in community pharmacy, will take a pre-registration pharmacist each year. Data reported by Scott regarding the hospital pre-registration sector implies that the majority of hospital pre-registration placements are filled, accounting for approximately 30% of MPharm graduates each year.(101)

With the exception of the proportion of respondents selecting community pharmacy as their preferred sector of pre-registration training, the responses of the 4th year MPharm cohort were very different from those of the Year 13 and 1st year MPharm cohorts. The responses of the 4th year MPharm cohort are more likely to reflect the reality of pre-registration training availability. At the time that this survey was conducted it is extremely likely that the majority of 4th year respondents would already have obtained their pre-registration training placements. 52% of 4th year respondents to the survey indicated that community pharmacy was their preferred sector for pre-registration training and 37% selected hospital pharmacy. These proportions are a close reflection of the actuality of the pre-registration placements available.

The differences between the responses to the preferred sector of pre-registration training of those at the beginning of their academic career and those at the end of theirs are marked. However, it is difficult to compare the results directly. As the 4th year MPharm cohort may already have obtained a pre-registration post, they may have interpreted the question of

preferred placement as a record of their actual placement. A question regarding a change in their preferred sector of training over the four years of their course was not asked and so the reasons for the differences in results cannot be explored fully.

8.7.2   Field of practice once qualified

In this section of the questionnaire respondents were asked to indicate the sectors of practice in which they would consider seeking work once newly qualified. Unlike the section of the questionnaire dealing with pre-registration training (where respondents were asked to select only one option) respondents were asked to indicate all options that they thought applied to themselves. All of the major sectors of practice were offered as options (community, hospital and industrial pharmacy) along with primary care, academia, research, policy development, business ownership and self-employment.

In all three cohorts, the sectors of practice that were selected by the largest number of respondents were community pharmacy (chain / multiple) and hospital pharmacy. Both of these sectors account for the majority of practicing pharmacists in the United Kingdom.(70)   It would seem reasonable to suggest that these are the sectors of practice that both potential and current pharmacy undergraduates are most likely to have been exposed to through work experience, vacation placements and, for undergraduate respondents, university based placements. This potential exposure to both community and hospital pharmacy may explain the relative popularity of these sectors when compared to the minority sectors of practice such as primary care work or academia.

The proportion of Year 13 students expressing an interest in industrial pharmacy was three times greater than that of 4th year MPharm undergraduates whilst the proportion of 1st year MPharm undergraduates expressing an interest in this sector was double that of the 4th year respondents. There may be several explanations for this including:

- The perception that pharmacists work in a laboratory or a community pharmacy (as shown by the Year 12 focus group work);
- The emphasis on the pharmaceutical industry in university prospectus entries for pharmacy;
- Pharmacy students may lose interest in industrial pharmacy as they are exposed to more clinical aspects of pharmacy practice as their studies progress;

- Pharmacy students may gain an appreciation of the limited potential for work within industrial pharmacy as their studies progress;
- An awareness of the roles of a pharmacist within the pharmaceutical industry may develop throughout the course of an MPharm undergraduate's studies which may prove less interesting than other sectors of practice;
- There may be a higher exposure to both hospital and community pharmacy through MPharm studies or vacation work which moves these two sectors of practice into prominence.

The reverse of this scenario appears to be the case for locum work. Double the proportion of final year MPharm students expressed an interest in locum work compared with Year 13 students. It is likely that Year 13 students do not understand the term or are not aware of locum work even if they have had a work experience placement within pharmacy. It is not possible to state whether this is an interest in independence in working life or whether locum work becomes more attractive from a financial point of view as the student develops an awareness of the reality of working as a locum. Hassell and co-workers in their analysis of the Royal Pharmaceutical Society's 2005 census data found that more than one quarter of active pharmacists were working in a locum capacity and one third of those working in community pharmacy were locums.(70) The data from those surveyed in the present study suggests that this proportion will continue or may even rise and this is an area that merits further research.

The survey did not explore any of the reasons behind why respondents were interested in each of their chosen sectors of practice for potential future work and this is an area that merits further investigation. It would appear from the results of the current study that sufficient pharmacy students and potential pharmacy students are interested in the minority areas of practice to meet the possible future needs of the profession as well as the main areas of pharmacist employment.

There were differences in the responses of White and Asian respondents with a greater proportion of Asian respondents than White respondents in all three surveys stating that they would seek work within community pharmacy. The reverse was also the case, with more White respondents than Asian stating that they would seek work within the hospital

pharmacy sector. Hassell reported similar findings in 1996 and in her analysis of the 2005 census data.(69;70) The desire to own a business was expressed by a larger proportion of Asian male respondents than any other sub-group of respondents and this was consistent across all three survey samples. The possible reasons for the higher proportion of Asian respondents expressing an interest in community pharmacy and business ownership are discussed later in this chapter.

8.7.3   Gender differences

Analysis of the responses of all three cohorts with regard to the sector of practice once qualified showed some differences by gender. The exception to this is community pharmacy where very similar proportions of male and female respondents indicated that they would consider seeking work (approximately 55% chain / multiple and 35% independent community pharmacy). Significantly more female respondents than males in both undergraduate cohorts indicated that they would consider working in hospital pharmacy both for pre-registration training and once qualified. A higher proportion of female Year 13 respondents than males indicated the same but this difference was not significant. More females than males in all three surveys stated that they would consider seeking work in primary care pharmacy although again the difference was not significant.

These results reflect the identified differences in the pharmacy workforce and suggest that these differences are embedded prior to registration as a pharmacist. Hassell's analysis of workforce patterns in pharmacy in the United Kingdom found that the proportion of women on the Pharmaceutical Register has risen from 19% in 1964 to 51.5% in 2001 and 54.3% in 2005.(70;102) Women have been predominant in hospital pharmacy for all of this time with 55% of hospital pharmacists in 1964 being female rising to 73% in 2001 and 76.3% in 2005.(70;102) Within community pharmacy only 16% of pharmacists in 1964 were female, a proportion that had increased to 48% in 2001 and 51.4% in 2005.(70;102) In the relatively new branch of pharmacy practice, primary care pharmacy, 78.7% of pharmacists in 2005 were female.(70)

From Hassell's figures it would appear that there is no area of pharmacy practice that is male dominated in the United Kingdom. The data obtained in this study show that hospital pharmacy is likely to remain a female dominated area of pharmacy practice. It has to be remembered that the number of females registering as pharmacists in the UK has risen

proportionally as has the number of females applying to study pharmacy, and in 2005 63.5% of new entrants to the Register were female.(70) As only approximately 20% of registered pharmacists work in the hospital sector, it is inevitable that, despite the predominance of female pharmacists within this sector, there will be overspill of female into the community pharmacy sector. With over 50% of all female respondents in this study stating that they would seek work within hospital pharmacy once qualified, there is an implication that there could possibly be dissatisfaction within the female pharmacist population if some were working in their "second best" sector of practice. However, respondents to the three surveys were asked to select as many sectors of practice as they felt were appropriate to them when asked where they would consider seeking work once newly qualified. Whilst female respondents were more likely than male respondents to select hospital pharmacy, similar proportions of female respondents (over 50%) stated that they would seek work in hospital pharmacy or community pharmacy (chain / multiple). This implies that a proportion of female respondents would seek work within both sectors of practice. It seems unlikely therefore that there will be dissatisfaction within the female pharmacist population due to inability to find work in their preferred sector of practice. As discussed below, pharmacy is not the only healthcare profession that has female dominated sectors of practice as is the case with hospital pharmacy in the United Kingdom.

8.7.4   Gender segregation within healthcare professions

Within medicine, women tend to be over-represented in the following areas: paediatrics, obstetrics and gynaecology, psychiatry, elderly care, anaesthesiology and radiology and are underrepresented in areas such as cardiology and surgery.(78;103-108) Riska, Robers and McMurray and co-workers have argued that women tend to choose to work in sectors relating to their "caring" nature, such as with children or the elderly, in areas that provide routine work (such as radiology) or subordinate work (such as anaesthesiology) or areas that can provide the flexibility in working hours required to bring up a family such as general practice.(78;107;108) These areas may also be the less lucrative areas of medical practice.

There are fewer women in the more technically demanding areas such as surgery and cardiology.(109) This may be due to a perception that these are traditionally male dominated arenas which are difficult for women to break into and also a perception that the working hours are too arduous for women or are intimidating to women. A female

American neurosurgeon proposes that surgery is a militaristic profession that may not appeal to a woman's mentality.(109)

Similar gender divisions in labour can be seen in both dentistry and optometry. In the United States female dentists are less likely to be self-employed than male dentists and are more likely to earn less.(110) In Canada female dentists tend to work as an associate within a practice prior to setting up business either as a solo practitioner or as a partner within a practice and male dentists are more likely to enter solo practice or a partnership immediately after graduation. Male dentists are also more likely to enter solo practice than female dentists.(111)

In optometric practice in Australia, more male optometrists are self-employed than female (67% of males compared to 35% of females).(86)

Within the profession of pharmacy in Canada, Muzzin and co-workers in 1994 found that female pharmacists were more likely to work in corporate chain pharmacy than male pharmacists whereas the opposite is true for independent pharmacy.(112) These findings are very similar to those of the three surveys presented here. Muzzin and co-workers in 1995 also found that female pharmacists were more likely to achieve work within hospital pharmacy than male pharmacists, but were less likely to achieve senior positions within hospital pharmacy than their male counterparts.(113) Tanner and co-workers reported similar findings in 1999.(114) In the United States a higher proportion of female pharmacists are employed in hospital pharmacy than male pharmacists.(115)

Hassell has reported a "glass ceiling" effect within community pharmacy with only 7% of female pharmacists owing their own pharmacy business compared to 27% of male pharmacists.(116) However, the results of the present study would question this "glass ceiling". A "glass ceiling" implies that women find it difficult to own a pharmacy business, possibly for many reasons. However data from the three surveys analysed here with Year 13 students, 1st year MPharm students and final (4th year) MPharm students would suggest that even if there is a "glass ceiling" there is also a lack of desire to own a pharmacy business within the female cohort of the pharmacist population. In the responses to all three questionnaires, more male respondents than female respondents indicated that owning their own business was both a strong influence upon their decision to study

pharmacy and a career aim once qualified. This lack of interest in female business ownership appears to be fixed as early as aged 17 which could imply that any "glass ceiling" effect within community pharmacy ownership is small.

It can be seen from the results of the present study that the trends in gender segregation within pharmacy reported in the world-wide literature are also occurring in the United Kingdom. The divisions are apparent as early as Year 13 at school – 17 and 18 year old students at the point of applying to study pharmacy – where male respondents were more likely to be seeking a career in community pharmacy and female respondents within hospital pharmacy.

There may be an historical explanation for the domination of hospital pharmacy by female pharmacists. Historically, pay and conditions in the hospital sector were poor even after the introduction of the NHS in 1948 and the associated Pharmaceutical Whitley Council. It wasn't until the publication of the Noel Hall report in 1970 and the reorganisation of the NHS in 1974 that pay and conditions start to improve noticeably.(117) This meant that typically, hospital pharmacy positions tended to be taken only by women. Also, the data from the three surveys conducted for this thesis suggests that women are less inclined towards business and business ownership which may explain the predominance of women in the hospital and primary care sectors. Another possible influence is the perception that hospital pharmacy offers more direct patient contact than community pharmacy. In the three surveys described here, a larger proportion of female respondents than male respondents indicated that wanting to work with patients was a strong influence upon their decision to study pharmacy. If hospital pharmacy is seen by future pharmacists to offer better opportunities to work with patients than community pharmacy, this may explain why more females than males wish to enter this branch of the profession. Little work has been done to investigate the popularity of hospital pharmacy with female pharmacists and this is an area that merits further investigation.

8.7.5   Feminisation of pharmacy – implications for the future workforce

The report of the Pharmacy Workforce Planning and Policy Advisory Group in 2005 suggested that with current trends in employment, pharmacy practice and pharmacy policy the demand for pharmacists over 10 years to 2013 would grow more rapidly than the supply of pharmacists.(118) Based upon whole time equivalent (WTE) numbers, the

authors calculate that by the year 2013 62,000 WTEs would be needed and that there would only be 45,500 WTEs available.

One potential consequence of the increasing proportion of female pharmacists on the Register is an increase in the number of pharmacists wishing to work part time. Over 65% of female respondents in the present study stated that they wished to work full time, then part time if they had a family. Historically, the proportion of female pharmacists working part time in the United Kingdom has risen from 36% in 1991 to 40% in 2001 and 41% in 2005.(70;116) The proportion of female pharmacists working part time is very similar to the national proportion of women with dependent children who work part time − 39%.(119) Whilst it is unlikely that all of the female respondents to the surveys will become part time workers, it does appear likely that the current proportion of female part time pharmacists will remain the same or increase, following the national trend. If more women entering the profession do not wish to work full time until retirement age, there may be difficulties meeting the WTE numbers suggested by the workforce model.

The data collected in the present study suggest that pharmacy as a profession is very similar to medicine with regard to part time working. MacMurray and co-workers investigated the differences in part time working in male and female doctors in the United Kingdom, the United States and Australia.(78) They found that in the United Kingdom 20% of female hospital specialists work either part time or on a flexible basis within seven years of graduation and that 6% will take time out from their careers to have a family.(78) They also found that 43% of female general practitioners in United Kingdom practice work part time compared to 7% of male general practitioners; proportions that closely match the national picture in the United Kingdom.(119) In the United States, MacMurray and co-workers found that 82% of female primary care doctors (the equivalent of UK general practitioners) work part time compared to 25% of male primary care doctors.(78) In Australia the comparison is 51% of female generalists working part time compared to 11% of male generalists. It also appears from MacMurray's work that these proportions of female doctors working part time do not only apply to women's childbearing years, but also to long term practice.

Within the profession of pharmacy in the United Kingdom, Hassell, in her analysis of the differences between male and female working patterns in 2003, found that only 9% of

female pharmacists aged 29 years or under worked part time, a proportion that rises to nearly 45% in the 30-39 year age group which would coincide with child bearing and child rearing years.(116) However, this proportion does not decrease with subsequent age groups suggesting, as does MacMurray's work within medicine, that many women do not return to full time work once their children have grown up. The available national statistics for the United Kingdom also show that many women do not return to full time work once their children have grown up.(119) It would therefore appear that once the decision is taken to work part time, for many women this is a permanent decision. It is therefore likely to be the case within the samples surveyed for this thesis that those women who state that they will work part time once they have a family are unlikely to return to work full time.

However, it is not only female respondents who stated a desire to work part time if they had a family. One fifth of all male respondents in the present study also stated that this was an option they would consider. As with female pharmacists, there has been an increase in the proportion of male pharmacists working part time. In 1991, the figure stood at 12%, rising to 15% in 2001 and 19% in 2005.(70;116) These proportions are above the national figure of 9% of men working part time.(119) The proportion of male respondents stating they would consider working part time is the same as the proportion of male pharmacists working part time so it would appear that this trend is likely to continue. This could potentially impact upon the future pharmacy workforce in addition to any impact generated by those women who thought themselves likely to work part time in the future.

8.8   Work and life choices - medium and long term career goals

8.8.1   Working abroad

One quarter of all respondents stated that they would consider working abroad at this point in their career and this is another issue that may affect the future pharmacy workforce, albeit to a smaller degree than part time working. A similar proportion also stated that working abroad best described their plans for their future working life, implying that this would not be on a temporary basis. There were no differences based upon the ethnic background or gender of respondents. This figure is double that of the currently available data where approximately 10% of United Kingdom registered pharmacists in 2005 had a registered address outwith the United Kingdom – i.e. they were classed as "overseas"(70).

It must be remembered that the question in the current study asked respondents to select multiple options as to where they expected to be working at this point in their career. It is unlikely therefore that 25% of current and future pharmacy undergraduates will actually work abroad but the data do suggest that there is interest in the possibility of working abroad and so the trend for working abroad may continue.

Free movement of pharmacists within the European Union is a reality and other popular countries for emigration include Australia, New Zealand, Canada and the United States. Advertisements for pharmacist positions in the first three of these countries regularly appear in the Pharmaceutical Journal which implies that migration of UK based pharmacists to these countries is realistic. Asian pharmacists, although born in the United Kingdom, may well have family connections in the Asian sub-continent and again migration to India or Pakistan would not be unrealistic. Hassell in her analysis of the 2003 Pharmacy Workforce Census reported that 8% of UK registered pharmacists were living or working abroad with Australia and the United States being the most popular destinations.(120) Her analysis included overseas students taught in the UK which would mean that some of the outflow from the UK would be due to these students returning to their home country to work. Although it would seem unlikely that one quarter of current pharmacy undergraduates will leave the United Kingdom to practice pharmacy elsewhere in the world in the medium term, it is significant that this number are considering this as a definite option for their future working plans. The results of the current study suggest that there may be a new attitude to working life emerging in that the generation of pharmacy students included in the current study are aware that there are opportunities to work abroad as a pharmacist and are more likely to seek and to take these opportunities.

8.8.2   Business ownership and status

Business ownership was a career ambition for over one quarter of respondents to all three surveys, with a higher proportion of Asian respondents stating that this was the case than White respondents. When asked to identify the highest level which the respondents would like to attain in their pharmacy career 44% of Year 13, 51% of 1st year MPharm and 39% of 4th year MPharm respondents selected business ownership and this was the most popular option with all three groups. However, since 1995-96, the number of "independent" pharmacies as defined by the Department of Health has decreased by 41%. This suggests that the prospect of owning a community pharmacy business is declining and therefore

may be an increasingly unrealistic career ambition. This could have implications for recruitment to pharmacy degree courses and also for job and career satisfaction in years to come. Owning a business was a career aim for more Asian males than any other subgroup of respondents. With over one fifth of applicants to pharmacy degree courses being Asian males (see UCAS analysis page 120), the declining business opportunities may be a deterrent within this group of applicants. This could lead to a decrease in applications overall to pharmacy degree courses. To prevent future job dissatisfaction, it is important that accurate careers literature is available to potential applicants outlining the reality of the business potential of community pharmacy.

Another indication that there is a desire amongst current and future pharmacy undergraduates for a degree of independence or a position of status is the response to the question of employee status. Few respondents indicated that they wished to remain an employee in community retail pharmacy. Similar proportions of respondents in each of the three samples surveyed indicated that they had an ambition to become a community pharmacy manager, a hospital pharmacy manager or a Chief Pharmacist. However, many managers are in fact employees of a company or public body and so this finding is possibly a reflection of the perception of the status of a job. This suggests that not only do these respondents have a degree of ambition to move up a career ladder within pharmacy but also that even before entry to their pharmacy studies, such a ladder is apparent to Year 13 pupils. Further work needs to be done to explore the views of students of employee status.

The similarity in proportions of respondents indicating that a career ambition is to attain a management position either within community or hospital pharmacy suggest that the respondents' career ambitions change very little from a pre-university situation and over the course of their MPharm studies.

A small proportion of respondents to the present study indicated that a career aim is to work outside pharmacy and this proportion increased across the three years surveyed (from 4% of Year 13 to 10% of 4th year MPharm respondents). This could mean that a degree of disillusionment with a career in pharmacy may have set in during the four years of an MPharm degree or that these respondents see pharmacy as a means to an end; for example to give them a good financial background to enter another arena or set up a non-pharmacy business or study for another profession. Although the proportion of respondents

indicating that working outside pharmacy was a career aim is small, if this is added to the potential figures for part time working and working abroad, there is potentially a large impact upon the available pharmacy workforce in the future.

8.8.3   Future pharmacy workforce issues

The Pharmacy Workforce Planning and Policy Advisory Group provided a second model which may help to reduce the gap between the supply of and demand for pharmacists by 2013. Factors involved included:

- Increasing community pharmacy dispensing efficiency;
- The use of technology such as dispensing robots;
- Freezing the new community pharmacy contract above essential service provision
- Reducing the number of pharmacists needed in hospital based upon a skill-mix / technology shift;
- Reducing the number of pharmacists involved in primary care work and the amount of time they work;
- Increasing the pharmacist : student ratio in academia by recruiting more non-pharmacist staff;
- Freezing the number of new pharmacy schools at four;
- Increasing the number of pharmacists returning to work after maternity leave or illness;
- Increasing the numbers of "overseas" pharmacists (i.e. non-UK trained pharmacists);
- Increasing the baseline numbers of undergraduates at existing schools of pharmacy.(118)

Some of these factors are already coming into being, notably the use of dispensing robots in both hospital and community pharmacy and a change in the skill mix within hospital and community pharmacy. However, the number of new schools of pharmacy is continuing to increase which, despite having the potential long-term benefit of producing more pharmacists, is problematic in terms of recruiting teaching staff.(46)   The Royal Pharmaceutical Society has calculated that to meet the need of increasing pharmacy undergraduate numbers, there needs to be an extra 133 academic pharmacists by 2015. In order to achieve this number, the Society has stated that an additional 333 PhD students

need to be trained by 2015.(121) 9% of all respondents to the present study expressed an interest in seeking work in the academic sector of pharmacy once qualified, a greater proportion that those who indicated that they wished to be an employee of a company. This proportion of nearly ten per cent of respondents is encouraging. The task remains to persuade graduates of a four year degree course, who may be leaving with considerable financial debts, to accept the lower income of a PhD student and the potentially lower income within the academic sector when compared to other sectors of practice within the profession of pharmacy.

8.9   Ethnicity issues

8.9.1   Participation of ethnic minorities in post-compulsory education

There is evidence that performance at GCSE level is influenced by socio-economic background (middle class pupils tend to perform better than those from a working class background). Research reported by the Office for Standards in Education (OFSTED) in 1996 showed that performance at GCSE level is also influenced by gender.(122) Therefore pupils from better socio-economic backgrounds perform better at GCSE regardless of their ethnic origin and girls tend to perform better than boys. Data reported by Archer and Francis show that Afro-Caribbean pupils tend to perform less well than other ethnic groups with only 31.9% of Afro-Caribbean boys and 45.9% of Afro-Caribbean girls achieving 5 GCSEs at grades A* – C (the government attainment standard for Key Stage 4) in 2004.(123) This is compared to 47.4% of White boys, 57.4% of White girls, 49.4% of Asian boys and 61.4% of Asian girls achieving the same standard.

Drew, Gray and Sime found that despite their performance at GCSE level, Afro-Caribbean pupils were three times more likely than White pupils to continue into post-compulsory education.(124) Asian pupils were ten times more likely to continue into post-compulsory education than White pupils. The proportion of pupils continuing into post-compulsory education increase with social class, but Whites consistently remain the lowest group in terms of percentage participation. Drew, Gray and Sime proposed three reasons for this:

1.   Parental encouragement and motivation is greater for pupils from ethnic minorities;

2.   Unemployment. Young people from ethnic minorities are less likely to be employed and so remaining in education may have been seen as the best way to

either postpone unemployment or to gain higher education qualifications to better their chances of employment;

3.   Racism. The possession of higher qualifications may lessen direct racism. However, it has been shown that this is not always the case.(124)

Shiner and Modood proposed that there is an "ethnic minority drive for qualifications" which is part of an "over-riding ambition to better oneself and one's family".(87) They argue that this drive accounts for the fact that whilst only 8% of 18 to 24 year olds in the United Kingdom are from ethnic minority backgrounds, they account for 16% of applicants to university and 15% of university entrants.

8.9.2   Asians and self-employment

The results of this study show that a desire to own one's own business and / or the opportunity for self-employment was significantly more important to Asian respondents than White. The desire to own one's own business also appeared to be a stronger influence on male than female respondents. The results are supported by Greenwood and Bithell's work with Year 12 students where Asian Year 12 pupils expressed a strong desire to own a business and cited pharmacy as a good healthcare profession in which to do so.(97)

In their analysis of data taken from the Fourth National Survey of Ethnic Minorities (the Fourth Survey) in 1993-94, Clark and Drinkwater found similar results.(125) Table 8.1 illustrates the data from the Fourth Survey and table 8.2 compares the results of the three surveys undertaken for this thesis with the overall findings of the Fourth Survey.

Table 8.1: Self-employment rates as a percentage of those in employment (taken from Clark and Drinkwater 2000)(125)

	White	Indian	African Asian	Pakistani	Bangladeshi	Overall Asian
Male	20.4	30.8	30.0	35.3	17.5	28.4
Female	8.4	13.7	8.0	14.1	11.0	11.7

Table 8.2: The percentage of respondents expressing a desire for business ownership in the Year 13, 1st year MPharm and 4th year MPharm cohorts in comparison to the overall self-employment rates as found in the Fourth Survey

	Year 13 White	1st year MPharm White	4th year MPharm White	Fourth Survey White	Year 13 Asian	1st year MPharm Asian	4th year MPharm Asian	Fourth Survey Overall Asian
Male	20.0	20.5	21.9	**20.4**	32.6	39.0	33.3	**28.4**
Female	13.3	20.6	6.7	**8.4**	19.6	24.4	15.0	**11.7**

These results show that the responses of male respondents in the present study are very similar to the findings of the Fourth Survey. It should be noted that Clark and Drinkwater were working with data from a sample that are likely to be the parents, or the peers of the parents, of the students sampled in these surveys which could explain the similarities, particularly when the concept of occupational inheritance is taken into account. It would appear that the present study has picked up a more general difference between Asian and White ethnic groups rather than one that is specific to pharmacy. Clark and Drinkwater also found that the propensity for self-employment increases with age, but is lower for females and those with formal qualifications.(125)

Hassel's 1994 study of reasons for studying pharmacy found that 20% of ethnic minority pharmacists cited that the prospect of owning their own business was a very important reason for choosing pharmacy as a career, compared to 6% of non-minority pharmacists.(69) The pharmacists included in her survey had graduated between 1983 and 1992. The proportion of ethnic minority students in the present study citing business ownership as an important factor is 50% greater than the proportion of ethnic minority pharmacists, whilst the proportion of White students citing business ownership as an important factor is nearly double the figure of non-minority pharmacists. A possible reason for this is that Hassell's study was retrospective, where ambition may have been tempered with the reality of the pharmacy workplace, whilst the present study is prospective, asking respondents to cite their personal ambitions.

Government statistics show that there is a decline in self-employment within the general workforce which is predicted to continue into the next decade.(126) This is most likely due to changes in income tax and national insurance liabilities for the self-employed. The increasing trend in the respondents' desire for self-employment is contrary to this national

trend and possibly reflects an unrealistic view of the prospects for and likelihood of self-employment within pharmacy.

Several studies have been undertaken to examine the relationship between ethnicity and the desire for self-employment as demonstrated by the Asian respondents to the present study. Two types of factor have been identified. "Push" factors are those that are an obstacle to a person entering the job market, for instance poor command of the English language, or racial discrimination, leading to work in poorer paid positions, or no work at all. Studies with Asian immigrants have shown that these factors lead to even very well qualified Asians having to accept work in positions below that to which they had been accustomed in their home country. This is the "blocked upward mobility" thesis investigated and discussed by Metcalf and co-workers in 1996.(127) The second group of factors are the so-called "pull" factors. These are the influence of ethnic enclaves (providing goods and / or services that are needed or important to a person's own ethnic background e.g. clothing), religion and access to cheap or even free labour through the extended family network.

Early studies into the reasons behind Asian self-employment showed that unemployment, underemployment, racial discrimination and job dissatisfaction were the major push factors for Asians to enter self-employment. Hence, self-employment is a key way of avoiding low status work or unemployment (Jones et al 1994 *see Metcalf p3*).(127) However, these early studies were conducted with a sample comprising of a large number of immigrants either to the United Kingdom or the USA. In contrast, the students sampled in the three surveys conducted for this thesis were UK students who would have been educated within the United Kingdom education system for at least three years. This fact, along with anti-race discrimination legislation in the United Kingdom, means that it is less likely that these particular push factors would have a major influence upon the sample cohorts' desire for self-employment. It would appear more likely that there is a lingering parental or familial influence (occupational inheritance) based upon personal experiences present in the sample demographic.

Several "cultural resources"(127) or pull factors for Asian self-employment have been identified. Rafiq argued that some religions may have a very positive view of entrepreneurship, particularly Islam and Sikhism.(128) There are also business specific

castes within Hinduism. Rafiq also argued that the degree to which religion is observed may also be an important factor. Metcalf proposes that religion has an effect in that there is an entrepreneurial ethic that the success of a business is predestined and that God will look after those who observe the tenets of their faith but are economically aspirational.(127) This was particularly true of the Pakistanis in her study (all of whom were Muslim), the large majority of whom believed that business success was largely dependent on the will of God. The same group stated that religion was very important to how they led their lives. This was true to a lesser extent for other Asian groups within the study, but 75% of Metcalf's sample stated that religion was important to them.

Enclaves may be seen as an opportunity for ethnic minorities to set up their own pharmacy business, which may explain the influence of this factor upon Asian respondents. Providing such a service within a niche market, not necessarily for pharmacy services specifically but for cultural or language reasons, may be seen by the Asian respondents to this study as an area within which they could operate successfully. Limits upon the ability to open a NHS contracted pharmacy wherever a person desires mean that this is not necessarily possible. However, it is unlikely that respondents, particularly those from the Year 13 and 1st year MPharm cohorts, would know of these limitations. It has also been shown that market saturation can occur within an ethnic enclave and high competition rates lead to high rates of business failure.(129)

Srinivisan (cited in Metcalf)(127) provided evidence that status within the community could operate as a pull factor as owning a business confers a high status upon the individual within their family or community, leading to Asians educated at degree level entering self-employment. Srinivisan also found that independence was of particular importance to Asians. This could account for two of the findings of the surveys undertaken for this thesis. Firstly the desire to own a business or work as a locum and secondly, the relative lack of desire to work as an employee or a manager. Metcalf reported that 39% of South Asians set up in business to increase their standing within their family, with half this number (21%) setting up in business to increase their standing among their ethnic or religious community.(127) Metcalf also found that self employment gave participants a feeling of self-worth and higher standing within their family and community.

8.9.3   Socioeconomic background of applicants

Another factor that may have a bearing on desire of Asian respondents for self employment is that of the aspiration of parents for their children. The businesses examined in the Metcalf study(127) were mainly in the retail sector (such as groceries, newsagents, clothing, not pharmacies), restaurants, the artisan sector, taxicab drivers or clothing manufacturers. Half of Metcalf's sample did not want their children to take over their business. Metcalf proposes that the enforced downward mobility of the parents within the job market on arrival in the United Kingdom means that these parents are now aspiring to reverse the trend with their children and encourage them into higher status occupations. This may also account for the differences in the socio-economic background of applicants to dentistry, optometry and pharmacy when compared to medicine. Dentistry, optometry and pharmacy all offer greater chances of an individual operating in a self-employed capacity practically from the time of professional registration.

Conclusions

This is the first study undertaken on a national scale to scope the career motivations and work / life plans of 1st and 4th year MPharm undergraduates. Previously published studies of these themes have been on a small scale and often parochial, concentrating on a single year cohort (most often 1st year undergraduates) within a single school of pharmacy. This is also the first study undertaken on a national scale to examine the career motivations, with respect to pharmacy, and work / life plans of Year 13 students who had expressed an interest in, but not yet applied for, a place to study pharmacy at a United Kingdom school of pharmacy. This study also presents the first in depth analysis of the UCAS applicant pool for pharmacy to demonstrate the trends in the gender, ethnicity and socio-economic background of pharmacy applicants in the United Kingdom and to compare these to those of three "competitor" healthcare professional courses. This study is the first to investigate the perceptions of pharmacy as a career amongst Year 12 students who may be suitably qualified to gain a place to study pharmacy in the United Kingdom.

Several key issues emerged from the research:

- The perception and image of pharmacy as a career;
- The value of pharmacy work experience;
- The feminisation of the pharmacy profession;
- Business ownership;
- Locum working.

The perception and image of pharmacy as a career

Amongst Year 12 students – those in the first year of their A level studies – there was a perception that pharmacists either worked in shops (community pharmacy) or in laboratories. There was not a wide perception that pharmacists worked in the secondary care environment. Laboratory work was perceived to be more exciting and possibly of greater benefit to society as a whole as this sector was perceived to be at the forefront of drug discovery. There also appeared to be a general perception that pharmacy is a "background" profession in that it does not have a prominent image with the general public and that as a job it is uninteresting and possibly unattractive. Pharmacy was consistently ranked as of a lower status than both medicine and dentistry as a potential career and there

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was a perception that this would be a barrier to application from the students participating in the focus groups.

There appears to have been little engagement of the profession with students at this point in their academic career (Year 12) although it was obvious from the focus group discussions that the participants were already considering which subjects to study at university and hence potential careers.

A concerted marketing campaign targeting centres of Year 12 education should be considered. This could be through providing leaflets such as that produced by the RPSGB and other information to either careers advisors or appropriate subject teachers (namely chemistry teachers). The RPSGB could also supply each registered pharmacy and each hospital pharmacy department with a small stock of these leaflets for distribution to students who contact them for, or participate in, work experience placements.

The value of pharmacy work experience

There is a great deal of published evidence to show that work experience undertaken at a formative age can be of great influence, either positively or negatively, upon career choice. The value of pharmacy work experience was highlighted within the four focus groups conducted for this study and also the survey of Year 13, 1st year MPharm and 4th year MPharm students.

Well structured placements giving students a rich and varied experience of all the roles of a pharmacist in a particular setting could encourage more students to consider pharmacy as a career at a point before their choice of A level subjects is made.

Currently there are no practical guidelines available to those pharmacists wishing to offer work experience placements to Year 10 or 11 students (14 to 15 year olds). It would be a relatively simple task to produce guidance concerning the legal and ethical issues surrounding such placements and suggesting tasks that are suitable for students of this age group to undertake, participate in or simply observe. Placement programmes exist in most sectors of professional pharmacy practice for pharmacy undergraduates. Examples of best practice could be adapted from these training programmes to produce a sample programme

for younger work experience students. Unfortunately there is no remuneration for pharmacists who do take work experience students, but this is also the case for vacation students. It would seem reasonable to suggest that the employer motivations for investing in and providing vacation placement programmes (i.e. future recruitment and retention of qualified pharmacists) would apply to the provision of work experience placements. However, the potential benefits of such placement provision should be clearly indicated to the profession to promote the offering of work experience places to local schools.

The feminisation of the pharmacy profession

The majority of applicants to pharmacy degree courses are female. There is little evidence that this will change in the future. Female pharmacists are also more likely to work part time. The data from this study suggest that this situation is unlikely to change with over 70% of all female respondents indicating that they would consider working part time if and when they had a family. Therefore it is likely that, even with increased student numbers, the projected shortfall of WTE pharmacists will be more difficult to address.

If the current trends in the numbers of females applying to, and being accepted for, the study of pharmacy are maintained along with the trends in part time working, 25% of those recruited to fill the new places at new schools of pharmacy will become part of the part time workforce. A consequence of this is that of having to recruit the equivalent of 25% extra students to MPharm degree courses to address future workforce shortages. It will be necessary to recruit students of a suitable academic calibre to meet the demands of an MPharm degree course. This puts pharmacy into direct competition with subjects such as medicine and dentistry. Both of these courses were viewed as of a higher status that pharmacy by the Year 12 focus group participants and the points made above about attracting suitable school students to pharmacy as a career as early as possible in their studies become even more salient.

It will also be necessary to recruit sufficient suitably qualified pharmacists into the academic arena in order to provide the necessary educational resources for such an increase in student numbers. Students are now graduating with large financial debts and persuading newly qualified pharmacists to accept the lower income of a PhD student and the potentially lower income within the academic sector may be difficult. Unless this issue

is resolved, it is likely to prove difficult to recruit suitably qualified registered pharmacists into academic posts.

Ethnic background and motivations for studying pharmacy

Asian respondents, particularly Asian males, are more likely to have entered their pharmacy studies with a desire to own their own business and to state that this is a definite career aim. However, there is evidence to show that independent pharmacy ownership is declining and has been for some years. In 2005, Asians were the largest ethnic group applying to study pharmacy and Asian males in particular are the fastest growing group of applicants to pharmacy degree courses in the United Kingdom. If business ownership is a genuine career aim for this group of applicants, the declining opportunities in this area may lead to future problems with retention of pharmacists, but not necessarily recruitment to MPharm courses.

Opportunities exist within community pharmacy for entrepreneurial pharmacists. These are mainly in the arena of bidding for services commissioned by Primary Care organisations. This relatively new aspect of pharmacy business is something that could be promoted to those interested in studying pharmacy as an alternative for direct business ownership.

Locum working

Over 40% of final year respondents stated that they would seek work as a locum pharmacist once qualified. It is likely that the prospects of working as a locum pharmacist will remain good in the future, particularly as there is a predicted to be a shortfall of pharmacists in the medium term. However, in the age of commissioning of community pharmacy services, there will be a need for consistency of staffing within community pharmacies to ensure the provision of such commissioned services. Little is known about why pharmacists choose to work in a locum capacity and this is an area that merits further study.

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Appendix 1: List of publications.

Papers

Jesson J, Wilson K A, Langley C A, Hatfield K
Images of pharmacy as a career: a survey among groups of year 12 students at school.
The Pharmaceutical Journal 2008;280:183-6.

Oral Presentations

Langley C A, Jesson J K, Wilson K A, Hatfield K.
Entrepreneurial amibition: the strong desire to own a pharmacy business.
The International Journal of Pharmacy Practice 2007;S2:B7

Presented at the Brititsh Pharmaceutical Conference 2007, Manchester.

Hatfield K, Wilson K, Jesson J, Clarke L, Langley C
Pharmacy career choices and expectations – but what is a career?

Presented at the 11th Health Services Research and Pharmacy Practice Conference 2005, University of Reading.

Hatfield K, Langley C A, Jesson J K, Wilson K A
Why apply to study pharmacy? An analysis of UCAS applications to an MPharm degree course.
The International Journal of Pharmacy Practice 2004;S1:R19

Presented at the British Pharmaceutical Conference 2004, Manchester.

Poster Presentations

Hatfield K, Wilson K A
Business ownership: a motivation for studying pharmacy in A-level students.
The International Journal of Pharmacy Practice 2007;S2:B58

Presented at the British Pharmaceutical Conference 2007, Manchester.

Appendix 2: Career Motivation Focus Group Theme Plan

A Level Choice

1. Why did you choose your particular A level subjects for study?

2. What do you plan to do when your A level studies are finished (i.e. what do you plan to do with your A levels)? *(This should lead into subjects chosen to study at degree level.)*

Career Direction

3. Why did you consider the careers that you have decided to apply for? *(i.e. what were the drivers/influences upon choice?)*

4. What are the desirable characteristics of a career for you? *(e.g. working conditions, pay etc.)*

5. Were you given any advice on which career to choose / aim for?

6. Did you visit any careers fairs / higher education conventions? Did you see anything to do with health-related professions there?

7. Did you consider any health-related professions? *(Leader if no student has applied for one – general question for other students if someone has applied.)*

8. Which health-related professions were considered and why? Any reasons why not?

9. Can you think of any positive / negative things about these careers? *(Any positive or negative perceptions of health-care professions in general and specifically.)*

Pharmacy

10. Did any of you think of pharmacy?

11. What comes into your mind when we say pharmacist – the professional?

12. What comes into your mind when we say pharmacist – the place? *(Trying to draw out hospital, community, GP, industry.)*

13. What do you think of the status and pay of pharmacy when compared to other healthcare professions?

14. Do you know how long it takes to study to become a pharmacist?

15. What do you think we should do to encourage more students to consider pharmacy as a career?

Appendix 3: Year 1 MPharm Questionnaire

Three versions of this questionnaire were used during this project. The 1st year MPharm questionnaire has been included as this was the first questionnaire administered. Minor changes to question tenses were made for the Year 13 version, whilst an extra question bank was added to the 4th year MPharm questionnaire regarding the influence of placements during their course on their career decisions.

Royal Pharmaceutical Society
of Great Britain

ASTON UNIVERSITY

Pharmacy Undergraduate Students' Career Choices and Expectations 2005:
A Survey of First Year Students

HOW TO COMPLETE THIS QUESTIONNAIRE

This research study has been commissioned by the Royal Pharmaceutical Society of Great Britain to inform workforce planning.

This questionnaire has been designed for self-completion by **YEAR 1** students and the survey has the support of the BPSA and the UK Schools of Pharmacy. This is an opportunity for you to participate. We value your opinions and welcome your contribution. However, whether you participate or not will have no effect upon either your pharmacy degree or pre-registration year.

What to do.

Read each question carefully. Most of the questions can be answered by putting a tick ✓ in a box next to the answer you want to give. Sometimes you are asked to write your answer in the space under the question, please write clearly. It will take you no longer than 30 minutes to complete. We will treat your answers with the strictest confidence.

In the event of queries contact Laura Clarke on clarkeld@aston.ac.uk
Pharmacy Practice Research Group, Aston University, Birmingham, UK.

Section One: Motivations and Influences

In this section, we have listed ways in which pharmacists have said they were influenced to study pharmacy. Read through each list before you begin to write your answers. If there is anything we have missed, you can write it in the section at the end.

Q1. Here are some education related reasons why people choose to study pharmacy. For each option a-h below, indicate how important each one was for you (scale 1-4, where 1 is important and 4 is not important).

	Reason	1 Important	2	3	4 Not Important
a	A subject teacher at school / college	☐	☐	☐	☐
b	A careers teacher at school / college	☐	☐	☐	☐
c	A visit to a careers fair / conference	☐	☐	☐	☐
d	A visit to a university open day	☐	☐	☐	☐
e	From a university prospectus	☐	☐	☐	☐
f	From Royal Pharmaceutical Society of Great Britain literature	☐	☐	☐	☐
g	Radio or TV programme	☐	☐	☐	☐
h	Careers leaflets or booklets	☐	☐	☐	☐

Q2. Here is a list of more personal influencers who might have encouraged you to study pharmacy. How important would you rate the influence from each on you personally (scale 1-4, where 1 is important and 4 is not important)?

	Reason	1 Important	2	3	4 Not Important
a	My *parents* encouraged me to choose pharmacy	☐	☐	☐	☐
b	My *family* encouraged me to choose pharmacy	☐	☐	☐	☐
c	Someone in my family who owns a pharmacy	☐	☐	☐	☐
d	I was influenced by a pharmacist I know, as a role model	☐	☐	☐	☐
e	My friends influenced me	☐	☐	☐	☐
f	I was influenced by pharmacy work experience	☐	☐	☐	☐

Q3. The following reasons have been given by people as influences on their decision to choose to study pharmacy as a career choice. How strong was each reason for you personally (scale 1-4, where 1 is a strong reason and 4 is not a strong reason)?

	Reason	**1 Strong**	**2**	**3**	**4 Not Strong**
a	I like science / was good at science at school	☐	☐	☐	☐
b	I wanted to do a science based course	☐	☐	☐	☐
c	I wanted to work in a well respected profession	☐	☐	☐	☐
d	I wanted a job with good career opportunities	☐	☐	☐	☐
e	I think pharmacy will be intellectually satisfying	☐	☐	☐	☐
f	I wanted a job where I am socially useful	☐	☐	☐	☐
g	I wanted to work with patients	☐	☐	☐	☐
h	I wanted to own my own business	☐	☐	☐	☐
i	I wanted the opportunity for self-employment	☐	☐	☐	☐
j	I wanted the opportunity for part time work	☐	☐	☐	☐
k	I am attracted by the financial rewards	☐	☐	☐	☐
l	I wanted flexible working hours	☐	☐	☐	☐
m	I wanted a profession where you can always get a job	☐	☐	☐	☐
n	I am not sure that I will work (within paid employment)	☐	☐	☐	☐
o	I wanted to work with medicine or in the medical profession	☐	☐	☐	☐
p	I wanted to study medicine/dentistry or another medically related subject	☐	☐	☐	☐

Was/were there any other event(s) or person(s) that we have not offered here?

....
....
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Section 2: Choice of School of Pharmacy (SOP)

Now some questions about your choice of School of Pharmacy.

Q4. When you were making your choice about what to study at university, how committed were you to pharmacy?

Pharmacy was my first and only choice	Yes ☐	No ☐

If answer is Yes,
GO TO Q6 ⟹

Q5. If you have answered "No" to Question 4, which other subjects did you consider? **Tick one box only.**

a	Pharmacy was my second choice to medicine	☐
b	Pharmacy was my second choice to dentistry	☐
c	Pharmacy was my second choice to another science degree	☐
d	I wanted to work in any health related field	☐
e	I came into pharmacy through clearing	☐
f	Pharmacy matched the A Levels I was taking	☐

Q6. Which of the following aspects influenced your choice of School of Pharmacy (SOP)? (Scale 1-4, where 1 is important and 4 is not important.)

	Reason	1 Important	2	3	4 Not Important
a	Nature of the course as described in the prospectus	☐	☐	☐	☐
b	Reputation of the SOP	☐	☐	☐	☐
c	An open day visit to the university	☐	☐	☐	☐
d	Reputation of the university	☐	☐	☐	☐
e	Reputation of the city/town where the university is located	☐	☐	☐	☐
f	The university is near to where I live	☐	☐	☐	☐
g	Availability of accommodation	☐	☐	☐	☐
h	University facilities	☐	☐	☐	☐
i	Personal recommendation	☐	☐	☐	☐

Question 6 continued…
Do we need to put the table headings in here?

j	Friends at pharmacy school	☐	☐	☐	☐
k	My parents wanted me to attend this SOP	☐	☐	☐	☐
l	This was the only place I could get into	☐	☐	☐	☐
m	Family at this university	☐	☐	☐	☐
n	Matching entrance grades to predicted expectations	☐	☐	☐	☐

Q7. Taking the UCAS definitions of *CI, CF, Clearing*, how did you get a place at the school where you are now studying? **Tick one box only.**

a	Your firm choice (CF)	☐
b	Your insurance choice (CI)	☐
c	Entry through clearing	☐

Q8. How strong would you say your desire **to study pharmacy** was when you started pharmacy school? **Tick one box only.**

Very strong	Fairly strong	Not very strong	Not at all strong
☐	☐	☐	☐

Q9. How strong would you say your desire **to be a pharmacist** was when you started pharmacy school? **Tick one box only.**

Very strong	Fairly strong	Not very strong	Not at all strong
☐	☐	☐	☐

Section 3: Career Image

Q10. This question contains statements about your commitment to pharmacy as a career. Tick the **ONE** box which show to what extent you agree or disagree with the following statements.

a) *I am proud to tell others that I am studying pharmacy*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

b) *I am strongly committed to the values and ideals of the pharmacy profession*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

c) *Being a pharmacist is an important part of who I want to be*

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Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

Q11. Listed below are several statements that describe your attitudes about pharmacy as a career. For each statement tick **ONE** box to show the level with which you agree or disagree.

a)   *If I could pick a different occupation which paid the same amount, I would probably change degree.*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

b)   *I definitely want a career in pharmacy.*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

c)   *If I could do it all over again, I would choose to study for the same profession.*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

d)   *Pharmacy is the ideal profession for a career for life.*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

e)   *I regret that I entered pharmacy school.*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

f)   *I intend to undertake a second degree after completing pharmacy.*

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
☐	☐	☐	☐

Section 4: Future career ambitions

Q12. Thinking ahead, upon <u>graduation</u>, in which field of practice would you like to complete your pre-registration training? **Tick one box only.**

a	Community retail – *chain/multiple*	☐
b	Community retail – *Independent*	☐
c	NHS hospital	☐
d	Hospital / Community split post	☐
e	Hospital / Industry split post	☐
f	Community / Industry split post	☐
g	Not sure yet	☐
h	I do not want to complete pre-registration training	☐
i	Other Please specify:_____	☐

Q13. Upon <u>registration</u>, in which field of pharmacy will you look for a job?
Tick all the boxes which are true for you.

a	Community retail – *chain/multiple*	☐
b	Community retail – *Independent*	☐
c	NHS hospital	☐
d	NHS Primary Care Trust	☐
e	Industry	☐
f	Academia (university)	☐
g	Research	☐
h	Pharmacy policy development	☐
i	Non-pharmacy	☐
j	Consultant pharmacist	☐
k	Not sure yet	☐
l	Work as a locum pharmacist	☐
m	Own my own pharmacy business	☐

Q14. Thinking ahead, five years after qualifying as a pharmacist, where do you expect to be working? **Tick all the boxes that are true for you.**

a	In the same sector of the profession as my pre-registration placement	☐
b	In a different sector of the profession as my pre-registration placement	☐
c	In the same organisation as my pre-registration placement	☐
d	In a different organisation as my pre-registration placement	☐
e	Self-employed	☐
f	An employee of an organisation	☐
g	Employed on a temporary or locum basis	☐
h	Taking time out for family	☐
i	Taking time out to travel	☐
j	Working as a locum	☐
k	Not working in pharmacy	☐
l	Work abroad	☐
m	Do not know	☐

Q15. In five years after you qualify, what level of salary do you expect to earn? **Tick one box only.**

a	Under £20,000	☐
b	£20,000 - £29,999	☐
c	£30,000 - £39,999	☐
d	£40,000 - £49,999	☐
e	£50,000 - £59,999	☐
f	£60,000 +	☐
g	Do not Know	☐

Section 5: Work Life Balance

Q16. Which of the following statements best describe your plans for your future working life? **Tick all the boxes that are true for you.**

a	Full time career until typical retirement age (65)	☐
b	Work full time, then part time if I have a family	☐
c	Intend to travel, working holidays	☐
d	Intend to work as a locum	☐
e	Intend to buy my own business	☐
f	Work abroad	☐
g	Practice/PCT pharmacist	☐
h	No clear intention yet	☐
i	Other Please specify:_____	☐

Q17. What is the highest level which you would like to attain in your pharmacy career? **Tick your top 3 ambitions.**

a	Employee in community retail pharmacy	☐
b	Manager in community retail pharmacy	☐
c	Owner of a community retail pharmacy	☐
d	Multiple community retail management / administration	☐
e	Practice/PCT pharmacy	☐
f	Hospital pharmacist	☐
g	Hospital pharmacy manager	☐
h	Chief Pharmacist	☐
i	Academic Pharmacist	☐
j	A position outside pharmacy	☐
k	Not sure yet	☐
l	Other Please specify:_____	☐

Q18. How many hours a week do you want to work?
Tick one box only.

a	Less than 30	☐
b	30 – 38	☐
c	More than 38	☐

Section 6: About you

And finally, some questions about you.

Q19. Are you: Male ☐   Female ☐

Q20. How old are you?
17 – 19 ☐
20 – 21 ☐
22 – 23 ☐
24 – 25 ☐
26 + ☐

Q21. Which of the following best describes your religion?
Tick one box only.

Buddhism ☐
Christianity ☐
Hinduism ☐
Islam ☐
Judaism ☐
Sikhism ☐
None ☐
Other ☐

If Other, please specify: _____

Q22. Which of the following describes your status?
Tick one box only.

Single or living as single	☐
Married or cohabiting	☐

Q23. Do you have any dependent children?
Tick one box only.

Yes	☐
No	☐

Q24. How would you best describe your ethnic background?
Tick one box only.

White
British   ☐
Irish   ☐
Other White background ☐
(please state)   ....

Black or Black British
Black Caribbean ☐
Black African ☐
Any other Black background ☐
(please state)   ....

Dual Heritage
White and Black Caribbean ☐
White and Black African ☐
White Asian ☐
Any other Mixed background ☐
(please state)   ....

Asian
British Asian ☐
Indian ☐
Pakistani ☐
Bangladeshi ☐
Any other Asian background ☐
(please state)   ....

Chinese or Other Ethnic Group
Chinese ☐
Any other background ☐
(please state)   ....

Don't want to say ☐

Q25. What academic qualifications do you have? Please state the grades you achieved in each subject.

i) A Levels:

	Subject	Grade		Subject
a	Chemistry			
b	Biology			
c	Mathematics			
d	Physics			
e	IT		**Subject**	
f	Other (please state)			
g	Other (please state)			

ii) Non-A levels. If you entered university through a non-A level route, please state you qualifications and the grades obtained.

Qualification	Grade achieved

Q26. Are you a/an

Home/EU student?	☐
Overseas student?	☐

If from outside the UK, please state your country:

Q27. Have you declared a disability, special need or medical condition (as described on the UCAS form)? **Tick the relevant boxes only.**

a	None	☐
b	A specific learning difficulty (e.g. dyslexia)	☐
c	Blind or partially sighted	☐
d	Deaf or hard of hearing	☐
e	Use a wheelchair or have mobility difficulty	☐
f	Autistic Spectrum Disorder or Aspergers Syndrome	☐
g	Mental health difficulties	☐
h	A disability that cannot be seen, e.g. diabetes, epilepsy	☐
i	A disability, special need or medical condition that is not listed above Please state...	☐

Q28. Which School of Pharmacy do you attend?
Tick one box only.

Aberdeen (Robert Gordon)	☐	Leicester (DMU)	☐
Bath	☐	Liverpool (JMU)	☐
Belfast (Queen's)	☐	London (King's)	☐
Birmingham (Aston)	☐	London (SOP)	☐
Bradford	☐	Manchester	☐
Brighton	☐	Nottingham	☐
Cardiff	☐	Portsmouth	☐
Glasgow (Strathclyde)	☐	Sunderland	☐

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Thank you very much for completing this questionnaire. If you have any other comments that you would like to make about your pharmacy undergraduate education, enter them in the box below.

Additional Comments.

Please do not write below this line – for administrative use only.

Appendix 4: Questionnaire raw data

Year 13 UCAS application intentions

As you are making your choice about what to study at university, which of the following statements is true about you? **Tick one box only.**

a	I am going to apply to pharmacy only and no other subject (now go to **question 3**)	142 (29.5%)
b	Pharmacy is my first choice but I will also be applying to other subjects (now go to **question 3**)	102 (21.2%)
c	Medicine is my first choice but I will also be applying to pharmacy (now go to **question 3**)	43 (8.9%)
d	Dentistry is my first choice but I will also be applying to pharmacy (now go to **question 3**)	17 (3.5%)
e	I will be applying to pharmacy among other subjects (now go to **question 3**)	48 (10%)
f	I am not sure whether I will be applying to pharmacy (now go to **question 3**)	42 (8.7%)
g	I will definitely not be applying to pharmacy (now go to **question 2**)	88 (18.3%)

If you chose option **(g)** above **only**, please tell us

a) Will you still be applying through UCAS for 2006 entry to university? **Tick one box only.**

Yes	85 (96.6%)
No	3 (3.4%)

Motivations and influences

Year 13

The following reasons have been given by people as influences on their decision to choose to study pharmacy as a career choice. How strong is each reason for you personally (scale 1-4, where 1 is a strong reason and 4 is not a strong reason)?

	Reason	1 Strong	2	3	4 Not Strong
a	I like science / am good at science at school	278 (70.6%)	109 (27.7%)	6 (1.5%)	1 (0.3%)
b	I want to do a science based course	292 (74.3%)	86 (21.9%)	13 (3.3%)	2 (0.5%)
c	I want to work in a well respected profession	276 (70.1%)	97 (24.1%)	19 (4.8%)	2 (0.5%)
d	I want to work in a well paid profession	214 (54.5%)	137 (34.9%)	40 (10.2%)	2 (0.5%)
e	I want a job with good career opportunities	299 (75.9%)	88 (22.3%)	6 (1.5%)	1 (0.3%)
f	I think pharmacy will be intellectually satisfying	196 (50.1%)	152 (38.9%)	37 (9.5%)	6 (1.5%)
g	I want a job where I am socially useful	223 (56.7%)	132 (33.6%)	32 (8.1%)	6 (1.5%)
h	I want to work with patients	196 (50%)	133 (33.9%)	48 (12.2%)	15 (3.8%)
i	I want to own my own business	76 (19.4%)	118 (30.1%)	111 (28.3%)	87 (22.2%)
j	I want the opportunity for self-employment	79 (20.1%)	134 (34%)	104 (26.4%)	77 (19.5%)
k	I want the opportunity for part time work	68 (17.3%)	102 (26%)	117 (29.7%)	106 (27%)
l	I am attracted by the financial rewards	115 (29.2%)	160 (40.6%)	89 (22.6%)	30 (7.6%)
m	I want flexible working hours	131 (33.3%)	145 (36.9%)	84 (21.4%)	33 (8.4%)
n	I want a profession where you can always get a job	283 (71.8%)	87 (22.1%)	19 (4.8%)	5 (1.3%)
o	I am not sure that I will work (within paid employment)	5 (1.3%)	24 (6.3%)	85 (22.1%)	270 (70.3%)
p	I want to work with medicine or in the medical profession	184 (47%)	138 (35.6%)	47 (12.1%)	19 (4.9%)
q	I want to study medicine/dentistry or another medically related subject	121 (30.8%)	99 (25.2%)	81 (20.6%)	92 (23.4%)

First year MPharm

The following reasons have been given by people as influences on their decision to choose to study pharmacy as a career choice. How strong was each reason for you personally (scale 1-4, where 1 is a strong reason and 4 is not a strong reason)?

	Reason	1 Strong	2	3	4 Not Strong
a	I like science / was good at science at school	484 (73.6%)	139 (21.1%)	31 (4.7%)	4 (06.%)
b	I wanted to do a science based course	507 (77.2%)	108 (16.4%)	28 (4.3%)	14 (2.1%)
c	I wanted to work in a well respected profession	491 (75.1%)	131 (20%)	24 (3.7%)	8 (1.2%)
d	I wanted a job with good career opportunities	550 (83.8%)	94 (14.3%)	9 (1.4%)	3 (0.5%)
e	I think pharmacy will be intellectually satisfying	326 (49.8%)	251 (38.4%)	60 (9.2%)	17 (2.6%)
f	I wanted a job where I am socially useful	342 (52.4%)	211 (32.3%)	84 (12.9%)	16 (2.5%)
g	I wanted to work with patients	318 (48.5%)	220 (33.6%)	89 (13.6%)	28 (4.3%)
h	I wanted to own my own business	182 (27.9%)	160 (24.5%)	168 (25.7%)	143 (21.9%)
i	I wanted the opportunity for self-employment	207 (31.7%)	156 (23.9%)	172 (26.35)	119 (18.2%)
j	I wanted the opportunity for part time work	148 (22.7%)	201 (30.8%)	151 (23.1%)	153 (23.4%)
k	I am attracted by the financial rewards	286 (43.9%)	223 (34.3%)	110 (16.9%)	32 (4.9%)
l	I wanted flexible working hours	234 (35.7%)	210 (32.1%)	145 (22.1%)	66 (10.1%)
m	I wanted a profession where you can always get a job	500 (76.8%)	127 (19.5%)	17 (2.6%)	7 (1.1%)
n	I am not sure that I will work (within paid employment)	425 (65.2%)	165 (25.3%)	50 (7.7%)	12 (1.8%)
o	I wanted to work with medicine or in the medical profession	232 (35.4%)	134 (20.4%)	107 (16.3%)	183 (27.9%)

4th year MPharm

The following reasons have been given by people as influences on their decision to choose to study pharmacy as a career choice. How strong was each reason for you personally (scale 1-4, where 1 is a strong reason and 4 is not a strong reason)?

	Reason	1 Strong	2	3	4 Not Strong
a	I like science / was good at science at school	369 (72.6%)	114 (22.4%)	15 (3%)	10 (2%)
b	I wanted to do a science based course	386 (76.1%)	96 (18.9%)	14 (2.8%)	11 (2.2%)
c	I wanted to work in a well respected profession	345 (68%)	121 (23.9%)	29 (5.7%)	12 (2.4%)
d	I wanted a job with good career opportunities	408 (80.3%)	83 (16.3%)	12 (2.4%)	5 (1%)
e	I think pharmacy will be intellectually satisfying	262 (51.6%)	180 (35.4%)	43 (8.5%)	23 (4.5%)
f	I wanted a job where I am socially useful	262 (51.6%)	164 (32.3%)	60 (11.8%)	22 (4.3%)
g	I wanted to work with patients	265 (52.3%)	144 (28.4%)	48 (9.5%)	50 (9.9%)
h	I wanted to own my own business	81 (15.9%)	88 (17.3%)	126 (24.8%)	213 (41.9%)
i	I wanted the opportunity for self-employment	94 (18.5%)	117 (23.1%)	121 (23.9%)	175 (34.5%)
j	I wanted the opportunity for part time work	134 (26.5%)	142 (28.1%)	106 (21%)	123 (24.4%)
k	I am attracted by the financial rewards	203 (40%)	173 (34.1%)	84 (16.6%)	47 (9.3)
l	I wanted flexible working hours	174 (34.5%)	154 (30.5%)	110 (21.8%)	67 (13.3%)
m	I wanted a profession where you can always get a job	357 (70.4%)	109 (21.5%)	32 (6.3%)	9 (1.8%)
n	I am not sure that I will work (within paid employment)	313 (61.7%)	128 (25.2%)	44 (8.7%)	22 (4.3%)
o	I wanted to work with medicine or in the medical profession	143 (28.3%)	82 (16.2%)	94 (18.6%)	187 (37)

Year 13

Here are some education related reasons why people choose to study pharmacy. For each option a-h below, indicate how important each one is for you (scale 1-4, where 1 is important and 4 is not important).

	Reason	1 Important	2	3	4 Not Important
a	A subject teacher at school / college	85 (21.6%)	111 (28.2%)	100 (25.4%)	98 (24.8%)
b	A careers teacher at school / college	55 (14%)	103 (26.1%)	127 (32.2%)	109 (27.7%)
c	A visit to a careers fair / conference	84 (21.4%)	126 (32.1%)	114 (29.2%)	68 (17.3%)
d	A university website	100 (25.5%)	134 (34.2%)	103 (26.3%)	55 (14%)
e	A visit to a university open day	173 (43.9%)	127 (32.3%)	51 (12.9%)	43 (10.9%)
f	From a university prospectus	174 (44.2%)	154 (39.1%)	48 (12.2%)	18 (4.5%)
g	From Royal Pharmaceutical Society of Great Britain literature	73 (18.8%)	134 (34.4%)	97 (24.9%)	85 (21.9%)
h	Radio or TV programme	31 (7.9%)	93 (23.7%)	147 (37.4%)	122 (31%)
i	Careers leaflets or booklets	124 (31.6%)	177 (45%)	68 (17.3%)	24 (6.1%)

1st year MPharm

	Reason	1 Important	2	3	4 Not Important
a	A subject teacher at school / college	140 (21.4%)	167 (25.5%)	130 (19.9%)	217 (33.2%)
b	A careers teacher at school / college	82 (12.5%)	153 (23.4%)	171 (26.1%)	249 (38%)
c	A visit to a careers fair / conference	103 (15.8%)	187 (28.7%)	156 (23.9%)	206 (31.6%)
d	A visit to a university open day	228 (35%)	186 (28.5%)	111 (17%)	127 (19.5%)
e	From a university prospectus	272 (41.7%)	200 (30.6%)	95 (14.5%)	86 (13.2%)
f	From Royal Pharmaceutical Society of Great Britain literature	89 (13.7%)	148 (22.7%)	178 (27.3%)	236 (36.3%)
g	Radio or TV programme	44 (6.7%)	129 (19.8%)	187 (28.6%)	293 (44.9%)
h	Careers leaflets or booklets	187 (28.5%)	216 (32.9%)	123 (18.8%)	130 (19.8%)

4th year MPharm

Here are some education related reasons why people choose to study pharmacy. For each option a-h below, indicate how important each one is for you (scale 1-4, where 1 is important and 4 is not important).

	Reason	1 Important	2	3	4 Not Important
a	A subject teacher at school / college	88 (17.3%)	90 (17.7%)	107 (21.1%)	223 (43.9%)
b	A careers teacher at school / college	70 (13.8%)	110 (21.7%)	92 (18.1%)	236 (46.5%)
c	A visit to a careers fair / conference	76 (15.2%)	108 (21.6%)	99 (19.8%)	216 (43.3%)
d	A visit to a university open day	156 (31.1%)	130 (25.9%)	73 (14.5%)	143 (28.5%)
e	From a university prospectus	174 (34.6%)	166 (33%)	68 (13.5%)	95 (18.9%)
f	From Royal Pharmaceutical Society of Great Britain literature	52 (10.3%)	97 (19.3%)	108 (21.5%)	246 (48.9%)
g	Radio or TV programme	29 (5.7%)	71 (14.1%)	130 (25.7%)	275 (54.5%)
h	Careers leaflets or booklets	116 (22.8%)	174 (34.3%)	82 (16.1%)	136 (26.8%)

Year 13

Here is a list of more personal influencers who might have encouraged you to study pharmacy. How important would you rate the influence from each on you personally (scale 1-4, where 1 is important and 4 is not important)?

	Reason	1 Important	2	3	4 Not Important
a	My *parents* are encouraging me to choose pharmacy	87 (22.1%)	124 (31.5%)	104 (26.4%)	79 (20%)
b	My *family* is encouraging me to choose pharmacy	65 (16.5%)	125 (31.7%)	111 (28.2%)	93 (23.6%)
c	Someone in my family who owns a pharmacy	37 (9.5%)	57 (14.6%)	72 (18.4%)	225 (57.5%)
d	I am influenced by a pharmacist I know	113 (28.8%)	104 (26.5%)	68 (17.3%)	107 (27.4%)
e	My friends influenced me	16 (4.2%)	57 (14.5%)	124 (31.6%)	195 (49.7%)
f	I was influenced by pharmacy work experience	205 (52.3%)	63 (16.1%)	50 (12.7%)	74 (18.9%)

1st year MPharm

Here is a list of more personal influencers who might have encouraged you to study pharmacy. How important would you rate the influence from each on you personally (scale 1-4, where 1 is important and 4 is not important)?

	Reason	1 Important	2	3	4 Not Important
a	My *parents* encouraged me to choose pharmacy	200 (30.5%)	203 (30.9%)	125 (19.1%)	128 (19.5%)
b	My *family* encouraged me to choose pharmacy	142 (21.7%)	205 (31.45)	152 (23.3%)	154 (23.6%)
c	Someone in my family who owns a pharmacy	76 (11.7%)	94 (14.5%)	117 (18%)	362 (55.8%)
d	I was influenced by a pharmacist I know, as a role model	199 (30.5%)	138 (21.1%)	113 (17.3%)	203 (31.1%)
e	My friends influenced me	38 (5.9%)	110 (16.9%)	156 (24%)	345 (53.2%)
f	I was influenced by pharmacy work experience	270 (41.3%)	135 (20.7%)	89 (13.6%)	159 (24.3%)

4th year MPharm

	Reason	1 Important	2	3	4 Not Important
a	My *parents* encouraged me to choose pharmacy	149 (29.3%)	126 (24.8%)	94 (18.5%)	139 (27.4%)
b	My *family* encouraged me to choose pharmacy	112 (22.2%)	129 (25.5%)	99 (19.6%)	165 (32.7%)
c	Someone in my family who owns a pharmacy	63 (12.5%)	51 (10.1%)	65 (12.9%)	325 (64.5%)
d	I was influenced by a pharmacist I know, as a role model	126 (25%)	119 (23.7%)	77 (15.3%)	181 (36%)
e	My friends influenced me	21 (4.2%)	70 (13.8%)	129 (25.5%)	286 (56.5%)
f	I was influenced by pharmacy work experience	220 (43.5%)	109 (21.5%)	51 (10.1%)	126 (24.9%)

Choice of school of pharmacy

Year 13

Which of the following aspects do you think will influence your choice of School of Pharmacy (SOP)? (Scale 1-4, where 1 is important and 4 is not important.)

	Reason	1 Important	2	3	4 Not Important
a	Nature of the course as described in the prospectus	233 (59.1%)	134 (34%)	23 (5.8%)	4 (1.1%)
b	School of Pharmacy website	91 (23.2%)	150 (38.2%)	107 (27.2%)	45 (11.5%)
c	Reputation of the SOP	229 (58.6%)	121 (30.9%)	32 (8.2%)	9 (2.3%)
d	An open day visit to the university	238 (60.6%)	113 (28.8%)	32 (8.1%)	10 (2.3%)
e	Reputation of the university	258 (65.6%)	109 (27.7%)	16 (4.1%)	10 (2.6%)
f	Reputation of the city/town where the university is located	155 (39.3%)	148 (37.6%)	66 (16.8%)	25 (6.3%)
g	The university is near to where I live	108 (27.4%)	83 (21.1%)	73 (18.5%)	130 (33%)
h	Availability of accommodation	131 (33.3%)	135 (34.4%)	68 (17.3%)	59 (15%)
i	University facilities	210 (53.5%)	147 (37.5%)	30 (7.7%)	5 (1.3%)
j	Personal recommendation	115 (29.2%)	193 (49%)	68 (17.3%)	18 (4.5%)
k	Friends at pharmacy school	53 (13.5%)	104 (26.5%)	127 (32.4%)	108 (27.6%)
l	My parents want me to attend a particular SOP	20 (5.1%)	50 (12.7%)	103 (26.2%)	220 (56%)
m	Family at a university	11 (2.8%)	39 (10%)	102 (26%)	240 (61.2%)
n	Matching entrance grades to predicted expectations	212 (53.5%)	122 (31%)	35 (8.9%)	25 (6.3%)

1st year MPharm

Which of the following aspects influenced your choice of School of Pharmacy (SOP)? (Scale 1-4, where 1 is important and 4 is not important.)

	Reason	1 Important	2	3	4 Not Important
a	Nature of the course as described in the prospectus	285 (44%)	235 (36.3%)	81 (12.5%)	47 (7.3%)
b	Reputation of the SOP	382 (59%)	198 (30.6%)	46 (7.1%)	22 (3.4%)
c	An open day visit to the university	252 (20.7%)	160 (29.4%)	97 (19.2%)	135 (30.7%)
d	Reputation of the university	336 (51.7%)	203 (31.2%)	74 (11.4%)	37 (5.7%)
e	Reputation of the city/town where the university is located	184 (28.5%)	215 33.3%)	134 (20.7%)	113 (17.5%)
f	The university is near to where I live	229 (41.5%)	110 (17%)	99 (15.3%)	170 (26.25)
g	Availability of accommodation	139 (21.6%)	141 (21.9%)	122 (18.9%)	243 (37.7%)
h	University facilities	223 (34.5%)	233 (36%)	120 (18.5%)	71 (11%)
i	Personal recommendation	229 (35.3%)	212 (32.7%)	118 (18.2%)	89 (13.7%)
j	Friends at pharmacy school	57 (8.9%)	117 (18.2%)	138 (21.5%)	331 (51.5%)
k	My parents wanted me to attend this SOP	55 (8.65)	97 (15.1%)	162 (25.2%)	328 (51.1%)
l	This was the only place I could get into	64 (10%)	62 (9.8%)	103 (16%)	412 (64.2%)
m	Family at this university	26 (4%)	45 (7%)	78 (12.1%)	495 (76.9%)
n	Matching entrance grades to predicted expectations	134 (20.7%)	190 (29.4%)	124 (19.2%)	198 (30.7%)

4th year MPharm

Which of the following aspects influenced your choice of School of Pharmacy (SOP)? (Scale 1-4, where 1 is important and 4 is not important.)

	Reason	1 Important	2	3	4 Not Important
a	Nature of the course as described in the prospectus	192 (38.2%)	161 (32.1%)	71 (14.1%)	78 (15.5%)
b	Reputation of the SOP	237 (47.2%)	142 (28.3%)	57 (11.4%)	66 (13.1%)
c	An open day visit to the university	209 (41.7%)	100 (20%)	74 (14.8%)	118 (23.6%)
d	Reputation of the university	209 (41.5%)	154 (30.6%)	72 (14.3%)	69 (13.7%)
e	Reputation of the city/town where the university is located	129 (25.8%)	153 (30.6%)	107 (21.4%)	111 (22.2%)
f	The university is near to where I live	190 (38%)	102 (20.4%)	62 (12.4%)	146 (29.2%)
g	Availability of accommodation	101 (20.2%)	119 (23.8%)	91 (18.2%)	189 (37.8%)
h	University facilities	112 (22.3%)	158 (31.55)	114 (22.7%)	118 (23.5%)
i	Personal recommendation	121 (24.2%)	138 (27.5%)	116 (23.2%)	126 (25.1%)
j	Friends at pharmacy school	44 (8.8%)	49 (9.8%)	96 (19.2%)	310 (62.1%)
k	My parents wanted me to attend this SOP	33 (6.6%)	41 (8.2%)	90 (17.9%)	338 (67.3%)
l	This was the only place I could get into	73 (14.5%)	45 (9%)	71 (14.1%)	313 (32.4%)
m	Family at this university	14 (2.8%)	20 (4%)	56 (11.2%)	411 (82%)
n	Matching entrance grades to predicted expectations	107 (21.3%)	130 (25.9%)	93 (18.5%)	173 (34.3%)

Commitment to pharmacy

When you were making your choice about what to study at university, how committed were you to pharmacy?

Pharmacy was my first and only choice	Yes	No
1st year MPharm	478 (72.6%)	180 (27.4%)
4th year MPharm	361 (71.1%)	147 (28.9%)

If you have answered "No" to Question 4, which other subjects did you consider? **Tick one box only.**

		1st year MPharm	4th year MPharm
a	Pharmacy was my second choice to medicine	85 (49.4%)	48 (35.8%)
b	Pharmacy was my second choice to dentistry	27 (15.7%)	16 (11.9%)
c	Pharmacy was my second choice to another science degree	13 (7.6%)	32 (23.9%)
d	I wanted to work in any health related field	24 (14%)	22 (16.4%)
e	I came into pharmacy through clearing	18 (10.4%)	12 (9%)
f	Pharmacy matched the A Levels I was taking	5 (2.9%)	4 (3%)

How strong would you say your desire **to study pharmacy** was when you started pharmacy school? **Tick one box only.** (NB. Not asked on Year 13 questionnaire.)

Cohort	Very strong	Fairly strong	Not very strong	Not at all strong
1st year MPharm	371 (56.6%)	240 (36.6%)	35 (5.3%)	10 (1.5%)
4th year MPharm	278 (54.6%)	170 (33.4%)	49 (9.6%)	12 (2.4%)

How strong would you say your desire **to be a pharmacist** was when you started pharmacy school? **Tick one box only.** (NB. Not asked on Year 13 questionnaire.)

Cohort	Very strong	Fairly strong	Not very strong	Not at all strong
1st year MPharm	398 (60.7%)	205 (31.3%)	44 (6.7%)	9 (1.4%)
4th year MPharm	267 (52.5%)	179 (35.2%)	53 (10.4%)	10 (2%)

This question contains statements about your commitment to pharmacy as a career. Tick the **ONE** box which shows to what extent you agree or disagree with the following statements.

b)   *I will be proud to tell others that I am studying pharmacy*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree

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	307 (78.1%)	79 (20.1%)	5 (1.3%)	2 (0.54%)
Year 13	307 (78.1%)	79 (20.1%)	5 (1.3%)	2 (0.54%)
1st Year MPharm	495 (75.5%)	148 (22.6%)	11 (1.6%)	2 (0.3%)
4th year MPharm	367 (72.4%)	121 (23.9%)	17 (3.4%)	2 (0.4%)

b)   *I am strongly committed to the values and ideals of the pharmacy profession*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
Year 13	254 (64.8%)	129 (32.9%)	9 (2.3%)	0 (0%)
1st year MPharm	394 (60%)	250 (38.1%)	12 (1.8%)	1 (0.1%)
4th year MPharm	268 (52.7%)	219 (43%)	19 (3.7%)	3 (0.6%)

c)   *Being a pharmacist is an important part of who I want to be*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
Year 13	181 (46.1%)	155 (39.4%)	52 (13.2%)	5 (1.3%)
1st year MPharm	336 (51.1%)	270 (41%)	45 (6.8%)	7 (1.1%)
4th year MPharm	230 (45.3%)	200 (39.4%)	60 (11.8%)	18 (3.5%)

Listed below are some statements that describe your attitudes about pharmacy as a career. For each statement tick **ONE** box to show the level with which you agree or disagree.

g)   *I definitely want a career in pharmacy.*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
Year 13	209 (53.3%)	128 (32.7%)	54 (13.7%)	1 (0.3%)
1st year MPharm	380 (57.8%)	244 (37.1%)	30 (4.6%)	3 (0.5%)
4th year MPharm	256 (50.4%)	190 (37.4%)	53 (10.4%)	9 (1.8%)

h)   *Pharmacy is the ideal profession for a career for life.*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
Year 13	168 (42.9%)	177 (45.2%)	45 (11.4%)	2 (0.5%)
1st year MPharm	295 (45%)	307 (46.8%)	47 (7.1%)	7 (1.1%)
4th year MPharm	206 (40.9%)	231 (45.8%)	60 (11.9%)	7 (1.4%)

i)   *I intend to undertake a second, undergraduate degree (e.g. medicine) after completing pharmacy.*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
Year 13	26 (6.6%)	90 (23%)	173 (44.1%)	103 (26.3%)
1st year MPharm	30 (4.6%)	113 (17.3%)	226 (34.7%)	283 (43.4%)
4th year MPharm	22 (4.3%)	68 (13.4%)	159 (31.4%)	258 (50.9%)

Listed below are several statements that describe your attitudes about pharmacy as a career. For each statement tick **ONE** box to show the level with which you agree or disagree. (NB. Not asked on Year 13 questionnaire.)

j)   *If I could pick a different occupation which paid the same amount, I would probably change degree.*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
1st year MPharm	15 (2.2%)	64 (9.8%)	291 (44.4%)	286 (43.6%)
4th year MPharm	21 (4.1%)	70 (13.8%)	203 (39.9%)	215 (42.2%)

k)   *If I could do it all over again, I would choose to study for the same profession.*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
1st year MPharm	294 (44.9%)	268 (40.9%)	74 (11.3%)	19 (2.9%)
4th year MPharm	224 (44.2%)	193 (38.1%)	76 (15%)	14 (2.8%)

l)   *I regret that I entered pharmacy school.*

Cohort	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
1st year MPharm	7 (1.1%)	22 (3.3%)	137 (20.9%)	491 (74.7%)
4th year MPharm	4 (0.8%)	23 (4.5%)	120 (23.7%)	359 (70.9%)

Future plans

Thinking ahead, upon <u>graduation</u>, in which field of practice would you like to complete your pre-registration training? **Tick one box only.**

		Year 13	1st year MPharm	4th year MPharm
a	Community retail – *chain/multiple (a large company with many branches, e.g. Boots)*	59	159	206
b	Community retail – *Independent*	30	60	60
c	Hospital	40	61	187
d	Hospital / Community split post	86	129	24
e	Hospital / Pharmaceutical Industry split post	57	50	2
f	Community / Pharmaceutical Industry split post	25	35	2
g	I do not want to complete pre-registration training	0	1	16
h	Other	2	9	1
i	Not sure yet	68	127	9

Upon registration (i.e. in your first job as a pharmacist), in which field of pharmacy will you look for a job? **Tick all the boxes which are true for you.**

		Year 13	1st year MPharm	4th year MPharm
a	Community retail – *chain/multiple (a large company with many branches e.g. Boots)*	204	350	276
b	Community retail – *Independent*	119	258	180
c	Hospital	218	267	256
d	Primary Care Trust *(i.e. working within a medical practice as a pharmaceutical advisor)*	83	118	114
e	Pharmaceutical Industry	116	143	54
f	Academia (university)	26	41	67
g	Research	84	84	55
h	Pharmacy policy development	9	16	19
i	Non-pharmacy		9	32
j	Consultant pharmacist		133	76
k	Own my own pharmacy business	78	197	96
l	Self-employed, working on a day-to-day basis (i.e. as a locum)	67	248	236
m	Not sure yet	12	103	46

Which of the following statements best describe your plans for your future working life? **Tick all the boxes that are true for you.**

		Year 13	1st year MPharm	4th year MPharm
a	Full time career until typical retirement age (65)	181	241	154
b	Work full time, then part time if I have a family	238	339	314
c	Intend to travel, working holidays	95	135	116
d	Intend to work as a locum	62	195	171
e	Intend to buy my own business	125	220	117
f	Work abroad	104	182	131
g	No clear intention yet	35	65	65
h	Other	4	14	11

What is the highest level which you would like to attain in your pharmacy career? **Tick as many that apply to you up to a maximum of 3.**

		Year 13	1st year MPharm	4th year MPharm
a	Employee in community retail pharmacy	24	78	39
b	Manager in community retail pharmacy	129	242	180
c	Owner of a community retail pharmacy	171	339	198
d	Non store based manager in a major multiple pharmacy company	33	122	89
e	Primary Care Trust pharmacist *(i.e. working within a medical practice as a pharmaceutical advisor)*	26	65	106
f	Hospital pharmacist	96	125	126
g	Hospital pharmacy manager	135	171	121
h	Research pharmacist in an industrial pharmaceutical company	63		
i	Commercial or management pharmacist in an industrial pharmaceutical company	68		
j	Chief Pharmacist	111	227	163
k	Academic Pharmacist	29	56	90
l	A position outside pharmacy	17	30	52
m	Not sure yet	57	85	56