

# Choosing to study pharmacy: measuring influences and motivations

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## Abstract

This paper reports part of a national study of career motivations and expectations of United Kingdom MPharm students. The aim was to describe the students' influences and motivations in making their choice to study pharmacy. A self-completion questionnaire was administered to year one and year four students in thirteen pharmacy schools during 2005.

The reasons considered most important were objective ones that related to self-interest, both in terms of the nature of the degree course and the advantages conferred by the degree. However, there was evidence that for female students, future patterns of working that are not central to career progression were considered more important than for males.

At a time of expanding demand by students for pharmacy education and a parallel demand for qualified pharmacists, this study adds to earlier knowledge on the motivations and influences on students when making their early career choices.

**Keywords:** *Career Choice, Influences, Motivation, Pharmacy Education, Undergraduate.*

## Introduction

What drives young people to apply to study pharmacy? Is it because they like science or because pharmacy is seen as a secure career with good prospects and no likelihood of unemployment? There is currently an international shortage of pharmacists (International Pharmaceutical Federation, 2006). In the United Kingdom (UK) the majority of healthcare professionals are employed in the public sector by the National Health Service (NHS), yet the majority of pharmacists (70%) are employed by the private sector in community pharmacy. Whilst a current downturn in employment opportunities for physiotherapists, nurses and doctors causes concern, at the time of this study, the demand for pharmacists appeared to be unaffected by the political and financial problems of government policy (Wilson et al., 2006).

When it comes to deciding which degree course to apply for, who or what is it that influences that early decision to consider pharmacy? More importantly for the profession, what can be done to encourage more good students to apply

to, study for and join the profession? It is surprising that since the 1980s so little research has been published on this important aspect of the 'recruitment – education – output' process.

One influence upon perceptions of the profession is the image portrayed by the profession itself through its publicity materials. In the UK, the Royal Pharmaceutical Society of Great Britain (RPSGB) sets professional standards for education and practice. The RPSGB website displays information on a career in pharmacy which emphasises an interest in science and the very positive working opportunities (2007):

- *A career in pharmacy offers:*
- *The pursuit of an interest in science.*
- *The opportunity to join the NHS healthcare team.*
- *A choice of working environments.*
- *A competitive salary.*

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### *The Expanding Market Context*

The expansion of employment and education opportunities for pharmacists is a global phenomena which may have been encouraged by the World Health Organisation declarations concerning the role of pharmacists (International Pharmaceutical Federation, 2006). Anderson's description of the current state of the world's pharmacy profession by sector of employment contrasted the provision of education in Europe, North America and selected developing countries (2002). A particular example reported an increase in the number of pharmacy schools in Jordan, Kuwait and Saudi Arabia, which have been encouraged by government commitment to fund and support a competitive pharmacy programme (Al-Wazaify et al., 2006). By contrast, in the UK, an increase in demand from the healthcare economy for pharmacists has been met by an increase in the supply of undergraduate training places in sixteen schools and the launch of at least ten new schools of pharmacy since 2002. This is a very large percentage increase in such a short space of time. In the UK, students apply via a central application process, the Universities and Colleges Admissions Service (UCAS), for entry to University and UCAS data between 1998 to 2005 show an increase in intake to schools of pharmacy from approximately 1,826 in 1998 to 2,879 by 2005.

### *Influences and Motivation*

A few earlier pharmacy practice studies measured the motivational drivers which influenced the choice of pharmacy as a profession. The UK studies covered different stages in the undergraduate course, Booth *et al* (1984) surveyed applicants (n=164), Rees (1984) surveyed first year undergraduates (n=80) and Silverthorne *et al* (2003) sampled third year students for two consecutive years (n=184). At about the same time Ferguson *et al* (1986) undertook a cross sectional, comparative survey in three schools, in Australia, Canada and the United States, of 315 first year pharmacy students. All these studies explored motivational factors. However, due to differences in design and scope these earlier studies allow few direct comparisons to be made today. The most useful aspect of reviewing earlier studies was the opportunity to aggregate all the relevant variables that have previously been used in order to assemble a composite tool.

Continuing his interest in motivation and students in Australia, Roller (2004) has taken a longitudinal approach to measure the comparative influence of motivators behind choice, introducing greater conceptual clarity by differentiating between extrinsic and intrinsic factors. The distinction is quite simple. The intrinsic motivations are when students are seeking intellectual stimulation from their studies; they do it because they really want to. For example they like science. Extrinsic motivations are more concerned about grade results, employment prospects – what you can get out of something. Roller's research shows that, in Australia at least, the intrinsic factors tended to score consistently and significantly higher than the extrinsic factors. This finding was consistent over five years.

### **Method**

This paper reports on one section of a comprehensive comparative survey of year one and year four pharmacy undergraduates in Great Britain during 2005 (Wilson et al., 2006). The study was divided into six themes: career motivations and influences (the focus of this paper), choice of school of pharmacy, career image, future career ambitions and lifestyle choices, and the impact of influences within the school during training.

The survey questionnaire was designed following a review of earlier studies (Rees, 1984, Booth et al., 1984, Silverthorne et al., 2003, Ferguson et al., 1986, Roller, 2004), supplemented by some exploratory focus group work (Wilson et al., 2006), piloted with local students and peer reviewed. Following negotiation with 16 schools of pharmacy on the most convenient method for them to administer the survey, we arranged for a nominated person to distribute and collect the questionnaire to first and final year groups during the spring semester in 2005.

### *Design*

For the section on Influences and Motivations 29 statements were collated. To reduce respondent boredom in completing such a long list, statements were assembled and combined to produce 3 conceptual sections: education related (8 questions), personal and family influences (6 questions) and personal career goals (15 questions).

Measurement in other studies typically used Likert scale rating varying from four to five levels, or they required statement ranking. Upon reflection, we considered that the real world decision-making process experienced by students was probably more complex than ranking or rating one variable as more important than another. In this study there was a core set of questions to both year samples and a supplement for year-four students only, which explored influences during training and future career intentions. The measurement in this study asked respondents to rate each individual statement variable on its own perceived importance on a four point scale from one (classified as 'Important') through two and three to four (classified as 'Not Important').

### *Analysis*

The data were entered into SPSS v12. Interpretation of the data was by 'net' figures, a technique commonly used in market research surveys. This represents the balance of opinions and provides a useful means of comparing the results for a number of variables. The net figure represents the difference between the percentage of respondents rating the factor as 'important' (i.e. answering '1') and the percentage rating it as 'not important' (i.e. answering '4'). It gives a positive or negative outcome. From the list a second ordering of positive variables was assembled based on the score.

Usable questionnaires were obtained from 13 schools. The final response rate was 35.2% (n= 1156). The response rate

did vary markedly from each school of pharmacy as shown in Table I.

representation of white students and an under-representation of Asian students in the fourth year survey.

Table I: Survey response rate by school (for the 13 schools included in the study) and overall average response rate (final row).

First year response rate (%)	Fourth year response rate (%)	Overall response rate (%)
40.7	47.3	44.0
34.1	60.4	44.8
23.0	54.8	35.5
22.1	18.0	20.2
18.7	24.8	21.3
37.2	N/A	37.2
12.6	16.9	14.1
30.0	41.9	35.6
87.0	4.8	51.3
17.3	20.8	19.0
23.0	18.5	20.9
68.9	31.8	49.6
71.6	98.3	83.0
<b>35.0</b>	<b>35.4</b>	<b>35.2</b>

Table III: Ethnicity of respondents to first and fourth year careers questionnaires

	First year Questionnaire data (%)	2003 UCAS data (%)	Fourth year Questionnaire data (%)	2001 UCAS data (%)
<b>White</b>	42.8	39.8	55.6	35.4
<b>Black</b>	9.3	9.7	5	10.4
<b>Mixed</b>	1.4	1.3	1.4	1.3
<b>Asian</b>	43.1	47.0	35.2	49.7
<b>Other</b>	2.6	2.1	1.6	3.2
<b>Undeclared</b>	0.8		1.2	

**Results**

*The profile of respondents*

Of a total sample of 1,156 respondents, 347 were male (30%) and 809 female (70%). Table II shows the profile of respondents by gender and year of programme. The ethnicity of respondents to the two surveys is summarised in Table III. In both cases, the profile of respondents have been compared to 2003 data (for first year) and 2001 data (for final year) on applications to pharmacy programmes obtained from UCAS.

*Education Related Influences*

Respondents were asked to assess the importance of a set of education-related factors to their decision to study pharmacy. Answers were on a four-point scale, where one was important and four not important. To simplify the result ‘net analysis’ shows in Figure 1 as the difference between the percentage of respondents rating the factor as important and the percentage rating it as not important.

It should be noted that the year four respondents are thinking three years retrospectively, and therefore the decision process is probably less clear in their minds, whilst year one are time-wise closer to that decision. For the year one and year four respondents, three factors showed as net positive in terms of importance: a university prospectus, a university open day visit and careers leaflets or booklets. The least important factor for both years was a radio or TV programme. Information produced by the RPSGB was not perceived as important. There was no significant association of response with gender for any of the statements.

Table II: Respondents by gender and by year of programme

	First year Questionnaire data (%)	2003 UCAS* data (%)	Fourth year Questionnaire data (%)	2001 UCAS* data (%)
<b>Male</b>	31.9	39.1	27.6	37.8
<b>Female</b>	68.1	60.9	72.4	62.2

Comparing the relative order of importance of the factors, the responses of all white and of all Asian students was exactly the same. However, with the exception of a university prospectus, Asian students attributed more importance to each factor. For example, in the case of the third most important factor, careers leaflets or information, 20% (n=112) of white respondents rated this as important and 30% (n=165) as not important compared with 31% (n=116) of Asian respondents who rated it as important and 16% (n=60) who rated it as not important (Chi, p<0.01 at least).

Comparisons of respondents to UCAS data enabled any potential non-response bias to be identified. For both years the proportion of females responding was a little greater than that in the application year and for the two major ethnic groups where statistical comparisons could be made (white and Asian), there is a fair representation of ethnicity in the respondents to the first year survey, albeit with some over-

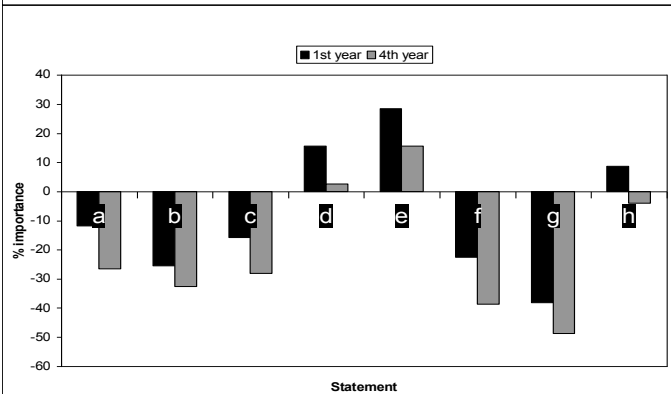
*Personal Influences*

Students were asked to state how important a set of personal factors were to their decision to study pharmacy. The results are summarised in Figure 2 as the difference between the percent of respondents who rated as important and the percent who rated as not important. Respondents from both years

stated that the most important personal factors for choosing to study pharmacy were the influence of pharmacy work experience and parents encouraging them to study. The least important factors were the influence of friends and a family member owning a pharmacy.

Figure 1: Importance of education related reasons why people choose to study pharmacy.

(Results are shown as the difference between the percent of respondents who rated as important and the percent who rated as not-important.)



KEY:

- 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 A university prospectus
- f Royal Pharmaceutical Society of Great Britain literature
- g Radio or TV programme
- h Careers leaflets or booklets

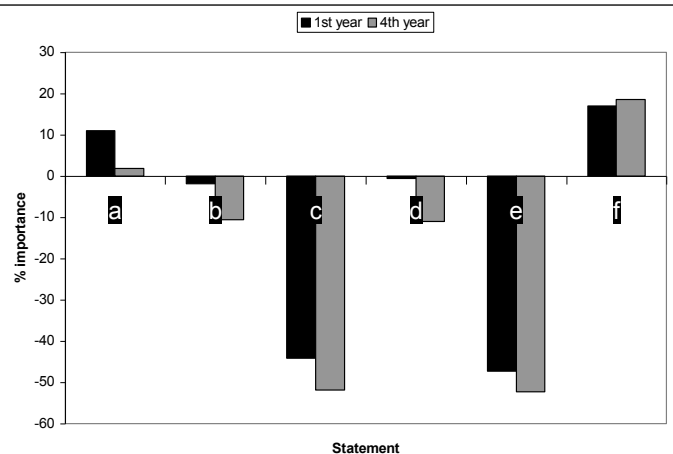
There were some significant differences between responses of males and females; 17.8% (n=61) of males, compared to 9.6% (n=77) of females agreed that statement (c) (“*Someone in my family who owns a pharmacy influenced me*”) was an important personal influencing factor (Chi,  $p < 0.001$ ). Differences were also seen in perceptions of “*Pharmacy work experience*” as an influencing factor. Forty-five percent (n=368) of females agreed that this was an important factor, compared with 34.9% (n=119) of male respondents rating this factor as important (Chi,  $p < 0.01$ ).

When the responses of all white and of all Asian students were compared, the order of importance of the factors was exactly the same. However, with the exception of the factor “*I was influenced by a pharmacist I know, as a role model,*” there was a significant difference in the distribution of responses for each factor with white or Asian background. In all but one of these cases, students of Asian background placed higher importance upon the factors than did white students (Chi,  $p$  at least  $< 0.01$ ). For example, the second most important factor “*My parents encouraged me to choose pharmacy*” was rated important by 24% (n=131) of white students and by 33% (n=121) of Asian students (Chi,  $p < 0.01$ ). The exception was the factor most highly rated by all

students, “*I was influenced by pharmacy work experience*”. This was rated as important by 50% (n=278) of white students compared with 40% (n=147) of Asian students (Chi,  $p < 0.01$ ).

Figure 2: Importance of personal reasons why people choose to study pharmacy

(Results are shown as the difference between the percent of respondents who rated as important and the percent who rated as not-important.)



KEY:

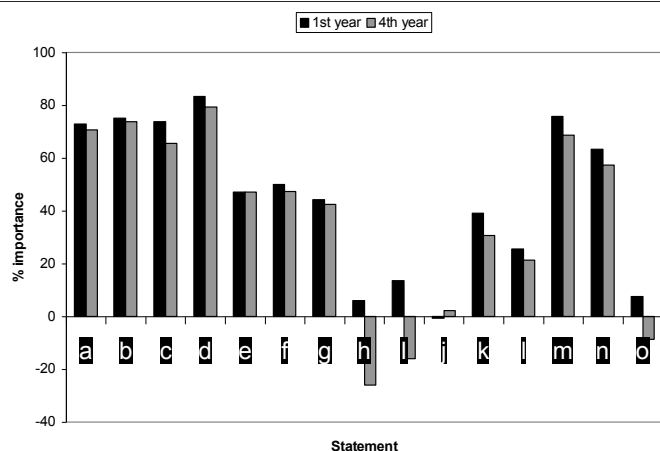
- a My *parents* encouraged me to choose pharmacy
- b My *family* encouraged me to choose pharmacy
- c Someone in my family who owns a pharmacy influenced me
- d I was influenced by a pharmacist I know, as a role model
- e My friends influenced me
- f I was influenced by pharmacy work experience

### The Influence of Personal Career Goals on Career Choice

We were interested in the aspects of a career in pharmacy that most strongly influenced the respondents in their decision to choose to study pharmacy (see Figure 3). This block of questions contains extrinsic factors. The same career factor emerged as the most important to both the year sample respondents: “*I wanted a job with good career opportunities.*” The next four most important factors for the whole study sample were: “*I wanted a profession where you can always get a job*”, “*I wanted to do a science based course*”, “*I wanted to work in a well respected profession*”, and “*I liked science/was good at science at school*”.

There was a significant association between gender and the response to six of the statements (Chi,  $p$  at least  $< 0.01$ ). A greater proportion of females than of males were influenced by wanting a job that is socially useful, to work with patients, to work flexible hours and the opportunity to work part time. Conversely, a larger proportion of males were influenced by wanting to own their own business and wanting the opportunity for self-employment. These differences are exemplified in Table IV as the percentage males and females who considered that they were strongly influenced by each factor.

Figure 3: Career aspects as influences on decision to study pharmacy. (Results are shown as the difference between the percent of respondents who rated as important and the percent who rated as not-important. )



- KEY:
- a I liked 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 thought pharmacy would 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 was 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 wanted to work with medicine or in the medical profession
  - o I wanted to study medicine/dentistry or another medically related subject

**Discussion**

The worldwide expansion in the market for qualified pharmacists has been accompanied by growth in the number of education institutions and in certain countries by the size of student intake. In UK schools of pharmacy there is currently considerable interest in understanding how to motivate young people to study pharmacy and become career pharmacists. Our investigation framework implicitly assumed that the decision is rational and probably made up by a number of intrinsic and extrinsic factors, not just one alone, which will vary for each respondent.

**Limitations**

The key limitation of this study is the low response rate of

35.2%. This rate is low, but typical of a one shot survey (Jesson and Pocock, 2001). Slippage in design and negotiation with schools meant that the timing of administration was late in the academic year. In most schools students are less likely to be in the university at this time because taught courses have finished. Yet the uneven response rate (see Table I) shows that where students were asked to compete during lecturer contact time, a high response rate was possible. A further factor to take into account was the overload on schools of research and surveys at that time, at least three national level studies were being conducted at the same time and there was some confusion about duplication of effort on career surveys. Nevertheless, comparisons for sex and ethnicity with UCAS application data indicated that the sample of responders was similar to the population.

**Implications for Educators**

The cognitive advance that this study provides over the earlier study designs described above is the aggregation of motivation variables and the novel use of the ‘net analysis’ in pharmacy practice research. This approach has enabled us to show graphically which factors are really seen to be important to students.

With regard to the educational decision to study in a particular pharmacy programme, students said they were most influenced by the university marketing, by the university prospectus and the open day visit. This suggests that focus of their decision process was upon the place of study and that consequently university marketing publicity is a key influencing factor that will determine the nature of the applicant pool. This finding is useful for schools of pharmacy and their marketing strategy.

In contrast, the materials produced by the professional body for pharmacy in the UK (RPSGB) was reported to be a very weak influence upon students’ decision to study pharmacy and therefore upon the nature of the pharmacy applicant pool.

Table IV: Factors that influenced 1st and 4th Year students in their choice of Pharmacy where there was a significant difference between responses of male and female students (Chi, p at least <0.01). (Results are shown as the percentage of students strongly influenced by each factor.)

Statement	Male Respondents	Female Respondents
I wanted a job where I am socially useful	46% (n=158)	55% (n=440)
I wanted to work with patients	41% (n=141)	55% (n=438)
I wanted the opportunity for part-time work	17% (n=58)	27% (n=220)
I wanted flexible working hours	28% (n=95)	38% (n=306)
I wanted to own my own business	30% (n=104)	19% (n=156)
I wanted the opportunity for self-employment	35% (n=120)	22% (n=176)

This finding needs further investigation and unpicking through qualitative approaches, since we are not sure exactly what materials students had seen. Nevertheless it does send an important message for the profession since it indicates a limit in the capacity of the RPSGB to communicate changes in professional need or function to the potential applicant pool.

The study confirms many previous reports on the importance of parents in the choice of career study. This was one of only two personal factors that showed a net influence upon student choice. The strongest extrinsic influence on motivation in this section was pharmacy work experience. The extent to which this is representative of future pharmacy is therefore a significant factor in the supply of an appropriate future workforce. One key issue is the limited capacity for work experience outside the community pharmacy sector. This is an area where community pharmacy might need support and encouragement to enable companies to take more proactive steps to encourage part time Saturday and holiday employment opportunities through local schools and youth services.

The self actualisation model is useful. Intrinsic factors related to students own attributes (liking for science, ability in science) and factors in the 'what I want for myself' category (good career opportunities, well respected profession, medical related profession and employment) were considered the most important influences upon the decision to study pharmacy. The importance placed upon these factors demonstrates a strong component of rational choice in the decision to study pharmacy but raises the issue that applicants are likely to be strongly deterred from pharmacy if doubt arises as to employment or future career opportunities.

The differences in views between year one and year four were smallest in relation to the intrinsic factors related to personal attributes and career characteristics. However, it is at this point that we can observe motivational differences between male and females. Females appeared more socially oriented and to be thinking ahead to the work life balance they want to make. Males were interested in opportunities for independence, through ownership or self employment. The concentration of minority ethnic pharmacists in the retail sector of community pharmacy has been noted (Hassell et al., 1998). This was seen as a pull factor, a choice of pharmacy as a route to entrepreneurial opportunity, autonomy, independence and self employment.

## Conclusion

The choice of pharmacy as a career to study appears to reflect a rational choice. The reasons considered most important were objective ones that related to self-interest, both in terms of the nature of the degree course and the advantages conferred by the degree. However, there was evidence that for female students, future patterns of working that are not central to career progression were considered more important than for males (e.g. flexible working). Issues of gender and ethnicity should be followed up in future research.

## Authors' acknowledgements

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