

Choosing to Study Pharmacy in the United Kingdom

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ABSTRACT

Aim: To produce empirical evidence on the commitment to study pharmacy, in the context of what motivates and influences students in their choice of subject and university.

Design: Self completion survey of year one and year four undergraduates in schools of pharmacy within Great Britain. Quantitative analysis by SPSS.

Results: The response rate was 35.2%. Students registered a high desire to study pharmacy; 73% of year one and 71% of year four placed it first priority at the time of application. Of those for whom it was not first choice, medicine was the preferred option. The two most important factors in choice were reputation of the school of pharmacy and reputation of the university.

Conclusion: This study confirms that the majority of applicants to study pharmacy were strongly committed to the subject. In addition, this study has allowed us to put an empirical figure to the proportion of students who at the time of applying for pharmacy would rather study medicine.

INTRODUCTION AND CONTEXT

It is useful at this time of change within the educational provision for the pharmacy profession to have some insight into how potential applicants choose to study pharmacy in the UK, so that information on careers in pharmacy may be targeted to suitable potential applicants and to help schools to market their courses to a wider audience.

The context of pharmacy education in the UK is one of substantial change. The number of universities within the UK offering the MPharm degree has dramatically increased over the last few years. From a static sixteen, the launch of many new schools of pharmacy since 2002 has increased the number of universities offering undergraduate pharmacy education to twenty-four and this number could rise even higher. The consequence of an increase in the number of educational providers has and will continue to increase the number of students graduating from undergraduate pharmacy courses requiring pre-registration training places. This is a significant feature because students will not qualify to practice unless they have successfully completed their pre-registration training year and passed the pre-registration examination. An increase in the demand for pre-registration places caused by increased numbers of MPharm graduates is coupled with an increase in the number of places for non-European Union qualified pharmacist students on one year diploma courses in the UK (known as the 'Overseas Pharmacists Assessment Programme' or 'OSPAP' course) where students study for one year at university before entering the pre-registration year. The number of OSPAP providers has increased over the last few years from a single institution to four schools of pharmacy. As graduates of these courses are also entering the evermore competitive market for pre-registration places there is concern that a corresponding growth in the number of pre-registration positions available is unlikely.¹

Currently, to be accepted onto an undergraduate MPharm degree course, students require high examination grades from mainly science subjects, with some schools of pharmacy requiring two A grades and a B grade at 'A' level. However, it has been suggested that the current increases in the number of educational providers, without a parallel increase in the numbers of suitably qualified applicants, will result in many schools of pharmacy being forced to admit students onto their courses with lower than currently accepted examination grades. Data from UCAS between 1998 and 2003 showed little change, from 3,185 applicants in 1998 to 3,140 in 2003, but the numbers of students accepted over that time period rose from 1,826 (57%) in 1998 to 2,376 (76%) in 2003. Thus there has been an increase of intake and at the same time a higher acceptance rate (data were obtained through the UCAS statistical service).²

What do we know already?

A scoping review of the published literature showed that the reasons and motivations for students to choose to study pharmacy have not been widely explored³⁻⁶ Booth *et al* and Rees were possibly the earliest English published studies of factors influencing choosing pharmacy as a career^{3 4}. Almost twenty years later Silverthorne *et al*⁵ asked the same questions about motivational influencers for pharmacy undergraduates. However, these studies are limited in scope and small scale, for instance, Booth surveyed 164 applicants to his school; Rees surveyed 80 undergraduates in her school and Silverthorne *et al* surveyed two cohorts of year three students (n=184).

By comparison little is known about what influences the choice of School of Pharmacy. From overseas we identified the important work undertaken in Australia and America. This was an international cross comparator research by Ferguson *et al* which explored the salient issues influencing 315 pharmacy applicants to Toronto, Melbourne and Minneapolis Universities.⁶ This study demonstrated that context is an important variable influencing choice of subject and place of study. The study noted that half of those not selecting pharmacy as

a first choice had wanted to study medicine. This phenomenon was observed in earlier studies cited by Ferguson *et al.*

This paper is based on one section of a large baseline study of first and final year pharmacy undergraduates in Great Britain. It covers how committed students were to the course, whether it was their first choice of career, what the access route into their school of pharmacy was and what were the features of the school they are at that attracted them. Section 2 in the survey, titled "Choice of school of pharmacy", consisted of seven closed questions and was completed by all respondents.

METHODOLOGY

A comprehensive comparative survey of year one and year four pharmacy undergraduates was undertaken during 2005.

Design

A core set of questions was completed by both years, with a supplement section for the year four students to comment on their in-school experiences. In five sections we covered: motivations and influences; choice of school of pharmacy; career image; future career ambitions and work life balance. The supplement asked about experience as a final year student; together with standard personal details. The categories to define ethnicity were from the standard UK Census list.

The questionnaire contained 28 questions for year one and 40 questions for year four, consisting of both closed and open questions. A variety of question formats were used and four-option Likert scales to measure importance or not importance, strong or not strong when we wanted to obtain a positive or negative response. Interested readers are referred to the final report²

The survey questionnaire was designed after screening the limited amount of pharmacy literature we could obtain, as shown earlier, together with two work satisfaction surveys^{7 8} We carried out exploratory focus group work with 44 undergraduates, representing nine schools. The participants were attending the British Pharmacy Students Association (BPSA) annual conference and volunteered to participate in the focussed discussions. Four groups were held, facilitated by three authors of this paper, taped and transcribed. The data from the focus groups gave us insights into the perceptions of students about their pharmacy experience, although we acknowledge that this was a group of highly motivated and engaged students, not necessarily representative of any particular opinion. Following design the questionnaire was peer reviewed by pharmacy practice colleagues and piloted with two groups of pharmacy undergraduates: all year one students and all final year students in a UK school of pharmacy. All students involved in the design of the survey instrument were included in the final sample.

Scope and administration

At the time of the survey 16 schools of pharmacy offered a full four year undergraduate programme. Each school was invited to participate in the study. Two schools declined to participate, although we had promised anonymity and that no details of individual schools would be published. £500 was paid to each school to administer the survey and a raffle prize of £80 per participating school was offered to encourage students to respond.

In order to administer the careers survey contact was made with each of the sixteen established schools in England, Scotland, Wales and Northern Ireland. One English school and one school from Northern Ireland declined, thus it was Great Britain wide and not UK. Through negotiation with each contact it became clear that it would not be possible to carry out the same distribution method in every school. In the face of a disappointing response we took the pragmatic decision to go with what was offered. Nine schools provided class lists, we sent

named envelopes. Two schools would not provide lists, but numbers, so we sent numbered envelopes. Three schools distributed unmarked questionnaires during a lecture time. All schools had to collect and return completed questionnaires to us. Owing to the distribution method employed, one school returned only 2.5% questionnaires and it was decided to eliminate this school from the study.

Schools determined the manner in which the survey was distributed. Therefore the ad hoc distribution method employed produced a very variable response rate, which we discuss later. The final response rate (calculated using the total number of students in each of the two years) was 35.2% (n=1163/3306), a rate varying between schools from 83% at the highest (n=224/270) to 14% the lowest (n=36/256) (see Table 1).

TABLE 1 HERE

Ethical approval

Ethical approval was given by the Aston University Ethics Committee; two other schools needed ethical approval within their own institutions (granted in both cases).

Analysis

The data from 13 schools were analysed following coding and entry into the Statistical Package for Social Sciences Version 12 (SPSS). Valid responses were used throughout the results section. Non-parametric statistical tests were applied to the nominal data and where applicable, the continuity correction for Pearson's chi-squared test was employed to investigate whether there was a statistically significant association between variables.

For multiple variable questions we used 'net' analysis. This is a technique commonly used in market research to indicate a 'net' result, either positive or negative. One result is deducted from the other, thus enabling a cleaner, different visual presentation to the normal histogram or table.

Ethnicity was based on the 2001 UK census categories, with minor changes following piloting. To simplify reporting in the analysis we have aggregated the Asian categories, so Asian in this paper refers to the categories: British Asian, Indian, Pakistani, Bangladeshi, any other Asian background.

RESULTS

Respondent profile

The majority of respondents (n=1156) were female (female 70% (n=809); male 30% (n=347)), with similar proportions from year one and four. The main (self defined) ethnic groups were white 48% and Asian 32% with black or black British making up 8% of the sample. Accurate data on student characteristics were not available, but comparisons with data from the UCAS applicant pool for the cohorts (2001 for final year and 2003 for first year) indicated that this was a fairly typical representation of pharmacy undergraduate students of the time.²

Desire to Study Pharmacy

Respondents were asked about the strength of their desire at the time of entering pharmacy school to (a) study pharmacy and (b) be a pharmacist. There was a high level of interest across both first and final years in studying pharmacy (93% n=611, 88% n=448) and the idea of being a pharmacist (92% n=603, 88% n=446) with no significant difference between the responses of first year and final year students in both cases.

No significant difference was seen in the desire of students to study pharmacy or be a pharmacist between male and female respondents. Owing to the profile of the respondents, comparisons between differing ethnic groupings were only possible for the white and Asian subgroups. Although the majority of both Asian and white students indicated their desire to study pharmacy when they started their studies was either “very strong” or “strong”, 13% (n=49) of Asian students

compared with 5% (n=27) of white students either selected the response “not very strong” or “not at all strong”. This distribution of responses was significantly different for Asian respondents compared with white respondents (Chi-squared, $p < 0.05$).

Commitment to Pharmacy as a Course

The strong desire to study pharmacy and become a pharmacist is reinforced when we asked how committed they were to pharmacy. 73% (n= 478) of 1st year respondents and 71% (n=361) of 4th year respondents stated that pharmacy was their first and only choice when they chose which subject to study at university. There was no marked difference between males 74% (n=255) and females 72% (n=577). However, a smaller proportion of Asian students (69%, n=256) than white students (78%, n=432) made pharmacy their first choice (Chi-squared, $p < 0.005$).

Second choice to medicine

Respondents were asked if pharmacy was their first choice of study; 73% (n=478/658) of first year students and 71.% (n=361/508) of final year students stated that it was. For many who had chosen another course of study as their first choice (first year, n=172; final year, n=134), pharmacy was second to medicine (1st year, n=85 (49%); 4th year, n=48 (36%)) (Table 2).

TABLE 2 HERE

There was no association between gender and the reason for studying pharmacy as a second choice. However the distribution of responses from Asian (n=112) compared with white students (n=114) was significantly different (Chi-squared, $p < 0.001$) as although medicine was the principal first choice subject for both Asian and white students, a larger proportion of Asian students (46%, n=52) than white (31%, n=35) named medicine as their first choice (Figure 1).

Furthermore, for Asian students, it was more common for pharmacy to have been their second choice to dentistry (21%, n=24) than for white students (10%, n=11). After medicine, white students were more likely to have chosen pharmacy as a second choice to another science degree (24%, n=27) than Asian students (13%, n=15).

FIGURE 1 HERE

Route of Entry to the Pharmacy Course

Applicants to university courses apply via a centrally administered system operated by UCAS (Universities and Colleges Admissions Service⁹). The options are rated CF (Conditional Firm – the student's first choice which is conditional on them achieving certain grades) or CI (Conditional Insurance – the student's reserve choice, again conditional on them achieving certain grades but usually lower graded than the student's CF choice and chosen in case their achieved grades are lower than expected) and UF (Unconditional Firm - the student's first choice but one which is not conditional on them achieving certain grades). Those who are not offered a place prior to the publication of A level results are said to enter school through 'clearing'.

Table 3 shows the route of entry to schools of pharmacy. 71% (n=814) of all respondents entered through CF offers and 13% (n=149), through CI offers. Only two students (0.2%) entered through UF offers and 16% (n=187) of the total sample entered through clearing. Using data from the subset of white (n=122) and Asian (n=112) students, although not statistically different, it was seen that for those students who do not choose pharmacy as their first choice, a higher proportion of Asian students (40%, n=45) than white students (23%, n=28) entered through clearing. There was no significant difference between male and female students.

TABLE 3 HERE

The proportion of Asian and white students who selected “entry via clearing” as a reason for entering pharmacy as a second choice subject was small in absolute terms, about 10% of the total for each sub-group (Asian 10%, n=11; white 11%, n=12). However, when asked in another question about how they entered their course, 16% (n=187) of all respondents (first and final year) entered via clearing. Therefore entry via clearing is not synonymous with second choice of pharmacy as a career. It appears likely that a number of clearing entrants did have pharmacy as first choice but were unable to obtain an offer of a place in the first round.

There was no significant association of route of entry with gender of applicants. However, there was a significant association with ethnicity (Chi-squared, $p < 0.001$). Fewer Asian applicants entered as firm choice candidates (63%, n=232) than white students (78%, n=428) and more entered through clearing (22%, n=82) than did white students (11%, n=61).

Choice of School of Pharmacy

The relative importance of the influence of a range of aspects of schools of pharmacy on their choice of institution for study is shown in Figure 2 which presents the results as a net analysis (Results are shown as the difference between the % of respondents rating as important and the percentage rating as not important). The three most important factors for choosing a school of pharmacy for both 1st and 4th year respondents were: reputation of the school of pharmacy, reputation of the university and the nature of the course as described in the prospectus. The least important aspect when choosing a school of pharmacy for both 1st and 4th year sample respondents was that of having family at the university.

FIGURE 2 HERE

There was a significant association between gender and the responses to five of the options. Females were more influenced by the nature of the course as described in the prospectus (Chi-squared, $p < 0.001$), the reputation of the university (Chi-squared, $p < 0.005$) and the location of the university in relation to their home (Chi-squared, $p < 0.005$). Males were more influenced by friends at the school of pharmacy (Chi-squared, $p < 0.001$) and family at the university of study (Chi-squared, $p < 0.001$).

There was a significant association between ethnicity (white or Asian origin) and responses to nine of the options. These options fell into two groups - one associated with the University or school of pharmacy and one associated with personal factors. In relation to the former, Asians were more influenced by the “reputation of the school of pharmacy” (Chi-squared, $p < 0.01$) and the “university facilities” (Chi-squared, $p < 0.001$) but less influenced by “an open day or visit to the university” (Chi-squared, $p < 0.01$). They were also more likely to agree that “this was the only place I could get into” (Chi-squared, $p < 0.01$). The personal factors indicating a significant difference in response were: “personal recommendation” (Chi-squared, $p < 0.001$), “friends at the school of pharmacy” (Chi-squared, $p < 0.001$), “my parents wanted me to attend this school of pharmacy” (Chi-squared, $p < 0.001$) and “family at the school of pharmacy” (Chi-squared, $p < 0.001$). In all these the distribution of responses showed Asian students to be more influenced than white students.

DISCUSSION

Limitations to the study

The key limitation of this study is the low response rate of 35%. This rate is low for pharmacy practice research, but typical of a one shot survey.¹⁰ Slippage in design and negotiation with schools of pharmacy meant that the timing of administration was too 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 when recording the uneven response rate from schools (14% to 83%) we noted that where students were asked to compete during lecturer contact time, a high response rate was obtained. Clearly this had some influence on students' motivation to complete, but examination of the responses between schools showed there was no evidence to suggest that the responses were in anyway different between the schools. There is a short window of opportunity in higher education institutions for accessing final year students.

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 being conducted at the same time and there was some confusion about duplication of effort on career surveys.

We would also draw attention to the different time lag of memory about motivations between first and final year students, which may have an effect on the comparative results.

Commitment

We have shown that the majority of students choosing to study pharmacy have made a firm commitment to a career in the profession. About half of first and final year students described their desire to study pharmacy and to be a pharmacist as very strong. There was some indication that final year students were less committed than first year students to either the study of pharmacy or being a pharmacist.

Second choice

It is strongly believed (on an anecdotal basis) that some people who train to be pharmacists really wanted to be doctors. Now there is some evidence to support that notion. Approximately one quarter of this cohort of students entered pharmacy having failed to achieve entry to their first choice subject, which in the majority of cases was either a place in a medical or dental school. The provision

of rapid progress medical school places in the UK for mature students may be an attraction for such students and this, coupled with the expanding clinical role potential of pharmacy in the twenty first century, will make it interesting to see what direction this group take later in their career.

Gender

The majority of respondents were female (70%) yet no significant differences were identified between male and female students to this particular set of questions: on entry route, the desire to study pharmacy or be a pharmacist, this was their first and only choice. By comparison there was a significant difference in the reasons of choice of school with females being more influenced by the nature of the course as described in the prospectus, the reputation of the university and the location of the university in relation to their home. Conversely, males were more influenced by friends at the school of pharmacy and family at the university of study. The reasons for these differences are not clear and warrant further investigation.

Ethnicity

This sample allowed comparisons to be made between the two major ethnic groupings: those of white and Asian students. In the group that entered pharmacy as a second choice, there was a clear difference between Asian and white students in relation to their first choice course. More Asian than white students identified medicine and dentistry as first choices. As with the comment above, it may be that with more medical school places coming on stream, after registration this group might not pursue a career in pharmacy.

The data do raise some questions. Are the differences we note due to discrimination at entry level in the schools, or is it an applicant's lack of knowledge of schools, or even a lack of confidence in success? As with variations in response based on gender, these differences will warrant further investigation. In addition, it was noted that there were differences in the gender

profile of the two main ethnic groupings which could also have gone some way to account for the differences observed. Further details on the differences between the ethnic groups can be found in the project report.²

Around 20% of pharmacy students entered through clearing and twice the proportion of Asian compared with white students entered via this route. The attrition and progress of this group does require further study.

CONCLUSION

This study confirms that the majority of applicants to study pharmacy were strongly committed to the subject. In addition, this study has allowed us to put an empirical figure to what was previously known anecdotally, that a small proportion of students who at the time of applying for pharmacy would rather study medicine. We have produced insights into key motivators in school selection and shown there are some differences between ethnic groups, but markedly fewer between male and female applicants on these questions.

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Figure 1: Reasons for studying pharmacy as a second choice compared for white and Asian students (Asian n=112; White n=114).

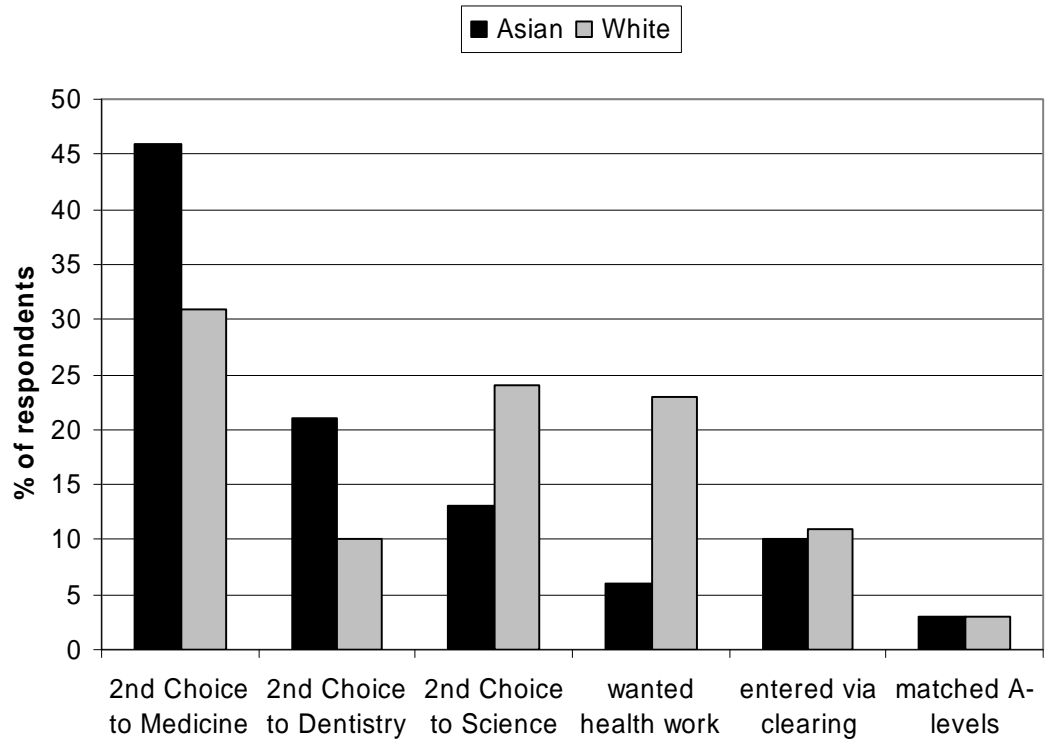
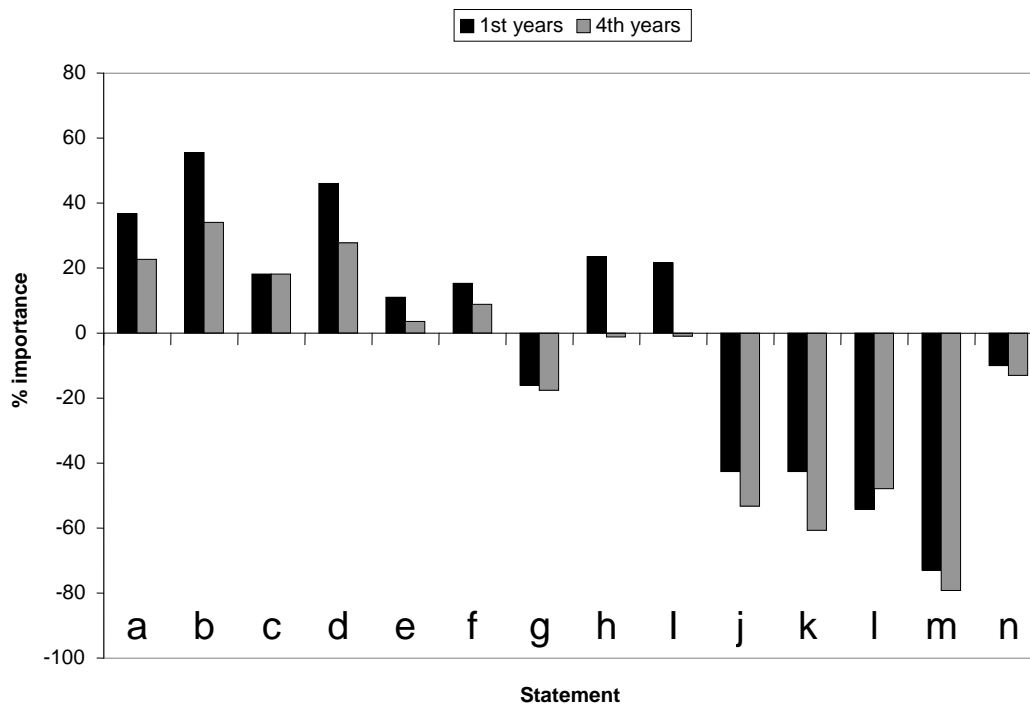


Figure 2: Importance of aspects of schools of pharmacy on influencing the choice of institution for study.



Key:

	Reason
a	Nature of the course as described in the prospectus (n=1150; 1 st year n=648; 4 th year n=502)
b	Reputation of the school of pharmacy (n=1150; 1 st year n=648; 4 th year n=502)
c	An open day visit to the university (n=1145; 1 st year n=644; 4 th year n=501)
d	Reputation of the university (n=1154; 1 st year n=650; 4 th year n=504)
e	Reputation of the city/town where the university is located (n=1146; 1 st year n=646; 4 th year n=500)
f	Location of the university in relation to where I lived (n=1148; 1 st year n=648; 4 th year n=500)
g	Availability of accommodation (n=1145; 1 st year n=645; 4 th year n=500)
h	University facilities (n=1149; 1 st year n=647; 4 th year n=502)
i	Personal recommendation (n=1149; 1 st year n=648; 4 th year n=501)
j	Friends at pharmacy school (n=1142; 1 st year n=643; 4 th year n=499)
k	My parents wanted me to attend this school of pharmacy (n=1144; 1 st year n=642; 4 th year n=502)
l	This was the only place I could get into (n=1144; 1 st year n=642; 4 th year n=502)
m	Family at this university (n=1145; 1 st year n=644; 4 th year n=501)
n	Matching entrance grades to predicted expectations (n=1148; 1 st year n=646; 4 th year n=502)

Table 1: Survey response rate by school.

School of Pharmacy	First year response rate (%)	Final year response rate (%)	Overall response rate (%)
1	40.7 (n=46/113)	47.3 (n=53/112)	44.0 (n=99/225)
2	34.1 (n=45/132)	60.4 (n=55/91)	44.8 (n=100/223)
4	23.0 (n=37/161)	54.8 (n=57/104)	35.5 (n=94/265)
5	22.1 (n=42/190)	18.0 (n=30/167)	20.2 (n=72/357)
6	18.7 (n=25/134)	24.8 (n=26/105)	21.3 (n=51/239)
8	37.2 (n=45/121)	N/A	37.2 (n=45/121)
9	12.6 (n=21/167)	16.9 (n=15/89)	14.1 (n=36/256)
10	30.0 (n=39/130)	41.9 (n=49/117)	35.6 (n=88/247)
11	87.0 (n=94/108)	4.8 (n=4/83)	51.3 (n=98/191)
12	17.3 (n=34/197)	20.8 (n=38/183)	19.0 (n=72/380)
15	23.0 (n=34/148)	18.5 (n=24/130)	20.9 (n=58/278)
16	68.9 (n=84/122)	31.8 (n=42/132)	49.6 (n=126/254)
17	71.6 (n=111/155)	98.3 (n=113/115)	83.0 (n=224/270)
Overall	35.0 (n=657/1878)	35.4 (n=506/1428)	35.2 (n=1163/3306)

Table 2: Reasons for studying pharmacy as a second choice.

Reason	1st year (n = 172)	4th year (n = 134)
Pharmacy was my second choice to medicine	49.4% (n=85)	35.8% (n=48)
Pharmacy was my second choice to dentistry	15.7% (n=27)	11.9% (n=16)
Pharmacy was my second choice to another science degree	7.6% (n=13)	23.9% (n=32)
I wanted to work in any health related field	14.0% (n=24)	16.4% (n=22)
I came into pharmacy through clearing	10.5% (n=18)	9.0% (n=12)
Pharmacy matched the A Levels I was taking	2.9% (n=5)	3.0% (n=4)

Table 3: Respondents route of entry into their school of pharmacy shown as % of respondents.

Reason	1st year	4th year	Total Sample
Firm choice (CF)	72%	69%	71%
Insurance choice (CI)	14%	12%	13%
Entry through clearing	14%	19%	16%
Unconditional Firm (UF)	0%	0%	0%