



Original Article

Undergraduate pharmacy students' motivations, satisfaction levels, and future career plans

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المخلص

أهداف البحث: هدفت هذه الدراسة إلى تقييم أسباب الانضمام إلى برنامج الصيدلة بين طلاب البكالوريوس في الصيدلة، ورضاهم عن الاختيار والخطط الوظيفية المستقبلية.

طرق البحث: تم تبني تصميمًا بحثيًا مستعرضًا باستخدام أسلوب أخذ العينات بطريقة سهلة وغير احتمالية. وتمت دعوة جميع طلاب البكالوريوس في الصيدلة في إحدى الجامعات الحكومية في المملكة العربية السعودية للمشاركة في هذه الدراسة.

النتائج: أجاب ما مجموعه 398 مشاركًا على الاستبانة. وكانت الأسباب الرئيسية لدراسة برنامج الصيدلة هي تأثير الأسرة (66.6%)، والبحث عن وظيفة ذات فرص متنوعة (81.7%)، والتطلع إلى العمل في مهنة تتعلق بالصحة (83.4%). بالإضافة إلى ذلك، ذكر 58% من المستجيبين أنه لو تم منحهم فرصة اختيار برنامجهم الجامعي، فإنهم سيختارون برنامج الصيدلة. العمل كصيدال سريريين في المستشفى كانت الخطة الوظيفية الرئيسية المستقبلية كما اقترح 83.2% من المستجيبين.

الاستنتاجات: هناك حاجة لتوجيه طلاب المدارس الثانوية في اختيار برامجهم الجامعية. وهناك حاجة لإفهامهم التحديات والفرص المصاحبة لدراسة الصيدلة. يمكن تحقيق ذلك بتنظيم برنامج تعريفى صيدلي لمدة يوم واحد يقدم للطلاب خلال مرحلة تعليمهم الثانوي.

الكلمات المفتاحية: دراسة؛ صيدلة؛ أسباب؛ رضا؛ المملكة العربية السعودية

Abstract

Objectives: This study aims to evaluate undergraduate pharmacy students' reasons for joining the pharmacy

program, their levels of satisfaction regarding their choice, and their future career plans.

Methods: A cross-sectional research design was adopted using a non-probability convenience sampling technique. All undergraduate pharmacy students at one public university in KSA were invited to participate in the study.

Results: A total of 398 participants responded to the questionnaire. Family influence (66.6%), seeking a job with diverse opportunities (81.7%), and the desire to work in a health-related profession (83.4%) were the main reasons for studying pharmacy. Only 58% of respondents affirmed that, given the chance to choose their undergraduate program again, they would still choose pharmacy. Working as a hospital clinical pharmacist was the most popular future career plan, cited by 83.2% of respondents.

Conclusion: There is a need to guide high school students regarding their choice of undergraduate programs, and for these students to be made aware of the challenges and opportunities of studying pharmacy. This can be achieved by organizing a one-day pharmacy orientation program introduced to students during their high school education.

Keywords: KSA; Pharmacy; Motivation; Satisfaction levels; Study; Future career plans

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Introduction

Pharmacy is one of the most respected professions worldwide, and one that has undergone tremendous developments over the years.¹ The pharmacist's role has changed from being product-oriented to being patient-oriented. This is due to the fact that pharmacists are experts in medicines, in respect to which they advise both patients and physicians regarding the appropriate use of both prescribed and over-the-counter drugs. In 1997, the World Health Organization pointed out the expanded role of pharmacists in the healthcare team, and coined the term "Seven Stars Pharmacist," referring to the extension of their role to caregiver, decision-maker, communicator, leader, manager, lifelong learner, and teacher.² Pharmacy students are given many courses in biomedical, pharmaceutical, clinical, and administrative sciences to strengthen their knowledge and build their skills so that they may become productive and successful practitioners in the field of pharmaceutical practice.³

Students' preparedness for their future career plans during high school is very important. For example, in Canada, more than 3500 junior high school students were interviewed to assess their future career plans and their confidence in being able to find training and jobs in their field of interest. A majority of students had already planned for their future career and were confident regarding finding jobs at the national and global level.⁴

High school students are normally unaware of the pharmaceutical profession or the role of pharmacists. There are, however, many reasons for students to choose pharmacy as an area of specialization after high school graduation. Some may choose pharmacy because they want to work with patients, others may choose pharmacy because they want a profession with a high level of income, while others may choose pharmacy because they want a profession with flexible working hours.⁵ These students may be influenced to study pharmacy by their relatives, friends, or teachers, or through career fairs.⁶

The College of Pharmacy at the University of Arkansas for Medical Sciences offered a one-week program for high school graduates, introducing them to the pharmacy profession. During this week, students were briefed on the profession, were involved in activities related to compounding, visited practice sites, and were included in certain clinical trainings. At the end of the week, about 70% of students who had completed the course either applied or considered applying for the pharmacy program.⁷

Proper systematic and professional guidance for high school students regarding the pharmaceutical career and the potential working opportunities would guide students toward selecting their career of interest, as well as helping them to map their future career plan.

The pharmaceutical market in KSA suffers from a shortage of native-born pharmacists, which has led to the recruitment of a large number of overseas pharmacists.⁸ As recently as 2001, there was only one school of pharmacy in KSA,⁸ but by 2016 a total of 21 public pharmacy colleges and 7 private colleges had been established.⁹ Nowadays, the total number of doctoral (Pharm D) programs offered in KSA is 19, while 15 Bachelor's (B Pharm) programs are

on offer. (The total number of programs is more than 28, since some universities offer more than one program.⁸) Due to the tremendous increase in the number of pharmacy colleges between 2001 and 2016, the number of Saudi national pharmacists increased from 5% to 16.6% during that period.¹⁰

Many studies worldwide have investigated the reasons and motivators for pharmacy students to study pharmacy^{5,6,11–14} as well as their future career plans.^{4,15,16} In KSA, only one study was conducted among 122 final year B Pharm and Pharm D students in Riyadh to evaluate the main factors influencing students' selection of the pharmacy program and their willingness to enter the pharmaceutical industry after graduation.¹⁷ Taif is one of the major cities located in the western region of KSA. No previous studies have been conducted in the western region of KSA exploring pharmacy students' satisfaction levels and future career plans. Therefore, this study aims to evaluate the motivations of all pharmacy students (Pharm D) in joining the pharmacy program at Taif University, their satisfaction concerning their choice, and their future career plans.

Materials and Methods

Study design

A cross-sectional study was carried out at the College of Pharmacy, Taif University. About 700 questionnaires were conveniently distributed to all pharmacy students at Taif University.

Data collection tool: the questionnaire

The questionnaire was developed after an extensive literature review.^{5,6,13,14,16–18} Form and content validation were performed by two experts from the Clinical Pharmacy Department at Taif University (one professor and one associate professor). The initial questionnaire was piloted on 20 students. The pilot study yielded a Cronbach's alpha of 82.6%. The questionnaire was divided into four sections. The first section concerned respondents' demographics, such as gender, educational level, place of residence, and Grade Point Average (GPA). Section two enquired about students' reasons for choosing to study the Pharm D program. The third section concerned students' satisfaction regarding their choice of pharmacy as a major. The final section asked about students' future career plans. In this section, students were given a list of possible career paths for pharmacists and asked to answer either "yes" or "no" to each one. Since students were allowed to choose more than one possible future career plan, the total percentage of students' choices may in some cases be more than 100%.

Study population

All pharmacy students at the College of Pharmacy, Taif University, were eligible to participate in this study, a total of 765 male and female students. All students were enrolled in the same program, a 6-year Pharm D program.

Data collection technique

A group of 4th-year pharmacy students were recruited as data collectors. They met with pharmacy students at the College of Pharmacy during their study breaks from April 1, 2017 to April 30, 2017. First, data collectors introduced themselves to students and briefed them about the study. They then informed them that their participation in the study would be voluntary and that all data would be kept confidential. Students who agreed to join the study and gave informed verbal consent were given the questionnaire. The questionnaire generally took less than 10 min to complete.

Statistical analysis

Data obtained from this survey were coded, entered, and then analyzed using the Statistical Package for Social Sciences (SPSS) Version 22.0. Frequencies and percentages were used to describe the results, while Chi-square and Fisher Exact tests were used to determine the association between the students' demographic profiles and their answers to the three main study sections. *P*-values of less than 0.05 were considered significant.

Results

A total of 700 students were present during the study period. Only 398 students responded to the questionnaire, a response rate of 56.85%. The majority of respondents were male (80%), in their fourth year of study (47.7%), had applied for the pharmacy program as their second choice after medicine (62.3%), and preferred to study the Pharm D program (98.2%). Detailed results are shown in Table 1.

Table 2 below summarizes students' reasons for choosing to enroll on the pharmacy program. Two-thirds of respondents were encouraged to study pharmacy by family members, while three-quarters—73.4%—chose pharmacy because their high school grades allowed them to join the program. Looking for an in-demand job with career opportunities, flexible working hours, wishing to work in a health-related field, and having a secure job were the main incentives for pharmacy students to join the pharmacy program (81.7%, 67.8%, 83.4%, and 83.2%, respectively).

Table 3 below summarizes students' perceptions toward their choice of pharmacy as a profession. Just over half of all respondents (52%) either agreed or strongly agreed with the statement that pharmacy is the ideal profession. In addition, about 58.7% of respondents agreed or strongly agreed that, if they were given the chance to choose their program of study again, they would again choose pharmacy. Only 27% of respondents regretted entering College of Pharmacy.

Regarding students' future career plans, students were asked to tick all areas of work that might be of interest to them. The results are shown in Table 4 below. As can be seen from Table 4, 83.2% would consider work as hospital clinical pharmacists, 60% would consider work in academia, 65% work outside KSA, while 34% were not sure about their future career plans.

Discussion

Studying pharmacy is a stressful task due to the academic workload during the study period.^{19,20} Therefore, students

Table 1: General characteristics of respondents.

Demographic characteristics		Frequency	Percentage
Gender	Male	320	80.4
	Female	78	19.6
Year of study	1st year	6	1.5
	2nd year	39	9.8
	3rd year	78	19.6
	4th year	190	47.7
	5th year	59	14.8
	6th year	24	6
Place of residence	Rural	176	48.5
	Urban	187	51.5
GPA	Less than 1	4	1
	1–2	51	12.9
	2–3	205	51.9
	3–4	135	34.2
Was pharmacy your first or second choice?	First choice	150	37.7
	Second choice	248	62.3
Choice of program	B Pharm	7	1.8
	Pharm D	391	98.2

joining a pharmacy program should be clear about the requirements for successful completion of the program, as well as the opportunities available for pharmacy graduates. It is noticeable in our findings that only 37.7% of our respondents had applied to study pharmacy as their first choice. It is a common view in Arabian countries that students who attain high grades in their high school studies largely choose to study medicine as their first choice. Those who fail to secure a place in the faculty of medicine choose to study pharmacy or another health-related subject most of the time. In a study conducted among undergraduate pharmacy students in Jordan, it was found that 45% had applied for pharmacy as their first choice, while about 32% of respondents had medicine as their first choice of study program.⁶ Similar findings were found in a study conducted among pharmacy students at Nelson Mandela Metropolitan University in South Africa, where pharmacy was the first choice for 52.3% of pharmacy students. Many incentives and influencing factors could affect students' decision regarding their chosen field of study. In our study, about two-thirds of respondents, 66%, were encouraged to study pharmacy by family members, 83.7% wanted to work in a well-respected profession, 81.7% chose pharmacy because of their desire to work in a popular and in-demand profession, 60% due to their belief that pharmacy is the closest profession next to medicine, while two-thirds wanted a job involving direct contact with patients. We note that school teachers played a role in guiding students' future career plans in only a minority of cases (20.4%). All of these reasons were in turn mainly due to students' perceptions toward the pharmacy profession, namely, that it is secure, respected, and in demand, as well as family influence. Another study investigating the factors influencing Pharm D students to study pharmacy at the University of Georgia and at Florida Agricultural and Mechanical University in the USA found that the majority of students were encouraged to study pharmacy by someone else. Of these, 43% were influenced by family, 24% by pharmacy students or pharmacists, and about 9% by a career day event that had introduced them to the pharmacy profession.⁶

Table 2: Reasons for studying Pharm D.

Reason for choice of program	Responses (n) (%)					
	Yes	No	Gender	Residence	GPA	Study choice
My family encouraged me	265 (66.6)	132 (33.2)	0.532	0.664 ^a	0.854 ^a	0.008 ^a
My friends encouraged me	189 (47.5)	209 (52.5)	0.628	0.881	0.34 ^a	0.043
A teacher at school advised me	81 (20.4)	316 (79.4)	0.003 ^a	0.804 ^a	0.298 ^a	0.243 ^a
My high school grades allowed me to study Pharm D.	292 (73.4)	106 (26.6)	0.164	0.483	0.756 ^a	0.060
I am good at science and so wanted to do a science-based course	283 (71.1)	114 (28.6)	0.013 ^a	0.638	0.039 ^a	0.381 ^a
I wanted to work in a well-respected profession	333 (83.7)	65 (16.3)	0.276	0.694	0.391	0.330
I wanted a job with good and in-demand career opportunities	325 (81.7)	73 (18.3)	0.822	0.480	0.321	0.692
I wanted to work with patients	280 (70.4)	117 (29.4)	0.464 ^a	0.431 ^a	0.167 ^a	0.125 ^a
I wanted flexible working hours	270 (67.8)	126 (31.7)	0.068 ^a	0.171 ^a	0.317 ^a	0.733 ^a
I wanted to work in a health-related field	332 (83.4)	65 (16.3)	0.689 ^a	0.533 ^a	0.802 ^a	0.989 ^a
Because it is the closest profession to Medicine	239 (60.2)	158 (39.8)	0.022	0.877	0.084	<0.001
Good job opportunities because of shortage of pharmacists	287 (72.1)	111 (27.9)	<0.001	0.069	0.266	0.969
Having direct patient contact	266 (66.8)	132 (33.2)	0.762	0.298	0.128	0.784
Having a secure job	331 (83.2)	67 (16.8)	0.534	0.758	0.481	0.034

^a Fisher Exact test.**Table 3: Students' Perceptions toward their Choice of Pharmacy.**

Statement	Chi-square test exact <i>p</i> -values							
	SA (n) %	A (n) %	D (n) %	SD (n) %	Gender	Residence	GPA	Pharmacy choice
Pharmacy is the ideal profession for life	61 (15.4)	148 (37.4)	137 (34.6)	49 (12.4)	0.016	0.236	0.013 ^a	0.012
If I could do it all again, I would choose to study for the same profession	83 (20.9)	150 (37.8)	103 (25.9)	61 (15.4)	0.017	0.801	0.017	<0.001
I definitely want a career in pharmacy	107 (27.0)	205 (51.6)	61 (15.4)	24 (6.0)	0.019	0.841	0.022 ^a	0.013
I intend to undertake a second degree after completing pharmacy	158 (39.8)	141 (35.5)	55 (13.9)	43 (10.8)	<0.001	0.292	0.001	0.147
I regret that I entered pharmacy school	31 (7.8)	76 (19.1)	143 (36.0)	147 (37.0)	0.050	0.348	0.316 ^a	0.001
If I could pick a different occupation that paid the same I would probably change degree	91 (22.9)	99 (24.9)	127 (32.0)	80 (20.2)	0.007	0.688	0.261	0.001

^a Fisher Exact test.**Table 4: Students' future career plans.**

Area of work	Responses (n) (%)					
	Yes	No	Gender	Residence	GPA	Study choice
Hospital dispensing pharmacist	202 (51.3)	192 (48.7)	0.003	0.164	0.786	<0.001
Hospital clinical pharmacist	328 (83.2)	66 (16.8)	0.367	0.064	0.569	0.151
Community pharmacy	172 (43.7)	222 (56.3)	<0.001	0.842	0.133	0.449
Industry	231 (58.6)	163 (41.1)	0.187	0.433	0.182	0.187
Academia (university)	237 (60.2)	157 (39.8)	0.416	0.001	0.508	0.675
Research	122 (56.4)	172 (43.6)	0.044 ^a	0.064 ^a	0.700 ^a	0.234 ^a
Pharmaceutical sales and marketing	184 (46.7)	210 (53.3)	0.038	0.384	0.447	0.309
Regulatory affairs and drug registration	227 (57.6)	167 (42.4)	0.017	0.418	0.229	<0.001
Work outside KSA	256 (65.0)	138 (35.0)	0.539	0.432	0.249	0.027
Not sure	132 (34.0)	256 (66.0)	0.680	0.610	0.293	0.159

^a Fisher Exact test.

Another study among pharmacy students at Stanford University found that salary was an important factor in 85% of respondents in their choice to study pharmacy, while 93% of respondents cited flexible working hours.¹⁶ Similar findings were reached in a study that evaluated the factors that influenced final year Pharm D students, pharmacy residents, and clinical pharmacy practitioners in the US. The majority of respondents were influenced by salary and work flexibility in their decision to study pharmacy.²¹

Findings very similar to those of the current study were found in a study among undergraduate pharmacy students in Jordan, in which 79% of students were influenced toward studying pharmacy by their family members, 72% wanted to work in a popular and in-demand profession, and 75% wanted to work in a well-respected profession.⁵ These similarities in findings might be due to the fact that Jordan and KSA are neighboring countries with many cultural similarities. Furthermore, 5th-year undergraduate pharmacy students in Karachi, Pakistan were asked to point out the main factors that had influenced them in their choice to study pharmacy. A majority of respondents (83%) wanted to be part of a healthcare team, while direct contact with patients was cited by 59% of respondents, and job security by 62%.²²

From the previous discussion, it is clear that pharmacy students have various reasons for enrolling in pharmacy programs. An important issue now is to measure students' satisfaction with their decision to choose pharmacy as their area of study. In our study, only 58.7% of respondents said that, given the chance, they would again choose a pharmacy course. In addition, about 27% of respondents regretted that they had chosen a pharmacy program. Furthermore, about 48% of our respondents said that they would probably change their degree if they could pick a different occupation with the same pay. It seems some students had had a change of attitude toward their studies and were willing to pick a different occupation if it would provide the same level of remuneration as pharmacy. Possible explanations could be the point that students were not aware of the challenges and heavy academic workload that they would face studying Pharm D, or that they were not clear regarding the future career options for pharmacy graduates. Similar findings were recorded in Jordan, where pharmacy students' satisfaction with their choice of the pharmacy program was assessed. Fifty-four percent of respondents were satisfied with their choice, whereas 20% regretted their decision to study pharmacy.⁵

In another study, pharmacy students' satisfaction with their choice of a pharmacy program was measured at Purdue University in the USA. A majority of respondents said that they were satisfied with their choice of pharmacy as their major. In addition, the majority agreed that they would choose pharmacy if they were asked to choose their major again.¹⁸

Pharmacy graduates are qualified to work in different fields. For example, they might work as hospital pharmacists, community pharmacists, in academia, research, industry, or any number of other fields.²³ Exposure of pharmacy students to field work experience during the early stages of their studies would help prepare them for their future work and entry into the job market.²⁴ A

career pathways assignment was designed to expose 1st-year pharmacy students to pharmacy careers pathways at the Lebanese American University in Lebanon. Students were asked to select a pharmacy career pathway from a list of 28 careers. They were then asked to review publications related to this career pathway, interview practitioners in this pathway, and prepare a report and presentation as part of their assignment. At the end of the assignment, students were satisfied that this assignment had introduced them to many different pharmacy career pathways they were previously unaware of.²⁵ It is this author's belief that such activities could be critical in improving students' performance during their period of study, as well as guiding them at an early stage in selecting their future career pathway.

Another study in the US assessed the impact of an elective online course introducing 1st-to 3rd-year pharmacy students to the possibility of academia as a career. A reasonable portion of participants (40%) said that the course had opened their eyes to a new window of work opportunities, and that they would consider academia as a future career option.²⁶ Another study considered a 10-week summer program that was implemented among 25 pharmacy students in Florida, USA. This study aimed to assess the impact and influence of the program on pharmacy students' consideration of a future career in research. A majority of respondents, 55%, indicated that the program had positively influenced their feelings toward research as a future career pathway.¹⁵ As previously mentioned, students may not have a clear picture of the available career options for pharmacy graduates. Thus, orienting pharmacy students on future career options during their undergraduate studies would positively help them in properly planning for their future career. An important point to raise here is that pharmacy colleges, in collaboration with industry and health authorities, can work together to inform students of the specific areas of demand for pharmacy graduates in KSA.

In our study, 83.2% of respondents selected hospital clinical pharmacy as a possible future career pathway, 60.2% selected academia, and 56.4% selected research, while industry was selected by 58.6% of respondents. The large number of respondents selecting hospital clinical pharmacy as a possible future career may be due to the type of pharmacy program offered at the study site, namely the Pharm D program. Many other studies have assessed pharmacy students' future career plans. For example, a study of pharmacy students at Nelson Mandela Metropolitan University found that 31.7% were considering hospital practice as a future career pathway, 23.4% were considering retail pharmacy, 21.6% were considering industry, while 76% were interested in postgraduate studies.¹¹ On the other hand, among pharmacy students in Jordan, similarly to our study, a large proportion (83%) expressed interest in work as hospital clinical pharmacists. However, their levels of interest in other career pathways were a bit lower than for our study. For example, only 19% would consider a community pharmacy career pathway, while industry and academia were selected by only 24% and 38% of respondents, respectively.⁵ This difference from our students may reflect a difference in market demand between Jordan and KSA. While

community pharmacies and industries in Jordan are almost saturated with local pharmacy graduates, and the salaries for these careers are considered lower than other available options, in KSA, by contrast, there is great demand for pharmacists to work in the community industry. This might be due to the fact that most community pharmacists in KSA are non-Saudi born nationals, and the new regulations issued by the Ministry of Labor in KSA are to recruit only Saudi national pharmacists in community pharmacies in the near future.

Conclusion

Impact of family members, looking for an in-demand job with good career opportunities, and the desire to work in a health-related field were the main influencing factors in pharmacy students' decision to study pharmacy. In addition, just over half of respondents were satisfied with their choice of the pharmacy program. This might be due to the fact that students were not completely clear about the content of the pharmacy program, its challenges, and their future career options. It is obvious from main findings of this study that there is a great need for pharmacy day programs to introduce high school students to the pharmacy profession prior to their application and enrollment in their undergraduate studies.

Study limitations

A few limitations were faced in conducting this study. The first was the low number of responses from 1st- and 6th-year students. In the case of 1st-year students, this is due to the fact that these students in their preparatory year had different study schedules from other pharmacy students. Therefore, there was difficulty in communicating with this category of students. Final year students spend most of their time at hospitals for their clinical rotations and rarely visit the college. It was thus impossible to meet the majority of these students. The final limitation was the low number of responses from female students. This was due to the period in which the study was conducted, in which female pharmacy students were very busy with their classes and other activities, which resulted in a large number of non-responses.

Study recommendations

We recommend the development of a nationwide study to compare Pharm D and M Pharm students' levels of satisfaction with and reasons for joining their pharmacy program, and reasons for any non-satisfaction if present. In addition, it is recommended that Ministry of Education officials be encouraged to visit secondary and pharmacy schools, so that they can highlight the market demand for pharmacy-related careers and assist the students in properly formulating their future career plans.

Conflict of interest

The author has no conflict of interest to declare.

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