

# Choosing Pharmacy as a Major: Motivations and Influences

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## Abstract

**Background:** Motivations to choose pharmacy as a major have been the subject of numerous international studies.

**Aims:** This study was undertaken to assess factors and motivations that influenced pharmacy undergraduates to choose pharmacy as a major.

**Method:** A pre-validated anonymous questionnaire was distributed to 400 first and second year students at the Sharjah College of Pharmacy in the United Arab Emirates (UAE). The questionnaire covered demographic parameters and motivations and factors influencing student's choice of pharmacy.

**Results:** The response rate was 82.5% with the majority being females comprising and self-sponsored. The parents of about 25% students were pharmacists and other health professionals. Desire to help and serve others and student's interest in science were the major motivation and factors influencing choice, while University and College were selected because of reasonable tuition fees and reputation. Knowledge of students seems adequate enough and is reflected in their rational choice of pharmacy as a major.

**Keywords:** Motivation, influences, pharmacy, Sharjah, undergraduate

## Introduction

Numerous factors and motivations influence the choice of a university major by young high school graduates. These include, among others, interest in chemistry, biology and mathematics, expectation of a highly paid profession, availability of various job opportunities, University and College reputation and influence of their promotional activities, and also influence of parents, relatives and friends (Pratt, 1956; Burlage, 1963; Ferguson, *et al.*, 1986). With the progressive development in pharmaceutical sciences and change of pharmacy education and also pharmaceutical care delivery which focus on patient rather than drugs, a need for competent pharmacists with good communication skills became a necessity (Aita *et al.*, 2004). This in addition to the extended role of pharmacists would require recruitment of students capable of bearing such important responsibilities towards patients and also make a true difference in their communities. Academic programs have to satisfy the accreditation standards of the United Arab Emirates (UAE) Ministry of Higher Education and Scientific Research and meet the demands of the community.

The Sharjah College of Pharmacy, a relatively young as it was established in 2004, offers a five year program that leads to bachelor of pharmacy. Students with a secondary school certificate (Science track) or an equivalent degree

and with a grade of 80% and above are admitted on competitive basis provided that they have evidence in English proficiency as a foreign language as teaching is in English. Students must score either 500 (TOEFL) or 5 (IELTS) points. Graduation requirements include completion of 24 credit hours of general education, 3 credit hours special topic and 143 credit hours of College's courses. Thus to graduate, a student must successfully complete a total of 170 credit hours and obtain a minimum of GPA of 2.

A significant emphasis on pharmacy practice and clinical pharmacy is a landmark differentiating Sharjah-pharmacy from other competitor programs in the United UAE. A common feature to all Pharmacy Colleges in UAE is the higher female to male ratio and the diversity of expatriate students enrolled. Admitted students must score 80% or above in secondary school science section. However, most applicants in the last three years have scored 90% and above students. No earlier studies have been done to explore how pharmacy as a major may appeal to students in UAE. Worldwide several studies have investigated the influence of motivational factors on the choice of pharmacy as a major academic program of study (Pratt, 1956; Burlage, 1963; Ferguson, *et al.*, 1986; Silverthorne, *et al.*, 2003). Results of earlier studies have shown popularity of pharmacy among certain ethnic groups of students (Simpson, 2001; Danielle, *et al.*,

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2006). In addition many factors and motivations were shown to influence the choice of pharmacy by high school graduates (Pratt, 1956; Burlage, 1963; Ferguson, *et al.*, 1986). Roller (2004) investigated the influences as extrinsic (*e.g.* high school grades and career opportunities) and intrinsic (*e.g.* likeness of science) motivations and demonstrated that in Australia intrinsic factors scores higher than extrinsic factors. The aim of the present study was to assess the factors and motivations that influence student's choice of pharmacy as a career in UAE.

### Methods

This study was carried out at the College of Pharmacy, University of Sharjah, UAE. An anonymous questionnaire approved by the Research Ethics Committee (REC) of the medical and health sciences complex of the university was pre-validated by distributing it to eight students and their comments were considered in the final version of the questionnaire. The later was distributed to 400 first and second year students during the Spring semester, April 2013. The questionnaire was distributed in the class room and its nature was briefly explained to students. Completed questionnaire forms were collected and analysed and results are expressed as number and percentage of respondents answering each question. Partially (less than 75%) completed questionnaires were rejected.

The questionnaire covered questions on demographics of participants: year of study, age, gender, marital status, sponsorship, living status and parent's occupation. The second part of the questionnaire addressed reasons for selecting the pharmacy program as a major, subject of interest and with high marks in high school, source of information, reason for selecting the university and the College, and views of students on various aspects of the Sharjah-pharmacy program. Students were also asked to provide helpful suggestions directed to high school students.

### Results

The number of students who responded was 330 giving a response rate of 82.7%. The majority (305, 92.4%) of students were females with age ranging 18-23 years. Most students (318, 96.4%) were Arabs of different nationalities and only 12 (3.6%) students were Iranian. The majority (202, 61.2%) of students lived with their families, while the rest lived in dormitory (121, 36.7%) or on their own (7, 2.1%) outside the university. Most students (324, 98.2%) were single and only 6 (1.8%) were married. Only 75 (22.7%) students were receiving grants from various bodies. Forty (12.1%) students have their mother or father working as a pharmacist, 45 (13.6%) in other health profession, and the majority (245, 74.5%) of parents were non- health professionals.

**Table I: Demographics of first and second year Sharjah-pharmacy students.**

Variable	Frequency N=330
<b>Gender:</b>	
Males	25 (7.6%)
Females	305 (92.4%)
<b>Age:</b>	
18	35 (10.6%)
19	105 (27.3%)
20	115 (34.8%)
21	55 (16.7%)
22	15 (4.5%)
23	5 (1.5%)
<b>Marital status:</b>	
Single	324 (98.2%)
Married	6 (1.8%)
<b>Sponsorship:</b>	
Self	255 (77.3%)
Grant	75 (22.7%)
<b>Living:</b>	
With family	202 (61.2%)
Dormitory	121 (36.7%)
Other	7 (2.1%)
<b>Ethnic group:</b>	
Arabs	318 (96.4%)
Iranian	12 (3.6%)
<b>Family background:</b>	
Pharmacist	40 (12.1%)
Other healthcare professional	45 (13.6%)
Non-health professional	245 (74.2%)

Considering career, the most common motives were helping and serving others, running my own business and influence of parents whereas those with regard to university, the common motives were reasonable tuition fees, high reputation and close to residence. With regard to College respondent's selected high reputation, accredited program and quality of teaching/learning processes. The choice of pharmacy as a major was also based on interest in and high performance in chemistry, biology, and mathematics.

Students' views on the various aspects of the College of Pharmacy are shown in Table II. Almost all responses were positive and scored between good and very good except with regard to extracurricular activities and tuition fees. Table III. shows responses of students to the question on their recommendation to high school students on how to select their major. (Table III. here) When asked to report recommendation to high school students, respondents emphasised that selection must be based on one's own interest, a visit to the College offering the academic program in mind and that influence of others including parents should be avoided.

**Table II: Influence of consideration of career, university, college and interest in high school subjects on student's decision to choose pharmacy as an academic program**

Motivation/Influence	N=330
<b>Career consideration:</b>	
Serving/helping others	200 (60.6%)
Running my own business	100 (30.3%)
Influence of parents	100 (30.3%)
More job opportunities	95 (28.8%)
High reputation career	90 (27.3%)
Flexible working time	50 (15.2%)
Making lots of money	35 (10.6%)
Taking care of family business	25 (7.6%)
Graduate in a short time	20 (6.1%)
Following parent's profession	15 (4.5%)
<b>High school's subject interest/marks:</b>	
Chemistry	265 (80.3%)
Biology	250 (75.8%)
Mathematics	205 (62.1%)
Physics	135 (40.9%)
<b>University consideration:</b>	
Reasonable tuition fees	205 (62.1%)
High reputation	190 (57.6%)
Near my residence	125 (37.9%)
Excellent extracurricular activities	40 (12.1%)
Excellent opportunity for graduate studies	35 (10.6%)
<b>College consideration:</b>	
High reputation	205 (62.1%)
Accredited program	130 (39.4%)
Quality of teaching/learning	90 (27.3%)

**Table III: Views of pharmacy students on various aspects of the pharmacy program**

Variable	Poor	Good	Very Good	Excellent
Competency of teachers	0%	31.8%	50%	19.6%
Competency of administrators.	13.6%	43.9%	37.9%	9%
Scientific activities	16.7%	40.9%	39.4%	3%
Relationship of high school subjects to college courses.	18.2%	43.9%	31.8%	9%
Extracurricular activities	30.3%	40.9%	24.2%	3%
Tuition fees	45.5%	34.8%	16.7%	0%
Registration of courses	15.2%	54.5%	25.8%	6.1%
Course work (in general)	6.1%	54.5%	33.3%	6.1%
Examinations	7.6%	71.2%	22.7%	1.5%
Assignments	9%	60.6%	21.2%	1.5%
Career opportunities	9%	51.5%	24.2%	12.1%

**Table IV: Recommendations of Sharjah-pharmacy students to high school students.**

Recommendation	Number (%) N=330
Your choice must be based on your own interest.	265 (80.3%)
Visit the college before making a choice.	120 (36.4%)
Your choice should not be influenced by parents / relatives/friends	105 (31.8%)
First enquire on jobs in high demand.	55 (16.7%)

## Discussion

The status of the pharmacy profession in UAE is quite different from that in Western countries where there is a great shortage of pharmacists (Taylor *et al.*, 2004; Keshisian, *et al.*, 2010). It has also been predicted to progressively increase and become worse by year 2020 (Kenreigh & Wagner, 2008; AACCP, 2010).

As the delivery of pharmaceutical care has dramatically evolved, and the pharmacist's role in the community has significantly changed, it became necessary to investigate factors and motivations for choosing pharmacy as a future career (Keshisian *et al.*, 2010).

In UAE, there are seven Colleges of Pharmacy with annual enrolment in each ranging between 50 and 150 students. The number of graduates from various UAE Colleges of Pharmacy in the next one or two years certainly covers the needs of both the community and hospital pharmacies in the country. However, the majority of students enrolled in UAE Colleges of Pharmacy are non-national residents and a large number of graduates leave the country after graduation.

Though the Sharjah College of Pharmacy offers a program leading to the traditional Bachelor of Pharmacy degree, it adopts a five year study plan based on general basic sciences in the first year. This is followed by second and third years on pharmaceutical sciences, whereas the pharmacy practice and clinical pharmacy load increases gradually from first year to dominate the other courses towards exit. As such, the study plan represents moderation between traditional Pharmacy and Pharm.D programs.

Results of the present study indicated a high female to male ratio with average age of 20 years. This trend in female:male ration is common among all medical and health sciences colleges. With such a ratio it was inappropriate to compare motivations based on gender. The majority of students were Arabs and financially supported by their families to study pharmacy. Only a small percentage of students were receiving scholarships from various granting bodies. Most students were single and a large number lived with their families. Parents of the majority of the investigated students were non-healthcare professionals whereas those with a degree in pharmacy or other healthcare professions comprising 12.1% and 13.6% respectively. This may explain the fact that the influence of parents on students to choose pharmacy as a major was evident in only 30% of respondents. Surprisingly enough, most of the parents (74.2%) of respondents were non-health care professionals. This finding is in accordance with earlier results (Keshisian *et al.*, 2010) but in contrast with those reported by another study on the strong influence of a family member, pharmacist, pharmacy student, college instructor or other health care professionals (Anderson *et al.*, 2008). However, the influence of the pharmacist as a role model cannot be completely eliminated as such an influence has been demonstrated in other studies (Keshisian *et al.*, 2010).

It is worth noting that in the present study only a small percentage of students stated that they studied pharmacy to follow their parent's profession or to take care of the family business. This may be a reflection of the fact that in the present study only a small percentage of parents were pharmacists or other health care professionals.

The pattern of demographics of participants made it difficult to study the relationship, if any, of such parameters and choice of pharmacy as a major.

It is a custom in the University of Sharjah to hold an exhibition for all University Colleges during an orientation week on campus. The activity is open for high school students and their families to visit stands of the various Colleges and discuss with faculty all aspects related to the academic programs. Moreover, during that week students are able to arrange visits to their sought after Colleges. We strongly believe that such visits to the University and the College of Pharmacy further strengthen the influence on students interested in science, mainly chemistry and biology and mathematics, to select Pharmacy as a major. This is consistent with reports on interest in science, as one of the main intrinsic motivations for students to choose a pharmacy major (Burlage, 1963; Suzuki, 1988).

Our results may also suggest an overwhelming confidence of students of their scientific knowledge and likeness of sciences such as chemistry, biology and physics, which are always thought of as the main prerequisites to pharmaceutical sciences. When considering pharmacy as a future career, humanitarian reasons expressed, such as serving and helping others, influenced the selection of about two thirds of respondents. However, only one third of students based their choice on their desire to run their own business, more job opportunities, or on the high reputation of pharmacy as a healthcare profession. Respondents interested in making a lot of money and enjoying flexible working time constituted about 25% of all participants whereas less than 20% choose pharmacy to take care of family business, follow parent's profession and graduate in a short time collectively. These results are in contrast to those published earlier (Lobb *et al.*, 2004). To graduate in a short time is most likely taken in comparison to the time spent studying medicine or dentistry (six years excluding internship), as each of the other 12 academic programs offered by the University are spread over four years. When asked about factors that influenced the student's choice of University, the majority based their selection on the reasonably afforded tuition fees and the high reputation of the University. The College's high reputation was also the main factor to choose the program, followed by the full accreditation of the program, while the quality of teaching/learning was ranked last. These findings taken together enhance the point that self-motivation based on interest and high performance in chemistry, biology and mathematics at high school level are the principal determinants of choosing pharmacy as a major by UAE students. Admission to the College is based on scoring 80% in secondary school or its equivalency, however since admission is on competitive basis, the majority (more

than 80%) of students admitted in the last three years were with grades of 90% and above in secondary school certificates. This further supports our findings that distinguished performance in high school science subjects markedly contribute to the student's choice of pharmacy as a major.

Views of students on various aspects were generally positive with good and very good ranking except for tuition fees and extracurricular activities where a significant number of students ranked the two variables as poor. Such a response for tuition fees is not uncommon from students. With regard to extracurricular activities, students in the first two years of study need to get involved more with the various activities in the College and University at large. Adequate knowledge and proper attitude of students in choosing pharmacy as a major are strongly expressed by students when asked for their recommendations to high school students. The majority of students strongly recommended that selecting a major must be based on the interest of the student, and more than one third of participants suggested that the choice should not be influenced by others. This is also indicative of student's rational choice. In addition a pre-selection visit to the College offering the selected major was highly recommended by pharmacy students. This may point at the impact on student's selection of the scheduled open week activity held at the University of Sharjah, where high school students visit the campus and the various Colleges and receive information regarding academic programs of interest to them.

## Conclusion

Our results demonstrated that the desire to serve and help others and interest in science were the common motivations to choose pharmacy. Students' responses besides reflecting rational selection of their major are also indicative of adequate knowledge and attitude towards their future profession.

## References

- Aita, V., McIlvain, H., Backer, E., McVea, K. & Crabtree, B. (2004) Patient-centered care and communication in primary care practice: What is involved? *Patient Education and Counseling*, **58**(3), 296–304.
- American Association of Colleges of Pharmacy (2013) (online). Available at: <http://www.answers.com/topic/american-association-of-colleges-of-pharmacy>. Accessed 12<sup>th</sup> November, 2013.
- Anderson, D.C. Jr., Sheffield, M.C., Hill, A.M. & Cobb, H.H. (2008) Influences on pharmacy students' decision to pursue a doctor of pharmacy degree. *American Journal Pharmaceutical Education*, **72**(2), Article 22.
- Burlage, H.M. (1963) Motivating influences to the study of pharmacy. *American Journal Pharmaceutical Education*, **27**, 75-80
- Danielle, A., Taylor, M.P.P. & Patton, J.M. (2008) The pharmacy student population: applications received 2006-07, degrees conferred 2006-07, Fall 2007

Enrolments. *American Journal Pharmaceutical Education*, **72**(Supp), Article S6.

Ferguson, J.A., Roller, L. & Wertheimer, A.I.(1986) Social factors motivating students toward a career in pharmacy. *Journal of Social and Administrative Pharmacy*, **3**, 59-66.

Kenreigh, C.A. & Wagner, L.T. (2006) The pharmacist shortage: where do we stand? *Medscape Pharmacists*, **7**(1).

Keshishian, F., Brocavich, J.M., Boone, T.R. & Pal, S. (2010). Motivating factors influencing college students' choice of academic major. *American Journal Pharmaceutical Education*, **74**(3),46-54.

Lobb, W.B., Shah, M. & Kolassa, E.M. (2004) Factors influencing the selection of a major: A comparison of pharmacy and nonpharmacy undergraduate students. *Journal of Pharmacy Teaching* ,**11**(2), 45–64.

Pratt, R. (1956). Analysis of a pilot study of factors that motivate individuals to elect the health sciences as a career, with special reference to pharmacy. *American Journal Pharmaceutical Education*, **20**, 175-190.

Silverthorne, J., Price, G., Hanning, L. & Cantrill, J. (2003) Factors that influence the career choices of pharmacy undergraduates. *Pharmacy Education*, **3**(3), 161-167.

Simpson, J.C. (2001) Segregated by subject: Racial differences in the factors influencing academic majors between European Americans, Asian Americans, and African, Hispanic, and Native Americans. *Journal of Higher Education*, **72**(1), 63-100.

Suzuki, B.H. (1988) Education and socialization of Asian Americans: a revisionist analysis of the 'Model Minority' thesis. In *Asian-American: Social and Psychological Perspectives* (eds. E. Russell, S. Stanley, W. Nathaniel), Palo Alto, CA: Science and Behavior Books (Vol. II) pp. 155.-78.

Taylor, K.M.G., Bates, I. & Harding, G. (2004) The implications of increasing student numbers for pharmacy education. *Pharmacy Education*, **4**(1),33-39.