

Preparatory Year Students' Perception of Pharmacy Profession as a Career Choice: A Cross-Sectional Study

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The study attempted to assess preparatory year students' perception towards pharmacists and the pharmacy profession. This cross-sectional survey was conducted between December 2019 and March 2020. The students were invited to complete an anonymous questionnaire via Google Forms®. In total, 244 students, of which 53.7% were female with the mean age of 19.2 ± 0.65 , from 12 universities participated in this study. As per our findings, the majority of the respondents (91.8%) regard pharmacy as a well-respected profession, 82.4% thought pharmacists are important decision-makers, 68.4% disagreed that most pharmacists were unkind, and 60.7% did not agree that pharmacy was a low-status occupation. Meanwhile, 95.5% agreed that pharmacists must have a university degree, 88.6% agreed pharmacists must take responsibility for patients, and 82.8% believed pharmacists had to work too hard. Moreover, 62.3% did not think pharmacy was a low-skill occupation, 54.9% did not agree pharmacists must do unpleasant things, and 45.1% disagreed pharmacists only did what physicians requested of them. Lastly, 48.8% had low confidence in choosing pharmacy as a career. The students' overall perception toward pharmacists and the pharmacy profession was favorable. However, only one-fourth of the students displayed a tendency to choose pharmacy as a future career.

Keywords: Perception. Pharmacy. Preparatory year. Career. Barriers.

INTRODUCTION

Pharmacists are recognized as a crucial component of the healthcare workforce. The multifaceted role of pharmacists helps to provide comprehensive medication management in the community or hospital setting. Before one can practice pharmacy in Saudi Arabia, pharmacists and pharmacy technicians must study at least a 5-year bachelor's degree in pharmacy and a 2-year pharmacy technician associate's degree, respectively, from an academic institution accredited by the Ministry of Education, as well as pass the licensure examination by the Saudi Commission for Health Specialties (SCFHS) (SCFHS, 1439 AH). The SCFHS is

responsible for licensing and registering pharmacy graduates (SCFHS, 1439 AH).

Recent pharmacy workforce reports highlighted a shortage of skilled pharmacy professionals in Saudi Arabia (Almaghaslah *et al.*, 2019; AlRuthia *et al.*, 2018). There are 29,090 pharmacists registered with SCFHS; only 28.4% of them are Saudi citizens (SCFHS, 2018). The density of the pharmacy workforce varies considerably between countries and regions, generally correlating with population size and country-level economic indicators. Compared to developed countries, Saudi Arabia has fewer pharmacists; the density of pharmacists, or the number of pharmacists per 10,000, equals 9.3 (MOH, 2019). Saudi Arabia has relied on non-Saudi pharmacists to meet the demands. Due to vision 2030 and the expansion of healthcare services, more Saudi pharmacists are needed to participate in the healthcare system.

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The Preparatory Year Program (PYP) in Saudi Arabia is designed to prepare students for university study after graduating from secondary school and university enrollment. PYP is a prerequisite to admission into the undergraduate programs at various colleges, such as science, health, and the humanities. The length of the program is one academic year, including the first and second semesters. The PYP has three tracks, i.e., health sciences, applied sciences, and humanities. Toward the end of the PYP, students can attend courses in the various faculties and departments at the university following their interests, their scores, and the number of students that can be accepted into each college (Ahmad, 2016).

The transition from education to the labor market remains a significant challenge for students. Consequently, how to find a job upon graduation is a big concern for present-day students. Moreover, the students' expectations shape their careers and can contribute to their well-being. A study of first-year undergraduate students of a state university in Istanbul revealed that the primary motivations of the students were having a worthwhile job or career and a stable salary and achieving personal satisfaction and improvement (Kiziltepe, 2017). Thus, we must make a collective commitment to support all our young students and provide them with multiple pathways to choose the most suitable occupation.

In this study, we aimed to assess the preparatory year students' perception toward pharmacists and the pharmacy profession. Also, the study examined the perceived barriers and influencing factors for the students to select pharmacy as a career.

METHODS

Study Design and Participants

This study was a cross-sectional survey conducted between December 2019 and March 2020, during which volunteer participants, who were in their first and second semester of the preparatory year of the health sciences track, were invited to complete an anonymous online questionnaire. This study was approved by the Institutional Review Board of King Saud University, College of Medicine, Saudi Arabia.

Survey Questionnaire and Data Collection

A study questionnaire was developed using the information from the previously used questionnaires (Keshk, Mersal, Al-Hosis, 2016; Kohler, Edwards, 1990). The questionnaire aimed to explore the PYP students' expectations of and perceptions toward pharmacy as a future career. An anonymous online questionnaire was distributed among the PYP students of the health sciences track. Google Forms[®], an online survey platform, was selected to administer the questionnaire because it was user-friendly and could be used with different web browsers, computer configurations, and Internet services (Rayhan *et al.*, 2013). An invitation link containing a survey questionnaire was sent to the participants randomly without any previous measures. Survey response collector options also include using a web link, embedding a survey on a website, or posting a web link on social sites.

The survey had a total of 40 items, which were divided into 4 sections. The first section, consisting of six items, focused on the participants' sociodemographic information, including age, gender, grade point average (GPA), semester, university, and residence.

The second section, which has 16 items, aimed at exploring the respondents' perceptions toward the pharmacy as a profession. The students were asked to rate their perception level with the item in question by picking a number on the five-point Likert scale, with 1 for "strongly disagree" and 5 for "strongly agree."

The third section explored the respondents' views on the barriers to (8 items) and influences on and motivations for (7 items) choosing pharmacy as a career via a five-point Likert scale, with 1 for "strongly disagree" and 5 for "strongly agree."

The fourth section, consisting of three items, focused on the sources of information on career planning about the pharmacy profession among the PYP students. Lastly, we used the snowball technique, where any person recruited to do the survey was asked to provide multiple referrals for data collection.

Validation of Survey Questionnaire

The content of the survey questionnaire was discussed and reviewed for appropriateness by a panel of experts, one professor and two researchers, who belonged to the College of Pharmacy, Department of Clinical Pharmacy. Then, the content was revised or eliminated accordingly. After finalizing the questionnaire's content, all the items were translated to Arabic using a forward-backward method. A pilot study on a group of ten randomly selected participants was conducted before and after the translation to validate the questionnaire. The results of the pilot study were not included in the research. The questionnaire was revised according to the results of the pilot study.

Statistical Analysis

The survey data were entered into the Statistical Package for the Social Sciences version 20.0 (SPSS Inc., Chicago, IL, USA), for further analysis. The participants' sociodemographic information and responses were analyzed using descriptive statistics. Descriptive statistics with numbers and frequencies were used to describe the various study variables.

All data from the three scales were checked for normality using Shapiro-Wilk test. All results from the Shapiro-Wilk test for the three scales showed a level of significance of less than 0.05 and therefore we rejected the null hypothesis and hence our data are not normally distributed. Therefore, non-parametric independent-samples Mann-Whitney U and independent-samples Kruskal-Wallis tests were used when appropriately for all three scales versus students' gender, semester, university, area of residence, and GPA. $P < 0.05$ was considered statistically significant.

RESULTS

Table I summarizes the respondents' characteristics. Their mean age was 19.21 ± 0.657 , with the range of 19 to 25 years. There were more females (53.7%), than males (46.3%). Most (77.9%) of the respondents had excellent GPAs, 17.2% had very good, and 4.5% had good GPAs. The majority of the respondents (62.3%) were students

in the second semester of the preparatory year; 62.7% had been studying at King Saud University.

TABLE I - The sociodemographic characteristics of the preparatory year students (n = 244)

Age		
Mean age \pm (SD)	19.21 \pm 0.657	
Variables	N	%
<i>Gender</i>		
Female	131	53.7
Male	113	46.3
<i>GPA*</i>		
Excellent	190	77.9
Very good	42	17.2
Good	11	4.5
Satisfactory	1	0.4
<i>Semester</i>		
First	92	37.7
Second	152	62.3
<i>University</i>		
King Saud University	153	62.7
King Saud bin Abdul Aziz University for Health Sciences	49	20.1
Northern Borders university	18	7.4
Princes Nora bint Abdulrahman University	11	4.5
Taibah University	4	1.6
King Khalid University	3	1.2
Albaha University	1	0.4
King Abdul Aziz University	1	0.4
Qassim University	1	0.4
Riyadh Elm University	1	0.4
Taif University	1	0.4
University of Tabuk	1	0.4
<i>Area of living</i>		
Rural	13	5.3
Urban	231	94.7

GPA: Excellent (4.5 - 5.0), Very good (4.0- 4.4), Good (3.5 - 3.9), Satisfactory (3.0 - 3.4), Fail (less than 3.0)

Respondents' Perception toward Pharmacy as a Profession

The PYP students' perception of the different aspects of the pharmacy profession was analyzed through the extent of their agreement or disagreement with various statements (Table II). The "agree" and "strongly agree" responses were grouped to improve reporting. More than 90% of the students agreed that pharmacy was a well-respected occupation or profession. Nearly four-fifths (82.4%) of them

agreed that pharmacists made many important decisions. Further, about 72.5% believed that pharmacists were kind and compassionate people. Likewise, more than two-thirds (67.6%) thought pharmacists had a favorable public image. Similarly, around 56.2% agreed that pharmacists must take care of many people. Meanwhile, nearly two-thirds (68.4%) disagreed with the statement that most pharmacists were unkind and did not care, and 64.8% disagreed with the statement that pharmacists had the same social status as secretaries.

TABLE II - Preparatory year students' perception toward pharmacy as a profession

Statement	Scale to response				
	Strongly disagree, n (%)	Disagree, n (%)	Undecided, n (%)	Agree, n (%)	Strongly agree, n (%)
Pharmacy is a profession.	3 (1.2)	2 (.8)	15 (6.1)	54 (22.1)	170 (69.7)
Pharmacists make many important decisions.	2 (.8)	16 (6.6)	25 (10.2)	69 (28.3)	132 (54.1)
Pharmacists make more money than teachers.	7 (2.9)	14 (5.7)	91 (37.3)	77 (31.6)	55 (22.5)
Pharmacy is a well-respected occupation.	3 (1.2)	6 (2.5)	14 (5.7)	61 (25.0)	160 (65.6)
Pharmacists have a good public image.	7 (2.9)	33 (13.5)	39 (16.0)	63 (25.8)	102 (41.8)
Pharmacists are kind and compassionate people.	5 (2.0)	5 (2.0)	57 (23.4)	72 (29.5)	105 (43.0)
Pharmacy is a technical occupation.	15 (6.1)	32 (13.1)	66 (27.0)	67 (27.5)	64 (26.2)
Pharmacists don't get paid well.	23 (9.4)	43 (17.6)	83 (34.0)	48 (19.7)	47 (19.3)
Pharmacists have a lot of people to take care of.	7 (2.9)	30 (12.3)	70 (28.7)	79 (32.4)	58 (23.8)
Lawyers have a higher social standing than pharmacists.	14 (5.7)	32 (13.1)	66 (27.0)	66 (27.0)	66 (27.0)
Pharmacists have the same social standing as secretaries.	90 (36.9)	68 (27.9)	42 (17.2)	23 (9.4)	21 (8.6)
Pharmacists spend most of their time socializing with doctors.	9 (3.7)	27 (11.1)	90 (36.9)	74 (30.3)	44 (18.0)
Pharmacy is a low-status occupation.	72 (29.5)	76 (31.1)	43 (17.6)	29 (11.9)	24 (9.8)
Pharmacy is a "dead-end" job.	78 (32.0)	65 (26.6)	52 (21.3)	29 (11.9)	20 (8.2)
Most pharmacists are mean and don't care.	86 (35.2)	81 (33.2)	49 (20.1)	12 (4.9)	16 (6.6)
Pharmacists are equal to physicians.	43 (17.6)	65 (26.6)	57 (23.4)	45 (18.4)	34 (13.9)

Respondents' Influencing and Motivating Factors for Studying Pharmacy

The factors influencing or motivating the PYP students to choose pharmacy as a career were examined (Table III). A prominent motivating factor, that is, at 88.6%, was found

to be that pharmacists must take responsibility for managing the patients' drug therapy. Other essential motivators included the thinking that pharmacists informed other people what to do (75.8%), the pharmacy was stimulating and challenging work (71.7%), and that pharmacists had many opportunities for advancement (52.9%).

TABLE III - Influencing factors (motivation) of preparatory year students' choice of pharmacy as a career

Factors	Scale to response				
	Strongly disagree, n (%)	Disagree, n (%)	Undecided, n (%)	Agree, n (%)	Strongly agree, n (%)
Pharmacy is a stimulating and challenging work.	9 (3.7)	14 (5.7)	46 (18.9)	61 (25.0)	114 (46.7)
Pharmacists can choose the days and hours they want to work.	14 (5.7)	36 (14.8)	126 (51.6)	36 (14.8)	32 (13.1)
Pharmacists tell other people what to do.	5 (2.0)	15 (6.1)	39 (16.0)	81 (33.2)	104 (42.6)
Pharmacists make high salaries.	10 (4.1)	35 (14.3)	113 (46.3)	43 (17.6)	43 (17.6)
Pharmacists can always find jobs.	21 (8.6)	27 (11.1)	82 (33.6)	51 (20.9)	63 (25.8)
Pharmacists have many opportunities for advancement.	10 (4.1)	32 (13.1)	73 (29.9)	67 (27.5)	62 (25.4)
Pharmacists have to take responsibility for the people they take care of.	5 (2.0)	4 (1.6)	19 (7.8)	68 (27.9)	148 (60.7)

Barriers or Factors that Prevent the Respondents from Becoming Pharmacists

The survey uncovered several prominent barriers preventing the PYP students from choosing pharmacy as a profession (Table IV). For example, 95.5% of the students

believed that pharmacists must have a university degree to practice pharmacy, and 82.8% thought pharmacists must work too hard (82.8%). Also, the students agreed that pharmacy requires a high degree of skill (77.8%) and have to work at night on weekends (59.8%) and under a lot of stress (52.9%).

TABLE IV - Barriers preventing preparatory year students from choosing pharmacy as a career

Barriers	Scale to response				
	Strongly disagree, n (%)	Disagree, n (%)	Undecided, n (%)	Agree, n (%)	Strongly agree, n (%)
All pharmacists must have a university degree to practice pharmacy.	2 (0.8)	3 (1.2)	6 (2.5)	46 (18.9)	187 (76.6)
Pharmacy requires a high degree of skill.	6 (2.5)	16 (6.6)	32 (13.1)	86 (35.2)	104 (42.6)
Pharmacists have to do unpleasant things.	63 (25.8)	71 (29.1)	71 (29.1)	21 (8.6)	18 (7.4)
Pharmacists only do what doctors tell them to.	43 (17.6)	67 (27.5)	69 (28.3)	33 (13.5)	32 (13.1)
Pharmacists have to work too hard.	3 (1.2)	9 (3.7)	30 (12.3)	68 (27.9)	134 (54.9)
Pharmacy is a low-level skill occupation.	75 (30.7)	77 (31.6)	52 (21.3)	20 (8.2)	20 (8.2)
Pharmacists work under a lot of stress.	15 (6.1)	27 (11.1)	73 (29.9)	78 (32.0)	51 (20.9)
Pharmacists normally have to work at night on weekends.	10 (4.1)	18 (7.4)	70 (28.7)	74 (30.3)	72 (29.5)

Differences between perception, motivation, and barriers scales (Mann-Whitney U test and Kruskal-Wallis test)

Non-parametric independent-samples Mann-Whitney U and independent-samples Kruskal-Wallis tests were used to determine the significant differences ($p < 0.05$) between the three scales versus students' gender, semester, university, area of residence, and GPA. These test showed that motivational score was statistically significant for gender and the results showed significance for female gender, while perception score was statistically significant for university (Table V).

TABLE V - Mann-Whitney U test and Kruskal-Wallis test comparing differences between scales

Scale	Variables	P-value
Perception	Gender	0.833
	Semester	0.490
	University	0.010*
	Area of residence	0.262
	GPA	0.369
Motivation	Gender	0.020*
	Semester	0.892
	University	0.510
	Area of residence	0.271
	GPA	0.242

TABLE V - Mann-Whitney U test and Kruskal-Wallis test comparing differences between scales

Scale	Variables	P-value
Barriers	Gender	0.349
	Semester	0.936
	University	0.056
	Area of residence	0.296
	GPA	0.154

*Significant difference at $p \leq 0.05$

Information and career planning

The sources of information and career planning of the students were also examined (Table VI). Nearly half of the students came to know about pharmacists after observing pharmacists at work or knowing someone who was a pharmacist. More than one-fourth of the students (29%) learned about pharmacists in their school curriculum. While considering pharmacy as a future career choice, only 27.5% of the students agreed to choose pharmacy as a future career. Our study also found that one or both parents of only 16% of students were working in healthcare. Moreover, about 36% had other family members in healthcare.

TABLE VI - Sources of information and career planning for the preparatory year students (n = 244)

Category	N	%
Source of information*		
Television	56	23.0
Books	38	15.6
Magazines or newspapers	38	15.6
Learning about pharmacists in school	71	29.1
Knowing someone who is a pharmacist	119	48.8
Observing pharmacists when they are at work	120	49.2

TABLE VI - Sources of information and career planning for the preparatory year students (n = 244)

Category	N	%
Pharmacy as a career choice in future		
Definitely yes	29	11.9
Probably yes	38	15.6
Maybe	58	23.8
Probably not	52	21.3
Definitely not	67	27.5
Family members in healthcare		
Family members other than parents are in healthcare	88	36.1
No one in the family is in healthcare	117	47.9
One or both parents is/ are in healthcare	39	16.0

*Multiple answers were possible

DISCUSSION

A person's perception of a profession is critical, particularly when it comes to choosing the profession as a career. Perception holds a much deeper meaning than we can imagine. It plays a significant role in shaping how we define and do things within our social, personal, and professional life. This study examined the student participants' perception toward various aspects of pharmacists and the pharmacy profession and showed that most students agreed that pharmacy was a well-respected profession and pharmacists made many important decisions. In addition, more than two-thirds of students thought that pharmacists had a positive public image and were kind and compassionate people.

The most recent studies and surveys have also portrayed pharmacists and the pharmacy profession in a more positive light. A survey conducted by Al-Arifi presented positive findings for pharmacists and reported that the image and professional performance of community pharmacists were improving in Saudi Arabia. Similarly, Saudi patients show better satisfaction, perception, and appreciation of the pharmacists' role in the

healthcare team (Al-Arifi, 2012). Likewise, a qualitative study reported that physicians and nurses had positive perceptions of the role of clinical pharmacists in Saudi Arabia (Alsuhebany *et al.*, 2019). Positive perceptions of pharmacists can also be seen in contemporary international studies. A cross-sectional survey in the Sultanate of Oman observed that the participants from the general public had a good level of perception regarding the pharmacist's roles and responsibilities (Jose, Al Shukili, Jimmy, 2015). Also, Shrestha *et al.* found that the overall perception of patients toward the roles and responsibilities of pharmacists was positive (Shrestha *et al.*, 2018). On the other hand, a study in Kuwait indicated that respondents had overall negative perceptions of community pharmacists, moderate expectations of their role, and a slightly positive view of the current pharmacy services (Awad, Al-Rasheedi, Lemay, 2017).

One influencing factor on the perceptions of a profession is the image projected by the profession itself. Literature suggests that pharmacists are trusted health professionals who should access patients' health information to provide the best care (Lynas, 2012). Pharmacists accomplish a critical role within the health system for providing medication-related solutions (Wright, Anakin, Duffull, 2019). Pharmacists have to make professional decisions that often have profound effects on others. In addition, pharmacy is viewed as a secure career with good prospects (Wright, Anakin, Duffull, 2019).

This study explored the motivational drivers that influenced the students' choice of pharmacy as a profession. Pharmacists' job responsibilities, pharmacy's stimulating and challenging work, and opportunities for career advancement were identified as the most important influencing factors for most participants to choose pharmacy as a career. These motivational factors demonstrate a vital component of rational choice in the decision to study pharmacy. However, students may be significantly discouraged from pharmacy if there is increasing distrust in the profession or decreasing confidence in its future career opportunities.

This study also identified essential barriers preventing the preparatory year students from becoming pharmacists. These barriers include the perception that

pharmacists work too hard, require a high degree of skill, need to work at night on weekends, and operate under a lot of stress. Work-related stress is a concern for all workers, but those in the healthcare face an exceptionally multifaceted challenge (Losa Iglesias, Becerro de Bengoa Vallejo, Salvadores Fuentes, 2010). It is widely acknowledged that continuous exposure to stressors, such as working in shifts, carrying an excessive workload, and having direct contact with patients at the workplace, may lead to work-related stress. Also, it is widely known that heavy workloads, longer work hours, and increasing demands at work contribute to work-related stress in the pharmacy workforce; pharmacists are increasingly saddled with these problems (Yeh *et al.*, 2010). A quantitative study that determines the level of job satisfaction and job-related stress among the pharmacists in Amman found that many job-related stress factors reduced the satisfaction of the pharmacists, especially the community pharmacists (Al Khalidi, Wazaify, 2013). Most recently, Rahme *et al.* (2020) assessed work fatigue and its associated factors among the community pharmacists in Lebanon, wherein it was concluded that work-related fatigue was high among the community pharmacists; 50.12% of them had emotional work fatigue, 55.01% had mental work fatigue, and 54.78% had physical work fatigue (Rahme *et al.*, 2020). A participative approach such as career advancement, respect, and encouragement can help to empower the pharmacists, having a positive effect on their level of stress and the various professional services offered by the pharmacists (Al-Omar *et al.*, 2019).

In this study, studying pharmacy or choosing it as a career was not the preferred choice for half of students (48.8%). However, surprisingly, nearly one-fourth of the students showed agreement for choosing pharmacy as a future career. Hence, appropriate interventions will be needed to help the students overcome the barriers and facilitate better interaction of reference groups to enhance pharmacy as a career option for students in the future. University authorities and pharmacy professional bodies such as the Saudi Pharmaceutical Society should consider strategies, such as career fairs, campus visits, pre-pharmacy clubs, and educational programs, to raise public knowledge and awareness about the profession.

Such strategies are expected to help attract prospective candidates into the profession.

This study is likely the first in Saudi Arabia to assess the perception of preparatory year students toward pharmacists and the pharmacy profession. This study also highlights factors affecting their choice of pharmacy as a career. This study's limitations were associated with its cross-sectional design, which did not allow us to infer causality. Additionally, the study's results were based on self-reporting; thus, the findings might be overestimated due to social desirability bias. Thus, this study may be supplemented with larger-scale surveys to strengthen its conclusions and add further value to the existing literature.

CONCLUSION

This study finds the overall perception of preparatory year students toward pharmacists and the pharmacy profession to be favorable. Job responsibility, stimulating and challenging work, and opportunities for career advancement were identified to be the main drivers that motivated the students to select pharmacy as a career. In addition, our study indicated that pharmacy was not the preferred career choice for most of the preparatory year students. Thus, there is a significant need to raise awareness among the students about the knowledge, skills, and unique professional capabilities of pharmacists to motivate them to study pharmacy and become career pharmacists.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

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