



## Cross-sectional Study

## Preference of and factors that influence future specialty among medical students in Jordan: A cross-sectional study

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## ABSTRACT

**Background:** Choosing future specialty is an important issue that face undergraduate medical students during their university years. Several factors may assist to formulate students' final decision. We aimed to explore the future specialty preferences and the factors that influence the choice of undergraduate students in medical schools in Jordan.

**Methods:** A cross sectional study conducted among the sixth year students of two medical schools in Jordan. A questionnaire was used to collect data from the students. It consisted of demographic data in form of gender, GPA, family income, and parents' level of education. In addition to data about preferred specialties, and factors that influence medical students' choice of future specialty.

**Results:** A total of 223 medical students from two medical schools were recruited to participate. Males were 49.3% while females were 50.7%, and around 22% scored an excellent GPA. Most parents of the students were bachelor degree holders (63.6% for fathers and 62.3% for mothers). Medicine (19.4%), dermatology (12.6%), and obstetrics and gynecology (11.7%) were the most chosen future specialties. Specialty appeal and thoughts of future creativity was the most chosen factor that influenced future specialty (55.2%) choice, followed by family time and less on-call duties (14.8%). Students who selected chances of fellowships as an influencing factor were more likely to prefer medicine as future specialties ( $p < 0.001$ ).

**Conclusion:** Medicine, dermatology, and obstetrics and gynecology were the most popular future specialty choices among undergraduate medical students. Most of our medical students claimed that selection of their specialty is based on the interest and potential creativity, family time and less on call duties. Further studies are required in a wide range to accommodate more students from the other academic years.

## 1. Introduction

Medical specialization is a "process of transition from a differentiated medical graduate to a fully differentiated professional who is usually committed to one specialized field of work in medical work" [1].

Career preference in one of the most important issues that are

gaining a growing appreciation in medical school as it has a direct influence on the learning and academic performance of medical students [2], and the reason behind this growing concern may be due to the reported data of what is found by most of the medical school graduates who begin their career blindly and unaware of what he or she might face during his way for further specialization [3].

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It is important for a medical student to determine his future specialty. This decision will greatly reflect how a good doctor can be. In addition, it has direct implications on his career and his community as well [4,5]. Many factors may influence medical students to choose their future specialty including individual characteristics such as age, gender and personality type, exposure to the field during academic curriculum and internship, financial gain of a particular specialty, an easy lifestyle and work environment, the load of patients expected to encounter during daily practice, availability of residency programs in a certain specialty, and the magnitude of competition between colleagues [3,6]. It is reported that most of the specialty choices were made according to what is available to the students rather than the actual passion and desire [7].

Some studies reported that medical students are attracted to some specialties due to certain features that are unique to each specialty [2,8]. For example, some studies reported that some students tend to specialize in medicine because of the doctor-patient relationship, while others prefer to specialize in surgery due to the ability of the surgeon to apply knowledge in a practical manner and the high prestige that surgeons possess [6]. While some studies went further to address for any association between the medical curriculum subjects and certain specialties, and they found that students who prefer anatomy were interested in choosing surgery in the future, while students who preferred biochemistry wanted to become a general physician while student enjoying physiology were more attracted to internal medicine. Gender preference was also found to influence specialty choices as male students were attracted more to surgery while females preferred choosing obstetrics and gynecology field [1].

It is recommended that students should rely on valid points when choosing their medical specialty instead of following general trends. These include students grade point average (GPA), his/her interest in certain basic science subjects that may give him/her a provisional picture to formulate the desired specialty [9]. This study aimed to investigate career preference and factors influencing specialty choices among medical students in Jordan.

## 2. Materials and methods

This is a cross-sectional survey-based study conducted among the sixth year medical students in two schools of medicine in Jordan (Hashemite and Yarmouk Universities). The survey was conducted in the previously mentioned two medical schools as they are centrally located in Jordan and their students account for the majority of medical students in the country therefore are considered representative of the Jordanian medical student's population. The survey was conducted using a validated questionnaire that was conducted, written, and revised by 2 sets of physicians who teach medicine in different medical schools in Jordan. All 6th year medical students in both universities were notified by Email, and the data was collected using Google form service. The questionnaire was developed by researchers with help from previous literature in order to cover key areas. The questionnaire included demographic and other relevant information about the medical students, the preferred future specialty, in addition to the factors that may affect the choice of their future specialty. Participation in the study was voluntary with no identifying data collected from the students. Informed consent was obtained from each student. Ethical approval was obtained by the Ethics Committee of Faculty of medicine, Yarmouk University, Irbid, Jordan. This study was registered using [researchregistry.com](https://www.researchregistry.com), research ID: researchregistry6851, <https://www.researchregistry.com/browse-the-registry#home/registrationdetails/60aa64bec72471001f820879/>. Data was then entered, organized, and statistical analysis was performed using statistical package for social sciences (SPSS) version 25. Categorical variables were described by frequency distribution, while continuous variables were described by the mean and standard deviation. A Chi-square test was performed for possible associations between the different study variables, p-value of less than 0.05 was considered statistically significant. This paper was checked to

meet all the criteria of STROSS criteria [10].

## 3. Results

The questionnaire was distributed among all 6th year medical students in both Hashemite and Yarmouk University with total number of 446 students (240 from Hashemite University and 206 from Yarmouk University) A total of 223 students from two universities fill in the questionnaire fully (response rate was 50%) (Table 1), demonstrates the demographic characteristics of the study participants such as; students' university, gender, and Grade Point Average (GPA). Monthly family income, father's level of education, and mother's level of education were also presented. Participants were nearly halved between females (50.7%), and males (49.3%). The majority of the students were from The Hashemite University (71.7%), the rest of the students were from Yarmouk University (28.3%). Regarding the monthly income aspect, the cut point was chosen to be 1000 Jordanian Dinar (JOD) as it is considered the average income of a financially competent income for a Jordanian family.

Participants' future specialty choice by gender was calculated and analyzed in (Table 2). Forty-three students (19.3%) have chosen their future specialty to be medicine. Dermatology specialty was the second popular choice as 28 students (12.6) preferred it as the future specialty. Twenty-six students chose obstetrics and gynecology (11.7%), while 24 (10.8%) students were willing to be surgeons. Ophthalmology and pediatrics have had the same level of popularity as each of them was selected by 9% of our students. GP, radiology, and neurosurgery were the least popular choices with each selected by 0.4%, 2.2%, 2.7% of the students respectively. There was a statistically significant association between gender and certain specialties, about 21% of females chose obstetrics and gynecology as the preferred future specialty compared to only 1.8% of males. Orthopedics and urology were more preferred by male students as future specialties. Similarly, a higher percentage of male students have chosen medicine (24.5%), and surgery (16.4%), being the most selected fields as future specialty (P value < 0.000).

(Table 3) shows different factors that influence students' specialty choice. On asking the students about the factors that influenced their choices, more than half of the participants (55.2%) claimed that they like their choice and think they will be a creator in that specialty. Another 14.8% considered his/her time to be for his/her family and preferred a specialty with less on calls duties. Financial factors were the third popular determinant between students (10.8%), while other factors such as social factors, chances of getting fellowship program after specialty, stress factors, and job vacancies were less popular choices.

**Table 1**  
Demographic characteristics of study participants.

		Frequency	Percent
University	The Hashemite University	160	71.7%
	Yarmouk University	63	28.3%
Gender	Female	113	50.7%
	Male	110	49.3%
GPA	Acceptable	17	7.6%
	Good	60	26.9%
	Very good	96	43.0%
	Excellent	50	22.4%
Monthly family income	Less or equal to 1000 Jordan Dinars	123	55.0%
	More than 1000 Jordan Dinars	100	45.0%
Father's level of education	High school or less	24	10.9%
	Diploma	29	13.0%
	Bachelor	133	59.6%
	Master or PHD	37	16.5%
Mother's level of education	High school or less	14	6.3%
	Diploma	43	19.2%
	Bachelor	132	59.3%
	Master or PHD	34	15.2%

GPA: Grade Point Average.

**Table 2**  
Participants' future specialty choice by gender.

Future specialty choice	Gender			p (X <sup>2</sup> )
	Female N (%)	Male N (%)	Total N (%)	
Dermatology	21 (18.6%)	7 (6.4%)	28 (12.6%)	<0.001* (63.7)
ENT	4 (3.5%)	6 (5.5%)	10 (4.5%)	
Medicine	16 (14.2%)	27 (24.5%)	43 (19.3%)	
Neurosurgery	2 (1.8)	4 (3.6%)	6 (2.7%)	
None (GP)	1 (0.9%)	0 (0.0%)	1 (0.4%)	
OBS & GYN	24 (21.2%)	2 (1.8%)	26 (11.7%)	
Ophthalmology	15 (13.3%)	7 (6.4%)	22 (9.9%)	
Orthopedics	0 (0.0%)	12 (10.9%)	12 (5.4%)	
Pediatrics	14 (12.4%)	6 (5.5%)	20 (9.0%)	
Psychiatry	4 (3.5%)	3 (2.7%)	7 (3.1%)	
Radiology	2 (1.8%)	3 (2.7%)	5 (2.2%)	
Surgery	6 (5.3%)	18 (16.4%)	24 (10.8%)	
Urology	0 (0.0%)	8 (7.3%)	8 (3.6%)	
Others	4 (3.5%)	7 (6.4%)	11 (4.9%)	

ENT: Ear, Nose, Throat, GP: General Practitioner, OBS: Obstetrics, and GYN: Gynecology.

**Table 3**  
Factors that influence students' specialty choice.

	Frequency	Percent	P-value
Better chance to get fellowship program after specialty	7	3.1%	0.001
Family and on-call factors (less on-call duty so more time with family)	33	14.8%	
Financial Factors	24	10.8%	
Future Job Vacancies	12	5.4%	
Medical and knowledge factors (You like it and you think you'll be a creator in this specialty)	123	55.2%	
Social Factors	10	4.5%	
Stress Factors	14	6.3%	

Stress factors can influence the choice of medical students for future specialties majorly as some specialties require more work hour than others, and require more careful and precise care than others. Also, Social factors can play a huge role in determining future specialties as there are some specialties in Jordan that are considered gender biased. In addition, the reputation, and the social status among the society have an impact on future choices. All factors showed a significant association with the choice of future specialties (P- value less than 0.05).

Comparing the specialty choices with the factors that influence students' choice of these specialties, most of the students who preferred medicine as a future specialty were considering the chance of getting fellowships programs as an influence to choose their specialty. While the students who chose dermatology specialty were more likely to choose family time and on-call duties, and stress factors to influence their choices. Similarly, about 20% of those who think that they will be creators in their specialty have chosen medicine to be their future specialty (P value < 0.000).

#### 4. Discussion

Choosing a future specialty is a daunting experience that faces medical students during their university years, and its importance came from the fact that this decision will define their career in the future. In addition, it is of great significance in order to ensure a balanced

distribution of health workers between the specialties. Although medical education involves teaching of the undergraduate students about a wide range of medical specialties, it is generally assumed that medical students do not make their future specialty decisions unless they graduate from the medical school [11]. We noted that certain specialties attract students more than the other while other specialties are generally less considered by medical students as future specialties; this might generate mismatch problems as certain specialties will be unnecessarily loaded while others will suffer doctor's shortage [7].

Our observations showed that male students tend to choose medicine and surgery as their preferred specialty, while females were more likely to be attracted to obstetrics and gynecology. This observation is consistent with other studies reporting that male medical students have chosen medicine or surgery as a specialty compared to obstetrics and gynecology and pediatrics which were preferred by female medical students [4,12,13]. It is possible that male students tend to choose surgery because of the high prestige that surgeons possess, its Simplicity, ease of understanding, and the financial aspects as surgery is one of high income generating specialties [1]. Surprisingly, in another study, it is found that the most chosen specialty among female participants was surgery [14].

Our study found that medicine, dermatology, obstetrics and gynecology, and surgery (in order of their frequencies) were the most chosen future specialties by the students, nearly the same order of these specialties was found in Jordan, Greece, and Sudan, with only pediatrics replacing dermatology in our study [2,14,15].

A study reported from India shows that the factors that influence the choice of medical students to their career are greatly relying on job satisfaction, income, lifestyle, and career prospects [12].

The factors that influence the choice of specialty preferences have been studied by many researchers, in which they to determine the effect of these factors. Some researchers have concluded that the primary influences were the personality and characteristics of the students, while others have suggested the factors that related to the medical school such as the medical education, and research-orientation in medical schools [16–18].

In our study, the main influence of specialty choice was the personal fondness and the assumption of future creativity in the selected specialty (55.2%). However, other studies demonstrated different findings as financial and prestige were the main factors for choosing a future specialty in Turkey [19], while intellectual content was the main reason in Jordan [2]. Similarly, personal interest, and higher income were the most factors to influence students' choices in Iraq [20]. While most of the studies reported the above factors, there are other reported factors not mentioned such as a challenging specialty and patient's interactions.

#### 5. Conclusion

Medicine, dermatology, and obstetrics and gynecology were the most popular future specialty choices among undergraduate medical students. Most of our medical students claimed that selection of a certain specialty is based on the interest and potential creativity, family time and less on call duties. Further studies are required in a wide range to accommodate more students from the other academic years.

#### Ethical approval

Ethical approval is received according to the ongoing regulations of Yarmouk university.

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The authors declared that this study has received no financial support.

**Author contribution**

All authors read and approved the content of the submitted study.

**Registration of research studies**

Not Applicable.

**Guarantor**

Mohammad Al- zubi.

**Research consent**

Consent was obtained from all the volunteers.

**Declaration of competing interest**

The authors report no conflict of interest.

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