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specialty preferences and determinants among medical undergraduate in university of hail, saudi arabia: a cross-sectional study

Reem Falah Alshammari[1*], Yara Majed Aljerwan[2], Rahaf Nafei Anzi[2], Ebtehaj Saud Almughais[1], Tahani Nasser Altamimi[3], Fatmah Fahad Alreshidi[1], Nawaf Safaq Alshammari[4]

[1]Assistant professor. Consultant family medicine. Department of Family and Community Medicine, College of Medicine, University of Hail, Hail, Saudi Arabia

[2]Medical student, college of medicine. university of Hail, Kingdom of Saudi Arabia

[3]Associate professor. Consultant family and geriatric medicine. Department of Family and Community Medicine, College of Medicine, University of Hail, Kingdom of Saudi Arabia

[4]Consultant family medicine, king Abdul-Aziz Medical City, NGHA, Riyadh, Saudi Arabia

***Corresponding author:** Reem Falah Alshammari, Department of Family and community medicine department, College of Medicine, University of Ha'il, PO Box 2440, Hail 81481, Kingdom of Saudi Arabia. E-mail: refalshammari@uoh.edu.com

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ABSTRACT

Background: The preferences of medical specialty among medical students can affects the public health by affecting healthcare system and community wellbeing. It is important to recognize the factors that determine the medical career choices among medical students. Therefore, we conducted this study to investigate the factors that influence the career decision among medical students at University of Hail.

Methods: This is a cross-sectional questionnaire-based survey that was carried out among final year medical undergraduates in University of Hail, Saudi Arabia. A questionnaire was designed using google forms platform. The data was collected between January 2023 – February 2023 in university of Hail.

Results: Surgical specialties 30 (39.47%) were the most preferred specialty of the first choice followed by family medicine 14(18.42%). There were no significant gender preferences observed in first choice specialties. Personal interest was the most common and significant factor responsible for the choice of specialty in 90.78% of students (p= 0.001). The factors that had the most influence on male students were personal interest (4.52 ± 1.13), good clerkship experience (4.07± 1.17), and personal abilities/competence (4.0 ± 1.9), job opportunities (3.8 ± 1.2), and the focus on doctor-patient relationship (3.6 ± 1.4). For the female students, personal interest (4.5 ± 0.8), personal abilities/competence (3.9 ± 1.2), good clerkship experience (3.8 ± 1.1) and expected financial outcome (3.7 ± 1.1) were the most influential factors for specialty preference.

Conclusion: Surgical specialties were the most preferred specialty of the first choice followed by family medicine of the surgical specialties, general surgery was the most preferred. A personal interest was the most common reason for choosing a specialty in the University of Ha'il.

Keywords: *Career preference, Future specialty, Medical students, Specialization*

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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 (A. Kumar et al., 2014).

Comprehensive understanding of the preferences of medical specialty among medical graduate is important, as it affect the healthcare system in the future (Querido S et al., 2018).

The career specialties chosen by medical students and the factors involved in making these choices are of great importance for balanced distribution of doctors in the different specialties and for planning of the workforce of healthcare services (Alawad AA et al., 2015).

As career preferences for a specific medical specialty can result in lack of medical expertise in other fields, disparity in health care between different regions of a country and increasing the gap between the public and private sectors health care services (Alawad AA et al., 2015). It also results in an imbalance between community health requirement and the physician workforce composition. In addition to increasing health care costs and negatively affecting equitable access to health services (Sivey P et al.,2012; Takeda Y et al., 2013).

In 1967, the first medical school in Saudi Arabia was established at King Saud University. By 2011, there were 21 medical colleges in the Kingdom of Saudi Arabia. Medical students spend 6 years of study and 1 year in an internship before graduation. In the fourth year of medical school, students begin their clinical rotations, where they are exposed to patients and specialties for 1–6 weeks in each rotation depending on the specialty they are assigned. Each student selects a specialization for a subsequent residency training program after graduation to become a specialist in that profession (Alshahrani M et al.,2014) Following graduation, medical students may have a variety of options to choose from, all of which serve the same purpose (Mohammed TA et al., 2020).For some medical students and junior doctors, selecting a medical specialty can be a challenging and perplexing process; for others, it comes naturally. One's decision about motivation and rationale for selecting a particular medical specialization is influenced by a variety of factors. There are various motivations and reasons that come together to influence the final selection, whether one selects a certain specialty because of a high income, an easy lifestyle, recommendations from friends or family, admiration for a particular mentor, or true interest in the specialty (. Rawan Al-Fouzan et al., 2012).

METHODOLOGY

Research survey design

This research is a cross-sectional study design using google forms platform. It will be conducted between January 2023 – February 2023 in Saudi Arabia. The questionnaire will be Sent Through social media platform & Email.

Study questionnaire

The survey will be conducted in college of medicine in university of Hail. The survey was conducted using a validated questionnaire.

All 6th year medical students in college of medicine will be notified by email, social platforms and the data will be collected using Google form service.

The e-survey questionnaire was adopted from previous similar study after searching previous literature to cover the most important key areas. It was translated to Arabic language and revised by 2 sets of physicians who teach medicine in university of Hail.

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.

Sampling technique and sample size

All 6th year medical students in college of medicine in university of Hail were included there are 41 male students and 40 female students.

Statistical analysis

The data was analyzed using SPSS statistical V.23 software All data of the fully completed surveys will be analyzed using a t-test at a 95% confidence limit.

Inclusion Criteria

All 6th year medical students in college of medicine in university of Hail

Exclusion Criteria

Other students in college of medicine in university of Hail.

RESULTS

Table 1 shows the sociodemographic characteristics of the participants. The participants' ages ranged from 24-26 years. The male students were 38 (50 %), whereas the female students were 38 (50 %), (gender ratio = 1:1). Only 5 (6.58%) students were married, and all were female (not shown in the tables). Majority of participants' mothers were housewives. Only 6 (7.89%) of participants' mothers and 6 (7.89%) of participants' father were medical professionals.

Surgical specialty 30 (39.47%) were the most preferred specialty of the first choice followed by family medicine 14(18.42%) as shown in Table 2. Of the surgical specialties, general surgery 24 (31.58%) were the most preferred whereas ophthalmology was 6 (7.89%).

There were no significant gender preferences observed in first choice specialties as shown in table 3 (p=0.08). Both male and female students preferred surgical specialty 19 (50%), 16 (42.1%), respectively. Family medicine was the most preferred nonsurgical specialty of the first choice by the female students 10 (26.31%) while internal medicine was the most preferred nonsurgical specialty by the male students 10 (26.31%) as shown in table 3.

There were no significant age-related specialty preferences (P = 0.68). Marital status did not influence specialty choices of participants, P = 0.15. The educational status of both parents did not influence the specialty choices of the participants (P > 0.05). The distribution of the first-choice specialties by age, marital status and parents' educational level is shown in Table 4.

Table 5 shows that personal interest was the most common and significant factor responsible for the choice of specialty in 90.78% of students (p= 0.001). This was followed by other common and significant such as, personal abilities and competence (79.73%), and good clerkship experience (79.21%). Career prospectives such as, financial outcome, job opportunities, focus on doctor's relationship with the patient, and great diversity of patients all had significant impact on the desired specialty with P- value less than 0.05 in 72.63%,73.94%, 69.21, 65.52% of students , respectively .These were followed by less working hours (58.94%), less potential for work-related risks (46.84 %) , and availability of research opportunities(46.05 %) . Training duration in the residency program also affected the specialty choice significantly but to a lesser extent as they affected the decision of 50.52% of the students with p-value <0.001. In addition, less competitiveness on that specialty affected the decision in 52.89% of students with p- value 0.004. However, there were other significant but less common factors such as the influence of role model, parent's advice, familial and social expectations prospects and friend's advice where they affected the decision of 44.47%, 42.63%,47.36%, 36.68% of students, respectively. Social consideration, scarcity of specialization, great diversity of patients in the specialty and the focus on community health were not significant factors in making the specialty decision.

DISCUSSION

Many studies have examined medical students' preferences for specialties and the factors that affect their decisions. Our study reveals that the most popular specialty in terms of first preference was surgical specialization and this is in line with the international trend (Abdulghani HM et al., 2013; . Subba SH et al., 2012; Mariolis A et al., 2007). The second popular specialty in the current study was family medicine. Prior research conducted in Saudi Arabia revealed that surgical

specialties were the most preferred, followed by internal medical specialties and basic science specialties (Khamees A et al., 2022). A study done among medical students in Central America revealed that the most preferred specialty options were surgery, obstetrics and gynecology, pediatrics, internal medicine, general medicine, and family medicine (Puertas EB et al., 2020) Another study in Saudi Arabia reported that family medicine was the most preferred first choice, followed by ENT and internal medicine (Mahfouz M et al. 2021).

A possible explanation that students tend to choose surgical specialties 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 (A. Kumar et al., 2014).

Currently, gender differences in career choice are one of the interest topics. These variations have been investigated in numerous research across various populations. A study revealed that females prefer psychology, obstetrics and gynecology, and pediatrics over males. Males preferred orthopedics and surgery over women in a study done in Japan (A. Kumar et al., 2014).

In addition, another study conducted in Kuwait showed that internal medicine was the first choice of both male and female students (48.8% vs. 70.6%), followed by general surgery (42.2% vs. 23.5%) (Mohamed EY, 2022). In our study, there were no significant gender preferences observed in first-choice specialties which may be explained by the lower sample size than in these studies. However, male students favored internal medicine over all other nonsurgical specialties (26.31%), whereas female students preferred family medicine over all other nonsurgical specialties (26.31%). It is possible that male students tend to choose internal medicine over all nonsurgical specialties because of educational experiences, lifestyle, and the nature of patient care in internal medicine practice were the main reasons for choosing that specialty as shown in other studies (Hauer KE et al., 2008). The factors that influence female medical students to choose the specialty of family medicine have been studied elsewhere ; the dearth of Saudi physicians practicing this specialty and the apparent financial rewards of this branch were the main reasons for choosing that specialty (Althubaiti A and Alkhazim M , 2014). We also assume the reason for choosing family medicine by female is that assume that family medicine practice in Saudi Arabia is attractive for females due to the less working hours, and this is explained by unawareness and underutilization of this specialty in Saudi Arabia by the general public which can explain the unnecessary

The determinants that affect the choice of specialty preferences have been studied by many researchers. 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 (L.R. Millan et al., 2005; A. Pawełczyk et al., 2007; P. Saigal et al., 2007). The most influential factor for specialty choices for choosing specialties was personal interest (90.78%) similar to studies in Iraq, Saudi Arabia, Pakistan, and China (Al-Mendalawi MD , 2010; . Abdulghani HM et al., 2013; Huda N and Yousuf S, 2006; Yin K et al., 2021). Choosing personal interest as the most influencing reason for choosing a specialty somewhat makes sense as the interest in a topic is what makes most students pursue study or practice.

This is followed by personal abilities and competence (79.73%), and good clerkship experience (79.21%). Our findings corroborate earlier reports by Eze et al (Eze BI et al., 2011) in Enugu Nigeria, Bittaye et al in Gambia (Bittaye M et al., 2012) and in another cohort study done in also in Nigeria by Onyemaechi N et al (Onyemaechi N et al. , 2017).

In our study the student's choice is also influenced by mentors and role models. In literature on students' career choices, the concept of "role models" is commonly cited (Boyd JS et al., 2009).

CONCLUSION

Surgical specialties were the most preferred specialty of the first choice followed by family medicine of the surgical specialties, general

surgery was the most preferred. A personal interest was the most common reason for choosing a specialty in the University of Ha'il.

Limitations of study

The study was conducted in one college of medicine, and the relatively small number of participants may make the results not generalizable to other medical schools in Saudi Arabia. The cross-sectional, and single-site, might have limited the scope of the study. Self-rating of the factors by the participants is a limitation due to its subjectivity. The influencing factors were limited to 20 variables which might have overlooked the impact of other factors. We recommend further such studies to investigate the medical students' career preferences and the factors influencing them in Sudi Arabia.

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Author contribution

RF, ESA, FFA wrote the first draft of the manuscript. YM, TNA and RN collected the data. YM and RN reviewed the literature. ESA, FFA and TNA reviewed the manuscript. RF contributed to literature search and finalized the manuscript. All authors read and approved the final version of the manuscript.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

Ethical Consent

Participation in the study was voluntary with no identifying data collected from the students. Informed consent was obtained from each student.

REFERENCES

1. Kumar, K. Mitra, S. Nagarajan, B. Poudel, Factors influencing medical students' choice of future specialization in medical sciences: a cross-sectional questionnaire survey from medical schools in China, Malaysia and regions of South asian association for regional cooperation, N. Am. J. Med. Sci. 6 (3) (2014) 119–125.
2. Querido S, van den Broek S, de Rond M, Wigersma L, Ten Cate O. Factors affecting senior medical students' career choice. Int J Med Educ. 2018;9:332-9. doi: 10.5116/ ijme.5c14.de75. PubMed PMID: 30594907; PubMed Central PMCID: PMCPMC6387763
3. Alawad AA, Khan WS, Abdelrazig YM, Elzain YI, Khalil HO, Ahmed OB, Adam OA. Factors considered by undergraduate medical students when selecting specialty of their future careers. Pan Afr Med J. 2015 Feb 4;20:102. doi: 10.11604/pamj.2015.20.102.4715. PMID: 26090050; PMCID: PMC4458322.
4. Sivey P, Scott A, Witt J, Joyce C, Humphreys J. Junior doctors' preferences for specialty choice. J Health Econ. 2012;31:813-23. doi: 10.1016/j.jhealeco.2012.07.001. PubMed PMID: 22940638.
5. Takeda Y, Morio K, Snell L, Otaki J, Takahashi M, Kai I. Characteristic profiles among students and junior doctors with specific career preferences. BMC Med Educ. 2013;13:125. doi: 10.1186/1472-6920-13-125. PubMed PMID: 24028298; PubMed Central PMCID: PMCPMC3847686.
6. Alshahrani M, Dhafery B, Al Mulhim M, Alkhadra F, Al Bagshi D, Bukhamsin N. Factors influencing Saudi medical students and interns' choice of future specialty: a self-administered questionnaire. Adv Med Educ Pract. 2014 Oct 24;5:397-402. doi: 10.2147/AMEP.S69152. PMID: 25368542; PMCID: PMC4216024
7. Mohammed TA, Abdulrahman AA, Saud KA, Alaa NT. Specialty preferences and factors affecting future career choice among medical graduates in Saudi. J Family Med Prim Care. 2020 Mar 26;9(3):1459-1463. doi: 10.4103/jfmpc.jfmpc_1199_19. PMID: 32509633; PMCID: PMC7266236.
8. Rawan Al-Fouzan, Sarah Al-Ajlan, Yousef Marwan & Mervat Al-Saleh(2012) Factors affecting future specialty choice among medical students in Kuwait, Medical Education Online, 17:1, DOI: 10.3402/meo.v17i0.19587
9. Abdulghani HM, Al-Shaikh G, Alhujayri AK, Alohaideb NS, Alsaeed HA, Alshohayeb IS, et al. What determines the selection of undergraduate

medical students to the specialty of their future careers? Medical teacher. 2013;35 Suppl 1:S25-30. PubMed | Google Scholar
10. Subba SH, Binu VS, Kotian MS, Joseph N, Mahamood AB, Dixit N, et al. Future specialization interests among medical students in southern India. The National medical journal of India. 2012 Jul-Aug;25(4):226-. PubMed | Google Scholar
11. Mariolis A, Mihas C, Alevizos A, Gizlis V, Mariolis T, Marayiannis K, et al. General Practice as a career choice among undergraduate medical students in Greece. BMC medical education. 2007;7(1):15. PubMed | Google Scholar
12. Khamees A, Awadi S, Al Sharie S, Faiyoumi BA, Alzu'bi E, Hailat L, Al-Keder B. Factors affecting medical student's decision in choosing a future career specialty: A cross-sectional study. Ann Med Surg (Lond). 2022 Jan 27;74:103305. doi: 10.1016/j.amsu.2022.103305. PMID: 35145673; PMCID: PMC8818518.
13. Puertas EB, Orellana RA, Muñoz BE, Jiménez JA, Medina Quiroz IG, Terrón L, Florencio A, Leal HM, Vindell JJ. Factores que influyen en la elección de una carrera en atención primaria entre los estudiantes de medicina en América Central [Factors influencing the choice of a career in primary care among medical students in Central America]. Rev Panam Salud Publica. 2020 Jul 28;44:e94. Spanish. doi: .26633/RPSP.2020.94. PMID: 32733546; PMCID: PMC7384701.
14. Mahfouz M, E, M, Althobaiti Z, F, Alosaimi S, G, Alghamdi Y, A, Alharthi H, E, Althobaiti A, M, Altowairqi F, K: Specialty Choice among Final-Year Medical Students at Taif University. Saudi J Health Syst Res 2021;1:115-122. doi: 10.1159/000517662
15. Kawamoto R, Ninomiya D, Kasai Y, Kusunoki T, Ohtsuka N, Kumagi T, Abe M. Gender difference in preference of specialty as a career choice among Japanese medical students. BMC Med Educ. 2016 Nov 10;16(1):288. doi: 10.1186/s12909-016-0811-1. PMID: 27829461; PMCID: PMC5103608.
16. Mohamed EY. Specialty preferences and factors affecting the choices of postgraduate specialty among undergraduate medical students. Pak J Med Sci. 2022 Jul-Aug;38(6):1431-1435. doi: 10.12669/pjms.38.6.5571. PMID: 35991256; PMCID: PMC9378383.
17. Hauer KE, Durning SJ, Kernan WN, et al. Factors associated with medical students' career choices regarding internal medicine. JAMA. 2008;300(10):1154–1164.
18. Althubaiti A, Alkhazim M. Medical colleges in Saudi Arabia: can we predict graduate numbers? Hes. 2014;4(3):1–8.towards specialization and training abroad, Health Pol. 79 (1) (2006) 101–106.
19. L.R. Millan, R.S. Azevedo, E. Rossi, O.L. De Marco, M.P. Millan, P.C. de Arruda, What is behind a student's choice for becoming a doctor? Clinics 60 (2) (2005) 143–150.
20. Pawełczyk, T. Pawełczyk, J. Bielecki, The effect of some factors on medical student specialty choice of non-primary care–a synthesis of the literature, Pol. Merkur. Lek. : organ Polskiego Towarzystwa Lekarskiego 22 (132) (2007) 575–579.
21. P. Saigal, Y. Takemura, T. Nishiue, M.D. Fetters, Factors considered by medical students when formulating their specialty preferences in Japan: findings from a qualitative study, BMC Med. Educ. 7 (2007) 31.
22. Al-Mendalawi MD. Specialty preferences of Iraqi medical students. Clin Teach. 2010 Sep;7(3):175-9. doi: 10.1111/j.1743-498X.2010.00358.x. PMID: 21134178.
23. Abdulghani HM, Al-Shaikh G, Alhujayri AK, Alohaideb NS, Alsaeed HA, Alshohayeb IS, Alyahya MM, Alhaqwi AI, Shaik SA. What determines the selection of undergraduate medical students to the specialty of their future careers? Med Teach. 2013;35 Suppl 1:S25-30. doi: 10.3109/0142159X.2013.765548. PMID: 23581893.
24. Huda N, Yousuf S. Career preference of final year medical students of Ziauddin Medical University. Educ Health (Abingdon). 2006 Nov;19(3):345-53. doi: 10.1080/13576280600984087. PMID: 17178516.
25. Yin K, Yang L, Zhang R, Zheng D, Wilkes MS and Lai Y (2021) Gender Differences and Influencing Factors in Specialty Choices: Findings From One Medical School in China. Front. Public Health 9:648612. doi: 10.3389/fpubh.2021.648612
26. Eze BI, Okoye OI, Maduka-Okafor FC, Aguwa EN. Factors influencing choice of medical specialty of preresidency medical graduates in Southeastern Nigeria. J Grad Med Educ 2011;3:367-71.
27. Bittaye M, Odukogbe AT, Nyan O, Jallow B, Omigbodun AO. Medical students' choices of specialty in the Gambia: The need for career counseling. BMC Med Educ 2012;12:72.
28. Onyemaechi N, Bisi-Onyemaechi AI, Omoke NI, Odetunde OI, Okwesili IC, Okwara BO. Specialty choices: Patterns and determinants

among medical undergraduates in Enugu Southeast Nigeria. Niger J Clin Pract. 2017 Nov;20(11):1474-1480. doi: 10.4103/njcp.njcp_382_16. PMID: 29303135.

29. Boyd JS, Clyne B, Reinert SE, Zink BJ. Emergency medicine career choice: a profile of factors and influences from the Association of American Medical Colleges (AAMC) graduation questionnaires. Acad Emerg Med. 2009 Jun;16(6):544-9. doi: 10.1111/j.1553-2712.2009.00385.x. Epub 2009 Mar 26. PMID: 19344453.

TABLE 1: Sociodemographic characteristics of the participants

Characteristics	**N**	**%**
Age		
<24	36	47.37
24-26.	40	52.63
Gender		
Female	38	50.00
Male	38	50.00
marital status		
Not married	71	93.42
Married	5	6.58
mother's educational level		
Illiterate	3	3.95
primary	9	11.84
middle	2	2.63
secondary	22	28.95
BSC	37	48.68
Postgraduate	3	3.95
mother's job		
housewife	42	55.26
student	1	1.32
Retired teacher	1	1.32
private sector	1	1.32
health field	6	7.89
business woman	2	2.63
Education Field	23	30.26
Father's educational level		
Illiterate	6	7.89
primary	4	5.26
middle	9	11.84
secondary	13	17.11
BSC	35	46.05
Postgraduate	9	11.84
father's job		
Retired	5	6.58
Military field	13	17.11
Education Field	19	25.00
Private sector	12	15.79
health field	6	7.89
free business	15	19.74
Field inspection (Ministry of Labor)	1	1.32
Marriage official	1	1.32
Mechanical engineer	1	1.32
A government employee in Hail Municipality	1	1.32

Ministry of transportation	1	1.32
No work (deceased)	1	1.32

TABLE 2: Distribution of specialty of first choice of participants

Desired specialty (first desire)	**N**	**%**
Family Medicine	14	18.42
Internal Medicine	13	17.11
Surgery and surgical specialties*	30	39.47
Obstetrics and gynecology	4	5.26
Pediatrics	5	6.58
Others **	10	13.15

Surgical specialty: general surgery =24, ophthalmology =6*

**Others: emergency=2, dermatology= 4. Radiology=3, forensic medicine=1

TABLE 3: Distribution of specialties of first choice by gender

Desired specialty	Male (n=38)		Female (n=38)		Total (n=76)	
	N	%	N	%	N	%
Family Medicine	4	10.52	10	26.31	14	18.42
Internal medicine	10	26.31	3	7.89	13	17.10
Surgical specialties*	19	50	16	15.78	35	46.05
Obstetrics and gynecology	1	2.6	3	7.89	4	5.26
Others **	4	10.5	6	15.78	10	13.15
Chi-square	X2	8.34				
	p-value	0.08				

*Surgical specialty: general surgery, ophthalmology

**Others: emergency, dermatology, Radiology, forensic medicine

TABLE 4: Distribution of specialties of first choice by age, marital status, parent's educational level and occupation of parents

			Desired specialty (first desire)					Chi-square	
			Family Medicine	Internal Medicine	Surgery and surgical specialties	Obstetrics and gynecology	Others	X2	P-value
Age	<24	N	6	5	18	3	4	2.252	0.689
		%	42.9%	38.5%	51.4%	75.0%	40.0%		
	24-26.	N	8	8	17	1	6		
		%	57.1%	61.5%	48.6%	25.0%	60.0%		
marital status	Not married	N	11	13	34	4	9	6.745	0.150
		%	78.6%	100.0%	97.1%	100.0%	90.0%		
	Married	N	3	0	1	0	1		
		%	21.4%	0.0%	2.9%	0.0%	10.0%		
	Illiterate	N	0	0	3	0	0	24.254	0.231
		%	0.0%	0.0%	8.6%	0.0%	0.0%		

mother's educational level	primary	N	3	2	3	0	1		
		%	21.4%	15.4%	8.6%	0.0%	10.0%		
	middle	N	0	0	0	1	1		
		%	0.0%	0.0%	0.0%	25.0%	10.0%		
	secondary	N	6	3	11	0	2		
		%	42.9%	23.1%	31.4%	0.0%	20.0%		
	BSC	N	5	8	16	2	6		
		%	35.7%	61.5%	45.7%	50.0%	60.0%		
	Postgraduate	N	0	0	2	1	0		
		%	0.0%	0.0%	5.7%	25.0%	0.0%		
Father's educational level	Illiterate	N	1	0	3	0	2	25.146	0.196
		%	7.1%	0.0%	8.6%	0.0%	20.0%		
	primary	N	0	0	2	0	2		
		%	0.0%	0.0%	5.7%	0.0%	20.0%		
	middle	N	3	3	3	0	0		
		%	21.4%	23.1%	8.6%	0.0%	0.0%		
	secondary	N	0	3	8	0	2		
		%	0.0%	23.1%	22.9%	0.0%	20.0%		
	BSC	N	8	5	16	3	3		
		%	57.1%	38.5%	45.7%	75.0%	30.0%		
	Postgraduate	N	2	2	3	1	1		
		%	14.3%	15.4%	8.6%	25.0%	10.0%		

Significant P-value =<0.05

TABLE 5: Distribution of factors that influenced first choice specialties using Likert scale in a scale of 5

		Data					%	Chi-square	
		Totally ineffective	Somewhat ineffective	I don't know	Somewhat impressive	very Influential		X2	P-value
personal desire	N	4	0	3	13	56	90.789	99.263	<0.001*
	%	5.3%	0.0%	3.9%	17.1%	73.7%			
social consideration	N	15	18	17	16	10	56.842	2.553	0.635
	%	19.7%	23.7%	22.4%	21.1%	13.2%			
expected financial income	N	8	5	20	17	26	72.632	19.658	<0.001*
	%	10.5%	6.6%	26.3%	22.4%	34.2%			
Good clerkship experience	N	5	4	11	25	31	79.211	39.000	<0.001*
	%	6.6%	5.3%	14.5%	32.9%	40.8%			
Personal capabilities and competence	N	6	4	10	21	35	79.737	43.605	<0.001*
	%	7.9%	5.3%	13.2%	27.6%	46.1%			
The influence of the ideal or role model	N	33	15	13	8	7	44.474	29.000	<0.001*
	%	43.4%	19.7%	17.1%	10.5%	9.2%			
A parent's advice	N	36	17	6	11	6	42.632	40.974	<0.001*
	%	47.4%	22.4%	7.9%	14.5%	7.9%			
A friend's advice	N	39	17	8	10	2	38.684	54.132	<0.001*
	%	51.3%	22.4%	10.5%	13.2%	2.6%			
	N	33	10	12	14	7	47.368	27.816	<0.001*

Family and societal expectations	%	43.4%	13.2%	15.8%	18.4%	9.2%			
Employment opportunities and employment rates	N	10	6	10	21	29	73.947	23.868	<0.001*
	%	13.2%	7.9%	13.2%	27.6%	38.2%			
scarcity of specialization	N	24	15	12	11	14	53.684	7.026	0.135
	%	31.6%	19.7%	15.8%	14.5%	18.4%			
Less working hours	N	25	10	7	12	22	58.947	16.237	0.003*
	%	32.9%	13.2%	9.2%	15.8%	28.9%			
less competitive	N	28	11	9	16	12	52.895	15.184	0.004*
	%	36.8%	14.5%	11.8%	21.1%	15.8%			
Less training period	N	28	16	9	10	13	50.526	15.447	0.004*
	%	36.8%	21.1%	11.8%	13.2%	17.1%			
Research opportunities	N	33	7	20	12	4	46.053	35.711	<0.001*
	%	43.4%	9.2%	26.3%	15.8%	5.3%			
Less potential for work-related risks	N	29	17	13	9	8	46.842	19.000	<0.001*
	%	38.2%	22.4%	17.1%	11.8%	10.5%			
Great diversity of patients	N	11	14	17	11	23	65.526	6.632	0.157
	%	14.5%	18.4%	22.4%	14.5%	30.3%			
Focus on community health	N	14	10	20	13	19	63.421	4.658	0.324
	%	18.4%	13.2%	26.3%	17.1%	25.0%			
The doctor's relationship with the patient	N	11	8	15	19	23	69.211	9.526	0.049*
	%	14.5%	10.5%	19.7%	25.0%	30.3%			

*Significant P-value =<0.05