

# Specialty preferences of 1<sup>st</sup> year medical students in a Saudi Medical School – Factors affecting these choices and the influence of gender

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## ABSTRACT

**Background and Aims:** In recent years there has been a growing appreciation of the issues of career preference in medicine as it affects student learning and academic performance. Various factors influence the specialty choices of medical students. Some specialties tend to attract students more than others. One possible consequence of this would be a mismatch between health needs and specialist numbers in the region. This study investigated the career preferences of 1<sup>st</sup> year medical students in a Saudi medical school and to assess factors affecting these choices. **Materials and Methods:** The study was a cross-sectional survey carried out on the 1<sup>st</sup> year undergraduate students in the college of medicine, King Faisal University, Saudi Arabia. A total of 109 students (57 female and 52 males) responded to the questionnaire which was initially administered to all the students of the 1<sup>st</sup> year – A total of 120 students (response rate was 90.8%). A mixed method approach was used and qualitative data from open-ended questions were analyzed based on thematic analysis. **Results:** The top choices were general surgery, internal medicine, and pediatrics. Among female students; the top specialty choices were: General surgery (23%), pediatrics (18%), and dermatology (15%). Among the male students; the top choices were: General surgery (54%) and internal medicine (23%). Of the total, 57% of the students agreed or strongly agreed that primary aptitude was the main factor affecting the choice. Only 31% felt that there was a significant influence of role model, 48% felt that the advice of others – peers and family, would be a factor influencing their choices, and 53% agreed that specialty choice would influence their future learning patterns. Males were more likely to choose a specialty based on actual aptitude for the specialty, financial rewards, and scope for research; and this gender difference was statistically significant. **Conclusion:** Surgery was the top-choice in both genders. Other popular choices included internal medicine, pediatrics, and dermatology. Important factors affecting these choices included – primary aptitude, advice of peers, reputation, financial rewards, and the challenge involved.

**Key words:** Medical school, Saudi Arabia, specialty preferences

## INTRODUCTION

In recent years there has been a growing appreciation of the issues of career preference in medicine as it may affect student learning and academic performance.<sup>[1]</sup> Various

factors might influence the specialty choices of medical students. In many situations specialties are chosen by medical students based on what is available to them rather

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than what they actually have a passion for. Factors like availability of residencies in their preferred specialty and the level of competition involved may affect the final decision of choosing a career. However, often these choices are made towards the end of the undergraduate program and medical students often have no clear choices at the beginning of their undergraduate studies. Very few studies have addressed the 1<sup>st</sup> year medical students specifically to evaluate specialty preferences. One of the aims of our study was to see if 1<sup>st</sup> year students too have clear specialty choices and if so, what the factors that drive these choices are.

There are some specialties that attract students more than others.<sup>[1,2]</sup> One consequence of this would be a possible mismatch between health needs and specialist numbers in the region. Also, there could be a case of 'a right person in the wrong place'. A student with an innate aptitude for a particular specialty may be attracted to another specialty based on popular perception or financial reasons. An evaluation of the factors which influence specialty choices would help prevent such mismatches at the national and regional levels and also act as a guide to help students make career preferences based on their aptitudes.<sup>[1-3]</sup> Additionally, Saudi Arabia is characterized by gender segregation, as part of its cultural background, during the undergraduate medical course. Consequently, a difference in the specialty choices is to be expected between genders. Our college at the time of this study was following a traditional, teacher-centered curriculum where classes are completely segregated. There are no common classes for male and female students. Since peers often affect future specialty preferences, it was likely that studying in a gender segregated environment may produce specific patterns of specialty preferences among the medical students in our institute, based on gender. Our study also aimed to evaluate if such patterns based on gender were seen in our sample.

We aimed to investigate the career preferences of medical students and factors affecting these choices in the context of a Saudi medical school. We also evaluated if there are statistically significant differences in the students' perception of specialty choices and factors associated with this, according to gender.

## MATERIALS AND METHODS

The study was a cross-sectional survey carried out on the 1<sup>st</sup> year undergraduate students in a medical school in Saudi Arabia. A convenience sampling method was used. A total of 109 students (57 female and 52 males) responded to the questionnaire which was administered to all the students of the 1<sup>st</sup> year (a total 120 of students)—

the response percentage was 90.8%. All the students were in the 1<sup>st</sup> year of their medical studies, after completing a preparatory year attached to the same college. Qualitative analysis (thematic analysis) was done for the open-ended section. Participation in the study was voluntary and an informed consent form was also administered along with the questionnaire.

The questionnaire was composed of two parts. The first part dealt with demographic details and specific specialty choices, while the second part was a five-point Likert scale questionnaire which had 15 questions evaluating the student perceptions regarding the factors influencing the specialty choices according to their own perception. This questionnaire was adapted from a study in Jordan done by Khader *et al.* [Table 1].<sup>[1]</sup> The first part of the questionnaire assessed both broad specialty choices (which were listed into four groups namely: A. Internal medicine/allied medical specialties, B. surgery and allied surgical specialties, C. community medicine, family medicine, general practice, and D. basic sciences) and specific specialty choices (specialties included were general surgery, obstetrics and gynecology, pediatrics, internal medicine, psychiatry, orthopedics, ophthalmology, dermatology, anesthesiology, radiology, public health, family medicine, basic sciences, and otorhinolaryngology)

Statistical analysis was done using Statistical Package for Social Sciences (SPSS)<sup>®</sup> version 15. Specialty choices were expressed in terms of numbers and percentages. Pearson's Chi-square was used to compare responses to the Likert scale questionnaire between male and female students. The reliability coefficient for the questionnaire (Cronbach's alpha) was 0.837.

## RESULTS

A total of 109 responses were obtained (57 female and 52 male), the age of the students ranged from 19 to 21 years. Regarding broad specialty choices; 51 students (47%) opted for surgery and surgical specialties, 50 students (46%) opted for internal medicine and allied medical specialties, while only six students (7%) opted for other specialties like basic sciences and community medicine. From the female group, 30 students (53%) opted for medical specialties and 22 students (39%) opted for surgical specialties; while among male students the ratio was reversed with 20 students (38%) opting for medical specialties and 29 students (55%) opting for surgical specialties.

Regarding specific specialty choices, the top choices were general surgery, internal medicine, and pediatrics. Among

**Table 1: Likert scale questionnaire for evaluating factors affecting and associated with specialty preferences**

1. Primary interest/aptitude for the specialty	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
2. Presence of role models-family/teachers	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
3. Reputation of the specialty	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
4. Working hours	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
5. Financial rewards/salary	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
6. Scope for research	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
7. Advice from other sources-peers, family, teachers	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
8. Challenging nature of the specialty	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
9. Potential for patient interaction	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
10. Potential for community interaction	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
11. Experience in the particular specialty	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
12. Intellectual content of specialty	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
13. Length/difficulty of residency	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
14. Ease of job availability	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable
15. Does your specialty choice influence your learning patterns?	1. Strongly disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Strongly agree/not applicable

female students, the top specialty choices were: General surgery (23%), pediatrics (18%), and dermatology (15%). Among the male students, the top choices were: General surgery (54%) and internal medicine (23%).

Of the total, 57% of the students agreed or strongly agreed that primary interest/aptitude for the specialty was one of the main factors affecting the choice. Only 31% felt that there was a significant influence of role models (teachers or family members); however, 48% felt that the advice of others—peers, family, and teachers—would be an important factor influencing their choices. Interestingly, 37 students (34%) had close family members who were doctors. However, we could find no correlation between family background, family income, and the choice of specialty.

Almost half the group (45%) agreed that the reputation of the specialty was a major factor in influencing the choice. About 53% of the group agreed that financial considerations were important, while 40% agreed that the working hours were a major consideration. A majority (43%) agreed that scope for research was another major influencing factor.

About 55% agreed that a challenging specialty would positively influence their choice. A majority (60%) agreed that potential for patient interaction would be a major factor influencing their decision. About 48 and 44%, respectively, agreed that intellectual content of the specialty and the difficulty/length of the training program would be important factors.

About 56% of the group agreed on the following factors as possible influences—scope for community interaction, ease of job availability, and experience in that particular specialty before specialization.

More than half (53%) agreed that choice of specialty would influence their learning patterns in future.

Analyzing the differences in the response to the questionnaire, based on gender, significant differences were seen only in following three aspects.

1. Males were more like to choose a specialty based on actual interest/aptitude for the specialty. The correlation was statistically significant (Pearson's Chi-square - 2.73,  $P$  value = -0.006)
2. Males were more like to choose a specialty based on considerations of financial rewards. This was also statistically significant (Pearson's Chi-squared - 3.08,  $P$  value= -0.002)
3. Males were more likely to choose a specialty based on the scope for research and this too was statistically significant (Pearson's Chi-square - 3.11,  $P$  value= -0.002).

As far as qualitative analysis in our study was concerned, one important point that came out was that many of the students felt that the amount of respect that society gives is more for doctors in clinical specialties. Also the 'classical' societal image of a doctor is one who is into clinical medicine. These could be factors which might be responsible for the lower preference for nonclinical specialties in our study.

## DISCUSSION

There have been quite a few studies dealing with the issue of specialty preferences among medical students and the factors which influence these choices. The importance of specialty preferences is that they tend to motivate learning tendencies and patterns.<sup>[2,3]</sup> Moreover in the long-term context, it is also important that students with the right aptitude for a specialty are encouraged to go into it. One of the previous studies reported by Mehmood *et al.*, showed similar result to ours in terms of specialty choices with general surgery, internal medicine, and pediatrics being the most popular choices. An interesting extension of this study was published later by Mehmood *et al.*, where a correlation between personality types and the specialty

choices was made. The study suggested that surgery was the most preferred specialty and that students preferring a surgical specialty had higher scores on personality scales like the 'impulsive sensation seeking', 'neuroticism-anxiety', 'aggression-hostility', and 'sociability' scales.<sup>[2,3]</sup> Another study by al-Faris *et al.*, of 302 final year students showed a higher preference for internal medicine, surgery, pediatrics, and obstetrics. The major influencing factors were—personal interest, a chance to help people, fewer specialists in the same field in the country, and prestige.<sup>[4]</sup> Another relatively recent study from Saudi Arabia by Abdulghani *et al.*, interestingly showed that a significant percentage of undergraduate students are not really sure of their future specialty preferences, which is an important factor which must be kept in mind when administering such surveys.<sup>[5]</sup> The same study showed that senior students and those having a background about the concerned specialties were important factors in making a definite final choice. General surgery; ear, nose, and throat (ENT); ophthalmology; and internal medicine were the most preferred choices and the least popular choices were community medicine, anesthesia, and forensic medicine.<sup>[5]</sup> Lifestyle was considered to be the major factor in deciding a specialty as per a recent study from Dammam University in Saudi Arabia.<sup>[6]</sup>

While most countries in the developing world face a problem of shortage of doctors, another problem which needs to be addressed is the mismatch between specialty needs and preferences for specific specialties. It is possible that some specialties which are not on the priority of most students tend to suffer by not receiving the best students to carry the growth of the specialty forward. An assessment of student preferences and reasons driving these preferences are essential to correct this mismatch. In Saudi Arabia, we assume that one additional factor which might be driving specialty choices would be the cultural background. It is possible that this might lead to gender being a significant influence in student perceptions of specialization. Also the choice of specialty preferences are often affected by extraneous factors, like the influence of peers and family and financial aspects, rather than a primary aptitude for the specialty or a shortage of doctors in that specialty in the region of context, which the authors feel are probably more important factors. A proper perspective of specialty preferences and affecting factors can later enable devising interventions to ensure that students choose a specialty that they have an aptitude for and that regional needs are also addressed in the same context.

A number of previous studies have evaluated specialty preferences in various parts of the world. A study from Kenya among 385 students showed that surgery had the

highest preference rate followed by pediatrics, internal medicine, and obstetrics and gynecology. Significantly more males preferred surgery compared to the female students who mainly selected pediatrics. There was an increased likelihood of female students choosing specialties associated with a more comfortable lifestyle.<sup>[7]</sup> Surprisingly in our study, males were more likely to be affected by long working hours in the context of choosing a specialty, compared to females.

A study from Iraq suggested that clinical specialties outnumbered basic medical sciences specialties as specialty preferences. Personal interest and an anticipated higher income were the most influential factors contributing to specialty preference.<sup>[8]</sup> The relatively lower interest in nonclinical specialties was a trend seen in the present study as well. Qualitative data from this study suggests that students feel that the amount of respect that society gives is relatively less for nonclinical specialties. Also the 'classical' societal image of a doctor is one who is into clinical medicine. These could be factors which might be responsible for the lower preference for nonclinical specialties in our study. In our study, 60% of the student felt that the potential for interaction with patients would be an important factor in choosing a specialty.

In a study from Japan by Fukuda and Harara highlighted the issues related to gender and mismatch in specialty preference.<sup>[9]</sup> In their study, internal medicine showed the highest preference rate, followed by general surgery, pediatrics, and emergency medicine. The preference rates for general surgery, orthopedics, neurosurgery, and emergency medicine were significantly higher in men than in women, while those of obstetrics and gynecology, pediatrics, and dermatology were significantly higher in women.<sup>[9]</sup> A study from Pakistan by Hashmi *et al.*,<sup>[10]</sup> revealed that students selected surgery as the most preferred postgraduate specialty followed by medicine and obstetrics and gynecology. Female medical students picked obstetrics and gynecology, while male medical students opted for surgery as their most preferred specialty. This gender difference was statistically significant. The most common reasons for choosing a particular specialty were reputation (general perception among people) of the specialty and anticipated income. While reputation and financial aspects were considered important in our study too, they were not the main influences. The other interesting aspect was that only four of the 57 female students preferred obstetrics and gynecology as a career choice in our study.

Other studies have demonstrated that actually working in specific specialties has a major influence on specialty

preferences. Comparing preferences for working in a primary care (PC) setup vs a nonprimary care (NPC) environment, the study by Ellsbury *et al.*, found that for both PC- and NPC-oriented students, the diagnostic and patient-related characteristics of their preferred specialties were highly influential. Student gender, in this study, appeared to have minimal influence on response patterns.<sup>[11]</sup> Our study was limited by the fact that it had concentrated only on 1<sup>st</sup> year students, who have had no exposure to actual clinical settings.

In a Jordanian study by Khader *et al.*, the most preferred specialty expressed by male students was surgery, followed by internal medicine and orthopedics, while the specialty most preferred by female students was obstetrics and gynecology, followed by pediatrics and surgery.<sup>[1]</sup> Students showed relatively less interest in orthopedics, ophthalmology, and dermatology. While 3.1% of females expressed interest in anesthesiology, no male students did. The choices were a bit different from our study with the most important difference being the higher number of female students preferring general surgery as a specialty option. Also dermatology, in spite of being a minor specialty, was a major preference for many students in our study. In the study by Khader *et al.*, intellectual content of the specialty and the individual's competencies were the most influential on their preference of specialty. Other influential factors were the "reputation of the specialty", "anticipated income", and "focus on urgent care".<sup>[1]</sup> The importance of prestige, lifestyle, and reputation in career choices of medical students has been suggested in a study from Australia also.<sup>[12]</sup> In our study too, personal aptitude was an important influencing factor and reputation of the specialty and financial concerns were also considered to be important by a large number of the students.

In a study by Fazel and Ebmeier from UK, comparing specialty training choices of UK graduates vs international graduates;<sup>[13]</sup> it was suggested that the popularity of psychiatry as a specialty choice was less in UK. Based on the number of applicants per place, there was some consistency in the most popular specialties for both UK and international medical graduates, but there were differences in the popularity of psychiatry. With anticipated decreases in the number of new international medical graduates training in the UK, university departments and professional associations may need to review strategies to attract more UK medical graduates into certain specialties, particularly psychiatry. The relatively low interest in important specialties like psychiatry was seen in our study too in both genders.

A more recent study by Al-Fouzan *et al.*, from Kuwait showed a preference for pediatrics, general surgery,

and cardiology as specialty choices in a sample of 387 medical students in various stages of their medical course. The most important factors affecting these choices were a good treatment outcome for the patients and the specialty being challenging in nature.<sup>[14]</sup> The importance of the specialty being 'challenging' was an important influence in our study too. Unlike the study by Al-Fouzan *et al.*, we could find no significant correlation between the family background or income on the choice of specialty.

An interesting aspect in the study by Gour *et al.*, was trying to evaluate the interest of medical students in nonmedical specializations like hospital management.<sup>[15]</sup> An overwhelming majority of the students in the survey (97.98% in a sample size of 190) responded that they would not prefer going into a primary nonmedical specialty. This is another aspect which we would need to consider studying in future, as there is a steady growth of such specialties like hospital administration and bioinformatics, which do not fall under the gamut of classical medical specialties.<sup>[15]</sup>

The question of opting for a 'western' qualification has been addressed in the study by Jarallah *et al.*, in which a surprising high number of respondents (81.2% in a sample of final year students in a Saudi university) felt that they would like to have a foreign certificate. However, the majority planned to practice back in their home country after acquiring the foreign certificates. This of course is a relatively older study and it is felt that the situation may have changed now with the extensive growth of quality university education in Saudi Arabia and the Arab world in general.<sup>[16]</sup>

### Limitations

The small sample size is the major limitation of our study, but the authors were focusing on how students who have just started their medical school perceive the concept of specialty preferences. It is planned to follow-up with the same students over the course of their medical education to see how their choices change overtime. Another major limitation of our study was that only few students responded in detail to the open-ended questions, thereby affecting the qualitative data.

### Future plans and recommendations

As mentioned, the authors are planning to follow-up the same group of student to internship and further to see whether their specialty preferences change with time and whether there is an alteration in the factors influencing these choices. More focus should be put into the teaching of important but less preferred specialties like nonclinical specialties and psychiatry, to ensure that a quality specialist workforce is available to prevent mismatch between the

demand and supply. This could also help in providing better career counseling for medical students in our region.

## CONCLUSIONS

General surgery, internal medicine, pediatrics, and dermatology were the most preferred specialty choices in our study. The most important factors influencing these choices were primary aptitude for the specialty, influence of peers and family, reputation of the specialty and the challenge involved, financial aspects, work hours, and the potential for patient interaction. Males were significantly more likely to choose a specialty on the basis of aptitude, scope for research, and financial consideration as compared to the female students.

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### Conflicts of interest

There are no conflicts of interest.

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