

## Specialty Preference of Medical Undergraduates and Graduates of a Public Sector Medical University of Karachi

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### ABSTRACT

**Objective:** The purpose of the study is to determine the medical and surgical specialty preferences and eventual destinations of medical students in a public sector university of Karachi, Pakistan.

**Methods:** A descriptive cross-sectional questionnaire-based study was conducted at Dow Medical College, Karachi, Pakistan during the period of May 2015 to December 2015. House officers and medical undergraduates (fourth and final academic years) were approached. Close ended self-administered questionnaire were used, which was composed of demographic details and common twenty specialty choices and eventual destinations of new doctors.

**Results:** Out of total 260 respondents, 85 (32.7 %) were male and 175 (67.3%) were female. Top most chosen fields for male doctors were cardiology/cardiac surgery (n=23,27.1%), neurology/neurosurgery (n=12, 14.1%), and family /internal/emergency medicine (n=12,14.1%), while female participants desire to work in the fields of family/internal/emergency medicine (n=33,18.9%), cardiology/cardiac surgery (n=26,14.9%) and pediatric/ pediatric surgery (n=22, 12.6%). A total of (n=134,51.5%) of participants were interested to work in homeland in their selected fields while (n=126,48.5%) future doctors desire to practice in overseas. Majority 235(90.4%) were satisfied from the medical profession. The highly considered factors noted were job availability, future financial prospects and promotion prospects domestic circumstances and international opportunities. A significant difference of gender was associated with satisfaction with the medical field (p-value 0.03) and work preference after graduation (p-value <0.001).

**Conclusion:** Majority of the doctors were satisfied from their medical profession. However, job availability, future economic security, and learning opportunities were some major concerns.

**Key words:** Specialty preference, medical undergraduates, public sector medical university.

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### INTRODUCTION

Globally, the distribution of clinician graduate specialization is a mounting concern, as these choices may not fulfill public requirements.<sup>1</sup> Medical graduates' choice of specialty can impact the supply of doctors in diverse areas and can become difficult when there are specialties that are not well represented.<sup>2-3</sup> It has been observed that choices of specialties vary from country to country.<sup>4</sup> It is stated that a nation's health infrastructure is influenced by

the specialty selection of its health care population. Medical and Surgical specialty choices are multifaceted, vigorous, and personalized verdict.

Medical students have to face the difficult decision to choose a medical specialty after finishing their graduation. Attitude and environment are the crucial aspect in determining medical choices among medical graduates. In Pakistan, all medical college propose a five-year course, core emphasis on basic health sciences during the initial two years, with progressive and gradual clinical practical knowledge and learning over the subsequent last three years, followed by one year essential internship (house job) in a teaching hospital.<sup>5,6</sup>

Various studies have highlighted the need of assessments of medical undergraduates to measure future needs and career prospects.<sup>7,8</sup>

We planned this study to examine post graduate specialization choices among medical students and reasons persuading their selections as well as their preferred choice for specialization in public sector medical university of Karachi, Pakistan. This study would offer statistics for professional bodies, training organization and Government to formulate policies to ensure a good combination of medical personnel of today and tomorrow. Current study also focuses on shortage and high-priority disciplines so that imbalances that come across would be nominal in future.

## METHODS

A descriptive cross-sectional study was conducted at Dow Medical College, Dow University of Health Sciences (DUHS), Karachi, Pakistan during the period of May 2015 to December 2015. Students and house officer were selected with purposive sampling technique.

Ethical approval was obtained from the Institutional Review Board (IRB) of Dow University of Health Sciences prior conducting of the study (IRB/DUHS/2015/209/49).

House officers and medical undergraduates (4 to 5 academic years) of both genders were approached. The 1<sup>st</sup> to 3<sup>rd</sup> year students were excluded because of restricted exposure to clinical experience in the initial years of medical education.

Sample size was calculated through Open Epi software version 3.0 taking internal medicine as a first choice of specialty 20.5%<sup>5</sup>, confidence interval 95% and margin of error 5%. Calculated sample size was 251 but was increased to 260.

Close ended semi structured self administered questionnaire were used, which was composed of demographic details and common twenty specialties in English language, which is the official linguistic practice of the medical Institutions. Each questionnaire took approximately 10 - 15 minutes to complete. The questionnaire were closely related to their individual specialty choices and related aspect affecting their preferred decision. Students were asked to choose the most preferred specialty and reason for that preference was asked from the students.

Data were entered and analyzed through IBM SPSS version 20.0. Mean and Standard deviation was calculated for age. Frequency and percentage were computed for all gender, specialty choices, and factors affecting the specialty choices. Comparison was done to assess the association of career satisfaction and work preference after graduation with gender. Chi-square test was applied. P-value <0.05 was considered as level of significance.

## RESULTS

Out of total 260 participants, 85 (32.7 %) were male and 175 (67.3%) were female. The mean age of the sample was 22.21±1.28 years. Of the total participants 107(41.2%) were fourth year students, 110(42.3%) were fifth year students and 43(16.5%) were house officers. (Table 1) Only 235 (90.4%) respondents were pleased from their current medical profession and

25(90.4%) were not gratified. Among total, only 134(51.5%) participants were concerned to work in homeland in their desired field, while 126(48.5%) respondents were attracted to work in overseas.

Majority of the male participants were attracted towards cardiology / cardiac surgery 23(27.1%), neurology/neurosurgery 12(14.1%). They want to specialize in family /internal /emergency medicine 12(14.1%) from their own country. Male participants did not show any interest in the field of pulmonology, dermatology and ophthalmology. Female participants desire to pediatric / pediatric surgery 22(12.6%). The work in the fields of family /internal /emergency medicine 33(18.9%), cardiology / cardiac surgery 26(14.9%) and fields with least interest were dermatology, urology and pulmonology among both genders.

**Table 1: Characteristics of medical students and House Officer (n=260)**

Characteristics	n	%
<b>Age (years)</b>		
20 - 22	177	68.1
23 - 26	83	31.9
<b>Gender</b>		
Male	85	32.7
Female	175	67.3
<b>Year of medical education</b>		
Fourth Year	107	41.2
Fifth Year	110	42.3
House Officer	43	16.5
<b>Satisfied with medical field</b>		
No	25	9.6
Yes	235	90.4
<b>Work preference after graduation</b>		
Inland	134	51.5
Abroad	126	48.5

**Table 2: Gender distribution and inland and abroad reference of medical specialty of future doctors and House Officer (n =260)**

Medical Specialty preference	Total	Gender				Work preference after graduation			
		Male		Female		Inland		Abroad	
		n	%	n	%	n	%	n	%
Cardiology/ cardiac surgery	49	23	27.1	26	14.9	21	15.7	28	22.2
Neurology/ neurosurgery	23	12	14.1	11	6.3	15	11.2	8	6.3
Internal / family / emergency medicine	45	12	14.1	33	18.9	31	23.1	14	11.1
Orthopedics	6	4	4.7	2	1.1	2	1.5	4	3.2
General surgery	25	7	8.2	18	10.3	17	12.7	8	6.3
Pediatrics / pediatrics surgery	28	6	7.1	22	12.6	16	11.9	12	9.5
Obstetrics and gynecology	14	1	1.2	13	7.4	5	3.7	9	7.1
Psychiatry	5	2	2.4	3	1.7	2	1.5	3	2.4
Gastroenterology	14	6	7.1	8	4.6	8	6.0	6	4.8
Plastic surgery	5	1	1.2	4	2.3	3	2.2	2	1.6
Public health	9	0	0	9	5.1	1	0.7	8	6.3
Anesthesia	7	2	2.4	5	2.9	5	3.7	2	1.6
Ophthalmology	6	0	0	6	3.4	1	0.7	5	4.0
Pulmonology	1	0	0	1	0.6	0	0	1	0.8
Endocrinology	7	2	2.4	5	2.9	1	0.7	6	4.8
Radiology	6	4	4.7	2	1.1	1	0.7	5	4.0
Oncology /hematology	4	1	1.2	3	1.7	2	1.5	2	1.6
ENT	3	1	1.2	2	1.1	1	0.7	2	1.6
Urology (surgery)	2	1	1.2	1	0.6	1	0.7	1	0.8
Dermatology	1	0	0	1	0.6	1	0.7	0	0

ENT: Ear, Nose and Throat, n: number

Among male participants, 72 (15.3%) were satisfied with their medical field and 31 (36.5%) want to practice in their own country and 54 (63.5%) desire to work outside the homeland and 13 (15.3%) were unhappy with current field, which is statistically significant. While among female participants 163(93.1%) were satisfied with their medical field and 103(58.9%) want to practice in their own country which is statistically significant. Out of total only 72(41.1%) respondents desire to work outside in overseas and 13(6.9%) were hopeless with current field. A significant difference of gender was associated with satisfaction with the medical field (p-value 0.03) and work preference after graduation (p-value <0.001).

**Table 3: Association of gender with satisfied in medical field and work inland or abroad after graduation. (n-260)**

Characteristics	Gender				P-value
	Male		Female		
	n	%	n	%	
<b>Satisfied in medical field</b>					
No	13	15.3	12	6.9	0.030
Yes	72	84.7	163	93.1	
<b>Work inland or abroad after graduation</b>					
Inland	31	36.5	103	58.9	<0.001
Abroad	54	63.5	72	41.1	

Chi-square test applied, p-value <0.05 taken as significant

## DISCUSSION

The four most top desired selected medical fields noticed in current study were cardiology/ cardiac surgery, neurology/ neurosurgery, pediatrics/ pediatric surgery, and internal/family/emergency medicine were chosen from a public sector medical university. The least desirable medical fields noticed were Ophthalmology, dermatology and pulmonology in both genders. Previous studies have reported Internal Medicine, General Surgery, Obstetrics & Gynecology, and Pediatrics as most preferred medical specialties by medical students.<sup>9-10</sup> Although, these fields constantly prevail over others but not presenting in the similar ranks in our study.

Reason of selection of any type of surgical field as a profession among medical students has been related to economic and social status improvement, and better professional opportunities. It is also reported that medical graduates and undergraduates spend most of the time with their seniors and in hospital environment which help them to find additional medical socialization.<sup>11</sup>

Current study showed that our male participants were more interested in cardiology / cardiac surgery and neurology / neurosurgery, while female participants are more inclined towards internal medicine, Pediatrics and cardiology / cardiac surgery. The least interested medical fields among our respondents were pulmonology, dermatology, ophthalmology. Major findings of the study include the students' preference for clinical specialties, their choice for practice and selection of their own homeland as the country for practice and reasons for selected fields. Interesting differences were found in numerous respects to specialty preferences. Medical and Surgical specialty choices should be determined during or even before medical graduation. Uppermost ranked specialties by our respondents were cardiac surgery, cardiology and internal medicine. The results of this study regarding specialty preferences for, cardiology/cardiac surgery and neurology / neurosurgery are different from others national and international studies on the subject.<sup>12-14</sup> Nowadays, a trend towards a preference for the main four medical specialties has been shown in European, Middle East, Africa and Europe studies, where Internal Medicine, General Surgery, Obstetrics / Gynecology, and Pediatrics were top most chosen specialties<sup>14-17</sup> which are not ranked in this current study. However, Internal Medicine and Pediatrics were the most chosen in studies in a Central Africa country<sup>18</sup>, which is exactly similar to our study. Are et al. disclosed that medical population from developing countries desire to choose surgical fields in contrast to



those from developed nation.<sup>19</sup> Similarly Gibis et al, revealed a connection between the selection of specialty of medical field and the high income reward of medical population.<sup>20</sup> Although a Spanish study revealed a new solid connection between the accessibility of places in decisive career choices.<sup>21</sup>

In this study, more than half of male responders were preferred to go overseas to specialize and practice. The main motive to work overseas is probably better economic package and experience, while majority of the female respondents desire to work in their own country.

In our study, male respondents have higher economic expectations and desire to have more opportunities of careers.

Our results indicate that around majority of male students preferred specializing overseas, which was similar to the Greek and Arscott-Mills et al's studies<sup>22-23</sup> where majority desire to work outside the motherland, the fact is that their desired fields of selection are not available in the vicinity. Although in selection of a specific medical specialty, economic reward is an important inspiring motive, basic medical sciences and other least interested fields are usually having low financial return and consequently not desirable for medical students. This finding is supposed to be frustrating for those involved in designing an organization of medical education in Pakistan. There is a need to rearrange the system in a manner that basic medical sciences can become equally desired field. A qualitative study was conducted in four large U.S. medical schools which was reflecting mentoring experiences in influencing a choice for female medical students', although this study do not coincide in strict path of selection with our results.<sup>24</sup> According to a study, most important motives for selecting a specialty were personal interest and wide job opportunity. In addition, desired to join private sectors and chose large cities as practice were predominant choices.<sup>25</sup>

Further investigations are required to explore

the issues that affect the medical graduates to choose a field of specialization. Better understanding of demographic statistics and statistics of occurrence of disease and scope of medical experts across Pakistan and intercontinental nations are required to regulate learning pathway and policies. This expertise will be healthier in developing countries to meet their current and awaiting medical necessities.

Data regarding medical specialty choices of medical students is crucial for strategies. Human resources for health design need-based educational programs, and counseling ensure justifiable and quality health care facilities in a country. A comprehensive and valid understanding of students' career-decision making is necessary to develop efficacious policies to sustain and boost the choice of primary care as a specialty.

## CONCLUSION

Our study concludes that the main intention for chosen area of specialization for students was focused on status and financial improvement. The leading reasons for selecting a specialty were personal interest and wide job opportunity. More than half of participants intended to specialize and practice in established clinical specialties in overseas. Most of the doctors were satisfied from their current medical profession. Reorientation of health care, medical education and career counseling session in medical institutes along with policy settings are required to attract doctors to the shortage and high-priority disciplines so that imbalances encountered would be minimal in future.

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