Post-Graduation Career Preferences of Medical Students of Karachi and the Determinants Behind Expected Brain Drain

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Abstract

Objective: The study's primary objective was to determine the reasons affecting the career choice for post-graduation among undergraduate students in a medical university in Karachi. The secondary objectives of this study were to evaluate the inclination towards migration abroad and the reasons behind it and for those who wish to pursue a career in Pakistan, their preference of working in rural or urban areas of Pakistan.

Methods: A cross-sectional study was conducted among students of the 1st to 5th-year MBBS program of Baqai Medical University, Karachi from March 2022 to August 2022. A questionnaire was filled out by students who voluntarily wished to participate. Statistical Package for Social Sciences version 21 was used for data analysis.

Results: The most common clinical field of choice for post-graduation medical students was cardiothoracic surgery (n=41, 14.3%), followed by general surgery (n=39, 13.6%), whereas the most common non-clinical fields of choice were medical education (n=8, 53.3%) followed by research (n=3, 20.0%). The study results further showed that a friendly and acceptable learning environment, personal interest, and ambition were considered important by a greater proportion of respondents preferring the clinical field whereas less exposure to infections, less mental stress, short waiting time for getting residency, good salary, quality of training and hands-on opportunity were considered important by those preferring non-clinical fields. Most students (n=164, 54.5%) wished to pursue post-graduation studies abroad.

Conclusion: The study concluded that the most common factors affecting the field of choice were working environment, personal interest, and risk of acquiring infections, mental stress, the opportunity of getting residency, income, and hands-on opportunity. Moreover, most students wished to pursue post-graduation studies abroad. Better facilities, better law and order, and diverse opportunities for residency were the most important attractions for moving abroad.

Keywords: Career Choice, Emigration, Medical, Specialty, Students

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Introduction

Like any other field of science, medical students after completion of MBBS seek post-graduate training in various specialties. This decision may be influenced by their family background and responsibilities. There is a wide range of clinical and non-clinical field options available to medical students.

Medical students begin making up their minds regarding future subspecialty right from the beginning of their medical career but as they get exposure to real clinical practice in clinical years, their perception changes and this affects their decision making of choosing post-graduation subspecialty as a career[1,2].

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A medical career needs a lot of hard work. Doctors are expected to be sound in knowledge and skills. Also, they are expected to meet long working hours sometimes more than 80 hours/ week. In return, doctors expect stable jobs with sound salary packages and prestigious designations[3]. Factors affecting the post-graduation career choice of medical students have been evaluated in the past, both nationally and internationally. Common factors identified by the currently available literature that influence the post-graduate career choice of students include gender, future security, prestige, physical and mental stress, working environment, patient interaction, role of tutors, profession of parents, relationship commitments, etc[1, 2,4].

A country needs to know about the "Brain drain" of doctors as it affects a community's health and creates a supply-demand crisis. It is also important for the community healthcare system to acknowledge the demand for different specialities so that the balance of supply and demand can be maintained.

Our fresh graduates and consultants are our future leaders and innovators in healthcare department. According to the World Health Organization, there is a global shortage of 2.8 million physicians, especially in low and middle-income countries due to the migration of physicians to high-income countries[5]. These high income countries include UK, USA, Australia, New Zealand etc[6]. The decision to move abroad to first-world countries or stay back depends on multiple core reasons such as personal, political, economic, and social influences. This includes those who migrate for post-graduation and those who want a better future in terms of finances and security[7].

Various studies worldwide have identified common pull and push factors affecting the migration of medical doctors. These common pull factors include salary attraction, quality of professional training and opportunities, and better living atmosphere while the common push factors include the political instability of the country, unemployment, and less attractive salary, etc[3].

The place of service in a country by health care professionals is also of utmost importance as it affects the demand-supply balance. The physician-to-population ratio of 7.8:10,000 in Pakistan doesn't meet the WHO recommended need of 23:10,000. There are also notable urban-rural discrepancies in human resources, particularly for doctors in Pakistan. An estimated 14.5 physicians per 10,000 population in urban areas is contrasted with 3.6 per 10,000 population in rural areas[8].

In this era of mass communication and awareness, it can be assumed that the dynamics of student choices would have changed concerning knowing more about different specialities and available opportunities in Pakistan and abroad. To the best of the author's knowledge, the available local literature on this topic is limited at best. The primary objective of this study was to assess reasons affecting career choice for post-graduation among undergraduate students in a medical university in Karachi. This study intends to take more factors affecting their choice into consideration as compared to previous studies conducted in Pakistan and worldwide. The secondary objectives of this study were to evaluate the inclination towards migration among medical students and the reasons behind it and for those who wish to pursue a career in Pakistan, their preference of working in rural or urban areas of Pakistan. The data will also help in addressing factors leading to the uneven distribution of doctors among rural and urban areas of Pakistan.

Methodology

A cross-sectional study was conducted from March 2022 to August 2022 at Baqai Medical University, Gadap town, Karachi. Students of 1st to 5th year MBBS program of Baqai Medical University were included whereas those refusing to provide informed consent were excluded from the study. Keeping the percentage frequency of the study outcome at 50% for a most liberal estimate, with a 95% confidence interval and 6% precision, the required sample size was calculated to be 267 participants. The study procedures were in line with the institutional ethical standards for human experiments and the Helsinki Declaration, including obta-

ining written informed consent from all the participants. The ethical approval from Baqai Medical University was also duly taken (MU-EC/01-2022).

Data were collected face-to-face using a self-designed questionnaire specifically developed for the study. The questionnaire was developed in the English language. The content validity of the questionnaire was assessed by two family medicine consultants and an epidemiologist. Relevance ratings of the items were decided and based on that item-level content validity index (I-CVI) was calculated by dividing the experts in agreement by the total number of experts. Only those items were retained in the questionnaire whose I-CVI value was equal to 1.

The questions were finalized after appropriate modifications following their feedback. The questions intended to evaluate the career choice of the students were piloted on 10% of sample size to check for internal consistency and Cronbach's alpha was calculated to be 0.748 indicating an acceptable level of internal consistency.

The study questionnaire had a total of 16 questions, questions 1 to 4 assessed basic demographic characteristics and personal profile of the respondents, and questions 5 to 11 assessed their preferred field of practice and its reasons whereas questions 12 to 16 assessed their preferred place of post-graduation and its reasons. All questions were closed-ended with pre-defined responses, with four questions, questions number 8, 13, 14, and 16, had responses on a 3-point Likert scale (unimportant, neutral, and important).

Data entry and analysis were performed using SPSS version 21. Categorical variables were described using frequency and percentages whereas continuous variables were summarized using mean ± standard deviation. As all independent and dependent study variables were categorical, the inferential analysis was performed by applying the chi-square test. The significance level was kept at 0.05.

Results

A total of 301 participants were enrolled in the study, and as there was no missing data, all responses were included in the final analysis. The mean age of the medical students was 21.06±1.78, 198 (65.8%) of them were aged 21 years or above, 180 (59.8%) were female, 104 (34.6%) were in 3rd year MBBS whereas 295 (98.0%) were Pakistani nationals. Moreover, 108 (35.9%) students visited a foreign place.

The study results further showed that the most common sources of information about career choice were social media (n=68, 22.6%) and family (n=66, 21.9%). Moreover, only 85 (28.2%) students had attended any formal session regarding their field of choice, and 272 (90.4%) were interested in post-graduation career counselling sessions.

Furthermore, the most common clinical fields of choice for post-graduation among medical students were cardiothoracic surgery (n=41, 14.3%), general surgery (n=39, 13.6%), neurology (n=35, 12.2%) and obstetrics/gynaecology (n=33, 11.5%). Moreover, the most common non-clinical fields of choice were medical education (n=8, 53.3%) followed by research (n=3, 20.0%) (Table 1).

Table 1. Students' Field of Choice

Fields of Choice (n=301)	n (%)
Clinical (n=286)	
Cardiothoracic surgery	41 (14.3)
General Surgery	39 (13.6)
Neurology	35 (12.2)
Obstetrics/Gynaecology	33 (11.5)
Internal Medicine	24 (8.4)
Dermatology	22 (7.7)
Paediatrics	18 (6.3)
Orthopaedics	15 (5.2)
Family Medicine	11 (3.8)
Nephrology	7 (2.4)
Urology	5 (1.7)
Psychiatry	4 (1.4)
Ophthalmology	4 (1.4)
Oncology	4 (1.4)
Anaesthesiology	4 (1.4)
Radiology	4 (1.4)
Emergency Medicine	3 (1.0)
Others	13 (4.5)
Non-Clinical (n=15)	
Medical Education	8 (53.3)
Research	3 (20.0)
Hospital administration	2 (13.3)
Others	2 (13.4)

Moreover, it was found that the most preferred clinical fields for post-graduate training of male students were neurology (n=18, 15.9%) followed by cardiothoracic surgery (n=17, 15.0%) and general surgery (n=16, 14.2%). Female students on the other hand opted most for obstetrics/gynaecology (n=29, 16.8%), followed by cardiothoracic surgery (n=24, 13.9%) and general surgery (n=23, 13.3%).

The study results also showed that a friendly and acceptable learning environment, personal interest and ambition were considered important by a greater proportion of respondents preferring the clinical field whereas less exposure to infections, less mental stress, short waiting time for getting residency, good expected salary in future, quality of training and hands-on opportunity were considered important by a greater proportion of respondents preferring non-clinical field (Table 2).

Table 2. Reasons for Preferring Clinical or Non-Clinical Field of Practice

Reasons of Preference (n=301)	Considered Important	
	Clinical (n=286) n (%)	Non-clinical (n=15) n (%)
Flexible working hours	145 (50.7)	7 (46.7)
Less evening/night commitments	86 (30.1)	5 (33.3)
Good salary in the future	213 (74.5)	13 (86.7)
Diversity of patients	195 (68.2)	10 (66.7)
Less exposure to infection opportunity	121 (42.3)	13 (86.7)
Quality of training and hands-on	247 (86.4)	13 (86.7)
Role modelling of tutors	202 (70.6)	11 (73.3)
Friendly and acceptable learning environment	237 (82.9)	10 (66.7)
Less physical stress	150 (52.4)	8 (53.3)
Less mental stress	187 (65.4)	11 (73.3)
Less to deal with medical emergencies	61 (21.3)	7 (46.7)
Work-life balance	177 (61.9)	8 (53.3)
High professional and social prestige	173 (60.5)	8 (53.3)
Personal interest and ambition	223 (78.0)	60 (60.0)
More demand than supply	111 (38.8)	8 (53.3)
Short waiting time for getting admission in residency program	160 (55.9)	13 (86.7)
Family pressure	38 (13.3)	7 (46.7)
To get a good proposal for marriage	75 (26.2)	8 (53.3)
To establish a private practice	147 (51.4)	6 (40.0)
It easy to get a job in the Government sector in the future	149 (52.1)	10 (66.7)
Wish to pursue the speciality of family members	87 (30.4)	7 (46.7)
Very good academic record for pursuing the chosen career	202 (70.6)	10 (66.7)
Manageable study debt	168 (58.7)	9 (60.0)

Moreover, the study results showed that 54.5% (n=164) students wished to pursue post-graduation abroad while 45.5% (n=137) students wished to stay in Pakistan. Further analysis did not reveal any significant association of the preferred place for post-graduation, i.e. Pakistan vs. abroad, with the gender of the students (p=0.162).

A vast majority of students wished to pursue post-graduation abroad due to better facilities, better law and order and diverse opportunities of residency abroad (Table 3).

Table 3. Reasons for Potential Migration

Reasons for Migration (n=164)	Considered Important n (%)
Better facilities abroad	146 (89.0)
Family ties abroad	53 (32.3)
Reasonable working hours abroad	90 (54.9)
Short duration of training abroad	57 (34.8)
Better law and order and security abroad	138 (84.1)
Diverse opportunities for residency abroad	137 (83.5)
Absence of additional remuneration in case of overtime duties	66 (40.2)
Irregularities in promotion in Pakistan	106 (64.6)
All post-graduate training in Pakistan is not paid	83 (50.6)
Absence of research culture and opportunities)in Pakistan	111 (67.7
Patients prefer doctors of the same gender in Pakistan	75 (45.7)
Facing terrorism and life threats in Pakistan	81 (49.4)
Fear of Harassment in Pakistan	87 (53.0)

On the other hand, providing service to the community followed by family ties in Pakistan were the two most compelling factors for students intending to stay in Pakistan (Table 4).

Table 4. Reasons for Potential Non-Migration

Reasons for Non-Migration (n=137)	Considered Important n (%)
Family ties in Pakistan	87 (63.5)
Financial constraints	48 (35.0)
Visa issue	37 (27.0)
Pre-requisite exams required abroad	52 (38.0)
Service to community	100 (73.0)
High demand in Pakistan	75 (54.7)
Immigration of doctors is the main reason behind the poor health status of the people of Pakistan	83 (60.6)
Fear of racism abroad	32 (23.4)

Among those opting to stay in Pakistan, 69 (50.4%) wished to work in rural areas while 68 (49.6%) chose to work in urban areas. Providing service to the community and greater opportunities for professional growth were considered important by the highest majority of students opting either rural or urban area for practice in future (Table 5).

Table 5. Reasons for Preferring Urban or Rural Areas for Practice

Reasons of Preference	Considered Important		P value
	Urban Areas (n=68) Count (%)	Rural Areas (n=69) Count (%)	
High salary package	35 (51.5)	35 (50.7)	0.086
High demand for the field of choice	50 (73.5)	45 (71.0)	0.833
Native place	37 (54.4)	39 (56.5)	0.391
Greater opportunities for professional growth	51 (75.0)	52 (75.4)	0.999
professional growthService to community	54 (79.4)	52 (75.4)	0.428

Discussion

In this study, the most common clinical fields of choice for post-graduation medical students were cardiothoracic surgery, followed by general surgery, neurology, and obstetrics/gynaecology. Male students preferred neurology, followed by cardiothoracic surgery and general surgery. Female students on the other hand opted for obstetrics/gynaecology, followed by cardiothoracic surgery and general surgery. Probably this is because of social orientation as in Pakistani society female patients prefer to be seen by female doctors for gynecological issues and obstetrics. A recent study from Jordan reported that surgery was the most preferred speciality among males whereas medicine was the most preferred speciality among females[9]. A systematic review published in 2020 showed that males were mainly interested in surgery and internal medicine, while females were more attracted by obstetrics/gynaecology. It further showed that female's preference was based on personal interest and societal orientation, while the males preferred technical disciplines, with respect to preferred lifestyle and expected income[10].

The study results further showed that flexible working hours were equally considered important by students intending to opt for clinical or non-clinical fields (50.7% and 46.7% respectively). This was similar to the results of a meta-analysis showing 53% of participants to consider this factor as affecting their choice of subspecialty[11]. This probably shows that students do assume that flexible working hours are possible in clinical domains too where they have patient contact. Moreover, a good salary in the future was an attractive reason for opting for either a clinical or non-clinical field (74.5% and 86.7% respectively). This was contradictory to the result found in the above-cited meta-analysis where only 34.7% of participants considered income as a factor influencing their choice of clinical or non-clinical field.

The study results further showed that students probably do not think less about the prestige of non-clinical domains as non-clinical fields are also post-graduate specialities entitling one to practice it as expertise in the long run.

Prestige was also considered an influencing factor in developing countries as compared to developed countries in an earlier meta-analysis[11]. Furthermore, student debt was considered an influencing factor in this study with 58.7% of those opting for the clinical field versus 60.0% of those opting for the non-clinical field. Unlike the study results though, this factor was considered important by only 15.3% of participants in a meta-analysis[11]. Pakistan is a low-middle income country and hence student debt and financially rewarding jobs after completion of studies is a priority concern for Pakistani students.

This study also highlighted the role of tutors as an important factor affecting subspecialty choice, 70.6% for the clinical field and 73.3 % for the non-clinical field. This also stood significant in the meta-analysis cited above reflecting 46.9% of the participants considering this an important factor[11].

General practitioners play a pivotal role in the health care system of any country. They deal with the most common problems of the community. They are decision-makers of referrals and assess the need for hospitalization. This study showed that only 3.8% participants intended to choose family medicine/general practice for post-graduation. Similar results were found in a study conducted at two medical colleges in Faisalabad in 2014 where only 7.9% of the students were interested in opting for family medicine as a speciality, while 84.5% of the participants had no idea about this field. The major factor behind the poor choice of family medicine was found to be a lack of awareness of this clinical field. Two students in the private sector exhibited their wish to have exposure to this field for better decision making[12]. Likewise, a study conducted at five medical institutes across the country reported that only 37.7% of the medical students interviewed had heard about family medicine while only 18% of them would consider choosing family medicine as their future professional career. Lack of interest was found to be the most common reason for not choosing family medicine. The other factors were the need to acquire knowledge of other fields, poor career opportunities, low income, and low social respect for family physicians[13].

Limited interest in family medicine as a career was also seen in a study conducted in several private and government medical colleges in Karachi, Pakistan where the influencing factors affecting the choice were found to be community-based general practice and the preventive role of family medicine[14]. This finding highlights the need for a guided transition in career preferences among our medical students in line with our local healthcare needs to tackle the issues of our healthcare system. Contradictory to studies showing poor approach towards choosing family medicine, a recent study reported that the most preferred medical specialties among 6th year medical students was of family medicine[15]. Likewise, another study showed that family medicine was selected as the third choice by 38% of female candidates. The respective study quotes that the probable reason for poor inclination towards family medicine so far has been the absence of a family medicine curriculum at the undergrad level[16]. Hence, the introduction of the subject in the curriculum with clinical exposure is likely to initiate change in the healthcare system of Pakistan.

The study results also showed that the majority wished to go abroad. Better facilities, better law and order abroad, and diverse opportunities for residency were an attraction to our students as shown by this study. A study conducted among medical students of a private and a government institute of Karachi showed that the most common reasons for abroad preference were better job, finances and lifetyle[17]. A recent study conducted at Services Hospital Lahore in 2020 showed that the reasons identified for migration abroad were better salaries and attraction for life abroad[18]. Another local study published in 2021 showed that 48.3% of medical students preferred migration for better jobs and to benefit from medical facilities[19]. A recent study showed that poor salaries and prolonged duty hours were the chief reasons behind brain drain[20]. A study conducted among junior Pakistani doctors showed that the chief compelling factors favouring to move abroad were poor standards of training and working environment in Pakistan[21].

This study showed almost equal predilection of practice in either rural or urban areas of Pakistan. In another study conducted in Government and private hospitals of Islamabad it was found that poor facilities and quality of life, transport issues, lack of career growth, poor salary, adjustment issues of urban trained doctors in rural settings, security issues, educational institutions for their children, and working opportunities for their spouses were their main concerns of young doctors[8].

On the contrary, this study showed that 50.4% of those participants who intended to stay in Pakistan preferred rural areas due to the high demand of their chosen field with chances of professional growth. For them, a high salary package is an attraction. A systematic review however highlighted few other motivating factors including the rural family background of medical students, their exposure to clinical postings there, and the establishment of medical schools in rural areas[22].

It is acknowledged that a moderate sample size may limit the generalizability of study findings. Moreover, students who wished to return to Pakistan after completing their post-graduation abroad were not identified separately.

Conclusion

The study concluded that the most common factors affecting the field of choice were working environment, personal interest, and risk of acquiring infections, mental stress, opportunity of getting residency, income, and hands-on opportunity. Moreover, a majority of students wished to pursue post-graduation studies abroad. Better facilities, better law and order, and diverse opportunities for residency were the most important attractions for moving abroad.

Further studies are recommended in different medical institutes of Pakistan to further identify and document the factors potentially leading to brain drain in our country. The reasons identified will be helpful in working out the solutions to stop the process of losing skilled personnel in our country.

Moreover, as a majority of the Pakistani population resides in rural areas, the need for doctors for community services cannot be ignored though this study showed keen interest of participants in building professional careers in rural areas.

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