

Factors Affecting the Choice of Sub-specialty among Medical Residents: A Cross-sectional Study

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Abstract

Objective: To determine the factors that affect choosing medical specialties and sub-specialties.

Background: Choosing a medical specialty is a complex and partially understood process. Several factors may affect the choice of specialty among residents.

Study type, settings & duration: A cross-sectional study was conducted in the Department of Medicine, The Aga Khan University Hospital, Karachi from March 2020 to August 2020.

Methodology: A total of 70 residents were included in the study. The Likert scale based questionnaire was developed by literature search and brain storming. Interviews were conducted through phone calls.

Results: In our study, 70 residents were included from internal medicine and different sub-specialties of which 23 (32.9%) were males. Majority of them were from internal medicine. All of them were enrolled in the exit examination of our country. Main factors influencing the choice of specialty included a variety of medical problems (91.4%), academic experience (78.6%), autonomy potential (75.7%) and role model (68.6%) whereas financial reason (61.4%) and family influence (58.6%) had relatively less role.

Conclusion: The most common factor influencing the choice of internal medicine and sub-specialty was variety of medical problems. There was no difference of gender in choice of specialty. We need to implement strategies to ensure job satisfaction, improved lifestyle and positive rotational experience.

Key words: Specialty choice, medical career, career choice.

Introduction

Careers in medical profession begin undifferentiated and after postgraduate training, a doctor specializes in a specific area of interest. After passing their undergraduate medical school, medical students tend to select their specialty area.^{1,2} The choice of specialty not only affects students but also affects the medical discipline and the country too.^{3,4} Choosing a specialty is one of the most difficult decisions in a

graduate's career. The choice of their specialty depends on many factors such as individual's characteristics like their personality type, demographic factors, individual's personal interest and career opportunities available.^{5,6} Other factors could be motivation from a friend, family, any other colleague or a teacher, lifestyle choices, scope of practice or to gain higher income in future.^{7,8} Many times students get confused in terms of making final decision due to different suggestions from friends or family and personal interest in the specialty.^{9,10} Researchers endorse that there is a strong relationship between choice of medical specialty and quality of life. Furthermore, the choice is highly influenced by the traditional factors such as gender and high income as well.^{11,12} Medical doctors have to make their decisions about specialty choice very early in their career without adequate exposure to that specialty usually during or just after internship. This is sometimes a premature decision by young doctors because their decision is made before actual practical exposure to that specialty. This may lead to dissatisfaction and remorse among doctors

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Authors Contribution

RS & VS conceptualized the project. RS did the data collection. RS, SAA & VS performed the statistical analysis. The literature search, drafting, revision & writing of manuscript were done by all authors.

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when they practically join that specialty. There is a need to develop an educational system that allows young doctors to work in the same environment for some time before they can decide about their specialty for their future.

A study conducted in Canada also endorsed that it is important to know the factors to choose a specialty in order to counsel doctors regarding their sub-specialty choice.^{11,13} There are several studies from Pakistan which determine the factors affecting the choice of different subspecialties by undergraduate medical students.^{6,14} However, to the best of our knowledge no such study has ever been done for postgraduate residents.

Methodology

The current study, cross-sectional in nature, was conducted in Aga Khan University Hospital Karachi, Pakistan at Department of Medicine. The duration of the study was from March 2020 to August 2020. All postgraduate residents in the department of internal medicine and medicine sub-specialties were included. However, residents planning to leave residency in the middle of the academic year and those residents who had decided to change their subspecialty were barred from participating in this study.

The questionnaire was developed after brainstorming and a comprehensive literature review. Later, the questionnaire comprising of three sections was drafted by the principal investigator and reviewed by co-investigators. Section A includes questions on demographics such as age, gender, marital status, time since graduation, birthplace, city of origin before the start of medical school, and parents' profession. Section B is comprised of information regarding elective rotations done during MBBS, when did the interest in specialty develop, an internship in medicine and surgery, and whether resident physician wants to work in rural areas. Section C is comprised of questions affecting the specialty choice. Each question had a 5 point Likert scale. A pretest study, based on the questionnaire was conducted on five participants who were not then part of actual study.

The participants were presented with a consent form. The details of the study were mentioned. The participants were given due choice to accept or decline the interview. The principal investigator filled the questionnaire through phone call interviews due to the COVID-19 pandemic. It took 10 minutes to fill-in each questionnaire. Once the questionnaire forms were filled, they were coded by the principal investigator to maintain

confidentiality. Further, the forms were coded by keeping in view the ethical guidelines of the declaration of Helsinki.

For data analysis, Statistical Package for Social Sciences (SPSS) version 19.0 (IBM Corp. Released 2010; IBM SPSS Statistics for Windows, Version 19.0; IBM Corp., Armonk, NY) was used. Frequency and percentage for categorical variables and mean and standard deviation for quantitative variables were calculated. A chi-squared test was used to compare categorical variables. The p -value of <0.05 was considered significant. For simplification in analysis Likert scale of the questionnaire was simplified. Strongly disagree and disagree were recoded as disagree, Agree, and strongly agree was recoded as agree, while neutral was kept as it was.

The Ethical approval was obtained from Ethical Review Committee of The Aga Khan University Hospital, Karachi.

Results

The data was collected from 70 residents out of which the highest number belonged to internal medicine followed by cardiology and gastroenterology. Out of these 23(32.9%) were male while 23 (32.9%) were married. The mean age was 28.9 ± 1.7 years. The mean duration since graduation was 5.2 ± 1.2 years. Out of 70 participants, 53 (75.36%) had their undergraduate education from public sector institutes and 54 (77.14%) were born in urban areas.

Table 1: Demographics of participants.

Age, years; mean \pm SD	28.9 \pm 1.7
Time since graduation; mean \pm SD; years	5.2 \pm 1.2
	N (%)
Gender	
Male	23 (32.9)
Female	47 (67.1)
Marital status	
Single	47 (67.1)
Married	23 (32.9)
Birthplace	
Urban	54 (77.14)
Rural	16 (22.86)
City of origin before medical	
Urban	52 (75.36)
Rural	17 (24.64)
Graduation institute	
Public Sector	53 (75.71)
Private Sector	16 (22.86)
Parents doctor	
No	60 (85.7)
Father	7 (10.0)
Mother	2 (2.9)
Both	1 (1.4)

Our study revealed that the majority of respondents did not have a family member working in their specialty of choice 60 (85.7%). Among residents who had a family member in their medical field, it was mostly their father (Table-1).

One-fourth of residents had chosen their specialty during their 3rd and 4th year of medical school. A majority had done their internship in internal medicine and general surgery. Only 26 residents (37.14%) wanted to work in rural areas. For most residents, the significant factors influencing the choice of specialty for post-graduate studies were opportunity to deal with a variety of medical problems 64 (91.4%), academic experience 55 (78.6%), and autonomy potential 53 (75.7%) whereas factors like financial reason and family influence had little significance. The Likert score for the responses for influencing factors was thoroughly analyzed for significance between marital status, gender, parent's profession as physician, and birthplace. Further, between married and unmarried participants a statistically significant difference was observed pertaining to personal and family time protection. Married residents wanted to have more flexibility in workload. Influence of family differed significantly between those who were born in rural versus urban areas. Those born in rural areas agreed that family influence did affect their choice of specialty ($p=0.02$) (Table-3).

Discussion

Many studies have been conducted under the subject of choice of specialty and factors influencing medical specialty in undergraduate medical students. While the current study aims to determine the factors that affect the choice of specialty among post-graduate residents. The most

preferred specialty in this study is internal medicine it is due to the fact that the largest number of participants were from internal medicine residency program. Our study has demonstrated and statistically reports that there is no significant

Table: 2 Factors related to the choice of specialty. (n=70)

Factors	Strongly disagree	Undecided/neutral	Strongly Agree
Opportunity to deal with a variety of medical problems	1 (1.4)	5 (7.1)	64 (91.4)
Academic experience	8 (11.4)	7 (10)	55 (78.6)
Autonomy potential	5 (7.1)	12 (17.1)	53 (75.7)
Role models (Positive experience with clinician or teacher of the specialty)	13 (18.6)	9 (12.9)	48 (68.6)
Prestige of specialty	7 (10)	15 (21.4)	48 (68.6)
Opportunity for research	6 (8.6)	17 (24.3)	47 (67.1)
Nice internship in this specialty	18 (25.7)	8 (11.4)	44 (62.9)
Social commitment	15 (21.4)	20 (28.6)	35 (50)
Personal and family time protection	24 (34.3)	23 (32.9)	23 (32.9)
Length of residency	26 (37.1)	22 (31.4)	22 (31.4)
Influence of family	41 (58.6)	16 (22.9)	13 (18.6)
Income/Financial reason	43 (61.4)	17 (24.3)	10 (14.3)

Table 3: p values related to choice of specialty.

Influencing Factors	p value (Gender)	p value (Marital Status)	p value (University)	p value (Parents Physician)	p value (Birth place)
Income/financial reason	0.12	0.23	0.27	0.08	0.43
Academic Experience	0.33	0.83	0.04	0.49	0.52
Nice Internship in the specialty	0.74	0.71	0.71	0.70	0.81
Role Models(Positive experience with clinician or teacher of the specialty)	0.47	0.47	0.62	0.14	0.66
Family Influence	0.06	0.52	0.46	0.87	0.02
Prestige of specialty	0.79	0.48	0.03	0.48	0.59
Autonomy potential	0.36	0.18	0.16	0.87	0.35
Length of Residency	0.35	0.70	0.42	0.21	0.77
Personal and family time protection	0.83	0.05	0.48	0.76	0.62
Opportunity for research	0.53	0.59	0.23	0.92	0.01
Social Commitment	0.79	0.71	0.61	0.33	0.05
Opportunity to deal with a variety of medical problems	0.62	0.20	0.97	0.98	0.37

difference between female and male residents regarding their choice of internal medicine versus subspecialty such as cardiology, gastroenterology, nephrology, hematology, oncology, and neurology. Similar results were observed in a study done in Lahore and Karachi, two major cities of Pakistan which likewise demonstrated no difference amongst male and female residents in their choice of internal medicine versus sub-specialty.^{15,16} Female doctors in our society have to play a dual role. They have to perform their domestic responsibilities as well as their professional responsibilities. It is difficult for female doctors to strike the balance between their work-life and home simultaneously due to a higher burden of domestic responsibilities, especially after marriage and having children, which are further enhanced by social and cultural norms of our society.^{17,18} Despite the fact, similar results among male and female residents are seen in our study. This is probably reflecting changing social dynamics of the society.¹⁸

A meta-analysis and systematic review conducted by Yang *et al*, for studies published from January 1997 to June 2018. Substantial data were extracted from a total of 75 studies. Academic interest (75.20%) was the main determinant in choosing a specialty which is similar to our study.¹⁹ In a study conducted by Al-Fouzan *et al* in Kuwait, 387 participants were included. Out of 387 participants only 40 (27.8%) students expressed that having a high monthly gross income was important which is similar to our study.¹

Regarding factors influencing the choice of internal medicine and sub-specialty, we found that opportunity to deal with variety of medical problems, academic experience, autonomy potential, and prestige of specialty were significantly important. Among them, variety of medical problems was the most important influencing factor. This notion is very true for internal medicine which gives the internists a taste of a variety of undiagnosed and undifferentiated patients. This is in contrast to other specialties where doctors usually see a similar variety of patients. However, on the other hand high number of chronically ill and elderly patients in internal medicine may discourage doctors to join this specialty. Doctors like the meaningful patient experience with a variety of diseases in internal medicine but they may not like the burden of responsibility of complex internal medicine patients.²⁰

Role modeling is mentioned as another frequent factor affecting the choice of specialty among residents in our study. Similar results have been shown by several other studies.^{11,21} Positive role models attract trainees toward their specialty

through their professional satisfaction, a strong sense of calling for their work and enthusiasm. Furthermore, exposure to the admired physicians by residents in the clinical setups may lead students to choose specialties they had not previously thought about. These findings suggest that young doctors should intentionally be exposed to clinical role models. This may help in their decisions of selecting a specialty in their future.²¹

Identification of factors influencing specialty choice may provide insight and comprehension to mentors of medical students and directors of residency training programs. Furthermore, it also aids in determining and exploring various strategies to increase recruitment and expansion of the primary care human resource.

The current study has following limitations. The current study was conducted only in medicine and allied sub-specialties. The study does not include surgery and allied sub-specialties and specialties like pathology and microbiology. The study is a single-center study, thus results may not be generalized. The number of residents doing internal medicine is greater than other specialties in our institute; hence, this is reflected in our results as well.

This study suggested that specialty choice is based on complex factors and the most influencing factors among the respondents were a variety of medical problems, academic experience and autonomy potential.

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