

Original article

Factors Influencing Choice of Specialty by medical residents in Ahvaz, Iran

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Abstract:

Background: It is important to understand factors that influence choice of specialty among medical residents. **Aim and objectives:** The purpose of this study was to determine factors that influence residents' decision for choice of specialty. A cross-sectional study was conducted in 2012-2013 and comprised 473 medical residents in Ahvaz Jundishapur University of Medical Sciences, Iran. A self-administered questionnaire was prepared after extensive literature review, piloted and distributed to all medical residents from different hospitals at the school of medicine. **Results:** 418 of 473 questionnaires were returned (response rate: 88.4%). The most important reasons for the choice of specialty were "personal development and to provide better service" with mean 4.31 of 5.0 and "Personal Interests" with mean 4.16, followed by "Helping peoples and health promotion", "Income and social Prestige" and "Easiness and being comfortable" with mean values; 3.96, 3.59 and 2.44, respectively. We observed a difference in attitudes of men and women in term of the easiness and comfortability of specialty course. The mean values this factor was higher in women than in men (2.61 vs. 2.25, p=0.01). The findings revealed personal development and to provide better services, personal interests, helping people and health promotion are major motivating factors for the selecting a specialty.

Keywords: career choice; medical specialties; medical residents

Bangladesh Journal of Medical Science Vol. 15 No. 01 January'16. Page : 111-117

Introduction:

Information concerning the career choices of specialty could be important in medical education programs, planning the health care workforce and quality health care services to the community obese¹. Specialty selection by medical students determines the future composition of the medical human resource in each area. Specialty choices of medical students have therefore become an issue that attracts the interest of health service providers as well as medical educators².

In Iran, general practitioners have to pass an entrance exam in order to continue their educations. Moreover, because of limited number of admitted students in specialty courses, they choose their

specialty according to their ranking in entrance exam. In this way, they choose several specialty courses in different universities located in capital cities of Iran. After the exam, if they had a good ranking in this exam, they will admit in one of their choices.

Many residents begin medical school with some idea of which medical specialty they wish to pursue. Medical choice of specialty can influence the supply of physicians can become problematic when there are specialties that are not well represented. The motivations of Medical students are important, as they are the future manpower of the healthcare profession^{3, 4}.

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workforces' distribution among different medical specialties. Determining how the medical students of these schools select their areas of specialization is essential to achieving a balanced distribution of doctors among all specialties in each country⁵. In order to correct the misdistribution of doctors by specialty, factors that influence the select and preference of specialty of medical residents should be identified.

Many residents begin medical school with some idea of which medical specialty they wish to pursue. Medical choice of specialty can influence the supply of physicians can become problematic when there are specialties that are not well represented. The motivations of Medical students are important, as they are the future manpower of the healthcare profession⁶. Medical school is the site of training in a country's physicians. Their choices determine the workforces' distribution among different medical specialties. Determining how the medical students of these schools select their areas of specialization is essential to achieving a balanced distribution of doctors among all specialties in each country^{7, 8}. In order to correct the misdistribution of doctors by specialty, factors that influence the select and preference of specialty of medical residents should be identified.

Medical students choose specialty with different motivations. They consider many factors when selecting a specialty, including career opportunities, prestige, economic and noneconomic factors. It has been demonstrated that choices of particular specialties vary from region to region^{9, 10}. What motivates medical residents to select certain specialties? Many factors influence the career specialty decisions that medical residents make.

Personal interest, helping people and better financial opportunities have been reported as important motives for the desire to study medicine¹¹. The reasons why medical residents choose their careers are complex. While these preferences of medical residents have a significant impact on several important determinants of health care delivery, the values and motivations that underlie these decisions remain still partially understood.

Most studies addressed medical students, not residents. As far as we know few studies have been conducted about the factors affecting the choice of specialty in medical residents^{12, 13}. There is a dearth of such studies among medical residents in Iran and hence we did this study^{14, 15}. This study aimed to determine the factors influence the specialty choice

of medical residents and various influencing factors which enable Iranian medical residents to make a decision. The findings of this study may be helpful to guide policymakers seeking to use motivates to encourage more medical students to enter specialties currently attracting insufficient workforce, and achieve a more balanced distribution of specialist physicians.

Material and Methods:

This cross-sectional study was conducted in Ahvaz Jundishapur University of Medical Sciences (AJUMS), south west of Iran. In this study surveyed the opinions of medical residents toward factors Influencing Choice of Medical Specialties. Our study sample consisted of all medical residents registered in the Faculty of Medicine, AJUMS, during the academic year 2012/2013. Thus, all the 473 medical residents, with the 1st to 4th year, were eligible for inclusion in the study.

The authors developed a self-administered questionnaire in Persian language, which is the official language in AJUMS. For this purpose, after a comprehensive review of relevant topics in the literature, we developed a self-administered questionnaire in Persian consisting of 29 questions divided into two main sections. Section I consists of a set of 11 questions about the demographic and academic characteristics including age, gender, marital status, year of study in medical residency. Section II included 18 questions about the choice of specialty and reasons for selecting a specific specialty. The questionnaire asked participants to rate the contributions of factors on their specialty choice. The contributions of factors were assessed on the basis of a Likert scale ranging from 1 (disagreement) to 5 (agreement).

Prior to deployment, the construct validity and reliability of the questionnaire were assessed on 30 residents to ensure clarity of the questions. The questionnaire underwent structural modifications and other revisions before it was administered.

After seeking verbal consent from the participants, data collectors distributed the questionnaires to the students and house officers and collected them from the different wards of the hospitals of each individual medical institution.

Prior to commencement of the study, the study protocol and data collection instrument was approved by the Ethics Committee of the Ahvaz Jundishapur University of Medical Sciences.

Statistical analysis

Data generated were recorded into the Statistical

Package for Social Sciences software, then analyzed and presented using the appropriate statistical format. Factor analysis was applied to explore variation in factors influencing choice of specialty among participants. Descriptive data are given as mean and standard deviations. Differences in distributions were analyzed by ANOVA and t-tests. The level of significance was considered at $P < 0.05$.

Results:

416 among 473 of medical residents filled out the questionnaire (response rate=88.4%). The mean age (\pm SD) of the resident population was 34.9 (\pm 4.8) years. 207 (51%) participants were male and 201(49%) were female. Most of our participants were married (299; 74.8%).

Factor analysis by the principal component method along with Varimax rotation was used in this study

as a mean to reduce the large number of variants into several factors 16. Before conducting an Exploratory Factor Analysis (EFA) the results of KMO measure of sampling adequacy and the Bartlett's test were examined to determine the appropriateness of factor analysis. Using confirmatory factor analysis (CFA), the Perceptions about Educational Counseling Scale yielded a strong fit to the data comparative fit index (KMO = 0.825; Approx. Chi-square=3595.63; $p = 0.000$). Results revealed that it was appropriate to perform a factor analysis. A Varimax rotation was then undertaken to assist in the interpretation of the factors. Kaiser criterion was used to guarantee that only those factors with an eigenvalue of 1.0 or greater would be retained in the analysis. Additionally, in using the 0.50 level for interpreting the items that loaded on each factor, it could be reasonably assured that at a minimum

Table 1. Mean rating of factors influencing choice of medical residents by course in Ahvaz, Iran

Specialty course	Easiness & being comfortable Mean (SD)	Helping people Mean (SD)	Personal development Mean (SD)	Personal interest Mean (SD)	Better income & prestige Mean (SD)
Internal medicine	2.39 (1.2)	4.0 (0.5)	4.25 (0.6)	4.46 (0.5)	3.14 (0.9)
Pediatrics	1.86 (1.2)	4.32 (0.7)	4.64 (0.5)	4.40 (0.7)	2.87 (0.9)
General surgery	1.23 (0.6)	3.77 (0.9)	4.20 (0.9)	4.37 (0.7)	3.54 (0.9)
Obstetrics & gynecology	1.86 (1.3)	3.93 (0.9)	4.38 (0.7)	4.13 (0.8)	4.18 (0.7)
Dermatology	4.45 (0.8)	3.95 (1.2)	4.21 (0.9)	3.68 (1.1)	3.80 (1.1)
Cardiology	1.67 (1.1)P	4.12 (1.1)	4.30 (0.6)	4.36 (0.5)	4.0 (0.4)
Radiology	3.58 (1.1)	4.21 (0.6)	4.47 (0.5)	4.36 (0.7)	3.88 (0.8)
Ophthalmology	2.93 (1.1)	3.37 (1.2)	3.86 (1.4)	3.86 (1.1)	4.33 (0.6)
Psychiatry	4.0 (0.7)	4.26 (0.6)	4.50 (0.5)	4.36 (0.7)	3.05 (1.1)
Neurology	2.95 (1.0)	3.94 (0.9)	4.26 (0.4)	4.08 (0.9)	3.50 (1.2)
Radiotherapy	3.95 (0.3)	3.90 (0.5)	4.0 (0.6)	4.26 (0.7)	3.90 (0.5)
Orthopedics	1.89 (0.9)	3.93 (0.7)	4.33 (0.6)	4.10 (0.8)	3.96 (0.9)
Otolaryngology	2.93 (1.0)	3.72 (1.1)	3.03 (0.9)	3.96 (0.9)	3.93 (0.7)
Anesthesiology	1.46 (0.9)	3.80 (1.2)	4.23 (0.7)	3.72 (1.1)	3.1 (1.1)
Pathology	4.21 (0.8)	4.20 (0.6)	4.44 (0.6)	4.08 (0.8)	3.2 (0.8)
Neurosurgery	1.38 (1.0)	3.53 (1.2)	4.29 (0.5)	4.35 (0.5)	4.23 (0.7)
Infectious disease	3.80 (1.2)	4.20 (0.8)	4.38 (0.5)	4.04 (0.7)	2.96 (0.7)
Urology	2.75 (1.0)	4.0 (0.6)	4.23 (0.6)	3.95 (0.7)	3.89 (0.7)
Emergency medicine	1.35 (0.6)	3.76 (1.2)	4.23 (0.9)	4.0 (0.5)	3.10 (1.1)
F	22.578	1.423	1.147	2.157	6.515
P	0.000	0.121	0.307	0.005	0.000

10% of the variance could be accounted for. Factor analysis with varimax rotation was extracted five main factors based on eigenvalues and slope of Scree plot.

The EFA of the residents' factors affecting the choices of specialty revealed the presence of a five-factor solution whose collective items accounted for more than 76.437% of the total variance. The five components of the model that emanated from the analysis supported the conceptual framework of perceptions about educational counseling. After determining the content of each factor, the factors were identified and labeled as followed: F1= Easiness and being comfortable, F2= Helping peoples and health promotion, F3= Personal development and to provide better service, F4= Personal interests and F5= better income and social prestige. Cronbach α for the scales ranged from 0.69 to 0.93.

Factors influencing specialty choice

The most important factors for choice of specialty among respondents were “personal development and to provide better service” (mean=4.31). Other factors were “Personal Interests” (mean= 4.16), “Helping peoples and health promotion” (mean= 3.96), and “Better income and social Prestige” (mean = 3.59). An additional factor was “Easiness and being comfortable” of the specialty (mean=2.44), i.e., Not heavy emergency, No Stress and Being effortlessly. Figure 1 shows the details of the factors affecting the choice of specialty by male and female residents. There was a significant difference between the genders only in factor 1 (Easiness and being comfortable) that they considered significant in influencing their choice of specialty. The mean values this factor was higher

in women than in men (2.61 vs. 2.25, $p=0.01$)

Table 2 shows the details (mean and standard deviation) of the factors affecting the choices of specialty by different course residents. There was a significant difference between the different course residents in some of the factors that they considered significant in influencing their choice of specialty. Means were compared between residents of different courses using the ANOVA. There was a significant difference between the different courses in some of the factors that they considered significant in influencing their choice of specialty.

Discussion:

This is the first reported of Iran which reveals the reasons of medical residents in career choice specialties. This survey provides preliminary information related to the reason of 18 medical specialties as a career choice. According to the method of student selection in the entrance exam for medical residency courses and huge number of demand, a fraction of them may admit to some specialty courses which may not fit to the student preference. Such may affect the quality of resident education and their future professional life. The main findings of this study showed that personal development and provide better service were the most important reason for selecting specialties.

Medical students' choice of specialty is a complex decision-making issue involving multiple factors. This process is important for the students and that has significant implications for the health care and the health of community. Chang et al found that personal intelligence; ability preference and career opportunities were more important factors in selecting a specialty¹⁷. Hayes and shakya found that the main factors influencing specialty selection were saving the sick, personal interest and social prestige¹⁰. Khader *et al* reported that the most influential factors to choice of specialty were the “Intellectual content of the specialty and the individual's competencies”, “reputation of the specialty”, “anticipated income” and “focus on urgent care”¹⁸. Dikici et al concluded that different factors such as “better financial opportunities”, “prestige” “personal development” and “feeling that their specialty training was more beneficial for the patient” may affect physicians' choice of specialty¹⁹.

This study have showed that for all respondents, “personal development and to provide better service” and “Personal Interests” have the highest mean of the five aspects on the first tier; and

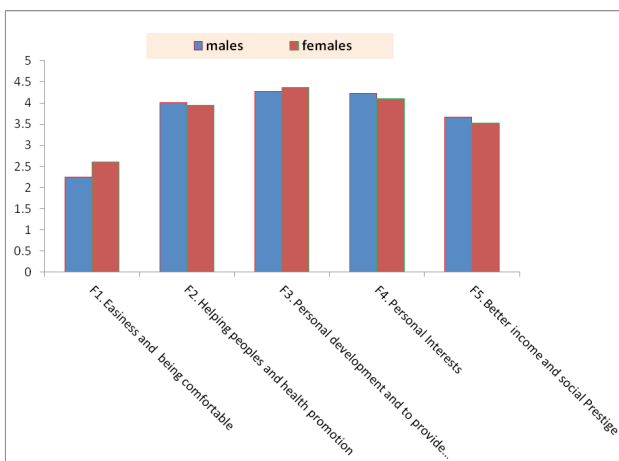


Figure 1. Factors influencing choice of Specialty of medical residents by sex in Ahvaz, Iran

“better income, social Prestige” and “Easiness, being comfortable” on the lowest tier may influence residents’ choice of specialty.

This finding is similar to the results of Wang *et al.*²⁰ and other studies 17-22 and indicates that medical students are most concerned about obtaining affirmation of personal interest and a sense of accomplishment when choice a specialty.

In Turkey¹⁹ and Canada²³, financial opportunities and prestige were found to be the most important factors influencing the choice of specialty. In our study, the most important factors were personal interest and helping people, while income and social prestige ranked fourth, which is similar to the findings of Subba *et al.*²⁴. Hence, we could clearly make out that Iranian medical residents still believed in the core values of this profession and money was not their only priority.

We have found fifth factor ‘easiness and being comfortable’ have considered significantly different between males and females. This factor has been found to be highly rated in female. Namely, more women wanted easiness, being comfortable and short residencies period in selecting of specialty. It is also noted as important factor for women specialty choice in other studies²⁵. The female residents wish to finish residency training more quickly so as having more time for their families. The influence of controllable lifestyle on the choice of specialization by female medical residents has been well documented in studies from Nigeria and Jordan²⁶⁻²⁷.

The results of this study highlight how work–life balance is increasingly important to Iranian women. This is reflected in this study where lifestyle factors were highly rated factors in making a career choice among women. The study of 2008 medical residents reported similar findings in females, when compared to males; require having short working days, easily, compatible and with family being important factors in career choice²⁸.

Our findings have revealed similarities and differences in specialty preferences and factors influencing choices among different residents groups. By comparing the factors influence choice specialty among different residents; there were no significance differences for factor 2, helping people and health promotion, and factor 3, Personal development and to provide better service, in all residents. This may suggests that these factors were nearly similarly considered by the medical residents. If this pattern of career choice continues over the

years, Iran will have commitment and competent human resources in all fields of medicine at future. Some studies have found that helping people and personal development were uniformly important considerations for medical residents selecting a specialty^{13, 20}.

In contrast, other factors concerning choice specialty among different residents groups were significance differences. As indicated in table 2 the major reasons for the choice of specialty selection were ranked amongst all residents groups. We discovered that easiness and comfortable had minimal influence on the career choice for surgery and emergency medicine residents, whereas maximal influence on the career choice for dermatology and pathology residents. Wang *et al* analyzed the specialty choice of medical residents in Taiwan in relation to factors such as career opportunities and preferences in specialty choice²⁰. He was found that work related hazards and work independency after completion of training were more important to residents seeking dermatology residencies. Some researchers believe lifestyle factors such as working condition and hours of work were highly rated factors in making a career choice among residents²⁹⁻³¹.

Looking at the mean of criteria on the fourth factor, “personal interest” was highly rated factors in making a career choice among the different group of residents. This is similar to the findings of Eze *et al* and Ali Saad *et al.*^{32,33} indicates that the vast majority of medical residents regard personal interest as most important reason when selecting a specialty. This factor was significantly different among different residents. The “personal interest” had maximal influence on the career choice for internal medicine and pediatric residents, whereas minimal influence on the career choice for anesthesiology and dermatology residents. Researcher found almost all students chose medicine as a career, it based on the personal interest³⁴.

Although results of studies have been revealed that economic and social incentives were important factor in choice specialty 35-37, this study shows that there was a significant difference among residents in this field. Better income and prestige had the highest weight in Ophthalmology and Neurosurgery residents so they were very important for ones, and the lowest weight in infectious disease and pediatrics residents and so had important less for them.

Identification of factors affecting specialty choice could provide an understanding to mentors of

medical students and directors of residency training programs to explore strategies to increase recruitment and expansion of the primary care human resources. Further research is needed to determine the factors that influence medical residents to select a particular field of study. Better knowledge of the factors that influence residents' decision for choice of specialty in Iran would be helpful to determine educational direction and policy.

Another factor which should be considered is employment possibilities and social and economic positions among medical specialists in capital cities. Because of establishment of increasing number in medical faculties in different cities, there are an important number of educated general practitioners in Iran. Unfortunately, most of general practitioners prefer to be settle down and work in the big cities. Therefore, there are huge numbers of demand for the positions available for general practitioners. Another point is that Iranian patients and their relative prefer to consult directly to the specialists rather than general practitioners. This may also influence students to participate in the entrance exams for medical specialty.

We declare that this study may limited by sample

size and geographical distribution. This study was only conducted in one medical college and had a small sample size; therefore, caution needs to be taken to generalize the data to the entire country. The response rate about 90% was the strengths of our study and probably indicates that this topic was important to the medical residents. Further survey is recommended to include greater number of medical faculties and repeating this study on a larger scale in our country.

Conclusion:

The findings revealed personal development and to provide better services, personal interests, helping people and health promotion are major motivating factors for the selecting a specialty choice. This study found that better income and prestige, easiness and being comfortable are no longer an important factor motivating residents' choice of specialty in Iran. We did not find a significant difference between sexes in the preference for specialty, except "easiness and being comfortable factor". Namely, significantly more women wanted easiness, being comfortable and short residencies period with few on-calls when they have chosen residency programs are selected.

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