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### Investigating the Influencing Factors in Selecting a Field Specialty for Medical Students of Ahvaz Jundishapur University of Medical Sciences

**Background:** The choice of a medical specialty is an important issue that has implications both for medical students and the healthcare system. This study aimed to explore the Specialty preferences and motivational factors influencing career preferences of medical students in Ahvaz, Southwest Iran.

**Methods:** A questionnaire-based, cross sectional study was performed on 198 medical students during the academic year 2019-2020. Data were collected using a questionnaire scored based on a five-point Likert scale. Data were analyzed by SPSS version 19 using descriptive and analytical statistics.  $P < 0.05$  was considered significant.

**Results:** The mean age of the students was  $26.8 \pm 1.4$  years; 71 (36%) were male and 134 (68.4%) were single. The most popular specialty was radiology ( $n=45$ ; 22.7%), followed by dermatology ( $n=35$ ; 17.7%) and ophthalmology ( $n=31$ ; 15.7%). The least popular specialties were psychiatry ( $n=1$ ; 0.5%), emergency medicine ( $n=1$ ; 0.5%), and anesthesia ( $n=0$ ; 0.0%). Most of the reasons for specialty choice were personal interest (4.54 out of 5), achieving abilities and competence to promote health in the community (4.05), and income and prestige (4.04).

**Discussion:** This study provided insights into the motivational factors that influence the Specialty preferences of Iranian medical students. The most influencing factors in specialty choice were personal interest, achieving abilities and competence to promote community health, and income and prestige, respectively. Identification of factors influencing specialty choice among medical students can help to plan postgraduate training and health manpower programs.

**Keywords:** Influencing factors, Specialty choice, Field Specialty, Medical students, Medicine

### التحقيق في العوامل المؤثرة في اختيار التخصص الميداني لطلاب الطب في جامعة أهواز جوندیشاپور للعلوم الطبية

**الخلفية:** يعد اختيار التخصص الطبي مسألة مهمة لها آثار على كل من طلاب الطب ونظام الرعاية الصحية. تهدف هذه الدراسة إلى استكشاف تفضيلات التخصص والعوامل التحفيزية التي تؤثر على التفضيلات المهنية لطلاب الطب في الأهواز، جنوب غرب إيران.

**الطريقة:** تم إجراء دراسة مقطعية قائمة على الاستبيان على 198 طالب طب خلال العام الدراسي 2019-2020. تم جمع البيانات باستخدام استبيان تم تسجيله بناء على مقياس ليكرت المكون من خمس نقاط. تم تحليل البيانات بواسطة SPSS الإصدار 19 باستخدام الإحصاء الوصفي والتحليلي. اعتبرت  $P < 0.05$  كقيمة.

**النتائج:** كان متوسط عمر الطلاب  $26.8 \pm 1.4$  سنة. 71 (36%) كانوا من الذكور و 134 (68.4%) كانوا غير متزوجين. كان التخصص الأكثر شيوعاً هو الأشعة (ن = 45؛ 22.7%)، تليها الأمراض الجلدية (ن = 35؛ 17.7%) وطب العيون (ن = 31؛ 15.7%). كانت التخصصات الأقل شيوعاً هي الطب النفسي (ن = 1؛ 0.5%)، طب الطوارئ (ن = 1؛ 0.5%)، والتخدير (ن = 0؛ 0.0%). كانت معظم أسباب اختيار التخصص هي المصلحة الشخصية (4.54 من 5)، وتحقيق القدرات والكفاءة لتعزيز الصحة في المجتمع (4.05)، والدخل والمكانة (4.04).

**الخلاصة:** قدمت هذه الدراسة نظرة ثاقبة على العوامل التحفيزية التي تؤثر على تفضيلات التخصص لطلاب الطب الإيرانيين. كانت العوامل الأكثر تأثيراً في اختيار التخصص هي الاهتمام الشخصي، وتحقيق القدرات والكفاءة لتعزيز صحة المجتمع، والدخل والمكانة، على التوالي. يمكن أن يساعد تحديد العوامل التي تؤثر على اختيار التخصص بين طلاب الطب في تخطيط برامج التدريب والقوى العاملة الصحية بعد التخرج.

**الكلمات المفتاحية:** العوامل المؤثرة، اختيار التخصص، التخصص الميداني، طلاب الطب، الطب

### میڈیکل کے لیے فیلڈ اسپیشلٹی کے انتخاب میں اثر انداز ہونے والے عوامل کی چھان بین اہواز جندیشاپور یونیورسٹی آف میڈیکل سائنسز کے طلباء

**پس منظر:** طبی خصوصیت کا انتخاب ایک اہم مسئلہ ہے جس کے اثرات طبی طلباء اور صحت کی دیکھ بھال کے نظام دونوں پر ہیں۔ اس مطالعہ کا مقصد اہواز، جنوب مغربی ایران میں طبی طلباء کے کیئر کی ترجیحات پر اثر انداز ہونے والی خصوصی ترجیحات اور محرک عوامل کو تلاش کرنا تھا۔

**طریقے:** تعلیمی سال 2019-2020 کے دوران 198 میڈیکل طلباء پر سوالنامے پر مبنی کراس سیکشنل اسٹڈی کی گئی۔ پانچ نکاتی لیبرٹ اسکیل کی بنیاد پر اسکور کے گئے سوالنامے کا استعمال کرتے ہوئے فیڈا اکٹھا کیا گیا۔ فیڈا کا تجزیہ SPSS ورژن 19 نے وضاحتی اور تجزیاتی اعداد و شمار کا استعمال کرتے ہوئے کیا۔  $P < 0.05$  کو اہم سمجھا جاتا تھا۔

**نتائج:** طلباء کی اوسط عمر  $26.8 \pm 1.4$  سال تھی۔ 71 (36%) مرد اور 134 (68.4%) سنگل تھے۔ سب سے زیادہ مشہور خصوصیت ریڈیولوجی ( $n=45$ ; 22.7%) تھی، اس کے بعد ڈرمیٹالوجی ( $n=35$ ; 17.7%) اور آپتھلمولوجی ( $n=31$ ; 15.7%) تھی۔ سب سے کم مقبول خصوصیات نفسیاتی ( $n=1$ ; 0.5%)، ہنگامی دوا ( $n=1$ ; 0.5%)، اور اینسٹھیزیا ( $n=0$ ; 0%) تھیں۔ خاصیت کے انتخاب کی زیادہ تر وجوہات ذاتی دلچسپی (5 میں سے 4.54)، کمیونٹی میں صحت کو فروغ دینے کے لیے قابلیت اور اہلیت کا حصول (4.05)، اور آمدنی اور وقار (4.04) تھیں۔

**نتیجہ:** اس مطالعہ نے محرک عوامل کے بارے میں بصیرت فراہم کی جو ایرانی طبی طلباء کی خصوصی ترجیحات کو متاثر کرتے ہیں۔ خاصیت کے انتخاب میں سب سے زیادہ متاثر کرنے والے عوامل ذاتی دلچسپی، کمیونٹی کی صحت کو فروغ دینے کے لیے قابلیت اور اہلیت کا حصول، اور آمدنی اور وقار بالترتیب تھے۔ طبی طلباء کے درمیان خصوصی انتخاب پر اثر انداز ہونے والے عوامل کی شناخت پوسٹ گریجویٹ تربیت اور صحت سے متعلق افرادی قوت کے پروگراموں کی منصوبہ بندی میں مدد کر سکتی ہے۔

**مطلوبہ الفاظ:** متاثر کرنے والے عوامل، خاص انتخاب، فیلڈ اسپیشلٹی، طبی طلباء، طب

### بررسی عوامل تأثیرگذار در انتخاب رشته تخصصی دانشجویان پزشکی دانشگاه علوم پزشکی جندی شاپور اهواز

**زمینه و هدف:** انتخاب تخصص پزشکی مسئله مهمی است که هم برای دانشجویان پزشکی و هم برای سیستم بهداشت و درمان اهمیت دارد. این مطالعه با هدف بررسی ترجیحات تخصصی و عوامل انگیزشی مؤثر در انتخاب تخصص توسط دانشجویان پزشکی در اهواز در جنوب غربی ایران انجام شد.

**روش:** یک مطالعه مقطعی مبتنی بر پرسشنامه بر روی 198 دانشجوی پزشکی در سال تحصیلی 1398-99 انجام شد. داده ها با استفاده از پرسشنامه ای که براساس مقياس پنج درجه ای ليكرت امتیازدهی شد، جمع آوری گردید. داده ها با استفاده از نرم افزار SPSS نسخه 19 تحلیل شد.  $P < 0.05$  معنی دار در نظر گرفته شد.

**یافته ها:** میانگین سنی دانشجویان  $26.8 \pm 1.4$  سال بود. 71 نفر (36 درصد) مرد و 134 نفر (68.4 درصد) مجرد بودند. پرطرفدارترین تخصص رادیولوژی بود ( $n = 45$ ; 22.7%) و به دنبال آن پوست ( $n = 35$ ; 17.7%) و چشم پزشکی ( $n = 31$ ; 15.7%)؛ و کم طرفدارترین، روانپزشکی ( $n = 1$ ; 0.5%)، طب اورژانس ( $n = 1$ ; 0.5%) و بیهوشی ( $n = 0$ ; 0.0%) بود. مهم ترین دلایل انتخاب تخصص علاقه شخصی (4.54 از 5)، دستیابی به توانایی ها و شایستگی برای ارتقا سطح سلامت در جامعه (4.05) و درآمد و اعتبار اجتماعی (4.04) بود.

**نتیجه گیری:** این مطالعه بینشی در مورد عوامل انگیزشی تأثیرگذار بر ترجیحات تخصصی دانشجویان پزشکی ایران ارائه می دهد. بیشترین عوامل تأثیرگذار در انتخاب تخصص به ترتیب علاقه شخصی، دستیابی به توانایی و شایستگی برای ارتقای سلامت جامعه، و درآمد و اعتبار اجتماعی بود. شناسایی عوامل مؤثر بر انتخاب تخصص در بین دانشجویان پزشکی می تواند به برنامه ریزی دوره های تحصیلات تکمیلی و تربیت نیروی انسانی کمک کند.

**واژه های کلیدی:** عوامل تأثیرگذار، انتخاب تخصص، رشته تخصصی، دانشجویان پزشکی، پزشکی

## INTRODUCTION

The choice of a medical specialty is an important issue that has implications both for medical students and the healthcare system. The specialty preferences of medical students reflect the pattern of distribution of specialists in the future workforce of the healthcare services in each region.(1) It is generally believed that understanding the factors influencing specialty choice are helpful to modify methods of student selection, medical school curricula, and practice opportunities to better match society needs and student preferences.(2, 3)

Medical training is the main component of the health system of any country. Choosing a medical specialty as a career is one of the most important decisions made during a lifetime in medical school. The decision requires that medical students match their interests and sociocultural background with their perceptions of various specialties. During their study period, medical students are exposed to a variety of specialty fields and they set their minds to choose a particular one (4, 5). It is important to know specialty choices of medical students to maintain the equity of specialists in all disciplines. Choice of a career specialty is a complex personal decision influenced by a variety of extrinsic and intrinsic factors (6).

Factors influencing medical students' choices of specialty differ in each society. Many countries conduct research to determine the factors that lead medical students choosing their specialty among many others. Literature shows that students select their career or specialty based on many factors such as financial and social status, as well as cultural background. In most of the studies from the developed and developing countries, the majority of medical students reported that personal preferences and controllable lifestyle greatly influenced their decision on specialty choice (7-11). In recent years, work-life balance, self-fulfillment, and income are often cited as the main decision making factors in such publications. A controllable lifestyle is considered as the most important factor in specialty choice among the U.S. medical students.(7) A study from Germany, by Grasreiner found that the factors influencing the medical students' specialty choice were most frequently regarding the reconciliation of work and family life, career goals, as well as predicted workload.(8) Fevzi Dikici et al., in Turkey investigated factors influencing medical students' specialty choice and found that the most important reasons for the choice of specialty were better financial opportunities and prestige.(9) In Pakistan(10) and Taiwan(11) personal interest was reported as the most important factor influencing medical students' specialty choice. In Iran few studies are conducted on the specialty preferences among medical students. Two study conducted in North and Southwest of Iran reported that factors such as personal preferences and financial opportunities were the commonest reasons for career choices among medical students.(12, 13)

It is widely known that the specialty choice of medical students varies from country to country and in every region in each country. Undoubtedly, the specialty preferences of medical students determine the future composition and

quality of the workforce in the healthcare system; and the proper understanding of the factors influencing medical students to choose a specialty can help health system policy to achieve optimum training of human resources based on the community needs. The information is important for policymakers and administrators in planning the healthcare workforce in the community. Since a few studies have been done in specialty choice in Iranian medical students and the perceptions and specialty preferences of medical students are not well understood, therefore, this study aimed to explore the specialty preferences and motivational factors influencing career preferences of medical students in Ahvaz Jundishapur University of Medical Sciences (AJUMS), Southwest Iran.

## METHODS

This cross-sectional study was conducted at the school of Medicine, AJUMS, using a self-administered questionnaire. All medical students (n=214) enrolled in the clinical phase (years 5 and 6 of medical school) in the college of medicine during the academic year 2019-2020 were included in this survey. The inclusion criteria was studying at AJUMS and willingness to participate in the study; and unwillingness to participate in the study was considered as an exclusion criterion. Participation in the study was voluntary, and each participant was able to withdraw from the study. All medical students provided written informed consent to participate in the study. The study protocol received ethical approval from the Ethics Committee of AJUMS.

The data collection instrument used in this study was a self-administered questionnaire developed based on a review of current literature and focus group discussion with physicians (13-15). The questionnaire consisted of three sections. The first section described the demographic characteristics of the subjects; the second section included a list of 18 specialties, which the medical students were supposed to rotate in the educational period. Students were asked to rank their preferences as first, second, and third specialty choices. The third section of the questionnaire was about the students' viewpoints regarding choosing their specialty. This section included 14 items on factors potentially influencing the specialty choice scored based on a 5-point Likert scale ranged from 1 (low important) to 5 (very important).

The overall reliability of the questionnaire was tested and the Cronbach's alpha was obtained 0.77, suggestive of acceptable internal consistency. The validity of the questionnaire was assessed by content validity method. For this purpose, the present researchers invited 10 faculty members and medical students to screen the questionnaire for content and comprehension. They then collected feedback on the questionnaire items on whether the items were clear, whether the length of the questionnaire was appropriate, and whether there were items that they objected to answering. Finally, the questionnaire, which was revised based on the feedback of physician contained 14 items. After factor analysis and determining the number of factors, by collecting the scores of questions related to that factor, the final score of that factor was obtained. Prior to distribution, an initial pilot study was performed with 35 medical students

to improve the questionnaire.

The analysis was performed by Statistical Package for Social Sciences (SPSS) software version 20. Descriptive analyses were carried out by computing the frequencies, percentage, means, and standard deviation for the categorical variables. Chi-square test was used to compare the frequency of the distribution of variables between groups. The independent t-test was employed to compare the mean ranks for quantitative responses. An initial Principal component analysis (PCA) were performed to reduce the questionnaire dimensionality, followed by extraction using principal component analysis with varimax rotation and Kaiser normalization. A P-value of less than 0.05 was considered statistically significant.

**RESULTS**

A total of 214 questionnaires were distributed; of these, 198 students responded, given an overall response rate of 92.5% (198/214). The mean age of participants was 26.8±1.4 years; 71 (36%) were male and 127 (64%) were female. Most of the participants were single (n=134; 68.4%); the majority of them (n=181; 91.4%) had taken the decision to be specialized after graduation and 17 (8.6%) students did not want to be a specialized one after graduation. PCA was conducted with varimax rotation to determine the

underlying latent clusters within the 14 items about influences on career choice. PCA with varimax rotation identified 5 underlying factors that explained 78.366% of the total variance in responses (table 1). Finally, the modified version of the questionnaire consisting of 14 items was created. Table 1 presents the factor loadings for the 14 items of the questionnaire. The five underlying factors of reasons for specialty choice were: to achieve abilities and competence to promote community health, income and prestige, lifestyle during and following the education, others advice, and personal interest. Cronbach's alphas for these factors ranged from 0.48 to 0.86.

According to the students' responses, radiology ranked first as a preferred future career (n=45; 22.7%), followed by ophthalmology (n=35; 17.7%) and dermatology (n=31; 15.7%). Table 2 shows the distribution of the first, second, and third choices of the students among provided specialties. As shown in Table 2, regarding the distribution of specialties of the second choice of the students, dermatology (n=34; 17.4%) was the most preferred one followed by ophthalmology (n=31; 15.9%) and radiology (n=28; 14.4%). The least popular specialties were psychiatry (n=1; 0.5%), emergency medicine (n=1; 0.5%), and anesthesia (n=0; 0.0%).

**Table 1. Results of the principal factor analysis (Varimax rotation with Kaiser Standardization has been used)**

Items	Factor1	Factor2	Factor3	Factor4	Factor5
	achieve abilities and competences to promote community health	Income & prestige	Lifestyle during and following training	Others advice	Personal interest
8.To be more useful for society	<b>.852</b>	.073	-.012	.002	-.030
10.offers more abilities competencies	<b>.840</b>	.083	-.100	-.018	.071
9.Personal development	<b>.815</b>	.129	-.042	.152	.003
4.To help people in future	<b>.783</b>	.108	.049	.137	.077
11. health promotion	<b>.752</b>	.117	.006	.251	.174
2.Stable/secure future	.145	<b>.826</b>	.180	.111	-.067
7.High income	.046	<b>.790</b>	.158	-.127	.121
5.social prestige	.177	<b>.765</b>	-.056	.116	.221
3.Easiness	-.061	.122	<b>.922</b>	-.053	-.008
6.Low workload & Less risk	-.006	.120	<b>.915</b>	-.082	.055
12.Non-urgent care	.256	.054	<b>.854</b>	.033	.002
13.Parental advice	.131	.194	.045	<b>.948</b>	.001
14.friends' advice	.161	.045	.025	<b>.829</b>	.032
1.personal interest	.267	.062	-.134	.001	<b>.931</b>
<b>Total eigenvalue</b>	<b>3.397</b>	<b>2.037</b>	<b>1.838</b>	<b>1.081</b>	<b>1.051</b>
<b>% of total variance</b>	<b>28.311</b>	<b>16.974</b>	<b>15.315</b>	<b>9.009</b>	<b>8.757</b>

\* The question number 13 had a loading of less than 0.4 and was not loaded on any of the factors therefore, was excluded from the questionnaire. So, the questionnaire with 14 items was investigated.

**Table 2. Medical specialty choice preferences among the Survey Respondents (n=198)**

Specialty	First choice No. (%)	Second choice No. (%)	Third choice No. (%)
Radiology	45(22.7)	28(14.4)	14(7.6)
Ophthalmology	35(17.7)	31(15.9)	11(5.9)
Dermatology	31(15.7)	34(17.4)	19(10.3)
Cardiology	27(13.6)	17(8.7)	31(16.8)
Surgery	12(6.1)	11(5.6)	15(5.6)
ENT (Ear, nose and throat)	10(5.1)	20(10.3)	20(10.8)
Obstetrics & Gynecology	7(3.5)	7(3.6)	7(3.8)
Orthopedic	7(3.5)	5(2.6)	8(4.3)
Neurology	6(3.0)	2(1.0)	9(4.8)
Pathology	5(2.5)	7(3.6)	16(8.6)
Neurosurgery	3(1.5)	3(1.5)	3(1.5)
Pediatrics	2(1.0)	3(1.5)	10(5.4)
Internal medicine	2(1.0)	4(2.1)	3(1.5)
Urology	2(1.0)	4(2.1)	3(1.6)
Radiotherapy	2(1.0)	2(1.0)	2(1.1)
Psychology	1(0.5)	1(0.5)	6(3.2)
Emergency	1(0.5)	3(1.5)	2(1.0)
Anesthesia	0(0.0)	1(1.0)	3(1.6)
Not specified yet	0(0.0)	3(1.5)	14(6.9)

The three preferred first-choice specialties among male students were: radiology (n=14; 19.7%), ophthalmology (n=13; 18.3%) and cardiology (n=11; 15.5%); and among female students were: radiology (n=31; 24.4%), dermatology (n=27; 21.3%), ophthalmology (n=22; 17.3%). Dermatology was the most preferred first-choice specialty among female students (n=27; 21.3%), whereas surgery was preferred by the male students (P < 0.05). No male or female student chose infectious diseases as a first choice. All the students who chose obstetrics and gynecology were female, while orthopedics was only preferred by male students (P

= 0.035).

Marital status did influence specialty choice of medical students (P < 0.05). The most popular specialties among single students were radiology (n=30; 66.7%) and ophthalmology (n=25; 71.4%), while the married students chose dermatology (n=13; 42%) and pathology (n=5; 60%). Only one single student chose emergency medicine as a first-choice specialty; however, it was not chosen by any of the married students. A significant difference was observed between the specialty choice and marital status in radiology (P = 0.025) and ophthalmology (P = 0.011). All the students choosing ENT and surgery were single (P=0.001). No married students chose ENT and surgery in any of the three choices (P=0.001).

Personal interest was the most important factor influencing medical students' specialty choice with mean 4.54 ± 0.70. Other significant factors were to achieve abilities and competence to promote community health (4.05 ± 0.76), and income and prestige (4.04 ± 0.72). Others advice was the least common factor influencing specialty choice (3.06 ± 1.18), followed by lifestyle during and following the education (3.78 ± 1.16).

Table 3 shows factors influencing male and female medical students' specialty choice in details. There was a significant difference between the genders and some of the factors influencing medical students' specialty choice. The factors that had the most influence on male students were personal interest (4.56 ± 0.67) followed by income and prestige (4.13 ± 0.69). For the female students, personal interest (4.53 ± 0.67) followed by achieving abilities and competence to promote community health (4.12 ± 0.70) were the most influential factors for specialty preference. A significant gender difference was observed in the mean scores of lifestyle during and following the education (P = 0.032) and others' advice (P = 0.036).

**DISCUSSION**

The specialty preference of medical students towards a career in a certain specialty may affect the workforce distribution in certain specialties, as well as the balance of the healthcare system for the future of physicians in each country. The present study showed a high interest level, with more than one-half

**Table 3. Comparison of factors that influenced choice specialties by gender**

Factors	Male (n=71) Mean ±SD*	Female (n=127) Mean ±SD*	t	p-value #
F1. achieve abilities and competences to promote community health	3.93±0.87	4.12±0.70	1.698	0.091
F2. Income & prestige	4.13±0.69	3.99±0.74	-1.248	0.214
F3. Lifestyle during and following training	3.55±1.24	3.92±1.09	2.163	<b>0.032</b> †
F4. Others advice	2.83±1.20	3.20±1.14	2.111	<b>0.036</b> †
F5. Personal interest in the field	4.56±0.73	4.53±0.67	-0.347	0.729

\* The average 5-point Likert scale responses were presented as means ±SD; all calculations of means ±SDs for all evaluative statements were based on the 5-point Likert rating scale.

# A t-test was used to compare the mean 5-point Likert scale responses between male and female respondents.

† Statistical significance, p-value < 0.05

(56.1%) of students that were keen to radiology, ophthalmology and dermatology as a career. This result was somewhat consistent with the frequency reported in two previous studies from Iran in which 58.7% and 33.3% of medical students respectively chose radiology and ophthalmology as the first-choice specialty.(12, 16) The preferences do not reflect the present demands of the health system.(17) In Iran, radiology, dermatology, and ophthalmology are considered by students as specialties with a rather easier residency and good future income compared with some others such as anesthesia and emergency medicine. The current study findings were also similar to those of Hussein J Nayef et al.,(18) who reported that radiology as the most preferred specialty among Iraqi students. A possible explanation for this finding could be the controllable lifestyle, non-urgent care overnight, no inpatient responsibilities, and very good income.

In the current study, other specialties such as anesthesia, emergency medicine, and psychiatry were the least preferred specialties and had preference rate of 1% only. The findings of studies from Iran(12), Iraq(18), and Saudi Arabia(19) were similar, indicating that the three mentioned specialties were also the least popular ones. In the current study, none of the students chose anesthesia and only one student preferred emergency medicine and psychiatry. It is noteworthy that lack of interest of Iranian medical students in some specialties might lead to the decrease of manpower in these specialties in future. Further research on each specialty is necessary to indicate various motives in this regard. In many countries, some specialties, such as anesthesia and emergency medicine are unpopular among medical students due to heavy workload, high risk, lack of privacy, and the least financial reward.(19) Some previous studies explained this by the fact that students are influenced in their career choice by lifestyle conditions and financial issues.(6) Indeed, two important factors that have a relationship with the specialty choice are the quality of life and income. The finding of the study by Dorsey et al., showed that more than 55% of the variability in medical students' specialty choices was related to controllable lifestyle factors.(7) Nevertheless, there is a worldwide increase in choosing specialties such as radiology, dermatology, and ophthalmology; and a decrease is observed in students' interest in pursuing specialties associated with uncontrollable lifestyle, including anesthesia, emergency medicine, obstetrics/gynecology, and surgery.

Gender differences were observed in specialty choices; for example, a higher proportion of female students announced dermatology and ophthalmology as specialties they positively considered, while a higher proportion of male students positively considered surgery and orthopedics. These results were similar to those of the studies showing that female students had a stronger preference for specialties with a more controllable lifestyle such as radiology, dermatology, and ophthalmology.(18) Many previous studies also explained the fact that female students are influenced in their specialty choice by heavy workload and family-friendly working conditions.(5, 20) The findings of a study found that most of female students prefer specialties with low workload and scheduled duties.(21) It was compatible with the fact that female students were more interested in specialties with a more controllable lifestyle, which allow more personal time

for family life, since this is suitable for the nature of females and their family responsibilities.

Career choices and specialty preferences in medical students are influenced by multiple factors including personality characteristics, socioeconomic background, gender, teaching and learning environment, community need, etc. In the current study, both the personal interest and achieving abilities and competence to promote community health were the most important factors in students' specialty choices. This was in agreement with the results of studies from Pakistan(22), Sudan(23) and Bangladesh(24), but different from the reasons noted by students in Turkey(9), the United Kingdom(25), and the Netherland(20) whose major reasons were high income and easy lifestyle. This supported the idea that medical students' specialty choice varies from country to country and this may be due to the geographical and cultural differences. In the current study, advice from others ranked as the least influential factor in career choice. This finding was consistent with the results demonstrated by Abouzaid et al., and Abdulghani et al.(26, 27)

The current study results showed that female students pay more attention to lifestyle and others' advices than male ones. The reasons of female students in choosing a specialty, as noted by the current study, were also reported in similar studies on Korean(5), Saudi Arabian(19), and Iraqi(18) medical students. This might be due to cultural and religious reasons and family life for female students.

The majority of respondents (91.4%) in the current study decided to be specialized after graduation and only 8.6% were not interested to that after graduation. Similar findings are reported by Guraya et al.,(19) and Avgerinos et al.(28), which showed that 90% and 97% of the students decided on their specialty choices during their undergraduate studies, respectively. Higher rates in these studies could be due to the fact that clinical rotations at the school of medicine in these universities started from the 3rd year, which familiarizes students with the nature of specialties.

Understanding of the factors which encourage medical students towards a specialty for their future career is required for policy making in specialist's manpower in this area. Determining why medical students choose their specialties is crucial in order to achieve a balanced distribution of clinicians in health care system. Obviously, the proper understanding of the factors influencing medical students to choose a specialty can help health system policy in order to get the optimum training of human resources based on the community needs.

The current study was conducted in a regional medical school and some of the findings might not represent the career preferences of all medical students in the country and may not be generalized to other areas, which was one of the limitations of the study. More research is recommended on a larger scale to determine the medical students' specialty choice and the influencing factors in different areas in country.

This study provides insights into the motivational factors that influence the specialty preferences of Iranian medical students. The finding showed that several factors played an important role in the career choice such as personal interest, achieving abilities and competence to promote community

health, and income and prestige. Others' advice and lifestyle during and following the education did not have any impact on the decision regarding career choice. The most popular specialties among medical students were radiology, dermatology, and ophthalmology. According to the current study, some specialties, though vital for society, were not favored by medical students; the point that emphasizes the need for further handle on these specialties. Identification of factors influencing specialty choice among medical students can benefit from planning postgraduate education and health manpower programs. This may help the healthcare planners and educators to design the strategies to maintain balance in all specialties in the community. Future studies are recommended to consider factors influencing medical students' specialty choice in other universities.

### Ethical considerations

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors. The ethics committee of Ahvaz Jundishapur University of Medical Sciences approved this research, ethics code IR.AJUMS.REC.1397.914.

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