

Factors affecting the choice of dermatology as a specialty by medical students: Data from 28 KSA medical schools

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Introduction

Dermatology is a division of medicine that handles a wide variety of skin conditions.^[1] It is considered one of the most competitive specialties and is a specialty for physicians who have strong visual skills as well as diagnostic skills.^[2] Despite the fact that many medical students are interested in dermatology, there is minimal exposure to it in the medical school curriculum.^[2] A study done in the United States in 2001 found that the number of dermatologists had increased to 3.3/100,000 people, while the number of Saudi dermatologists has been steady between 1987 and 2007, with an estimated number of dermatologists of 1/100,000 in the Kingdom of Saudi Arabia, which makes it a competitive specialty for medical students.^[3,4] The Saudi Ministry of Health revealed in the statistical yearbook 2020 that the number of dermatology

ABSTRACT

Objectives: Choosing a future career path is a very important decision for undergraduate medical students. Determining the factors that affect specialty choices is essential to attaining a balanced distribution. Dermatology is known to be one of the most appealing and highly competitive specialties. The aim of this study was to determine the factors influencing the choice of dermatology as a future career by medical students.

Materials and Methods: A cross-sectional study was carried out in 28 medical schools throughout Saudi Arabia. The questionnaire was prepared following a literature search of relevant studies and was distributed electronically to medical students and interns. The self-administered questionnaire included sociodemographic data, interest in dermatology as a future career, and factors that may affect specialty choices.

Results: The study included 1087 participants. Sixty percent were female, and 39% were male. Approximately half of the participants considered dermatology as their preferred specialty. We found that 53.6% of females were more interested in dermatology. Students who were exposed to dermatology in both pre-clinical and clinical years showed greater interest. Personal interest, lifestyle/flexible work schedule, and private sector opportunities were the most captivating factors. Personal interest and high competition in dermatology residency program matching were the main factors among students who did not consider dermatology as a future career choice.

Conclusions: Several factors are influencing medical students when choosing dermatology as their future specialty; the lifestyle/flexible work schedule and personal interest were the most attractive factors. Recognizing these factors could be a useful tool that may lead mentors and residency training program directors to reach a balanced distribution of doctors in the various specialties.

Keywords: Career choice, dermatology, future career, interns, matching, medical students, residency program, specialty

and venereology physicians for the last 5 years was estimated to be 2600 physicians.^[5] The dermatology residency training program in Saudi Arabia consists of 4 years after the completion of the internship year.^[6] Dermatology as a specialty has a wide variety of characteristics that attract medical students, since dermatologists can deal with many patients regardless of age or gender, and they have flexible working hours compared to other specialties.^[7]

Studies have shown that the most crucial factor that influences a medical student's choice of specialty is lifestyle. Income plays a major role in decision-making, especially among male students.^[7,8] Early exposure and more training opportunities in specific specialties may influence career choice.^[9] A study in the United States showed that most medical students, especially senior students, were more likely to choose a

specialty with a controllable lifestyle (flexible working hours, fewer years of training, and high income).^[10] Similarly, another study performed at Dammam University found that lifestyle is considered to be the most important influencing factor among medical students' choices.^[11] When gender is considered, females tend to choose dermatology more than males because they are aware of its popularity both for curative and cosmetic reasons.^[12] Whereas a national study found that males tended to choose less competitive medical fields, females were influenced by prestige and teaching opportunities.^[13] Assessing the factors influencing medical students in choosing dermatology as a future career are the main factor considered by program directors to achieve a balanced distribution of future doctors.^[14]

Despite the importance of understanding these factors, there has been limited research about students' interests and barriers toward choosing dermatology as a specialty and the associated factors influencing their career choice in Saudi Arabia. Thus, this study aimed to determine the factors influencing students' choosing dermatology as a specialty in Saudi Arabia.

Materials and Methods

This cross-sectional study was conducted in 28 medical schools from different regions in Saudi Arabia during the academic year 2020–2021. This study included 11 medical schools from the central region, five and seven medical schools from the southern and western regions, respectively. Five medical schools were from the eastern and northern regions. A randomized self-administered electronic questionnaire was provided to undergraduate medical students and interns of both genders. The study design complies with the Declaration of Helsinki ethical standards and was approved by the Institutional Review Board at Imam Muhammad bin Saud Islamic University in Saudi Arabia. All participants were aware of the study aims, and informed consent was obtained. All respondents confirmed data confidentiality and privacy.

The questionnaire was designed by the authors after performing a literature search to determine the important factors which influence career choices among medical students as quoted in the previous studies.^[15,16] A pilot study for a sample of 25 students was performed to determine the validity of the questionnaire, and any inconsistency or ambiguity in the questions was adjusted accordingly to improve the reliability of the questionnaire.

The survey was divided into four sections. The first section of the questionnaire recorded each student's demographic characteristics, which included age, gender, academic year, university, and grade point average (GPA). The second section focused on the duration of exposure to dermatology, interest in dermatology as a future career, and the stage at which students decided on their specialty preference. The two remaining sections were based on the participant's answer to the question

about their interest in dermatology. Those who answered "Yes" proceeded to the third section and those who answered "No" went directly into the fourth section.

However, sections three and four contained many factors which are presented in Tables 1 and 2, and each factor was ranked from "strongly agree" to "strongly disagree" on a 5-point Likert scale to ascertain the extent to which the student agreed that a given factor influenced the selection of career choice.

Statistical analysis

The data were analyzed using R version 3.6.3. Counts and percentages were used to summarize the distribution of categorical variables. The mean \pm standard deviation or median (interquartile range) were used to summarize the distribution of continuous normal and non-normal variables, respectively. The Chi-square test of independence and unpaired *t*-test were used to assess the factors associated with interest in dermatology as a future career choice. The Chi-square test of independence was also used to compare the distribution of responses to various influential factors between students who were interested in dermatology and students who were not. The standardized mean difference (SMD) was used to measure effect size with values >0.5 , 0.2 – 0.5 , and <0.2 indicating high, moderate, and low effect size, respectively. Larger effect sizes indicated a higher difference in the distribution of responses.

Results

The study sample included 1087 respondents. There were 428 males (39.4%) and 659 females (60.6%). The average age of the respondents was 21.9 ± 2.15 years. More than half of the respondents 598 (55%) reported a GPA greater than 4.25, and 349 (32.1%) reported a GPA of 3.5–4.24. Respondents from the central region represented 356 (32.8%) of the total sample. In contrast, 118 (10.9%) of the respondents were from the northern region [Table 3]. Three hundred and eight (28.3%) of the respondents stated that they had not been exposed to dermatology during their pre-clinical and clinical years. Three hundred and twenty (29.4%) were exposed to dermatology during their pre-clinical years of study, 246 (22.6%) were exposed to dermatology during their clinical years, and 204 (18.8%) were exposed to dermatology during both periods. Almost half 526 (48.4%) of the respondents expressed an interest in dermatology as a future career. The decision regarding specialty preference was made by 118 (66.3%) of the students before medical school. While 128 (59%) and 159 (48.3%), it was made during their basic science and clinical years, respectively [Table 3].

The results showed that the average age was significantly lower in respondents who were interested in dermatology as a future career choice than in students who were not ($P < 0.001$), which indicates that younger students were more interested in dermatology. Three hundred and fifty-three females (53.6%)

Table 1: Comparison of factors based on the less interest in dermatology as a future career choice

Factors	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	SMD
Personal interest (%)	3.90	14.10	19.10	26.20	36.70	0.665
Your GPA (%)	7.70	19.40	24.40	29.10	19.40	0.422
The appeal of being a dermatologist (%)	11.40	28.20	30.80	21.60	8	1.095
Lifestyle flexible work schedule (%)	6.60	17.80	21.60	29.90	24.10	0.64
High income (%)	9.40	19.40	23.30	26.70	21.20	0.815
Opportunities to do research in dermatology (%)	7.30	25.80	34.40	23.50	8.90	0.845
The opportunity to perform procedures (%)	8.90	21.90	29.20	28.50	11.40	0.689
Diversity of patients (%)	6.40	23.50	25.30	31.90	12.80	0.632
Wide variety of patients' problems (%)	6.42	25.13	24.78	30.12	13.55	0.584
Long-term relationships with patients (%)	7.66	25	28.30	28.00	11.10	0.596
Dermatologist can influence patients' lives (%)	8.70	19.10	26.60	31.90	13.70	0.73
Opportunities for part-time work in dermatology (%)	7.50	20.10	28.00	31.70	12.70	0.748
The free time away from work (%)	7.70	17.30	21.90	32.40	20.70	0.59
Private sector opportunities (%)	6.10	15.50	24.40	29.40	24.60	0.551
Family influence (%)	11.40	21.70	25.80	26.40	14.60	0.491
Faculty physician influence (%)	8.60	19.80	33.50	25.80	12.30	0.471
The degree of stress (%)	11.10	22.10	26.60	25.10	15.20	0.453
The difficulty of getting into dermatology residency (%)	5.90	16.00	25.80	25.70	26.60	0.283
The length of residency years (%)	9.60	26.40	34.80	20.70	8.60	0.633
Less medical errors (%)	9.10	19.30	26.40	32.40	12.80	0.502
Residency training intensity (%)	7.80	19.60	40.30	23.40	8.90	0.635
On-call schedule (%)	9.10	19.40	28.70	26.00	16.80	0.467

showed a higher interest in dermatology as a future career choice compared to males ($P < 0.001$). The academic stage showed a statistically significant association with having an interest in dermatology ($P < 0.001$). Pre-clinical students (1st and 2nd year) showed greater interest in dermatology compared to the 3rd, 4th, and 5th year students and interns. The regions were not significantly associated with future career choices, while GPA showed a marginal association ($P = 0.061$). Exposure to dermatology had a statistically significant association with having an interest in dermatology as a career. Respondents exposed to dermatology in their basic and clinical years showed higher interest than those who were not exposed to dermatology ($P < 0.001$). Interest in dermatology was significantly associated with the academic stage of their decision ($P < 0.001$). Students who made their specialty preference before medical school or during their pre-clinical years showed higher interest in dermatology (66.3% and 59%, respectively) compared to those who were not sure (30.8%) or those who decided during their clinical years (48.3%) [Table 3].

There was a statistically significant difference in the pattern of responses to all questions between students interested in dermatology and those who were not. The percentage of respondents who chose "strongly agree" was higher for respondents who were interested in dermatology compared to those who were not ($P < 0.001$ for all comparisons). The appeal of being a dermatologist was a highly influential factor

(SMD = 1.095) and showed the most significant difference between the two groups. The smallest difference was observed for the difficulty of being accepted into the dermatology residency program (SMD = 0.283), which indicates that this factor had the least influence compared to the remaining elements [Tables 1 and 2].

Figure 1 illustrates the mean score for each factor. Lifestyle/flexible work schedule and personal interest were the top two reasons influencing the choice of dermatology as a future career option. The least important reasons were the length of the residency, faculty/physician influence, and the degree of stress.

Figure 2 presents the mean score for factors that were against choosing dermatology as a future career. The results showed that personal interest was the most important factor affecting the career choice of respondents who were not interested in dermatology. Interestingly, the difficulty of getting into dermatology residency was the second most influential factor among students who did not choose dermatology as a future career choice among those respondents. The appeal of being a dermatologist and the opportunity to do research in dermatology were among the least influential factors. The length of residency was among the least influential factors, which is similar to what was observed in the other group. Other less important factors in decision-making were the long-term relationships with patients and residency training intensity.

Table 2: Comparison of factors based on the high interest in dermatology as a future career choice

Factors	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	SMD
Personal interest (%)	0.80	1.50	11.00	45.60	41.10	0.665
Your GPA (%)	4.40	8.90	19.40	42.20	25.10	0.422
The appeal of being a dermatologist (%)	2.90	4.80	17.50	45.80	29.10	1.095
Lifestyle flexible work schedule (%)	1.70	3	10.10	32.10	53	0.64
High income (%)	2.47	6.84	14.64	39.35	36.69	0.815
Opportunities to do research in dermatology (%)	1.71	8.17	21.67	39.16	29.28	0.845
The opportunity to perform procedures (%)	2.70	10.30	16.30	42.20	28.50	0.689
Diversity of patients (%)	2.70	8.40	17.10	43	28.90	0.632
Wide variety of patients' problems (%)	3.60	9.30	18.10	41.30	27.80	0.584
Long-term relationships with patients (%)	3.20	11.00	20.30	39.90	25.50	0.596
Dermatologist can influence patients' lives (%)	2.10	5.90	16.00	42.40	33.70	0.73
Opportunities for part-time work in dermatology (%)	3.00	4.60	17.50	42.00	32.90	0.748
The free time away from work (%)	3.40	5.10	13.10	41.80	36.50	0.59
Private sector opportunities (%)	2.50	4.20	16.20	38.00	39.20	0.551
Family influence (%)	8.40	11.60	16.70	34.00	29.30	0.491
Faculty physician influence (%)	4.80	12.50	21.90	39.00	21.90	0.471
The degree of stress (%)	4.60	12.50	22.40	36.50	24.00	0.453
The difficulty of getting into dermatology residency (%)	3.00	9.90	22.60	30.00	34.40	0.283
The length of residency years (%)	2.70	13.50	26.80	38.00	19.00%	0.633
Less medical errors (%)	3.60	11.60	19.00	37.10	28.70%	0.502
Residency training intensity (%)	1.90	9.30	28.30	39.70	20.70%	0.635
On-call schedule (%)	3.60	8.90	25.30	34.40	27.80%	0.467

Discussion

Dermatology is commonly cited as one of the most preferred and desired specialties among medical students in Saudi Arabia and worldwide.^[1,17] Despite the increasing number of dermatology residency positions throughout the years, it is still considered one of the most competitive specialties in the matching of applicants.^[4,8]

Medical students choose their future specialty based on modifiable and non-modifiable factors.^[15] Factors include the duration of the training, personal interest, lifestyle/flexible working hours, income, patient load, and on-call schedule.^[18-20] In this study, personal interest, lifestyle/flexible work schedule, and the appeal of being a dermatologist were the most influential factors in the choice of dermatology as a future career [Table 1].

Factors can differ when choosing a future specialty. In Saudi Arabia, a study conducted at the University of Dammam found that medical students and interns were more influenced by the lifestyle of staff in the specialty when considering their choice of a future career.^[11] Similar findings were found in a study in the US, which showed that a controllable lifestyle in a specialty, with a higher income and fewer years of training, was preferred when considering a future specialty.^[10] Another study in the US found that the top five factors for residents

to choose dermatology as a specialty are lifestyle, personal interest, a positive clerkship experience in dermatology, job opportunities, and an exceptional mentor.^[7] In contrast, in a study done in the United Kingdom, the most important factors for the doctors in choosing dermatology were working hours and conditions.^[21] However, in Pakistan, the high-income potential of a specialty came first as a factor when choosing a future specialty.^[12] Interestingly, a study in Kuwait revealed that favorable treatment outcomes and a challenging specialty were the most common determining factors for deciding on a future career.^[22]

Despite the fact that dermatologists handle a variety of diseases in different age ranges, dermatology is mainly an outpatient-based practice within hospitals or offices.^[8] Dermatology and other medical specialties such as ophthalmology, psychiatry, and radiology are thought to have a lifestyle that can be regulated.^[23] A “controllable lifestyle” in a specialty can be described as having personal time away from medical practice for recreation, family, and avocational interests, as well as maintaining the influence of how much time is spent on professional duties on a weekly basis.^[24] In 2011, dermatologists had one of the lowest burnout rates among medical specialties. However, in 2015, dermatologists had the highest increase in burnout rate.^[25] In a recent study, the overall rise in burnout phenomena among dermatology residents was noted.^[26]

Table 3: Demographic and education-related factors are associated with interest in specialty of dermatology

Demographic data	Total	No,	Yes,	P-value
	(n=1087)	n=561	n=526	
	n (%)	n (%)	n (%)	
Gender				<0.001
Female	659 (60.6)	306 (46.4)	353 (53.6)	
Male	428 (39.4)	255 (59.6)	173 (40.4)	
Age	21 (40)	22.3 (2.01)	21.6 (2.23)	<0.001
GPA				0.061
<2.75	17 (1.56)	7(41.2)	10 (58.8)	
2.7558.8)	123 (11.3)	63 (51.2)	60 (48.8)	
3.5048.8)	349 (32.1)	200 (57.3)	149 (42.7)	
4.25(4	598 (55.0)	291 (48.7)	307 (51.3)	
Academic level				<0.001
1 st year	166 (15.3)	52 (31.3)	114 (68.7)	
2 nd year	103 (9.48)	47 (45.6)	56 (54.4)	
3 rd year	173 (15.9)	97 (56.1)	76 (43.9)	
4 th year	247 (22.7)	132 (53.4)	115 (46.6)	
5 th year	244 (22.4)	149 (61.1)	95 (38.9)	
Intern	154 (14.2)	84 (54.5)	70 (45.5)	
Area				0.330
Central region	356 (32.8)	175 (49.2)	181 (50.8)	
Eastern region	162 (14.9)	92 (56.8)	70 (43.2)	
Northern region	118 (10.9)	58 (49.2)	60 (50.8)	
Southern region	204 (18.8)	100 (49.0)	104 (51.0)	
Western region	247 (22.7)	136 (55.1)	111 (44.9)	
Have you been exposed to dermatology?				0.061
Both	204 (18.8)	105 (51.5)	99 (48.5)	
Neither	308 (28.3)	179 (58.1)	129 (41.9)	
Other	9 (0.83)	5 (55.6)	4 (44.4)	
Yes, in basic science years	320 (29.4)	132 (41.2)	188 (58.8)	
Yes, in clinical years	246 (22.6)	140 (56.9)	106 (43.1)	
Are you interested in dermatology as a future career?				
No	561 (51.6)			
Yes	526 (48.4)			
When did you make a specialty preference?				<0.001
Before medical school	178 (16.4)	60 (33.7)	118 (66.3)	
During pre-clinical (basic science years)	217 (20.0)	89 (41.0)	128 (59.0)	
During clinical years	329 (30.3)	170 (51.7)	159 (48.3)	
Not sure	289 (26.6)	200 (69.2)	89 (30.8)	
Other	74 (6.81)	42 (56.8)	32 (43.2)	

*Statistical analysis was performed using the Chi-square test of independence

It has been reported that staff lifestyle in a specialty and personal interests have an apparent impact on choosing future medical specialties.^[25,27] In this study, we found that lifestyle/flexible work schedule and personal interest were the top two factors that influenced the choice of dermatology as a future career option, which concurs with literature in this field.

Specialties with a controllable lifestyle had an obvious impact on female medical students' choices due to family obligations. A study conducted in the UK found that the controllable lifestyle of dermatology was an appealing feature, which made it more popular among female medical students.^[7] The same findings were noted in the present study; females showed a higher interest in dermatology, with 53.6% being more interested in dermatology as a future career. A similar conclusion was reached in a study conducted in Riyadh, Saudi Arabia, where most of the medical students who chose dermatology as a future specialty were females.^[8]

In the present study, the academic stage had a statistically significant association with an interest in dermatology. As has been discussed, dermatology is considered to be one of the most competitive programs globally and locally. Hence, high academic performance is usually needed to achieve acceptance into dermatology training programs. This was mirrored in a recent study, where the majority of students who chose dermatology as a specialty had a high GPA.^[16]

Exposure to dermatology during clinical years showed a statistically significant association with having an interest in dermatology. Thus, the decision regarding specialty preference was made by 178 (16.4), 217 (20.0), and 329 (30.3) of the students before medical school, during their basic science years, and during their clinical years, respectively [Table 3]. In addition, more clinical phase students chose dermatology as a potential future career compared to students who did so before medical school and during the pre-clinical years phase, which could be explained by the usually late introduction of dermatology into the curriculum in Saudi medical schools. In agreement with that, a study conducted among King Saud bin Abdulaziz University for Health Sciences medical students found that all the respondents who chose dermatology as their preferred specialty were in their final year.^[8]

There are several studies conducted in Saudi Arabia defining the factors affecting medical students' decisions when choosing their future specialties.^[8,16] However, this study has the advantage of being the first national study to be completed across different medical schools in Saudi Arabia to explore factors influencing the choice of dermatology as a future career. Moreover, this study involved medical students in both basic science and clinical years. This work involved the assessment of factors affecting the choice of dermatology as a future career in 28 medical schools in various regions of Saudi Arabia. We are not aware of any research of this magnitude on this subject.

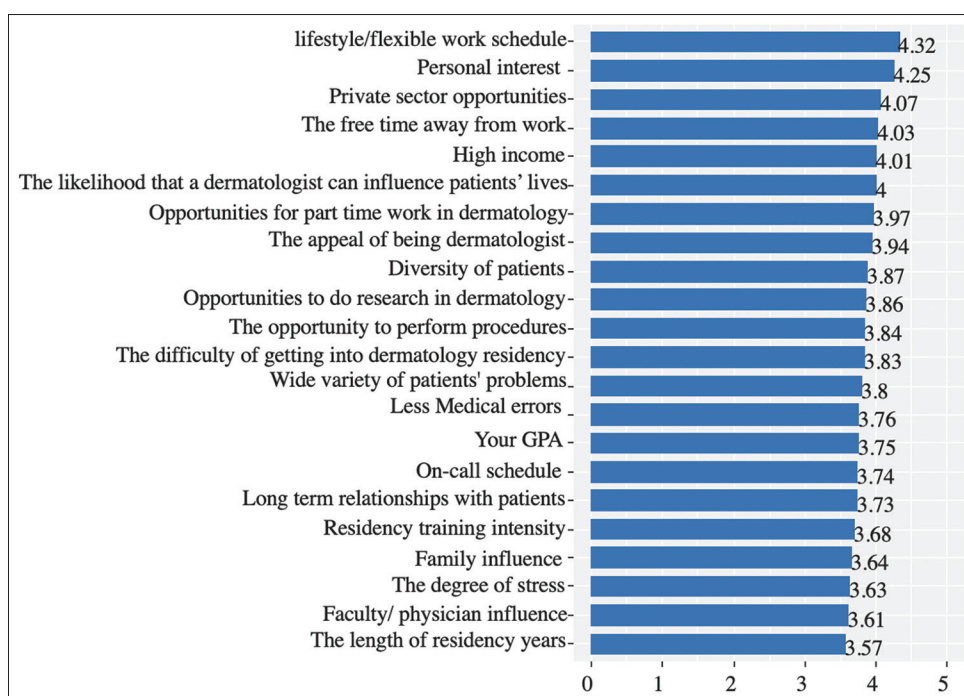


Figure 1: Factors influencing career choice among students who were interested in dermatology (numbers represent the mean score)

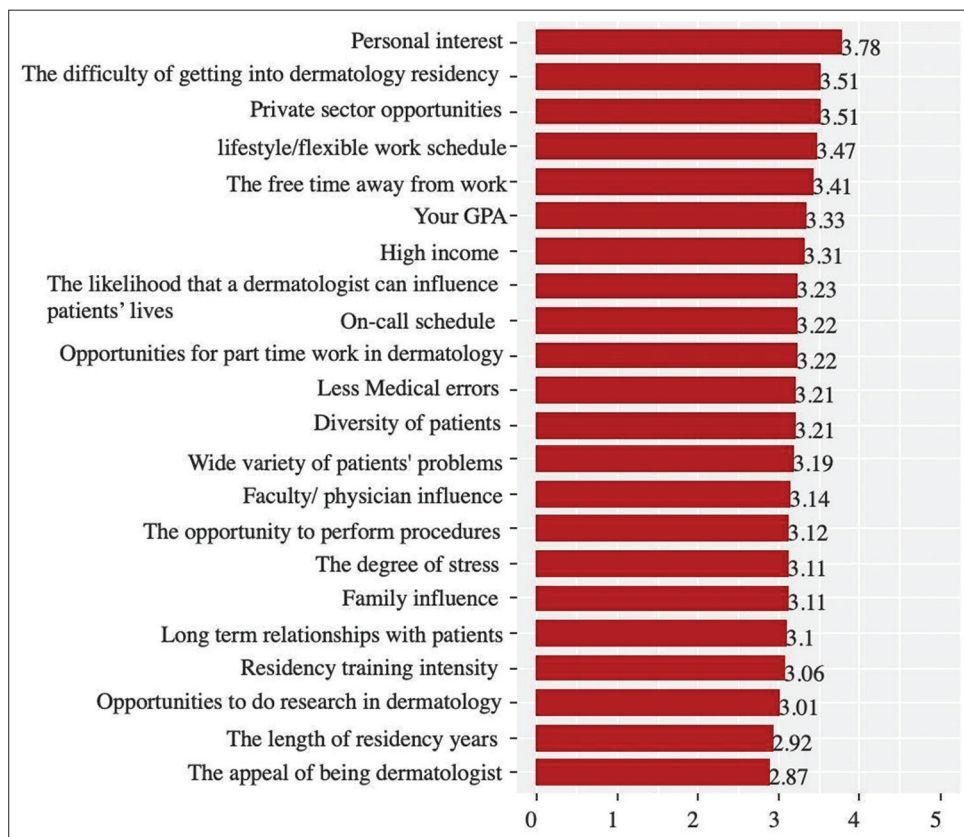


Figure 2: Factors influencing career choice among students who were not interested in dermatology (numbers represent the mean score)

As with any study, there are some limitations. In this study, the main limitations are the varying rates of responses from different regions in Saudi Arabia. In addition, the use of self-

administered questionnaires may raise some bias. However, we were not able to collect through other approaches as this study was done during the pandemic.

Conclusions

There are several influencing factors affecting medical students in Saudi Arabia when choosing dermatology as a future specialty. The most attractive factors were the lifestyle/flexible work schedule, personal interest, and private sector opportunities. Recognizing these factors could aid in the development of educational programs for career path planning, resulting in a more evenly distributed workforce. Moreover, choosing a specialty is challenging for applicants; therefore, it is essential to consider medical students' attitudes as soon as possible and guide them toward a career path that matches their interests and abilities. Thus, highlighting the most important factors that many participants have agreed on are crucial to helping students decide on their specialty of choice, and working on these factors in other competitive and non-competitive disciplines might help in a fair distribution.

Authors' Declaration Statements

Ethics approval and consent to participate

Consent was obtained by all participants in this study. Imam Mohammad Ibn Saud Islamic University (IMSIU), KSA, issued the approval number (83–2020). All authors have confirmed that this study did not involve animal subjects or tissue. The authors certify that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Conflicts of interest

There are no conflicts of interest in this work.

Authors' contributions

DA, IA, and BA conceived and designed the study. DA, RA, NA, and AS drafted the manuscript. AS participated in the data analysis. NA, RA, MA, and BA performed the data collection. All authors read and approved the final manuscript.

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