Original Article :

Evaluation of Dermatology education, Exposure and Career Choice at Umm Al-Qura University

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Abstract

Background and Aims:
Dermatology is a highly competitive medical branch that deals with skin, hair, and nail disorders. Interest in dermatology has increased among medical students despite limited curriculum exposure. This study explored medical students' interest in dermatology, their exposure to it, the quality of their dermatology education, and the factors influencing dermatology as a career choice.

Methods:
A cross-sectional study was conducted among medical students at Umm Al-Qura University, from the first academic year to internship, across both Makkah and Al-Qunfudhah branches. Students completed an online questionnaire between April and November 2024.

Result:
Among 344 enrolled students, 41% expressed interest in dermatology, with 48.6% being female. Better social life and private sector opportunities were the main reasons for choosing dermatology (61.9% and 35.2%, respectively). Insufficient clinical placement days were the most frequently reported challenge, with most students having less than 8 hours of shadowing (59.3%). Interest in dermatology was significantly associated with students' clinical phase, grade point average, previous experience, and dermatology course completion ($p < 0.05$).

Conclusion:
Interest in dermatology was more prevalent among female students, and most reported that clinical placement days were insufficient. The results emphasize the importance of enhancing medical students' experience by increasing clinical exposure.

Keywords:
Dermatology, dermatology education, medical students, Saudi Arabia, cross-sectional

Introduction:

Dermatology is a well-established branch of medicine that focuses on the diagnosis, treatment, and management of a wide range of disorders of the skin, hair, and nails[1]. This specialty is responsible for diagnosing, treating, and preventing conditions that affect the skin, subcutaneous tissue, mucous membranes, and cutaneous appendages, as well as the skin manifestations of systemic diseases[2]. The field is known for its competitive nature and requires a blend of keen visual and diagnostic acumen. This makes it an interesting specialty for medical students, especially for those who are interested in details and patient-facing care. Nevertheless, despite the increasing interest of students in dermatology as a specialty, exposure to the subject within the medical curriculum remains limited, and the time that students can devote to its in-depth exploration is limited[3]. At Umm Al-Qura University, dermatology is delivered as a required course during the fifth year of the College of Medicine and Surgery, with a total duration of two weeks, and is taught concurrently with other subjects such as psychiatry and preventive medicine.

An estimated average of 2,600 practitioners have practiced dermatology and venereology in Saudi Arabia in the past five years, according to the 2020 statistical yearbook of the Saudi Ministry of Health. This reflects the importance of this specialty in the national healthcare system.[3,4] The dermatology residency training program after internship in Saudi Arabia is four years long and prepares physicians for the growing demand for specialist care[5]. The diversity of appeal of the field can be attributed to the fact that the specialty can address all ages and both genders, and allow more flexible working hours than other medical specialties[6–8].

In Saudi Arabia, the demand for dermatologists has risen with the increasing prevalence of skin diseases, and dermatology is becoming an increasingly important field in the healthcare system, A 2025 retrospective study at King Abdulaziz Medical City, Riyadh, reported 318 pediatric and 285 adult cases of atopic dermatitis[9], while a 2021–2022 study at Qassim University Medical City found pilosebaceous disorders mainly acne vulgaris accounted for 49.2% of dermatologic cases, followed by hair disorders (15.6%) and dermatitis (9.2%)[10] . These findings highlight dermatology's growing importance within the national healthcare system. Various factors have been identified as influencing interest in dermatology among medical students, including the favorable lifestyle and potential for lucrative income associated with the specialty[11,12]. Most of these studies have considered broader national or regional

trends, but very little consideration has been given to institution-specific factors, especially for medical students at Umm Al-Qura University in Makkah, Saudi Arabia.

When selecting medical specializations, lifestyle rankings differed considerably from prestige rankings according to a 2010 study involving 644 medical students in Australia. Dermatology was included as one of the most lifestyle-friendly specialties, which shows how important lifestyle considerations are when choosing a specialization[13]. Another study in Dammam, Saudi Arabia, examined 379 participants and found that lifestyle was the most significant factor determining specialization choice. When choosing a specialization, 44.7% of respondents said that lifestyle was the most important factor[14]. As previous studies have demonstrated, work-life balance was an increasingly important factor in shaping the career paths of future medical professionals. This study also explored this aspect.

A 2024 survey conducted at King Abdulaziz University in Jeddah examined 252 participants and found that 30 students (11.9%) chose dermatology as their preferred specialty, of which 83% were female. The study highlighted several factors that influenced students' decision to pursue dermatology. Key factors included the potential for dermatologists to make a significant impact on patients' lives, the specialty's compatibility with maintaining a healthy family life, and the opportunity for part-time work[15]. Similarly, a cross-sectional study conducted across 28 medical schools in Saudi Arabia examined 1,087 participants and found that nearly half of them expressed an interest in specializing in dermatology. Among them, 53.6% of female students showed a stronger preference for the specialty, demonstrating a higher preference for the specialty among women. The primary factors influencing this interest were the appeal of a flexible work schedule and lifestyle, as well as a personal interest in dermatology[3].

Despite several studies having been conducted on medical students' interest in dermatology across Saudi Arabia, no similar research has been carried out at Umm Al-Qura University. This is the first study to assess students' interest in dermatology, identify the factors influencing their career choices, evaluate their exposure to dermatology during medical school, and examine the quality of dermatology education among Umm Al-Qura University students. Understanding these factors and the barriers limiting engagement could provide insights into ways to enhance dermatology education and mentorship programs at the university. Another aim of the study was to determine

the proportion of students interested in dermatology, which could contribute to expanding training opportunities in this field. The goal was to improve teaching methods, increase student engagement, and ensure that regional health needs are met.

Materials and Methods:

This descriptive cross-sectional study was conducted between April and November 2024 to investigate medical students' interest in and exposure to dermatology at Umm Al-Qura University (UQU) in Makkah, Saudi Arabia. UQU is a public university with additional campuses in Al-Qunfudhah and other regions. The College of Medicine and Surgery offers a six-year Bachelor of Medicine and Surgery program followed by a one-year internship, enrolling students from across the country. A total of 344 eligible participants from the Makkah and Al-Qunfudhah branches were included. Based on 1,249 enrolled medical students and Raosoft® parameters (95% confidence level, 5% margin of error, 50% response distribution), the minimum required sample size was 294. Enumeration sampling technique was used for the study from the first year to the internship years of Bachelor of Medicine and Surgery. This will clarify the inclusion criteria. Participants who did not meet the inclusion criteria, declined to participate, or were unable to provide informed consent were excluded from the study.

The primary data collection tool used in this study was a valid online structured questionnaire, which was distributed in both Arabic and English to the target population. The questionnaire was developed based on a literature review and modified by the researchers. A pilot study was conducted with a sample of 20 students to assess its validity, clarity, and reliability. Participants from the pilot study were excluded from the main study.

The questionnaire was divided into four sections. The first section gathered sociodemographic data, including gender, academic year, university, and grade point average (GPA). The second section evaluated factors influencing students' choice of dermatology as a future career and assessed their exposure to the specialty. Participants' clinical exposure included dermatology-related shadowing experiences, such as observing consultations and procedures under the supervision of dermatologists. The third section focused on assessing dermatology education, particularly for fifth- and sixth-year students. The final section evaluated interns' exposure to dermatology during their internship and the challenges they faced.

The data were collected, reviewed, and then analyzed using the Statistical Package for Social Sciences version 26 (Released 2019. Armonk, NY: IBM Corp). All

statistical methods used were two-tailed with an alpha level of 0.05, and significance was considered if the P value was less than or equal to 0.05. Descriptive analysis was done for categorical data using frequencies and percentages. Student data, academic data, exposure to dermatology, and their interest in sociality were tabulated. Medical students' confidence in diagnosing dermatological diseases, challenges faced during dermatology rotations (visits), and their curriculum suggestions to improve dermatology education were recorded. Cross tabulation was used to determine the factors associated with medical students' interest in dermatology using Pearson's chi-squared test, and an exact probability test was used for small frequency distributions.

A panel of 3 experts reviewed the questionnaire items for medical students' interest in and exposure to dermatology sections in context of study objectives to assess the content validity of all questionnaire domains. Assessment was first done independently, and then items with issues were discussed in detail until consensus was achieved. All suggested changes were applied to improve the questionnaire validity until the final format used in the current study was obtained. The proposed scale items showed a satisfactory level of reliability with a Kurder-Richardson 21 (KR-21) coefficient for scale data of 0.70[16,17]. Removing any of the questionnaire items did not improve the questionnaire's reliability (all post-removal Cronbach's alpha values were below the overall estimated level 0.69) Therefore, all items were kept.

Ethical considerations were upheld throughout the study. Approval was obtained from the biomedical research ethics committee of Umm Al-Qura University (approval number: HAPO-02-K-012-2024-10-2312, date: 11/11/2024). Informed consent was obtained from all participants, ensuring their voluntary participation and confidentiality. Participants were informed of the study's purpose and procedures. Conflicts of interest were minimized by ensuring the independence and impartiality of the research team.

Results:

A total of 344 eligible students completed the study questionnaire, including 207 (60.2%) at the Makkah branch and 137 (39.8%) at the Alqunfudah branch. Of these, 229 (66.6%) were in their clinical study years (4th to 6th years), 96 (27.9%) were in their pre-clinical years, and only 19 (5.5%) were interns. A total of 222 students (64.5%) were females. The reported GPA was 3.5–4.0 among 249 students (42.4%), 2.75–3.49 among 84 students (24.4%), and 11 students (3.2%) had a GPA of 1.75–2.74. Exactly 16 students (4.7%) had

any family members in the dermatology specialty, and 120 students (34.9%) had first-degree family with a history of chronic dermatological disease (Table 1).

Table 1: Personal data of sample of medical students from Umm Al-Qura University (n=344).

Personal data	No	%
Are you a student at Umm Al-Qura University?		
At Makkah	207	60.2%
At Alqunfudah	137	39.8%
Academic year		
1st year	14	4.1%
2nd year	61	17.7%
3rd year	21	6.1%
4th year	87	25.3%
5th year	67	19.5%
6th year	75	21.8%
internship	19	5.5%
Clinical phase		
Pre-clinical years	96	27.9%
Clinical years	229	66.6%
Internship	19	5.5%
Gender		
Male	122	35.5%
Female	222	64.5%
GPA		
1.75 – 2.74	11	3.2%
2.75 – 3.49	84	24.4%
3.5 – 4.0	249	72.4%
Did you have any family members in the dermatology specialty?		
Yes	16	4.7%
No	328	95.3%
Do you have first-degree family member with a history of chronic dermatological disease?		
Yes	120	34.9%
No	224	65.1%

As shown in Table 2, a total of 141 students (41%) reported that they are interested in dermatology. The interest started before medical school for 34 (24.1%) of them, during basic science years among 47 (33.3%), and during clinical years among 38 (27%), while 22 (15.6%) were not sure. Regarding factors affecting their choice of dermatology, the most reported were family influence (26.2%), classes/school (22.7%), shadowing experience (21.3%), and peer influence (14.2%). Considering the reasons that affected their choice of dermatology, the most reported were the appeal of being a dermatologist based on a better social life and reduced stress level (61.9%), private-sector opportunities (cosmetic dermatology) (35.2%), the difficulty of being admitted to a dermatology residency (29.1%), and opportunities for part-time work in dermatology (27.3%).

Table 2: Dermatology teaching and specialty interest among medical students at Umm Al-Qura University (n=344).

Interest	No	%
Are you interested to join dermatology speciality?		
Yes	**141**	**41.0%**
No	**203**	**59.0%**
If yes, when are you interested? (n=141)		
Before medical school	**34**	**24.1%**
During basic science years	**47**	**33.3%**
During clinical years	**38**	**27.0%**
Not sure	**22**	**15.6%**
What are the factors affecting your choice of dermatology? (n=141)		
Family influence	**37**	**26.2%**
Classes/school	**32**	**22.7%**
Shadowing experience	**30**	**21.3%**
Peer influence	**20**	**14.2%**
Other reasons	**17**	**12.1%**
Volunteer experience	**5**	**3.5%**
What are the reasons that are affecting your choice of dermatology?		
The appeal of being a dermatologist: better social life, reduced stress level	**213**	**61.9%**
Private sector opportunities (cosmetic dermatology)	**121**	**35.2%**
The difficulty of getting into a dermatology residency	**100**	**29.1%**

Opportunities for part-time work in dermatology	**94**	**27.3%**
Relies on clinical diagnostic skills	**73**	**21.2%**
The variety of patients (all ages, both genders)	**57**	**16.6%**
Opportunities to do research in dermatology	**37**	**10.8%**

As shown in Table 3, exactly 60.8% of the students had an exposure to dermatology, a total of 167 (48.5%) had been to a dermatologist as a patient or with a family member who was a patient, 57 (16.6%) had been exposed through a television show, advertisement, and social media, 25 (7.3%) participated in dermatology-related research, 23 (6.7%) had volunteered at a dermatology clinic, 22 (6.4%) had a dermatology mentorship, and 15 (4.4%) had shadowed a dermatologist. A total of 74.1% had shadowing experience in dermatology, with most of them (59.3%) having experience of less than 8 hours. A total of 153 (44.5%) had taken a dermatology course, With an average duration of 6.0 ± 4.0 weeks. The duration of the course was sufficient for 55 students (35.9%).

Table 3: Medical student exposure to dermatology at Umm Al-Qura University.

Exposure		No	%
Have you had any experience in dermatology?	Yes, I have been to a dermatologist as a patient or with a family member who was a patient	167	48.5%
	Yes, through a television show, commercial ad, and/or social media	57	16.6%
	Yes, I have participated in dermatology-related research	25	7.3%
	Yes, I have volunteered at a dermatology clinic	23	6.7%
	Yes, I have had a dermatology mentorship	22	6.4%
	Yes, I have shadowed a dermatologist	15	4.4%
	Yes, I am part of a premedical group that has dermatology events	13	3.8%
	No, I have not had any exposure to dermatology	135	39.2%
How long was your shadowing experience in dermatology? (n=297)	No, I have not had any experience	77	25.9%
	< 8 hours	176	59.3%
	8-40 hours	33	11.1%
	> 40 hours	11	3.7%
Have you taken a dermatology module? (n=344)	Yes	153	44.5%
	No	191	55.5%

If not, which methods do you consider most effective ?in learning dermatology	Clinical visits	111	58.1%
	Self-directed (textbooks, online)	30	15.7%
	Practical workshops	15	7.9%
	Lectures	27	14.1%
	Tutorials	8	4.2%
Duration of the dermatology module	Range (mean ± SD)	± 6.0) 1-13 (4.0	
Do you think the duration of the dermatology module is (n=153)	Sufficient	55	35.9%
	Average	44	28.8%
	Not Sufficient	54	35.3%
Which of the following educational methods did you experience during your ?dermatology module	Clinical visits	32	20.9%
	Self-directed (textbooks, online)	52	34.0%
	Practical workshops	11	7.2%
	Lectures	147	96.1%
	Tutorials	26	17.0%
Which methods do you consider most effective in ?learning dermatology	Clinical visits	127	83.0%
	Lectures	95	62.1%
	Practical workshops	64	41.8%
	Self-directed (textbooks, online)	52	34.0%
	Tutorials	49	32.0%
During your dermatology module, which dermatology procedures ? have you observed	Laser	25	17.5%
	Punch biopsy	22	15.4%
	Phototherapy	13	9.1%
	Botox	9	6.3%
	None of them	107	74.8%
I think the dermatology education provided at my university is adequate (n=153)	Strongly disagree	33	21.6%
	Disagree	31	20.3%
	Neutral	52	34.0%
	Agree	24	15.7%
	Strongly agree	13	8.5%

The most commonly experienced educational methods during the dermatology course included lectures (96.1%), self-directed study (textbooks, online) (34%), and clinical visits (20.9%). A total of 127 (83%) considered clinical visits as the most effective method in learning dermatology, followed by lectures (62.1%), practical workshops (41.8%), self-directed study (34%), and tutorials (32%). As for the most dermatology procedures they were exposed to during their dermatology rotation, 25 (17.5%) reported laser treatment, 22 (15.4%) reported

punch biopsy, and 13 (9.1%) reported phototherapy. Most of the students were not exposed to any of these. As for satisfaction with dermatology education at the university, 37 students (24.2%) were satisfied, but most of them were not (n=64, 41.9%).

The highest reported self-confidence of medical students was for diagnosing acne (87.6%), herpes simplex virus infections (74.5%), psoriasis (73.9%), warts (71.2%), hair disorders (68%), atopic dermatitis (68%), infectious diseases (65.4%), and Lupus (56.9%). The lowest confidence to diagnose a bullous skin disorders (50.3%), tumors (38.6%), and molluscum contagiosum (30.1%), as shown in

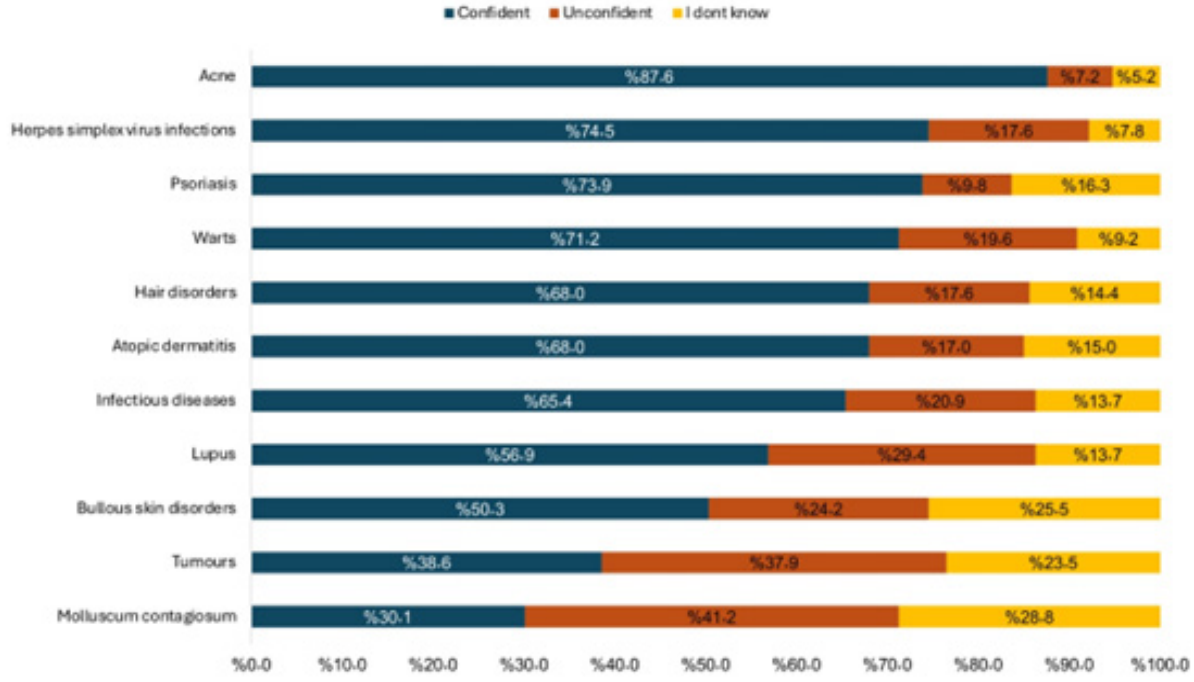


Figure 1: Self-reported confidence of medical students in diagnosing dermatological diseases at Umm Al-Qura University.

1. As for faced challenges (Figure 2), the most reported were that clinical placement days were not sufficient (60.8%), larger numbers of students in every team (20.9%), not enough patients per day (20.3%), and limited disease heterogeneity within the patient population (19.6%), while 25.5% did not face any challenges. Regarding suggestions for improvement, the need for more clinical exposure was the most reported (86.3%), followed by making dermatology a separate course with a fixed number of weeks (49.7%), lengthening the time of the dermatology course (37.3%), including photos into class lectures (30.1%), and adding more dermatology material to the basic curriculum (27.5%).

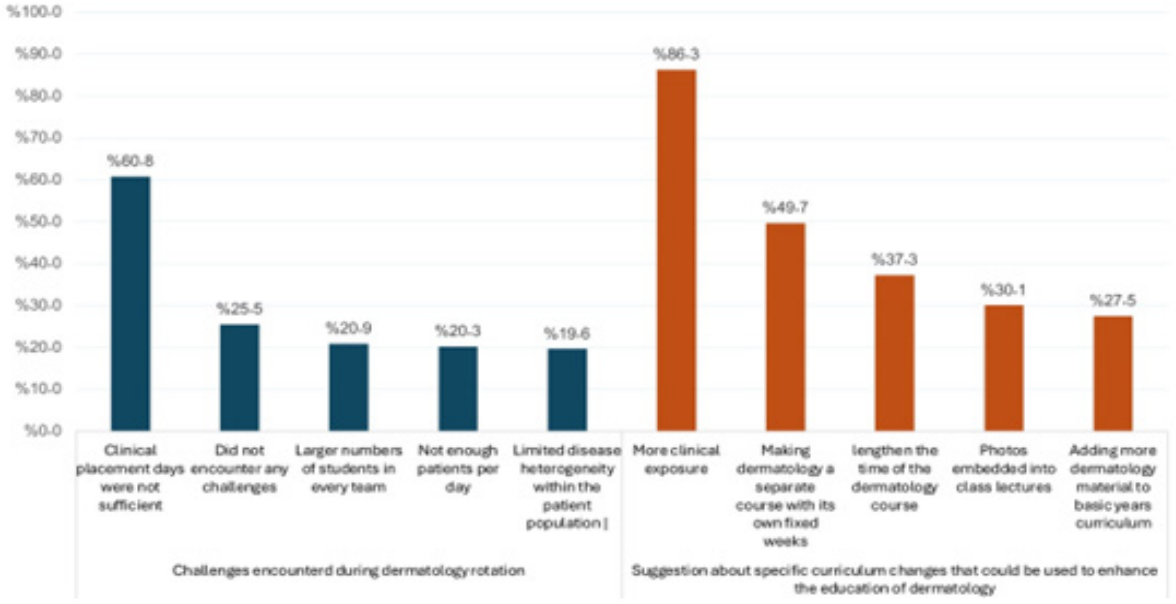


Figure 2: Challenges students faced during clinical years dermatology rotation (visits) and their curriculum suggestions to improve dermatology education.

A total of 48.6% of female students were interested in dermatology versus 27% of male students (P=0.001). Also, 54.2% of students in their pre-clinical years were interested compared to 31.6% of medical interns (P=0.008). Concern about the sociality of dermatology was reported among 47% of students with a GPA of 3.5–4.0 compared to 23.8% of others with a GPA of 2.75–3.49 (P=0.001). 46.8% of students with experience in dermatology preferred the specialty versus 4.3% of others without (P=0.001). On the other hand, 51.3% of students who did not study dermatology were interested in the specialty compared to 28.1% of others who did (P=0.001).

Discussion:

The aim of the current study was to assess interest of medical students and exposure to dermatology at Umm Al-Qura University. The need for dermatologists has been growing in Saudi Arabia and many other nations as a result of the increased importance of dermatological care and the rising incidence of skin diseases[18,19]. Notwithstanding this demand, little research has been done to examine the variables that affect medical students' interest in dermatology as a vocation in Saudi Arabia[20].

The current study showed that most students were in their clinical years or interns with high GPAs (exceeding 3.0

points). Also, one-third of the students had a first-degree family member with a history of chronic dermatological disease, but few students had family members in the dermatology specialty. Around 2/5th of medical students expressed interest in dermatology as a future specialty, with interest starting before medical school, during basic science years, and clinical years. Similarly, Almohaimeed et al, examined students from 28 medical schools in Saudi Arabia and found that nearly half of the participants considered dermatology as their preferred specialty[3]. A previous study in the eastern region of Saudi Arabia revealed that 70.9% of the students expressed a strong preference for dermatology as a future career, which was much higher than the assessed preference rate in the current study[20]. Sawan et al, found that dermatology ranked 8th as a preferred future specialty among all other specialties after critical care, pathology, anesthesia, surgery, and community medicine[21].

The current study also revealed that factors affecting choices included family influence, classes/school, shadowing experience, and peer influence. The most appealing reasons included a better social life, reduced stress, private-sector opportunities, residency challenges, and part-time work. In this context, The difficulty of securing admission to postgraduate dermatology residency programs is driven by the limited number of available positions relative to the large pool of graduates, coupled with the specialty's high popularity, stringent academic requirements, and the significant weight placed on research achievements and strong recommendations. Previous studies have identified several factors that shape medical students' interest in pursuing a career in dermatology[18,22]. Early dermatology exposure during medical school is a main factor influencing career decisions. Early exposure has been found to have a positive effect on students' perceptions and interest in a particular field[10,13].

Students who are exposed to dermatology rotations have the chance to learn more about the specialty and obtain firsthand experience in the field. It gives them the chance to speak with patients, see the variety of dermatological conditions, and see how dermatologists' lives are affected[10,23]. Medical students choose their future specialty based on modifiable and non-modifiable factors[24]. The factors include the duration of the training, personal interest, lifestyle/flexible working hours, income, patient load, and on-call schedule[25,26].

In the current study, Female students showed higher interest in dermatology than male students, which is consistent with

many other findings in the literature[3,27–29]. The dermatology specialty has low associated risk and a lack of nightshifts and emergencies, and associated complications, which all stand behind preference among females. Also, females tend to choose dermatology more than males because they are aware of its popularity for both curative and cosmetic reasons[30].

The current study showed that a higher preference for dermatology specialty was reported among students who were not exposed to the specialty (students in their pre-clinical years and others who did not study the specialty or have no experience in specialty). This contrasted with what was reported by Almohaimeed et al[3] that students who were exposed to dermatology in both pre-clinical and clinical years showed greater interest. They also reported that personal interest, lifestyle/flexible work schedule, and private-sector opportunities were the most attractive factors, which are consistent with the current study findings.

Another study concluded that early exposure and more training opportunities in specific specialties may influence career choice, which was not the same among the current study students[31]. In a study conducted in the US, senior medical students were more likely to select a specialty that offered a controlled lifestyle, such as flexible work schedules, shorter training requirements, and higher income[20]. In a similar vein, a study conducted at Dammam University discovered that the choices of medical students are primarily influenced by their lifestyle[32].

The current study showed that about two-thirds of students had exposure to dermatology, mainly through a dermatologist, television shows, and research. Also, less than half of the students took a dermatology course, which had an average duration of 6.0 weeks. The most effective educational methods were lectures, self-directed textbook study, and clinical visits. Most students were exposed to laser, punch biopsy, and phototherapy procedures.

The vast majority of the students were not satisfied with their dermatology education. Poor satisfaction was mainly related to a lack of clinical training, a lack of patients, and the variety of cases, with nearly three out of four students facing a challenge. Therefore, the most suggested enhancement method was to address the need for more clinical training, giving more space and time for the specialty course by making it a separate course, converting it into an independent course rather than a subtopic, lengthening its time, and including the subject in some lectures about the specialty during the basic curriculum. Alwazzan et al. highlighted the effectiveness of an identity formation

program in dermatology residency and highlighted the transformative changes that can occur at both individual and professional levels33. They also suggested that targeted interventions and innovative educational approaches are crucial. Ricco et al. concluded that a low-cost, brief, self-paced module could augment dermatology education for medical students while increasing exposure to multiple skin-tone presentations of lesions[34].

Conclusion:

In conclusion, Around forty percent of participants expressed interest in dermatology as a future specialty. Family influence was a key factor, with better social life and reduced stress levels being the most appealing factors. However, few participants had the opportunity to shadow a dermatologist, with most of them shadowing for less than 8 hours. Clinical visits were the most satisfactory learning method, but clinical placement days were insufficient. More females and pre-clinical students expressed interest in dermatology, which highlights the need for more clinical exposure and shadowing experiences.

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