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# Public perception of dermatologic surgery in Saudi Arabia: an online survey

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## Abstract

**Background:** Dermatologic surgery is a well-established subspecialty in dermatology, but observations suggest that the public may not be aware of this field.

**Objective:** To explore the public perception of the nature and scope of dermatologic surgery

**Methods:** A cross-sectional online-based survey consisting of two parts was used. The first part recorded demographic data. The second part presented a series of clinical scenarios in common surgical and cosmetic procedures performed by dermatologic surgeons to determine respondents' choice among three specialties: general surgery, plastic surgery, and dermatologic surgery.

**Results:** A total of 1,248 responses were recorded. Seventy-four percent of respondents were female, with 80.29% between the ages of 18 and 34 years. Forty-nine percent considered dermatologic surgeons to be specialized skin surgeons and 71.63% said they would consult dermatologic surgeons for skin tumor excisions. However, plastic surgeons emerged more favorably for cosmetic procedures. For office-based procedures, 80.85% and 87.18% of respondents chose plastic surgeons for fillers and Botox® injections, respectively, compared to 15.79% and 12.02% of respondents who chose dermatologic surgeons.

**Conclusions:** Although the majority of participants showed no doubt about the surgical skills of dermatologic surgeons, the responses demonstrate that the public is not aware of the full scope and practice of dermatologic surgery, especially as it pertains to cosmetic procedures. Therefore, we must educate the public about the field and branches of dermatologic surgery.

*Keywords: dermatologic surgery; surgical perception; surgical awareness*

## Introduction

Dermatologic surgery is now a well-established subspecialty in dermatology, although dermatologists have performed and adapted cutaneous surgical procedures since the subspecialty's evolution from internal medicine in the nineteenth century [1]. Some consider the foundation of the American Society of Dermatologic Surgery in 1970 to mark the birth of dermatologic surgery [2] because this institute radically changed the practice from a purely medical discipline to a medical-surgical field [3]. However, despite dermatologic surgeons' major contributions to the development and advancement of the current practice of cutaneous surgery [4, 5, 6], the public and some medical professionals may not perceive dermatologists as surgeons [7, 8]. In the last decade, a tremendous growth in the field of dermatologic surgery has been witnessed and many programs have established dermatologic surgery fellowships for formal training in skin surgery [9]. Nevertheless, there is still a significant shortage of specialized dermatologists [10]. Therefore, the public may not be aware of the nature and full scope of dermatologic surgery. Because dermatologists perform more skin cancer procedures than any other surgical specialty [11, 12], a detailed survey was designed to assess Saudi Arabian public's understanding of the scope of dermatologic surgery.

## Methods

We conducted a cross-sectional online-based survey using SurveyMonkey® as the platform. This

tool enables secure, anonymous data collection and ensures confidentiality. The survey was written in Arabic so that the public could understand the questions. Later, the results were translated to English using an accredited translating agency. The survey included 16 items and required approximately 6-8 minutes to complete. The design of the questionnaire was based upon previous surveys [7, 13] to determine the public's perception of the field of dermatologic surgery. It collected information on respondents' demographics, such as age, gender, education level, marital status, and monthly income. Respondents were presented with a series of 10 clinical scenarios to assess their understanding of dermatologic surgery (Appendix). Each scenario featured a different common surgical and cosmetic procedure performed by dermatologic surgeons. The respondents were then asked to select the surgeon they would consult to perform these procedures. The options included general surgery, plastic surgery, dermatologic surgery, and other, which offered respondents the chance to add any alternative specialty. The last question solicited the respondents' opinions on which field specialized more in skin surgery. The survey was pretested by 20 participants with various demographics, including age, sex, and education level, to determine the clarity of the questions, the average time required for completion, and the flow of content, utilizing both an electronic and printed version of the questionnaire. A Twitter account was created to recruit participants and advertise for the survey. Tweets were sent

directly to both individuals and organizations as a request to retweet the survey link. A shorter version of the study's URL was generated to fit within the 140-character limit of tweets. Respondents received no financial incentive for participation. The exclusion of duplicates was completed by reviewing the IP addresses of the respondents. The data were then transferred into a Microsoft Excel worksheet and imported to Predictive Analysis Software version 18.0 (SPSS Inc., IBM, Chicago, Illinois, USA) for analysis. Descriptive data were expressed as percentages, and correlations between variables were determined using the Pearson correlation coefficient.

## Results

The survey link was tweeted 84 times and retweeted 380 times by individuals and organizations from Saudi Arabia with a potential reach of 943,154 accounts. A total of 1519 individuals clicked on the survey; of those, 1248 individuals completed the questionnaire, yielding a completion rate of 82.1% (1519/1248) and response rate of 0.16% (1519/943,154). Twenty-one participants were excluded based on duplicate IP addresses. Gender distribution revealed female predominance; females comprised 73.88% (n=922) of the sample, whereas males comprised 26.12% (n=236). The majority of participants, 80.29% (n=1002) of the total contributors, were in the age range of 18-34 years. Most participants originated from the central and western regions of Saudi Arabia: 62.34% and 23.48%, respectively (**Table 1**). When asked who should be consulted for tattoo and mole removal,

**Table 1.** Demographic characteristics of respondents.

Demographic variables	(n=1248)	%
Age groups (years)		
18-24	615	49.28
25-34	387	31.01
35-44	153	12.26
45-54	64	5.13
55 and older	29	2.32
Gender		
Male	326	26.12

<b>Demographic variables</b>	<b>(n=1248)</b>	<b>%</b>
Female	922	73.88
<b>Residence location (in Saudi Arabia)</b>		
Central	778	62.34
Western	293	23.48
Northern	36	2.88
Southern	23	1.84
Eastern	118	9.46
<b>Level of education</b>		
Less than high school	40	3.21
High school	280	22.44
Diploma	82	6.57
Bachelor's	703	56.33
Master's	92	7.37
PhD	49	3.93
None	2	0.16
<b>Monthly income in US dollars</b>		
Less than 2666	764	61.22
2666–5332	332	26.60
More than 5332	152	12.18
<b>Marital status</b>		
Single	759	60.82
Married	439	35.18
Divorced	27	2.16
Separated	16	1.28
Widowed	7	0.56

66.83% (n=834) and 52.40% (n=654) of participants, respectively, selected plastic surgeons. In contrast, dermatologic surgeons were selected by 29.17% of participants (n=364) for tattoo removal and 41.67% (n=520) of participants for mole removal. Participants were also asked to select a specialist they would consult for a chemical peel on a teenager who had developed acne scars. In this situation, dermatologic surgeons were the first choice at 88.38% (n=1103), compared to plastic surgeons, who were chosen by almost 11% (n=136) of participants. Similarly, 47.20% (n=589) of participants chose dermatologic surgery as the specialty they would consult for an

ingrown toenail. General surgeons were the second choice, with 33.25% (n=415) of responses, and plastic surgeons were the least-preferred choice, selected by 19.23% (n=240) of respondents. For botulinum toxin injection to reduce facial wrinkles, 87.18% (n=1088) of participants would consult a plastic surgeon rather than a dermatologic surgeon, accounting for 12.02% (n=150) of responses. When asked about hair transplants, 50.24% (n=627) of participants chose a plastic surgeon, closely followed by 42.39% (n=529), who chose a dermatologic surgeon. When asked about fat injections to round out a too-thin face, the majority of respondents, 80.85% (n=1009), selected

plastic surgeons to perform the procedure, followed by dermatologic surgeons at 15.79% (n=197). The results were similar for abdominoplasty and body liposuction procedures, for which participants chose plastic surgery at 81.25% (n=1014) and 75.48% (n=942), respectively. General surgery was the second choice selected by participants in both abdominoplasty, at 13.14% (n=164), and liposuction, at 17.55% (n=219), followed by dermatologic surgery at 4.73% (n=59) and 6.17% (n=77), respectively. Participants were then asked to choose a specialist to excise a skin tumor from the nose. Surprisingly, dermatologic surgeons were the most frequently chosen specialists, at 71.63% (n=894). Only 17.23% (n=215) of participants said they would consult general surgeons, closely followed by 8.33% (n=104) of participants who indicated a preference for plastic surgeons. When asked who they think specializes in performing skin surgery, 49.12% (n=613) of the respondents chose dermatologic surgeons, 38.94% (n=486) chose plastic surgeons, and 10.42% (n=130) selected general surgeons (**Table 2**).

## Case Discussion

Dermatology is a well-known specialty that focuses on one organ system and comprises many important subspecialties [1]. With its transformation from a predominantly medical to a medico-surgical specialty, important advances have been achieved in the field [2-5]. In addition, dermatologic surgeons have endorsed many cosmetic surgical procedures [3]. At present, there are increasing numbers of referrals to dermatology clinics for surgical

purposes compared to the number of such referrals in the past [12]. Dermatologic surgeons possess a unique background in the structure, function, and pathophysiological state of the skin, which specifically qualifies them in the diagnosis and surgical treatment of skin lesions [8]. Furthermore, most procedures are performed in office-based settings that provide high-quality, cost-effective, and convenient care that saves patients time [6]. Today, dermatologic surgery is a major component in dermatology residency training, and residents have more exposure to the surgical aspects of dermatology than ever before [12, 14]. Furthermore, most residency programs have adopted various surgical and cosmetic procedures in their clinical training [15]. Our study demonstrated that the public in Saudi Arabia is unaware of the full scope of the field of dermatologic surgery, especially in terms of cosmetic procedures. However, almost half the respondents (49.12%) considered dermatologic surgeons to be specialized skin surgeons, and 71.63% would consult dermatologic surgeons for skin-tumor excision; this is consistent with other findings [11, 16]. The study population was unable to recognize the various cosmetic procedures commonly performed by dermatologic surgeons. This was observed when participants were asked about their preferred specialty provider for office-based cosmetic procedures. Surprisingly, only 15.79% and 12.02% of the study population chose dermatologic surgeons for fillers and botulinum toxin injections, respectively, in contrast to plastic surgeons, which were favored by the majority at 80.85% and 87.18%, respectively. Comparatively, a study conducted in the

**Table 2.** Choice of specialist in clinical scenarios.

Procedure	Total
Specialist	N (%) 1248 (100%)
<b>Tattoo removal</b>	
General surgeons	42 (3.37)
Plastic surgeons	834 (66.83)
Dermatologic surgeons	364 (29.17)
Others	8 (.63)

Procedure	Total
<b>Mole removal</b>	
General surgeons	72 (5.77)
Plastic surgeons	654 (52.40)
Dermatologic surgeons	520 (41.67)
Others	2 (0.16)
<b>Acne scar treatment</b>	
General surgeons	8 (0.64)
Plastic surgeons	136 (10.90)
Dermatologic surgeons	1103 (88.38)
Others	1 (0.08)
<b>Ingrown toenail procedure</b>	
General surgeons	415(33.25)
Plastic surgeons	240 (19.23)
Dermatologic surgeons	589 (47.20)
Others	4 (0.32)
<b>Botulinum toxin injections</b>	
General surgeons	6 (0.48)
Plastic surgeons	1088 (87.18)
Dermatologic surgeons	150 (12.02)
Others	4 (.32)
<b>Hair transplant</b>	
General surgeons	74 (5.93)
Plastic surgeons	627 (50.24)
Dermatologic surgeons	529 (42.39)
Others	18 (1.44)
<b>Fat injection</b>	
General surgeons	31 (2.48)
Plastic surgeons	1009 (80.85)
Dermatologic surgeons	197 (15.79)
Others	11 (0.88)
<b>Abdominoplasty</b>	
General surgeons	164 (13.14)
Plastic surgeons	1014 (81.25)
Dermatologic surgeons	59 (4.73)

Procedure	Total
Others	11 (0.88)
<b>Liposuction</b>	
General surgeons	219 (17.55)
Plastic surgeons	942 (75.48)
Dermatologic surgeons	77 (6.17)
Others	10 (0.8)
<b>Skin cancer removal</b>	
General surgeons	215 (17.23)
Plastic surgeons	104 (8.34)
Dermatologic surgeons	894 (71.63)
Others	35 (2.8)

United States has found a slight public preference for plastic surgeons over dermatologists for the similar procedures, botulinum toxin injections (50.6% vs 38.4%) and filler injections (47.3% vs 44.6%), respectively [17]. Similarly, participants held the greatest confidence in the surgical skills of plastic surgeons for minimally invasive cosmetic procedures, such as abdominoplasty (81.25%) and liposuction (75.48%). Furthermore, medical professionals, particularly primary care physicians, recognize plastic surgeons as the most qualified specialists to perform those procedures [18]. Although the majority of participants in our study showed no doubt regarding the surgical skills of dermatologic surgeons, especially in skin cancer surgery, many patients who undergo skin-cancer excision with dermatologists consult plastic surgeons afterwards [13]. This shows that the public still entrusts cosmetic procedures to plastic surgery. There seems to be a need to educate the public about the field and practice of dermatologic surgery. There were potential limitations to our study because participants needed access to the internet to take the survey, needed to use social media to view the recruitment invitation, and needed proficiency in the Arabic language to complete the survey. Thus, our findings cannot be generalized to those who do not have access to the internet or use social media. The major disadvantage of using Twitter as a platform was probably the high potential reach that may lead to a low response rate

0.16% (1519/943,154). Similar limitations were also reported in other study populations using online social media for recruitment [19-21]. Additionally, the use of a self-completed questionnaire means that the results depend on the respondents' interpretation of the questionnaire items; therefore, the respondents' information may be unreliable. Despite these limitations, the sample size was large, and the use of 10 different clinical scenarios further strengthened the study. The validity of the questionnaire was further verified because it was piloted to test for difficulties in understanding, resulting in a few minor changes. Our study represents the first survey in the Middle East evaluating the Saudi Arabian public's perception of dermatologic surgery.

## Conclusion

The field of dermatology has experienced a remarkable boost with the introduction of cosmetic and surgical practices. Although, the majority of participants showed no doubt regarding the surgical skills of dermatologic surgeons, the responses demonstrate that the Saudi Arabian public is not aware of the full scope and practice of dermatologic surgery, especially as it pertains to cosmetic procedures. Therefore, this lack of knowledge must be addressed through local representative societies to increase the public's understanding of our field.

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