



## The causes of medical students and interns misperception of plastic surgery specialty at University of Jeddah

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## ABSTRACT

**Objective:** This research is to investigate the causes of medical students and interns misperception of plastic surgery at University of Jeddah, and to ask them about the colleague's and community's opinion of the specialty. **Methods:** A cross sectional study was conducted among medical students and interns at University of Jeddah, Saudi Arabia. The questionnaire contains: 22 electronic questions to assess their knowledge, perception, understanding and believes regarding plastic surgery specialty and distinguish it from other specialties. We used stratified sampling of 111 out of 151, calculated by using Raosoft software and analyzed statistically by SPSS V23. **Results:** 111 male medical students and interns were included in this study and among them 110 were Saudi; only one student was non-Saudi. The most important source of information to choose plastic surgery was 'recommendation from family or friends', 42 (37.8%), and the least important source of information was Doctor's website (5.4%). Their biggest concern is difficult to be accepted in the plastic surgery program (53.2%). They choose the religious doubt (47.7%) as a community's opinion of plastic surgery in Saudi Arabia. **Conclusion:** This study found that there is a misperception, and the primary source of information is the main factor that leads to this misperception. The medical college's curriculum should pay more attention to plastic surgery, and focus on the non-cosmetic part of the specialty.

**Keywords:** Plastic surgery, Medical students, Misperception, Jeddah

## 1. INTRODUCTION

Plastic surgery is a specialty of beauty and reconstruction that targeted the defected, damaged or missed body structures to reconstruct, repair and enhance the appearance and the function of them (Miller, 2003). Plastic surgery has no anatomical origin, and it is subdivided into Breast reconstruction and augmentation, Burns, Cleft lip and palate, Maxillofacial, Rhinoplastic, Hand and Ophthalmic subspecialties, etc. (Reformat *et al.*, 2017; Chao *et al.*, 2015). Occasionally, some procedures require the presence of plastic surgeon with surgeons from other specialties such as orthopedic, ophthalmologic, general, maxillofacial and ENT surgeons, although plastic surgery requires a competent surgeon with extensive surgical training, the focus of social media is usually limited on cosmetic procedures of plastic surgery (Crockett *et al.*, 2007).

Despite the plastic surgery is a common specialty, there's a misperception of the plastic surgery specialty among medical students (Panse *et al.*, 2012; Dunkin *et al.*, 2003). The curriculum of medical colleges plays a role in plastic surgery specialty misperception, the curriculum has not given a proper time for plastic surgery, and this may affect future decisions of medical graduate for choosing plastic surgery specialty as a career (Almeland *et al.*, 2017). While it is well known that plastic surgery specialty is among the top surgical or medical specialties to have level of competitive course it is not the only cause for medical students to not consider plastic surgery as the primary specialty for them and other causes are poorly understood (Zuo *et al.*, 2019). There are some researches worldwide that have been published about the medical student's perception of the plastic surgery specialty (Panse *et al.*, 2012; Dunkin *et al.*, 2003; Tahiri *et al.*, 2013).

Locally, a study in King Khaled University showed that 37.4% of the medical students selecting the plastic surgery because of family or friend's recommendation, and 28.8% depended on the social media as a primary source of information (Fayi *et al.*, 2018). Furthermore, another study at King Abdulaziz University in Jeddah showed that most of the medical students depended on the internet, TV shows, and social media as a primary source of information (Mortada *et al.*, 2019). Both types of the previous researches results agreed on that most of the medical students depend on non-medical resources as a primary source of information (Fayi *et al.*, 2018; Mortada *et al.*, 2019). Globally, a study was done in Temple University Hospital, Philadelphia to an 1121 medical personals of different ages and educational levels showed that the perception about plastic surgery specialty is limited and overlooked many parts of it (Kim *et al.*, 1997). Furthermore, a study was conducted in Canada, University of Dalhousie to a sample size of 231 medical students that showed a gap in their knowledge with dividing results being that plastic surgery mainly for cosmetic and burns (Fraser *et al.*, 2017). There's a misunderstanding of the plastic surgery specialty among medical students; for that, the aim of this research is to investigate the causes of medical students and interns misperception of plastic surgery specialty at University of Jeddah.

## 2. METHODS

### Study design and setting

A cross sectional study was conducted among medical students and interns at University of Jeddah, Kingdom of Saudi Arabia, during June-July 2019. All undergraduate medical students from second to sixth years and interns were considered eligible to

participate. Therefore, Student from college rather than medical college was excluded. All participants were notified about the study objectives and response confidentiality.

We used stratified sampling and the calculated sample was 111 out of 151 medical students. This was calculated using Raosoft software (Raosoft, Seattle, WA, USA) (Raosoft, 2004).

### Study instrument

Permission was taken from Fayi et al. to use the questionnaire and we adapted it based on our cultural and practice (Fayi *et al.*, 2018). An anonymous questionnaire was used and distributed as an electronic form using Google forms and the data was collected by spread excel sheet. The questionnaire contains: 22 electronic questions to assess their knowledge, perception, understanding and believes regarding plastic surgery specialty and distinguish it from other specialties, also the questionnaire contains demographic information's of the participants, which have been kept confidential.

### Statistical analysis

Data were checked for completeness and errors were corrected. Respondents' socio-demographic characteristics, source of information about plastic surgery, first line specialty, and perception about plastic surgery were presented as frequencies and percentages in tables and charts. Chi-square test was done to find out the association between perception about plastic surgery and socio-demographic characteristics (age, nationality, smoking status, medical year, and GPA). The analysis was performed in 95% confidence interval using the Statistical Package for Social Science (SPSS), version 23.0 (IBM, Armonk, NY, USA).

### Ethical approval

The study was approved by the Institutional Review Board of medical college at University of Jeddah Ethical code No. 648-19. Also, this research was not received funding and there is not conflict of interest.

## 3. RESULTS

Total of 111 male medical students and interns were included in this study and among them 110 (99.1%) were Saudi nationals; only one student was from another country. Majority of them, 66 (59.5%) had academic GPA between 3.50 and 4.49 (Table 1).

**Table 1** Demographic characteristics of all respondents (n = 111)

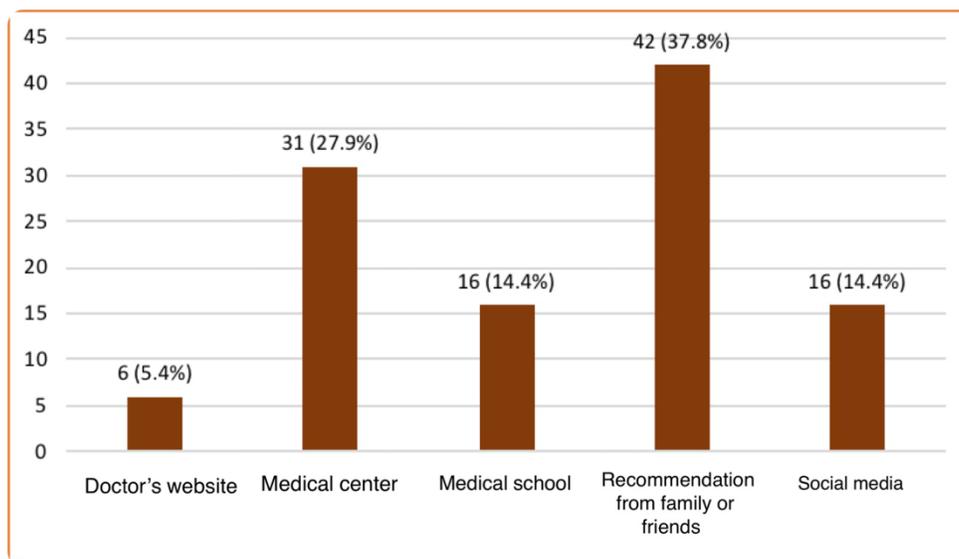
Characteristics	Attributes	N	%
Age (years)	Mean $\pm$ SD	21.96 $\pm$ 1.83	
	Median	22.00	
Nationality	Saudi	110	99.1
	Non-Saudi	1	0.9
Smoking status	Non-smoker	81	73.0
	Smoker	30	27.0
Medical year	Second	16	14.4
	Third	21	18.9
	Fourth	13	11.7
	Fifth	26	23.4
	Sixth	19	17.1
	Intern	16	14.4
Academic GPA	3.49 to 2.50	9	8.1
	4.49 to 3.50	66	59.5
	4.50 or above	36	32.4

\* All respondents were male

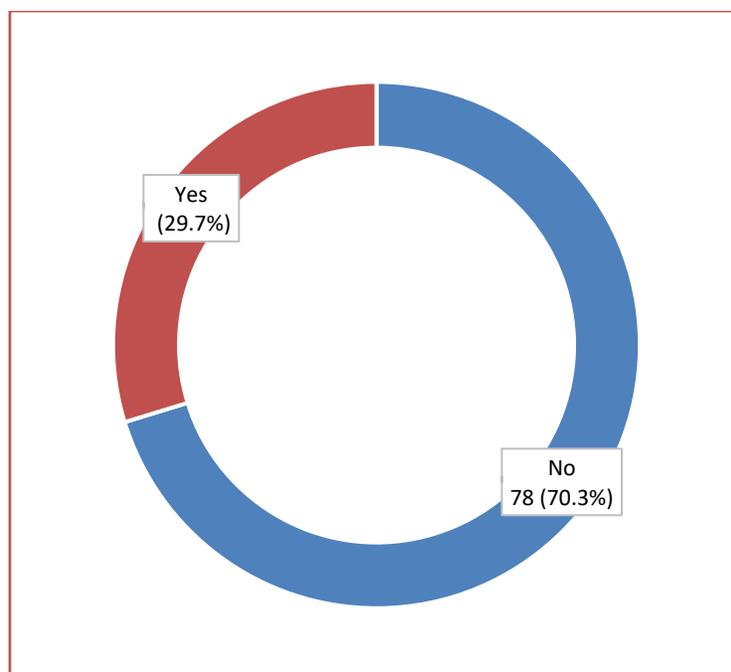
The most important source of information to choose plastic surgery was 'recommendation from family or friends', 42 (37.8%). The least important source of information was Doctor's website; only six (5.4%) students received information from it (Chart 1).

Distribution of first line specialties of the respondent were presented in table 2. Among all respondents, 33 (29.7%) were interested in plastic surgery (chart 2). Highest number of respondents themselves perceived plastic surgery 'as other medical

specialties', 52 (46.8%). Most of their colleagues also perceived plastic surgery similarly, 61 (55.0%), whereas the predominant community opinion about plastic surgery was 'religious doubt', 53 (47.7%) (Table 3).



**Chart 1** Distribution of all respondents by primary source of information to choose plastic surgery (n = 111)



**Chart 2** Distribution of respondents by interest in plastic surgery (n = 111)

**Table 2** Distribution of respondents by their first line specialty (n = 111)

Operations	Specialties	N	%
Rhinoplasty	ENT	57	51.4
	General surgery	11	9.9
	Oral Maxillofacial surgery	3	2.7
	Orthopedic surgery	2	1.8
	Plastic surgery	38	34.2
Jaw Fracture	ENT	5	4.5
	Oral Maxillofacial surgery	64	57.7
	Orthopedic surgery	26	23.4

	Plastic surgery	16	14.4
Blepharoplasty	Dermatology	3	2.7
	ENT	2	1.8
	General surgery	3	2.7
	Ophthalmology	61	55.0
	Oral Maxillofacial surgery	2	1.8
	Orthopedic surgery	1	0.9
	Plastic surgery	39	35.1
Cleft lip	Dermatology	8	7.2
	ENT	5	4.5
	General surgery	2	1.8
	Ophthalmology	1	0.9
	Oral Maxillofacial surgery	30	27.0
	Orthopedic surgery	2	1.8
	Plastic surgery	63	56.8
Thumb replantation	ENT	1	0.9
	General surgery	16	14.4
	Orthopedic surgery	30	27.0
	Plastic surgery	64	57.7
Hand or finger fracture	ENT	1	0.9
	General surgery	9	8.1
	Ophthalmology	1	0.9
	Orthopedic surgery	81	73.0
	Plastic surgery	19	17.1
Lifting and tightening of the face	Dermatology	27	24.3
	ENT	1	0.9
	General surgery	4	3.6
	Oral Maxillofacial surgery	4	3.6
	Plastic surgery	75	67.6
Breast reconstruction	Dermatology	11	9.9
	General surgery	27	24.3
	Orthopedic surgery	1	0.9
	Plastic surgery	72	64.9
Breast augmentation	Dermatology	8	7.2
	ENT	1	0.9
	General surgery	13	11.7
	Ophthalmology	1	0.9
	Plastic surgery	88	79.3
Closing leg wounds	Dermatology	6	5.4
	ENT	2	1.8
	General surgery	59	53.2
	Oral Maxillofacial surgery	1	.9
	Orthopedic surgery	14	12.6
	Plastic surgery	29	26.1
Face open wounds	Dermatology	4	3.6
	ENT	4	3.6
	General surgery	27	24.3
	Oral Maxillofacial surgery	18	16.2
	Plastic surgery	58	52.3
Botox injection	Dermatology	40	36.0
	ENT	2	1.8
	General surgery	1	.9
	Orthopedic surgery	2	1.8
	Plastic surgery	66	59.5

**Table 3** Distribution of respondents by opinion/ perception about plastic surgery (n = 111)

Characters	Opinion	N	%
Own self	As other medical specialties	52	46.8
	Good for essential cases	1	0.9
	Interesting specialty	30	27.0
	It's very important in some situations, and it's an additional in other	1	0.9
	Not suitable for me	23	20.7
	One of my dreams	1	0.9
	Unethical specialty	3	2.7
Community	As other medical specialties	35	31.5
	Desirable specialty	21	18.9
	Not important because it's an addition	1	0.9
	Religious doubt	53	47.7
	Unwanted specialty	1	0.9
Colleagues	As other medical specialties	61	55.0
	I don't know	1	0.9
	Interesting specialty	32	28.8
	Not suitable for them	15	13.5
	Unethical specialty	2	1.8

Respondents' biggest concern about plastic surgery was 'difficult to be accepted', 59 (53.2%). The clear majority, 104 (93.7%) thought plastic surgery as important as other medical specialties, but only 7 (6.3%) of them have taken plastic surgery elective (Table 4).

Respondents own opinion, colleague's opinion, and family opinion were compared with socio-demographic characteristics but none of the comparison showed statistically significant association (p-values > .050). A statistically significant association between 'plastic surgeon in family/ relatives' and 'medical years' was found, p .038 (Table 5).

**Table 4** Distribution of respondents by specific questions regarding plastic surgery (n = 111)

Questions	Answers	N	%
What are your biggest concerns about Plastic surgery?	Boring specialty	3	2.7
	Difficult to be accepted (matched)	59	53.2
	Ethical/Religious part	26	23.4
	No concerns	21	18.9
	No idea	1	0.9
	Tough and challenging for me	1	0.9
Do you wish to be a Plastic surgeon?	No	82	73.9
	Yes	29	26.1
Have you ever taken a Plastic surgery elective?	No	104	93.7
	Yes	7	6.3
Do you have a plastic surgeon in your family or relatives?	No	104	93.7
	One of the relatives	7	6.3
Do you think Plastic surgery as important as the other medical specialties?	No	7	6.3
	Yes	104	93.7

**Table 5** Association between perception of plastic surgery and demographics

Perception questions	Socio-demographic variables (p-value)				
	Age	Nationality	Smoking status	Medical year	GPA
Are you interested in Plastic surgery?	.110	.514	.330	.054	.169
What's your opinion about Plastic surgery?	.967	.980	.056	.954	.050

What's the opinion of the community about Plastic surgery?	.974	.984	.430	.831	.170
What's the opinion of your colleagues about Plastic surgery?	.948	.935	.387	.648	.725
What are your biggest concerns about Plastic surgery?	.235	.504	.253	.162	.114
Do you wish to be a Plastic surgeon?	.342	.550	.572	.112	.148
Have you ever taken a Plastic surgery elective?	.922	.794	.924	.324	.232
Do you have a plastic surgeon in your family or relatives?	.605	.794	.924	.038	.847
Do you think Plastic surgery as important as the other medical specialties?	.427	.794	.924	.575	.241

#### 4. DISCUSSION

This study aims to investigate the causes of medical students and interns misperception of plastic surgery specialty at University of Jeddah. Misconception of the specialty of plastic surgery is held by various populations, such as public population, medical students, residents and general practitioners (Kim *et al.*, 1997; Rogers *et al.*, 2013; Tanna *et al.*, 2010). Previous studies suggested that medical students tend to have more knowledge regarding plastic surgery compared with GP and general population (Rogers *et al.*, 2013; Dunkin *et al.*, 2003). In this study, medical students and interns have a misperception in plastic surgery and its relations with other specialties; the participants do not choose plastic surgery as the first-line specialty in the following surgeries: rhinoplasty, jaw fractures, blepharoplasty, hand or finger fractures, and closing leg wounds. However, they choose plastic surgery as the first-line specialty in: cleft lip, thumb replantation, lifting and tightening of the face, breast augmentation, faces open wounds, Botox injections. These results matched with the previous studies result Agarwal *et al.*, which showed that plastic surgery was chosen most frequently for rhinoplasty and breast reconstruction and less frequently for hand/peripheral nerve surgery and wound surgery (Agarwal *et al.*, 2013). Moreover, regarding the primary source of information, most of medical students depend on the recommendations from family or friends, which explains the factors of this misperception by depending on non-medical resources, this alone is not completely in line with Fraser SJ *et al.* results but shows the same defect causing such misconception among medical students as they chose television as their primary source of information and not a medical source (Fraser *et al.*, 2017). Regarding concerns, medical students biggest concern is difficult to be accepted in the plastic surgery program, this is another factor that lead to misperception continuation, the same couldn't be said globally as seen in the results of Zuo *et al.* study which showed that medical students most important concern to affect their choice of plastic surgery is program mentors at specific centers (Zuo *et al.*, 2019). In regarding to medical students ever taking plastic surgery elective as a factor in contributing to the misconception about plastic surgery showing here 93.7% who did not take an elective compared to Aykan *et al.* study where 44.88% who have taken plastic surgery elective showed more overall knowledge and information about plastic surgery specialty (Aykan *et al.*, 2017). Medical students and interns choose the religious doubt as a community's opinion of plastic surgery specialty in Saudi Arabia, as the religion and traditions play a role in it. The results of this study quite match the results of Fayi *et al.* (Fayi *et al.*, 2018), due to the similarity of the religion, the community, traditions and the geographical area. However, the limitations of this study are single medical school with limited sample size, the gender is restricted to males only and some medical students are in their basic medical years and have not exposed properly to the plastic surgery specialty, thus, interfere with the results. Therefore, our recommendations for future researches are applying the study on many medical schools with different curricula and increasing the sample size, include both male and female gender, increase the number of questions that is related to plastic surgery cases, involve bigger medical field including the physicians other than plastic surgery physicians and involve bigger geographical area.

#### 5. CONCLUSION

This study aimed to investigate the causes of medical students and interns misperception of plastic surgery specialty at University of Jeddah. This study found that there is a misperception of plastic surgery, and the primary source of information is the main factor that leads to this misperception. The medical college's curriculum should pay more attention to plastic surgery, and focus on the non-cosmetic part of the specialty.

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