

## **The Number and Awareness of Rhinoplasty and People Preferences of the Shape of the Nose**

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### **ABSTRACT: (200 Words)**

**Objectives:** To determine the number of Saudi adults who want to undergo rhinoplasty, to assess their level of awareness and to evaluate their nose shape preference.

**Design:** Cross-sectional study. The sample was selected randomly during October 2014.

**Setting:** the city of Riyadh, Saudi Arabia with a cluster sampling of Riyadh malls

**Subjects:** 545 Saudi adults were included

**Intervention:** Self-administered questionnaire

**Outcome measure:** Number and awareness of rhinoplasty

**Results:** 73.4% of participants knew what rhinoplasty is. 30% knew the different types of surgical and non-surgical options. 59.3% did not know its complications. 70% had not encountered any information about rhinoplasty from books, brochures. 40.7% expected the success rate for rhinoplasty to be between 50% and 70%. 29.5% wanted to perform rhinoplasty themselves. 61.1% think that psychological effects could explain the reasoning behind rhinoplasty. More than 90% desire a straight nose, narrow nostrils and smaller nose size. 58.7% and 82% want the nose tip to be up and sharp, respectively. Nose length preferences were distributed equally among participants.

**Conclusions:** Most of the participants were not aware of different rhinoplasty options or of rhinoplasty's complications. Most of them thought that the reason behind an increasing number of rhinoplasties is a social and psychological effect.

**KEY WORDS:** Cosmetic surgery; Appearance; Prevalence; Desire.

### **INTRODUCTION:**

Rhinoplasty is a reconstructive plastic surgery, usually done to restore the nasal function after trauma or to enhance the nose's appearance. Incidence of rhinoplasty is presently increasing around the world, especially in the Gulf region. According to the International Association of Plastic Surgery's 2013 statistics, of the plastic surgeries performed worldwide, 954,423 rhinoplasty procedures were performed; at 8.2%, it is considered to be the fifth most commonly performed plastic procedure worldwide.<sup>[1]</sup> Moreover, according to the International Association of Plastic Surgery's 2010 statistics, Saudi Arabia was one of the top 25 countries in the total number of plastic surgeries performed; of the 45,398 procedures, 6,404 were rhinoplasty, making it the second most common plastic surgery in Saudi Arabia.<sup>[2]</sup>

### **Research Objectives:**

To determine the number of Saudi adults who want to undergo rhinoplasty  
To evaluate Saudi population awareness of rhinoplasty options and complications  
To assess the reasons for the increased demand for cosmetic rhinoplasty in Saudi Arabia  
To determine the desired nose shape among the Saudi population

### **SUBJECTS AND METHODS:**

**Study design:** It is a cross-sectional qualitative study. It was conducted in the city of Riyadh, Saudi Arabia. The samples were recruited randomly during October 2014. Eligible participants were informed about the study and its purpose.

**Study setting:** Riyadh is the capital city of and largest city in Saudi Arabia. It is considered one of the modern and highly developed cities in Saudi Arabia, and it is home to 5.7 million people, 61 percent of whom are Saudi citizens.<sup>[3]</sup>

**Population under study:** All adults (18 years old and older, Saudis) who are visiting Riyadh malls in all city districts. Participants who had undergone rhinoplasty in their lives were excluded.

### **Data collection methods**

The research team conducted data collection during October 2014. Information was gathered through a self-administered questionnaire, consisting of 18 questions. The questionnaire addressed the following elements: demographic features, rhinoplasty awareness, knowledge of different treatment options and complications, the number of participants who desire their own rhinoplasty, the reasons for participants to undergo rhinoplasty and the preferred nose shape post-rhinoplasty (see sample questionnaire in Appendix).

### **Sample size and sampling technique**

Cluster sampling technique was used to divide Riyadh into four clusters, south, north, east and west, and two malls were randomly selected in each cluster. Surveys were distributed to a total of 545 random eligible participants.

## **Data analysis plan**

The data was descriptively analysed using SPSS statistical program. A level of significance was set at ( $\alpha$ ) <0.05, with a confidence interval of 95%.

## **Ethical considerations**

Verbal consent was given to all participants before they answered the questionnaires. The consent form included the purpose and objectives of the research. No incentives or rewards were given to the participants.

## **RESULTS:**

### **Demographic characteristics and frequencies**

A total of 545 participants were included, of whom 412 (75.6%) were females and 133 (24.4%) were males. As shown in table 1, most (402) of the included participants were between 18-29 years old (73.8%).

With regard to education level, 422 (77.4%) participants were highly educated, with a bachelor's degree or other higher education. More than half of the participants were single: 364 (66.8%), compared to only 172 married participants (31.6%).

Regarding rhinoplasty awareness, most (400) of the participants (73.4%) knew what rhinoplasty is and had some idea about it. In further questioning, only 177 (32.5%) knew the different types of surgical options and 168 (30.8%) for the non-surgical options for rhinoplasty. More than half (323; 59.3%) did not know about the complications of rhinoplasty, 384 (70%) had not encountered or read any information about rhinoplasty from books or brochures and 222 (40.7%) expected the success rate for rhinoplasty to be between 50% and 70%.

Two hundred ninety-five (54.1%) participants had a relative or a friend were underwent rhinoplasty, and 161 (29.5%) actually wanted their own rhinoplasty. Also, 135 (24.8%) were interested in performing any other type of plastic surgeries. When participants were asked for their opinions regarding the reasons behind undergoing a rhinoplasty, almost half (274; 50.3%) disagreed that social effects were the reason, and the other half (271) agreed (49.7%). Three hundred thirty-three (61.1%) of the respondents thought that psychological effects could explain the desire for rhinoplasty. Half of participants (279; 51.2%) agreed that a broken nose or functional impairment could be a reason for rhinoplasty. Only 214 (39.3%) said the media affects people; moreover, only 170 (31.2%) agreed that the availability and easy accessibility of different surgical and non-surgical options in the country could be the reason. Most participants disagreed that having similar nose shapes among family members explains the reasoning for undergoing a rhinoplasty.

Most of the participants (511; 93.8%) prefer a straight nose. For the nose tip, some participants prefer an up nose tip (320; 58.7%), and 225 (41.3%) prefer down nose tip. Four hundred ninety-nine (91.6%) participants desire narrow nostrils, and 447 (82%) prefer a sharp nose tip. The ideal nose length was distributed equally among the participants: 274 (50.3%) wanted a long nose, and 271 (49.7%) wanted a short nose. Five hundred seventeen (94.9%) participants preferred a small nose size. The majority of participants (337; 61.8%) wished to have a less prominent side view of the nose and 469 (86.1%) wanted a straight nose from the side view of the face.

## **Gender comparison**

When comparing males' and females' knowledge and awareness, as shown in table 2, 76.7% of females said they had an idea about rhinoplasty, compared to 63.2% of males, which is a significant difference ( $p=0.002$ ). Among females, 38.1% knew the different types of non-surgical options for rhinoplasty, with a significance level of  $p=0.000$  compared to males 15.5%. The percentage of females who knew the complications of rhinoplasty was higher than that of males ( $p=0.000$ ). Similarly, 43.4% of females expected the success rate for rhinoplasty to be 50%-70% ( $p=0.000$ ). Females knew more relatives or friends who had undergone rhinoplasty (59.7%) compared to males (36.8%) ( $p=0.000$ ). Obviously, more females wanted to perform any other type of plastic surgery compared to males ( $p=0.000$ ). Among females, 95.4% prefer a straight nose ( $p=0.006$ ), and 64.1% of females compared to males 42.1% prefer a high nose tip ( $p=0.000$ ) and narrower nostrils (94.9%) ( $p=0.000$ ). Also, 86.4% of females desired a sharp nose tip compared to males (68.4%) ( $p=0.000$ ), a longer nose (52.9%) of females and 42.1% of males ( $p=0.030$ ); 96.6% of females wanted a smaller size nose compared to 89.5% of males ( $p=0.001$ ). For the side view of the nose, 59.0% of females selected a less prominent nose, and 89.8% selected a straight nose compared to males (70.7% and 74.4%, respectively), with a significance level of  $p=0.016$  and  $p=0.000$ , respectively.

### **Marital status comparison**

When comparing married participants to single participants, single participants were more aware of rhinoplasty (78.3%), with a significant difference of ( $p=0.000$ ), and 34.9% of single participants knew the different non-surgical types of rhinoplasty compared to 26.2% of married participants ( $p=0.043$ ). Regarding the different surgical options, single participants were more aware ( $p=0.003$ ). Moreover, 36.0% of married participants have read information about rhinoplasty from books or brochures, more than single participants with a percentage of 26.4% ( $p=0.022$ ), and more married participants (44.8%) think that the success rate for rhinoplasty is between 50% and 70% ( $p=0.000$ ). Of single participants, 32.1% want rhinoplasty more than married participants with a percentage of 23.3% ( $p=0.035$ ). Regarding preferred nose shape, single and married participants agreed on the same shape with no significant difference, except for the nose tip: 62.4% of singles preferred a high nose tip compared to 50.0% of married participants ( $p=0.007$ ). Table 3 displays detailed results.

### **Age comparison**

Results were compared between different age groups, which are divided into younger and older age groups in table 4. Regarding people's knowledge about rhinoplasty the majority of respondents in the young age group (18-29 y) with a percentage of 77.6% for their knowledge, with a significance difference of ( $p=0.000$ ). 67.5% of the young age group did not know about the non-surgical types of rhinoplasty, while 72.7% of the older age group (30 y and above) did not know ( $p=0.0122$ ). Approximately 60% of both young and old age groups did not know about the complications of rhinoplasty; 33% of the young age group knew about the complications of rhinoplasty, while 23% of the older age group knew about complications ( $p=0.729$ ). 66.7% of the young age group of the younger age group knew about different surgical options in comparison to 76.2% of the old age group, with a significance difference of ( $p=0.0034$ ). 36.4% from the older age group received their information from books and brochures, while 27% of the younger age group

received information from books and brochures ( $p=0.037$ ). When asked about the success rate of this procedure, 39.1% of the younger age group thought it was between 50%-70%, as did 45.5% of the older age group ( $p=0.000$ ). 32.8% of the younger age group wanted a rhinoplasty, and 79.7% of the older age group said they did not want to do it ( $p=0.005$ ).

93.8% of both age groups preferred the straight nose. 63.4% of the younger age group preferred the nose tip to be up, and 45.5% of the older age group preferred the same ( $p=0.000$ ). Regarding the nostrils, the majority of both age groups (91.6%) preferred it to be narrower, and 82% of both groups wanted their nose tip to be sharp. Almost 50% of both age groups wanted the nose length to be longer. Most of the participants (94.9%) of both age groups wanted a smaller nose size. 61.8% of both age groups wanted their side view of the nose to be less prominent, and 86.1% wanted it to be straight.

### **Education comparison**

A comparison between participants' education (low education and high education) is presented in table 5. 73.4% of both groups said they knew about rhinoplasty. 67.5% of both education groups did not know about the different types of non-surgical options for rhinoplasty, 59.3% of both education groups did not know about the complications and 69.2% of both education groups did not know about the surgical options for rhinoplasty. On the other hand, 70.5% of both groups had not read any information from books or brochures, with no statistical significance difference between the groups.

When asked about the success of rhinoplasty, most respondents from both education groups thought it was between 50%-70% success rate: 48.0% of low education participants and 38.6% of high education participants, with a significance difference of ( $p=0.028$ ). 54.1% of both groups knew a relative or friend who had undergone rhinoplasty. 70.5% of both education groups did not want to a rhinoplasty themselves, and 75.2% of them did not want any other type of plastic surgery. Regarding preference, 93.8% of both groups prefer a straight nose, 58.7% of them prefer a high nose tip, 91.6% prefer narrow nostrils and 82.0% prefer a sharp nose tip. Half of both groups preferred a long nose, and 94.9% of both education groups' participants wanted a small size nose. Regarding the side view of the nose, 61.8% of both groups wanted it more prominent, and 86.1% of both education groups wanted a straight side view of the nose.

### **DISCUSSION:**

Due to the increasing number of plastic surgeries, and rhinoplasty in particular, the present study attempts to determine the number of Saudi adults who desire rhinoplasty; their level of awareness regarding rhinoplasty options, complications and the justifications behind rhinoplasty; and, most importantly, what nose shape people desire. Results indicated that most of the participants think they have an idea about rhinoplasty, but when questioned further, only a few of them know different surgical and non-surgical options for rhinoplasty or are aware of the complications of rhinoplasty. The results showed that a large portion of participants had not read about rhinoplasty in books or brochures; this lack of awareness may be attributable to the lack of information provided to reach the targeted community members through different means like books, magazines and radio or television programs by the specialized health care providers.

Also, results showed that 29.5% of participants actually wanted a rhinoplasty, which is a high percentage from randomly selected participants compared to other studies in the literature; also 24.8% of our participants are willing to undergo other types of plastic surgeries. A study conducted in Iran in 2012 of 320 female students found that more than half of respondents wanted to have their noses done for cosmetic reasons only. More than half of those students did not know about the complications.<sup>[4]</sup> In our study, there was a significant difference between male and female respondents when they were asked about their chances of having rhinoplasty or any other type of plastic surgery. This is, perhaps, not unanticipated, given the superior sociocultural burden on women to achieve ideals of physical attractiveness.

Results showed that more than half of participants know a friend or a relative who had a rhinoplasty; knowing someone close and seeing their results post-rhinoplasty can greatly influence one's decision to have their own rhinoplasty. A 2005 study of female undergraduates by Delinsky addresses the personal and vicarious experience and the likelihood of undergoing cosmetic surgery. A key finding in Delinsky's study was that the greater the vicarious experience of friends and family who had undergone cosmetic surgery, the greater the likelihood of participants undergoing their own cosmetic surgery in the future.<sup>[5]</sup>

In our study, participants believe that social and psychological effects and functional disability were the most common reasons to undergo rhinoplasty. Also, almost 40% of participants thought that media effects increased the likelihood of undergoing rhinoplasty, in contrast to study by Brown published in 2007, which found that media exposure did not significantly predict likelihood of undergoing cosmetic procedures.<sup>[6]</sup>

In our study, we found the ideal nose shape desired by Saudi participants was a straight nose with high profile, sharp tip and narrow nostrils, and a small nose with a straight and less prominent side view. With regard to nose length, the participants equally preferred short and long noses. In comparison to a study done of a Korean population, the preferred nose shape was nasal height of 6mm, straight shape of the dorsum, 35 degree nasofacial angle, 105 degree tip angle, straight axis of the alar, smooth concave and straight shape of the columella limb and the smooth, concave shape of the subnasal segment.<sup>[7]</sup> In a 2014 study, Iranian patients were satisfied with a natural nose, decreased nose projection and an elevated low-profile tip.<sup>[8]</sup>

When dividing the participants according to age, the younger population was more aware of rhinoplasty than the older age group, including the different types of surgical and non-surgical rhinoplasty as well as the complications. This difference could be due to the fact that the younger age group is more concerned with appearance and how they look, so they have read about it more than the older generation has.

Regarding the shape of the nose, both age groups wanted a smaller nose size, less prominent on the side view and straighter.

Both low and high educations were equally aware about rhinoplasty, different surgical and non-surgical options, success rate and complications.

## **CONCLUSION:**

In conclusion, most of the participants were not aware of different types of surgical and non-surgical options of rhinoplasty of the potential complications. In regard to the purposes of undergoing rhinoplasty, participants thought that social and psychological effects were the reason behind the increase in such surgeries. Also, friends' and relatives' influence was a major motive, since most of participants knew someone who had undergone a rhinoplasty. A good number of participants wanted to

undergo rhinoplasty or other type of plastic surgery. Regarding the shape of the nose, most of the participants favoured a straight, high and sharp nose tip with narrow nostrils and small size with a less prominent and straight side view of the face.

### **Recommendations:**

As the number of rhinoplasty surgeries continues to increase, we recommend further research regarding the causes of this increase. We also recommend doing more campaigns to increase awareness of rhinoplasty. Since most of the participants (61%) in our study suggested that the reason behind rhinoplasty is psychological, we suggest rhinoplasty clinics implement psychological evaluation and psychotherapy programs to assess patients.

### **ACKNOWLEDGMENTS:**

We would like to acknowledge Dr.Amani Obeid for her kind assistance in journals selection and otolaryngology secretary Mrs.Marviel Deguzman for her assistance in providing office work services.

**Conflicts of interest:** The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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**Table 1: Demographic characteristics and frequencies**

<b>Variables</b>	<b>Frequency N</b>	<b>Percent</b>
Age (year)		
18 - 29 y	402	73.8
30 - 39 y	63	11.6
40 - 49 y	59	10.8
50 - 59 y	17	3.1
60 y and above	4	.7
Gender		
Male	133	24.4
Female	412	75.6
Marital status		
Single	364	66.8
Married	172	31.6
Widow	1	.2
Divorced	8	1.5
Education		
Low Education	123	22.6
High Education	422	77.4
Do you have any idea about rhinoplasty?		
Yes	400	73.4
No	145	26.6
<b>Do you know about the different types of non-surgical options for rhinoplasty?</b>		
Yes	177	32.5
No	368	67.5
<b>Do you know about the complications of rhinoplasty?</b>		
Yes	222	40.7
No	323	59.3
<b>Do you know about the different types of surgical options for rhinoplasty?</b>		
Yes	168	30.8
No	377	69.2
<b>Did you read any information about rhinoplasty from books or brochures?</b>		
Yes	161	29.5
No	384	70.5
<b>What percentage do you</b>		

<b>expect for the success of operations rhinoplasty?</b>		
Less than 50 %	76	13.9
50 % to 70 %	222	40.7
70 % to 90 %	176	32.3
More than 90 %	71	13.0
<b>Did anyone of your relatives or friends underwent a rhinoplasty?</b>		
Yes	295	54.1
No	250	45.9
<b>Do you want to do a rhinoplasty?</b>		
Yes	161	29.5
No	384	70.5
<b>What do you think is the reason behind rhinoplasty? (you can pick more than one)</b>		
<b>Social effect</b>	271	49.7
<b>Psychological effect</b>	333	61.1
<b>Broken nose or functional impairment</b>	279	51.2
<b>Media effect</b>	214	39.3
<b>The availability of surgical and non-surgical options of rhinoplasty in your country.</b>	170	31.2
<b>Genetic. (Most family member have the same nose shape)</b>	39	7.2
<b>Do you want to do any other type of plastic surgeries?</b>		
Yes	135	24.8
No	410	75.2
<b>What type of nose you prefer?</b>		
Straight nose	511	93.8
Sloped nose	34	6.2
<b>Nose tip</b>		
Up	320	58.7
Down	225	41.3
<b>Nose nostrils</b>		
Narrower	499	91.6
Wider	46	8.4
<b>Nose tip</b>		
Sharp	447	82.0
Wide	98	18.0
<b>The length of the nose</b>		
Longer	274	50.3

Shorter	271	49.7
<b>The size of the nose</b>		
Smallest	517	94.9
Largest	28	5.1
<b>Side view of the nose</b>		
Less prominent	337	61.8
More prominent	208	38.2
<b>Side view of the nose</b>		
Straight	469	86.1
Humped	50	9.2
Sloped	26	4.8

**Table2: Gender comparison**

	N (%)		p- value
Do you have any idea about rhinoplasty?			
How much do you know about the types of non-surgical rhinoplasty?			
How much do you know about the types of surgical rhinoplasty?			
Where did you get any information about rhinoplasty from books or internet?			
What percentage do you think is the success of rhinoplasty?			
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25%			
50%			
75%			
100%			
How many of your relatives have undergone rhinoplasty?			

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**Table 3: marital status comparison**

	N (%)		p- value
Do you have any idea about rhinoplasty?			
How do you know about the types of non-surgical rhinoplasty?			
How do you know about the types of surgical rhinoplasty?			
Have you read any books or articles about rhinoplasty from books or magazines?			
What percentage do you think is the success rate of rhinoplasty?			
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**Table 4: age comparison**

	N (%)		p-
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Do you have any idea about rhinoplasty?			
How much do you know about the types of non-surgical rhinoplasty?			
How much do you know about the reasons of rhinoplasty?			
How much do you know about the types of surgical rhinoplasty?			
Did you get any information about rhinoplasty from books or magazines?			
What percentage do you expect to be successful in the first operation?			
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100%			

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**Table 5: education comparison**

	n (%)		p- value
	Control	Intervention	
Do you have any idea about rhinoplasty?			
How much do you know about the types of non-surgical rhinoplasty?			
How much do you know about the risks of rhinoplasty?			
How much do you know about the types of surgical rhinoplasty?			
Did you get any information about rhinoplasty from books or magazines?			
What percentage do you expect to be successful in the success of operations?			
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100%			

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**Legends of tables:**

Table 1: Demographic characteristics of all participants and frequencies in number n = 545 and percentage %

Table 2: Gender comparison for the different questions in the study survey in number and percentage %; n = 84 for males and n = 316 for females, with chi-square results statistical significance of  $p = <0.05$ .

Table 3: Marital status comparison for the different questions in the study survey in number and percentage for single and married respondents, with chi-square results statistical significance of  $p = <0.05$ .

Table 4: Age comparison for the different questions in the study survey in number and percentage of age 18-29 y and age 30 y and above, with chi-square results statistical significance of  $p = <0.05$ .

Table 5: Education comparison for the different questions in the study survey in number and percentage for high and low education, with chi-square results statistical significance of  $p = <0.05$ .