

## Does Cosmetic Rhinoplasty Improve Self-Concept and Patient's Satisfaction with Nose Fitness? Testing the Differences Before and After Surgery with 3 To 6 Months Follow-Up

Mousavi Seyyed Vali-allah (PhD) <sup>1\*</sup>

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1. Associate Professor at Department of Psychology, Faculty of Literature and Humanities, University of Guilan, Rasht, Iran

**\*Corresponding author:**  
Associate Professor at Department of Psychology, Faculty of Literature and Humanities, University of Guilan, Rasht, Iran  
Email: sasanejadp@mums.ac.ir

### ABSTRACT

**Background:** Despite the great number of cosmetic rhinoplasties, there are few studies on the improvement of self-concept and patient satisfaction with nose fitness.

**Objectives:** This study attempted to examine the variability of self-concept and patient satisfaction with nose fitness before and after cosmetic rhinoplasty through three to six months of follow-up.

**Materials and Methods:** Under a pretest-posttest single-group design, a total of 100 women and men applying for cosmetic rhinoplasty at the academic clinics in Guilan were selected through convenience sampling. The participants' age ranged from 17-47 years old and each of them responded to the Beck Self-Concept Test (BSCT) and Satisfaction Visual Analogue Scale (S-VAS) before and three to six months after the cosmetic surgery. The data were analyzed through the independent t-test and univariate analysis of covariance (UNIANCOVA) under a 2x2 factorial design, after controlling for the two variables of age and marital status.

**Results:** The mean age of patients was  $26.85 \pm 6.60$  years. We found that the self-concept in patients post-surgery had not improved compared with pre-surgery ( $p > 0.05$ ). However, the patients' satisfaction with nose fitness significantly increased after surgery ( $F = 70.10$ ,  $p < 0.0001$ ). There was no significant difference between the female and male groups in terms of self-concept and satisfaction with nose fitness ( $p > 0.05$ ).

**Conclusion:** Although many rhinoplasty applicants were satisfied about the changes in their facial features, rhinoplasty seems to have failed to improve the patients' self-concept, the implications of which are discussed.

**Keywords:** Rhinoplasty; Self Concept; Satisfaction

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### Introduction

Cosmetic rhinoplasty has become widely popular in recent years, and millions of people opt for cosmetic

surgery every year (1). This is also true in Iran, where the demand for cosmetic rhinoplasty is on the rise (2). The findings

have revealed that only 10% of nasal surgeries serve to treat deformity or dysfunction, whereas the rest of cases merely serve cosmetic purposes (2,3). Cosmetic rhinoplasty refers to any type of plastic surgery for nasal reconstruction or cosmetic purposes (4). Applicants of this surgery usually express more dissatisfaction with their appearance compared to applicants of other cosmetic interventions. This is because the person's deformity is easily noticeable, both to him/herself and to others, and this leads to severe psychological distress (5).

Appearance constitutes an integral part of self-concept and ultimately body image (6). Some researchers believe that improving body image and self-concept propel people towards cosmetic surgery (7,8,9). Self-concept is how a person describes his/herself (10). In other words, self-concept is a set of thoughts, feelings and attitudes that every person fosters about himself/herself (11). However, self-concept is not limited only to what a person perceives about self, but also covers what the person feels others perceive about him/her. Therefore, self-concept derives from the real or conceived judgments of others, especially people involved in the social environment (12).

The primary outcomes of cosmetic surgery are patient satisfaction with nose appearance and improved quality of life (13,14). Nonetheless, few studies have directly examined the impact of rhinoplasty on patients' perceived satisfaction with nose fitness (15). In one study, it was found that patients have more satisfaction with their nose structure after rhinoplasty compared with before surgery (13).

We obtained conflicting results from the relevant literature. Although some researchers found that cosmetic rhinoplasty can help to

improve self-esteem and body image (16), or that there is no relationship between volunteering for cosmetic rhinoplasty and mental health, self-concept, and self-esteem (17,18), other studies have demonstrated that applicants for cosmetic rhinoplasty tend to carry poorer body image and self-concept (9,19,20). It is not yet clear whether volunteering for cosmetic rhinoplasty, apart from enhancing the patient's satisfaction with nose fitness, helps to improve self-concept. One of the reasons behind the conflicting data is the limited research available for testing the before and after surgery hypotheses for psychological outcomes such as self-concept and satisfaction with nose fitness.

Despite the great number of cosmetic rhinoplasties, there have been few reports released so far on improvement of self-concept and patient satisfaction with nose fitness. This study attempted to answer the following question: *Can cosmetic rhinoplasty improve the patient's self-concept and enhance the patient's satisfaction with nose fitness?*

Although it was not a main goal of this study to explore the gender differences in these outcomes, there were several comparative sub-tests devised to match gender, since it plays a key role in the identification of self-concept (21) and satisfaction with the outcome of cosmetic surgery (14).

The answers to these questions can evaluate the psychological (improvement of self-concept) and esthetic (enhancing nose fitness) consequences of a surgical intervention, thus enabling the surgeons and mental health professionals to outline more realistic expectations about the outcomes of cosmetic rhinoplasty for patients.

## Materials and Methods

This study was conducted under a single-group pretest-posttest design. In terms of methodology, this was an analytical-longitudinal study, where the samples were selected through non-assigned randomly matched pairs. The population consisted of all applicants for cosmetic rhinoplasties referred to the academic clinics affiliated to Guilan University of Medical Science in the north of Iran (2013). The sample size was calculated considering the probability of Type I error (alpha) at 0.05 (95% Confidence Interval), power of 0.80 and expected effect size of 0.40 between the two groups of patients (before and after cosmetic surgery). The final sample size was calculated to be 100 participants based on the sample size table by Machin *et al.* (22). Given the subject matter, convenience sampling was used. Moreover, psychological assessments were administered to the same patients before cosmetic surgery as well as three to six months after surgery.

Prior to the psychological assessment, the patients were informed of the objectives and the research procedure. Having been ensured that their personal information would remain confidential, the patients were reminded that their refusal to participate in the study would not affect their treatment procedure. Having submitted their informed consent, the patients went through assessments. The inclusion criteria were informed consent for completing the assessment forms, willingness to undergoing rhinoplasty solely for cosmetic purposes, and absence of severe physical or mental illnesses. The patients who did not complete the follow-up stage (*i.e.*, three to six months after surgery) were excluded from the study.

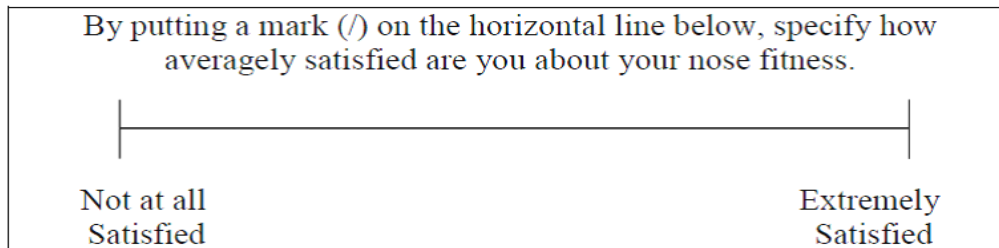
## Research Tools

**Beck Self-Concept Test (BSCT):** This test contained 25 items, each assessing five aspects including intellectual ability, working efficiency, physical attractiveness, social skills, and vices and virtues. The most positive response was assigned a numerical value of 5, while the most negative response was assigned a numerical value of 1. Using the test-retest method, Beck *et al.* (23) reported that the reliability coefficients were 0.88 and 0.65 after one and three months, respectively. The internal consistency of the BSCT was calculated to be 0.80. The concurrent criterion validity of the BSCT was calculated to be 0.55 by correlating the scores through the Rosenberg Self-Esteem Scale (23). The BSCT was standardized by Shamsi *et al.* (24) in Iran. The Cronbach's alpha was calculated to be 0.78. Moreover, there was a significantly positive relationship between the BSCT scores and the total scores of the Rogers Self-Concept Scale ( $p < 0.001$ ;  $r = 0.540$ ), which represented the convergent validity of the questionnaire (24).

**Satisfaction visual analogue scale (S-VAS):** A S-VAS for satisfaction is a horizontal line 100-mm long. At the beginning and at the end, there are two descriptors representing extremes of satisfaction (*i.e.*, not at all satisfied and extremely satisfied). The patient rated his satisfaction by making a vertical mark on the 100-mm line. The measurement in millimeters was converted to the same number of points ranging from 0 to 100 points. The exact question was, *Are you satisfied about your nose fitness?* Each patient responded twice to the scale, once before and once three to six months after the surgery. A standard explanation of how to fill in the VAS form was mentioned beneath the

VAS horizontal line. The S-VAS form is shown in the Figure 1. While confirming the validity and reliability of the S-VAS, extensive psychometric research has pointed

out that the VAS for assessment of the patient's satisfaction level is affected by the confounding factors less than Likert-scaled tests (25).



**Figure 1:** The Satisfaction visual analogue scale (S-VAS)

### Statistical analysis

The Shapiro-Wilk test was used to specify to what extent the data were normally distributed. The data were analyzed through the independent t-test and univariate analysis of covariance (UNIANCOVA) under a 2×2 factorial design. The effects of gender and time (before and after surgery) on self-concept and patient satisfaction were examined by controlling the demographic variables of age and marital status (dummy coding: 0=single, 1=married). The data were analyzed in SPSS Version.20 at significance level of 0.05.

### Results

A total of 100 applicants for cosmetic rhinoplasty participated in the study, of whom 79 were women and 21 were men (123 participants participated in the initial survey, of which only 100 were willing to cooperate). The mean age of the participants was 26.85±6.60 years, and the range was from 17 to 47 years old. Table 1 displays the demographic variables of all participants.

**Table 1.** Demographic characteristics of the applicants for rhinoplasty (N=100)

Characteristics		n
Marital status	Single	63
	Married	37
Job Status	Unemployed	1
	Self-employed	21
	Employee	19
	College student	24
	Housekeeper	35
Educational Level	Elementary	1
	Guidance	5
	High school	37
	Academic	57

Table 2 displays the statistical parameters, such as the mean and standard deviation, of self-concept scores by the male and female participants before and after surgery. There were no uni/multivariate outlier scores within the dependent variable (total score of self-concept) by independent variables. The results of Levene's test for univariate analysis of covariance indicated that the error variances of all groups were equal in self-concept as the dependent variable ( $p=0.233$ ,  $F=1.437$ ).

**Table 2.** The descriptive measures for the total score within the self-concept scale before and after surgery by gender (N=100)

Time	Gender	Mean±SD	n
Before	Female	80.58±92.28	79
	Male	83.00±7.27	21
	Total	81.09±8.92	100
After	Female	81.35±8.25	79
	Male	83.24±7.78	21
	Total	81.75±8.15	100
Total	Female	80.96±8.77	158
	Male	83.11±7.44	42
	Total	81.42±8.53	200

Table 3 displays the results of UNIANCOVA for the total score of self-concept scale before and after surgery by different gender groups under a 2×2 factorial design.

**Table 3.** The results of UNIANCOVA for the total score within the self-concept scale before and after surgery by gender (N=100)

Source	df	MS	F	$\eta^2$	p-value
Time	1	21.78	0.31	0.002	0.578
Gender	1	221.87	3.15	0.016	0.077
Error	195	446.55	6.35		

As indicated by the results of univariate ANCOVA in table 3, the effects of the surgery and patient gender on the self-concept total score were not significant. This implies that cosmetic rhinoplasty, as well as gender, did not leave any significant effect on the variability of self-concept, even after controlling for age and marital status. According to Eta Squared ( $\eta^2$ ), only about 1% of the variations in the self-concept scores could be explained by the independent variables time and gender. Table 4 displays the statistical parameters, such as mean and standard deviation, of satisfaction with nose fitness by the male and female participants before and after surgery. There were no uni/multivariate outlier scores within the dependent variable (total score of satisfaction with nose fitness) by independent variables. The results of Levene's test UNIANCOVA revealed that error variances of all groups

were equal in satisfaction with rhinoplasty as the dependent variable ( $p=0.650$ ,  $F=0.549$ ).

**Table 4.** The descriptive measures for the total score within the satisfaction with nose fitness scale before and after surgery by gender (N=100)

Time	Gender	Mean	SD	n
Before	Female	45.27	23.11	79
	Male	46.90	18.74	21
	Total	45.62	22.18	100
After	Female	73.16	23.53	79
	Male	70.47	23.07	21
	Total	72.60	23.34	100
Total	Female	59.22	27.13	158
	Male	58.69	23.94	42
	Total	59.11	26.43	200

Table 5 displays the results of UNIANCOVA for the total score of S-VAS before and after surgery by gender under a 2×2 factorial design.

**Table 5.** The results of UNIANCOVA for the total score within the satisfaction with nose fitness scale before and after surgery by gender (N=100)

Source	df	MS	F	$\eta^2$	p-value
Time	1	36396.02	70.10	0.264	0.0001
Gender	1	14.39	0.03	0.000	0.868
Error	195	519.17			

As indicated by the results of univariate ANCOVA in table 5, the effect of surgery on the total S-VAS score was significant. This implies that cosmetic rhinoplasty managed to enhance patient satisfaction even beyond the impacts of age and marital status. However, gender had no significant effect on satisfaction with nose fitness. The Eta Squared ( $\eta^2$ ) showed that 26% and 0% of the variations of S-VAS scores were covered by time and gender, respectively, as independent variables. In further sub-analyses, the results of an independent t-test suggested that there was no significant difference between men and women before surgery in terms of self-concept scores and satisfaction with nose fitness ( $p>0.05$ ). The insignificance of results between men and women in the postoperative

phase was replicated in terms of self-concept scores and satisfaction with nose fitness ( $p>0.05$ ). This finding suggests that enhanced satisfaction with nose fitness (table 5) and variability of self-concept scores (table 3) were not associated with the gender of patients.

## Discussion

This study intended to examine the effects of cosmetic rhinoplasty on self-concept and satisfaction with nose fitness. According to the results, the main effect of surgery on self-concept scores was not significant, whereas the results of the surgery on satisfaction with nose fitness were significant. This implies that cosmetic rhinoplasty managed to enhance patient satisfaction with nose fitness within 3 three to six months after surgery. These findings were not influenced by the gender of the patients and they were entirely obtained after controlling for age and marital status.

The results on the impact of cosmetic rhinoplasty on improvement of self-concept were inconsistent with a few studies (16) and consistent with others (17,18). Some researchers (27,28) believe that cosmetic surgeries can leave positive effects on body image (and possibly self-concept) after several years of follow-up. These results were inconsistent with those obtained by the current study. The main reason behind such discrepancy in the current study could be its short follow-up period (approximately three to six months). In addition, it is essential to consider the cultural difference between Iranian and Western societies. In this regard, it is worth noting that self-concept (overall perception of the self) can be influenced by social interactions and their feedbacks (10,11,12). Such positive self-concept in Iranian society is less dependent on physical

appearance and attractiveness than it is in Western societies. Nevertheless, it is a cross-cultural hypothesis requiring more in-depth studies. Moreover, we should not neglect the crucial influence of mass media (29) in both Western and Eastern societies.

Consistent with other studies (13,15), this study revealed that cosmetic rhinoplasty leads to greater patient satisfaction, particularly with nose fitness. The enhanced patient satisfaction after rhinoplasty can be associated with the expectations of beauty rather than the actual cosmetic surgery (30). In this regard, many rhinoplasty applicants believe that the appearance of their noses led to shyness, and that rhinoplasty made a difference in their lives (31). Moreover, people whose perceptions of their own attractiveness are negative or are dissatisfied with their appearance might find cosmetic surgery as a means to modify their damaged self-perception, achieving a higher level of satisfaction with beauty through attitudes toward esthetics (32). This finding was consistent with studies reporting improvement in body image after surgery (33). In addition, Festinger's theory (34) argued that the cognitive dissonance between the two propositions "failure to achieve tangible changes in facial beauty" and "bearing the economic consequences of surgery" compels the patient to tackle the disturbing dissonance with the new belief that "there have been positive changes in my face by performing rhinoplasty." The birth of this new belief may be involved in greater post-operative satisfaction of the patients with their physical appearance.

The motive for seeking cosmetic surgery can be influenced by a combination of cognitive, personality, and psychopathology factors (35,36). Hence, many of the

psychological problems with rhinoplasty can be solved by more extensive assessment of patients in terms of psychological and personality disorders, as well as explaining their interpersonal experiences under qualitative studies (before and long after surgery). However, surgeons believe that the actual appearance of newly operated nose surfaces at least six months after surgery, due to complications such as swelling and bruising over the first six-month period, makes it difficult to assess the changes in appearance and subsequently the individual attitudes. Hence, the time constraints in this study (*i.e.*, three to six months of follow-up) could have been effective in the post-operative assessments of rhinoplasty applicants. The data were self-reported, which may have increased the risk of bias and distortion in the responses. Finally, the small number of male samples and the lack of random sampling were the other limitations of the present study, leading to cautious generalization of the results.

## Conclusion

Although many rhinoplasty applicants were satisfied about the changes in their facial features three to six months after surgery, rhinoplasty seems to have failed to improve the patients' self-concept due to the multiple layers such as self-image, self-esteem and ideal self in patients.

## Conflict of Interest

The authors have no conflict of interest.

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