

Harmonizing Beauty and Function: A Comprehensive Exploration of Patient Satisfaction in Rhinoplasty

Ali Goljanian Tabrizi¹, Matin Ghazizadeh^{1*}, Zahra Rootivand¹

1. Department of Otorhinolaryngology, Head and Neck Surgery, Taleghani Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ABSTRACT

Background: Rhinoplasty has become a globally prevalent esthetic procedure, necessitating precise facial analysis and comprehensive preoperative planning for favorable postoperative outcomes. We aimed to assess patient satisfaction levels concerning nasal appearance following rhinoplasty.

Methods: A case series interventional study was conducted involving 52 subjects referred to Rhinoplasty Clinics of Taleghani Hospital, Tehran, Iran from Mar 2021 to Mar 2022. Patients' satisfaction levels were evaluated using a concise checklist before and three months after surgery.

Results: The mean age of the patients was 29.23 ± 7.26 years, with 19 (36.5%) being male. Statistically significant improvements were observed in all assessed factors, including nasal obstruction, nasal size, hump presence, nasal bridge width, nasal tip bulbosity, nasal deviation, radix, nostril asymmetry, and tip ptosis ($P < 0.001$). These findings reveal a consistent pattern of patients' satisfaction levels predominantly shifting from moderate to low across various aspects of nasal appearance post-rhinoplasty.

Conclusion: The study demonstrated a significant enhancement in patients' satisfaction with their nasal appearance following rhinoplasty, indicated by statistically significant changes across all assessed factors. However, certain aspects exhibit more limited enhancement.

KEYWORDS

Rhinoplasty; Patient Satisfaction; Aesthetic; Plastic Surgery

Please cite this paper as:

Goljanian Tabrizi A, Ghazizadeh M, Rootivand Z. Harmonizing Beauty and Function: A Comprehensive Exploration of Patient Satisfaction in Rhinoplasty. *World J Plast Surg.* 2024;13(1):43-49.

doi: 10.61186/wjps.13.1.43

*Corresponding Author:

Matin Ghazizadeh

Postal Address: Taleghani Hospital, Arabi St, Yaman Ave, Chamran Highway, Tehran, Iran.

Tel.: +98-21-23031317

Email: matinghazizadeh@hotmail.com

Received: 11/10/2023

Accepted: 2/16/2024

INTRODUCTION

Rhinoplasty, a surgical masterpiece aimed at the transformation and refinement of the nose's appearance, encompasses a meticulous process of reshaping the nasal framework, including bones, cartilage, and soft tissues, to achieve facial harmony and aesthetic excellence¹. The versatility of this procedure extends to a myriad of concerns, ranging from resizing the nose to sculpting the nasal tip or bridge, correcting asymmetry, or enhancing respiratory function². Notably, rhinoplasty has ascended to become one of the world's most frequently performed aesthetic surgeries, with an annual caseload surpassing 200,000, as reported by the American Society of Plastic Surgeons (ASPS)³. Yet, the path to successful postoperative outcomes in rhinoplasty is strewn

with challenges, necessitating meticulous facial analysis and comprehensive preoperative planning. This transformative procedure leaves an indelible mark not only on one's facial aesthetics but also on nasal functionality, ultimately influencing the individual's quality of life (QoL)^{4,5}. To ensure post-rhinoplasty patient satisfaction, surgeons dedicate substantial time to scrutinizing facial aesthetics and conducting a thorough examination of the patient's nasal anatomy, a cornerstone of precise surgical planning⁶.

While anthropometric parameters have historically guided surgical aesthetics, their general applicability has come under scrutiny⁷⁻⁹. Additionally, the dynamic nature of beauty standards becomes evident when considering a study on Italian models, underscoring the need for individualized and contemporary considerations in rhinoplasty planning¹⁰. Furthermore, the restoration or preservation of nasal airflow is a crucial objective in rhinoplasty¹¹. Nasal obstruction is a common concern among individuals seeking revision rhinoplasty¹². Interestingly, even in cases where rhinoplasty is primarily aesthetic, nasal function plays a pivotal role in postoperative satisfaction; studies indicate that patients experiencing postoperative nasal obstruction tend to evaluate their aesthetic outcomes less favorably¹³. Importantly, the psychological and personality traits of the patient interweave profoundly in this context^{14,15}.

Patient satisfaction, inherently subjective and qualitative, serves as the lodestar for gauging the success of rhinoplasty. Nevertheless, an intricate web of factors, including gender, patient perception, and preoperative priorities, converge to shape patient satisfaction and overall surgical outcomes. Thus, we aimed to meticulously evaluate patients' satisfaction levels regarding nasal appearance following rhinoplasty.

MATERIALS AND METHODS

Design

This case series interventional study was conducted to comprehensively assess patients' satisfaction levels with respect to nasal appearance following primary rhinoplasty between March 2021 and March 2022.

Participants

The study population comprised individuals who underwent primary rhinoplasty at the Rhinoplasty Clinics of Taleghani Hospital in Tehran, Iran. Inclusion criteria encompassed individuals aged 18 and above who provided informed consent. These patients originally sought treatment at the institution for nasal obstruction management and, during clinical evaluation, expressed concerns related to nasal aesthetics. Exclusion criteria included patients referred for revision rhinoplasty, those with any facial abnormalities or skin scarring on the nose, and individuals with systemic diseases (such as nasal polyps (NP), autoimmune conditions like Wegener's disease, coagulation disorders, or psychiatric illnesses including depression).

Data Collection

A convenience sampling method was employed for data collection. A proficient physician gathered baseline demographic information and assessed patients' satisfaction levels. Baseline demographic data included age, sex, and body mass index (BMI). The assessment of patient satisfaction was conducted using a self-developed checklist administered one day prior to hospitalization and three months after the surgical procedure.

Outcome

The primary outcome of this study was the determination of patient satisfaction levels post-rhinoplasty using a self-developed checklist. This comprehensive checklist encompassed various clinical aspects, including nasal obstruction, nasal size, presence of a hump, nasal bridge width, nasal tip bulbosity, nasal deviation, radix, nostril asymmetry, and tip ptosis.

Sample Size Determination

Sample size estimation was based on a moderate effect size of 0.5, a type 1 error level of 5%, a power of 80%, and accounting for a 5% attrition rate. The final sample size was determined to be 52 subjects.

Ethical Considerations

This study was conducted in full compliance with ethical standards and received official approval from the research and Ethics Committee of Shahid Beheshti Medical University (SBMU), Tehran, Iran under the ethics code IR.SBMU.MSP.REC.1400.544. All participants in the study provided written informed consent, ensuring their voluntary participation and understanding of the study's objectives and procedures. Stringent measures were implemented to uphold participant confidentiality, preserving their anonymity throughout the entire research process. Furthermore, the study protocol strictly adhered to the ethical principles and guidelines delineated in the Declaration of Helsinki of 2013, which serves as a foundational framework for conducting research involving human subjects.

Statistical Analysis

Quantitative variables were presented as mean \pm standard deviation (SD), while qualitative variables were expressed as frequency (%). To assess the changes in patient satisfaction levels before and after rhinoplasty, the marginal homogeneity test, which is a generalized version of the McNemar test specifically designed for situations involving three or more levels, was employed. The resulting p-values were reported to indicate the statistical significance of the observed changes. Data analysis was conducted using STATA version 17 statistical software, with a predetermined level of statistical significance set at $P < 0.05$.

RESULTS

A total of 52 patients undergone rhinoplasty participated in this study. The mean age of the patients was 29.23 ± 7.26 years, with 19 (36.5%) being male. The mean postoperative length of stay (LOS) was 2.33 ± 1.51 days. A summary of the baseline characteristics of the patients is presented in Table 1. Table 2 displays the comparisons of patients' satisfaction levels before and after rhinoplasty surgery. Statistically significant changes were observed in the subjects' opinions across all factors evaluated. The majority of changes in the subjects' opinions were noted to transition from the moderate to the low categories. Concerning the assessment of nasal appearance, among the 52 individuals, 36 (69.0%) experienced a shift from a moderate to a low response in the case of tip ptosis. Additionally, 26 (50.0%) individuals exhibited a transition from a moderate to a low response for other nasal attributes, including nasal obstruction, nasal hump, nasal bridge width, and nasal deviation. Moreover, there were notable changes in nostril asymmetry (25 individuals, 48.0%), nasal size (23 individuals, 44.2%), radix (23 individuals, 44.2%), nasal tip bulbosity (21 individuals, 40.3%), nostril size (21 individuals, 40.3%), and nasal projection (20 individuals, 38.4%), all shifting from moderate to low responses. In contrast, the lowest shift from a moderate to a low response was observed in nasal length, with only 9 individuals (17.3%) experiencing this change. These findings highlight a consistent pattern of patients' satisfaction levels predominantly transitioning from moderate to low across various aspects of nasal appearance following rhinoplasty. Figure 1 illustrates the ranking of the patients' Satisfaction concerning the assessment of nasal appearance.

Table 1: Baseline Demographic Characteristics of the Subjects

Parameters	Mean \pm SD and N (%)
Age, years	29.23 \pm 7.26
Length of stay (LOS), days	2.33 \pm 1.51
Sex; Female	33 (63.5%)
BMI, kg/m ²	22.48 \pm 2.51
Normal	42 (81.8%)
Overweight	9 (17.2%)
Obese	1 (2.0%)

SD: Standard Deviation, BMI: Body Mass Index

Table 2: Comparison of patients' satisfaction before and after surgery; N (%)

Parameters	Preoperative	Postoperative			P-value *
		Low	Moderate	High	
Nasal obstruction	Low	18 (34.6)	0 (0.0)	0 (0.0)	<0.001
	Moderate	26 (50.0)	2 (3.8)	0 (0.0)	
	High	4 (7.6)	2 (3.8)	0 (0.0)	
Nasal size	Low	13 (25.0)	0 (0.0)	0 (0.0)	<0.001
	Moderate	23 (44.2)	0 (0.0)	0 (0.0)	
	High	5 (9.6)	10 (19.2)	1 (1.9)	
Nasal hump	Low	7 (13.4)	0 (0.0)	0 (0.0)	<0.001
	Moderate	26 (50.0)	0 (0.0)	0 (0.0)	
	High	18 (34.6)	1 (1.9)	0 (0.0)	
Nasal bridge width	Low	19 (36.5)	0 (0.0)	0 (0.0)	<0.001
	Moderate	26 (50.0)	0 (0.0)	0 (0.0)	
	High	5 (9.6)	2 (3.8)	0 (0.0)	
Radix	Low	24 (46.1)	0 (0.0)	0 (0.0)	<0.001
	Moderate	23 (44.2)	0 (0.0)	0 (0.0)	
	High	3 (5.7)	2 (3.8)	0 (0.0)	
Nasal tip bulbosity	Low	2 (3.8)	0 (0.0)	0 (0.0)	<0.001
	Moderate	21 (40.3)	0 (0.0)	0 (0.0)	
	High	20 (38.4)	9 (17.3)	0 (0.0)	
Dissatisfaction with nasal shape	Low	1 (1.9)	0 (0.0)	0 (0.0)	<0.001
	Moderate	16 (30.7)	0 (0.0)	0 (0.0)	
	High	30 (57.6)	5 (9.6)	0 (0.0)	
Nasal deviation	Low	13 (25.0)	1 (1.9)	0 (0.0)	<0.001
	Moderate	26 (50.0)	0 (0.0)	0 (0.0)	
	High	9 (17.3)	3 (5.7)	0 (0.0)	
Nostril asymmetry	Low	13 (25.0)	0 (0.0)	0 (0.0)	<0.001
	Moderate	25 (48.0)	5 (9.6)	0 (0.0)	
	High	3 (5.7)	6 (11.5)	0 (0.0)	
Nostrils size	Low	18 (34.6)	0 (0.0)	0 (0.0)	<0.001
	Moderate	21 (40.3)	5 (9.6)	0 (0.0)	
	High	2 (3.8)	6 (11.5)	0 (0.0)	
Tip ptosis	Low	8 (15.3)	0 (0.0)	0 (0.0)	<0.001
	Moderate	36 (69.2)	0 (0.0)	0 (0.0)	
	High	7 (13.4)	1 (1.9)	0 (0.0)	
Nasal projection	Low	22 (42.3)	0 (0.0)	0 (0.0)	<0.001
	Moderate	20 (38.4)	5 (9.6)	0 (0.0)	
	High	0 (0.0)	5 (9.6)	0 (0.0)	
Nasal length	Low	23 (44.2)	0 (0.0)	0 (0.0)	0.002
	Moderate	9 (17.3)	13 (25.0)	0 (0.0)	
	High	0 (0.0)	3 (5.7)	4 (7.6)	

*Marginal homogeneity test.

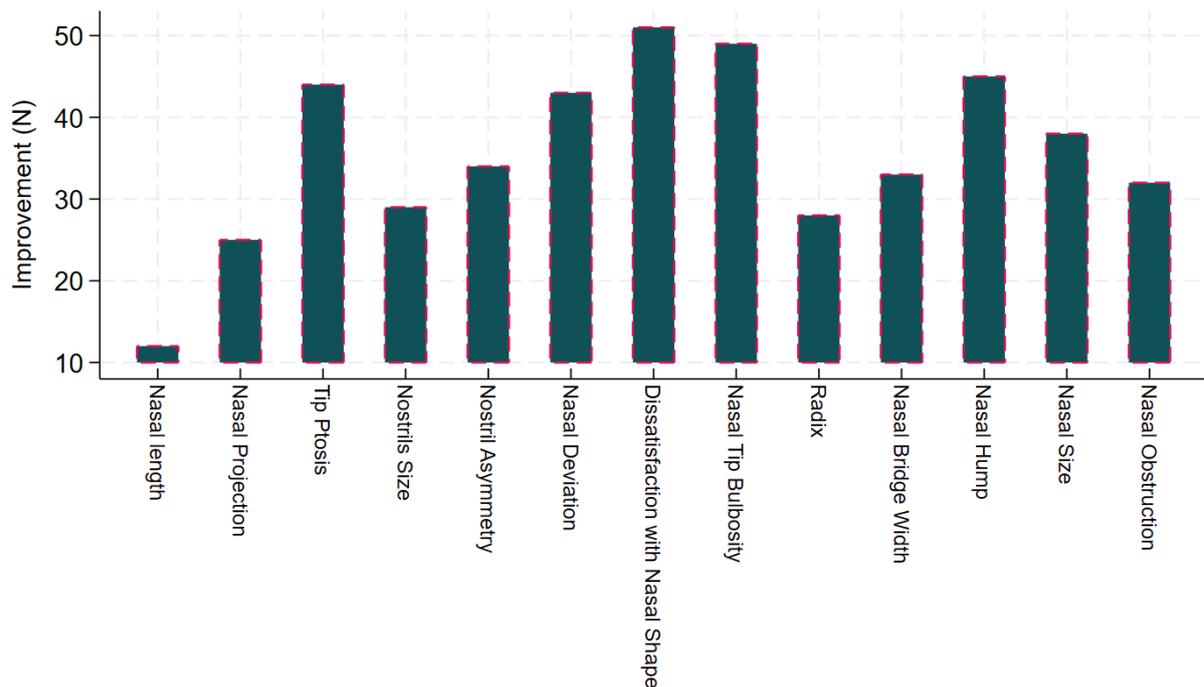


Figure 1: Ranking the patients' Satisfaction from high or moderate to low response (improvement) according to the factors of nasal appearance

DISCUSSION

This study delved into the realm of patient satisfaction following rhinoplasty, aiming to assess the impact of this transformative surgical procedure comprehensively. The results offer valuable insights into the multifaceted nature of patient satisfaction and its relation to various aspects of nasal appearance. The results of this study revealed that over 90% of patients, experienced significant improvements in various aspects following rhinoplasty, including the resolution of nasal congestion, substantial reduction in nasal hump occurrences, improved nasal bridge width and nasal radix, and enhanced satisfaction with the nasal tip, visible nasal deviation, and nasal tip ptosis. However, despite these notable changes, a minority of patients still reported moderate or high dissatisfaction levels postoperatively, particularly regarding nose size, nasal tip size, nostril asymmetry, nasal projection, and nose height.

Our study findings resonate with previous research examining patient satisfaction in the context of rhinoplasty. For instance, approximately 70% of patients were very satisfied, 20% were satisfied, and a minority expressed dissatisfaction with the outcomes of rhinoplasty¹⁶. Recent studies employing the Rhinoplasty Outcomes Evaluation

(ROE) questionnaire consistently observed significantly higher scores post-rhinoplasty, mirroring our results^{17, 18}. Additionally, studies investigating patient satisfaction using the FACE-Q questionnaire and social media platforms found significant improvements in various aspects of nasal appearance, in line with our findings^{19, 20}. Interestingly, our study also aligns with research that has identified discrepancies in satisfaction between surgeons and patients²¹. Furthermore, patients were significantly more satisfied with the appearance of their nose following rhinoplasty, reinforcing the robustness of our findings²².

The findings of this study have important implications for practice in the field of rhinoplasty. Plastic surgeons should engage in thorough preoperative discussions to manage patient expectations effectively, recognizing the potential for lingering dissatisfaction with specific aspects of nasal appearance postoperatively. A patient-centered approach is crucial, tailoring procedures to address individual concerns and priorities. The absence of standardized questionnaires underscores the need for their development to facilitate accurate assessments. Open communication between surgeons and patients is essential to bridge potential disparities in satisfaction levels. Continued research

with larger sample sizes and standardized tools is vital to validate and expand upon these findings, ultimately enhancing patient care. Postoperative support should be available to address lingering dissatisfaction and concerns. By implementing these implications, plastic surgeons can improve patient outcomes and satisfaction while offering patients a clearer understanding of the variability in post-rhinoplasty satisfaction levels.

It is imperative to emphasize the importance of conducting future studies with larger sample sizes and standardized questionnaires to validate these findings and gain a more comprehensive understanding of patient priorities and satisfaction in the context of rhinoplasty.

Limitations of the Study

Limitations of the study should be acknowledged when interpreting the results. The small sample size of rhinoplasty patients may limit the statistical power and generalizability of the findings, necessitating future research with larger cohorts to validate our results. Additionally, the use of a researcher-made questionnaire, due to the absence of a standardized tool for assessing patient's satisfaction in rhinoplasty, may hinder direct comparisons with other studies. Future investigations could explore potential differences in patient and surgeon satisfaction to provide a more comprehensive perspective.

CONCLUSION

A significant improvement in patients' satisfaction with their nasal appearance post-rhinoplasty, demonstrated by statistically significant changes across all evaluated factors. However, some aspects exhibit limited enhancement. This research provides valuable insights into the nuanced landscape of post-rhinoplasty satisfaction, acknowledging substantial improvements for most patients while highlighting that some individuals still contend with moderate to high dissatisfaction levels. These findings emphasize the importance of tailored preoperative discussions to align expectations with achievable outcomes. Additionally, our results contribute to the evolving understanding of rhinoplasty outcomes, aiding informed decision-making for both patients and practitioners.

ACKNOWLEDGMENTS

The current study was financed by SBUMS Deputy Research, Tehran, Iran. We appreciatively thank the Vice Chancellor for research, SBUMS.

CONFLICT OF INTEREST

None declared.

REFERENCES

1. Rohrich RJ, Ahmad J. Rhinoplasty. *Plastic and reconstructive surgery* 2011;**128**(2):49e-73e.
2. Daniel RK. The preservation rhinoplasty: a new rhinoplasty revolution. Oxford University Press US; 2018. p. 228-9.
3. de Souza OE, Lavinsky-Wolff M, Migliavacca RO, de Azeredo AM, Colognese Gabbardo AV, Velho JS. Analysis of Determinants of Postoperative Satisfaction After Rhinoplasty. *The Laryngoscope* 2022;**132**(8):1569-75.
4. Kotzampasakis D, Delistathi T, Kotzampasakis S, Mantalos P. Aesthetic Rhinoplasty and Nasal Obstruction: Presentation of Results of a 100-Patient Study by Using NOSE Inventory. *Aesthetic Plast Surg* 2019 Apr;**43**(2):428-36.
5. Wähmann MS, Bulut OC, Bran GM, Veit JA, Riedel F. Systematic Review of Quality-of-Life Measurement After Aesthetic Rhinoplasty. *Aesthetic Plast Surg* 2018 Dec;**42**(6):1635-47.
6. Woodard CR, Park SS. Nasal and facial analysis. *Clin Plast Surg* 2010 Apr;**37**(2):181-9.
7. Ballin AC, Carvalho B, Dolci JEL, Becker R, Berger C, Mocellin M. Anthropometric study of the caucasian nose in the city of Curitiba: relevance of population evaluation. *Braz J Otorhinolaryngol* 2018 Jul-Aug;**84**(4):486-93.
8. Gonzales PS, Machado CEP, Michel-Crosato E. Analysis of Neoclassical Facial Canons for Brazilian White Young Adults and Comparison With North American Caucasian Population. *J Craniofac Surg* 2020 Jul-Aug;**31**(5):e432-e5.
9. Zojaji R, Sobhani E, Keshavarzmanesh M, Dehghan P, Meshkat M. The Association Between Facial Proportions and Patient Satisfaction After Rhinoplasty: A Prospective Study. *Plast Surg (Oakv)* 2019 May;**27**(2):167-72.
10. Torsello F, Mirigliani L, D'Alessio R, Deli R. Do the neoclassical canons still describe the beauty of faces? An anthropometric study on 50 Caucasian models. *Prog Orthod* 2010;**11**(1):13-9.

11. Radulesco T, Penicaud M, Santini L, Thomassin JM, Dessi P, Michel J. Outcomes of septorhinoplasty: a new approach comparing functional and aesthetic results. *Int J Oral Maxillofac Surg* 2018 Feb;**47**(2):175-9.
12. Alsubeeh NA, AlSaqr MA, Alkarzae M, Aldosari B. Prevalence of considering revision rhinoplasty in Saudi patients and its associated factors. *Maxillofac Plast Reconstr Surg* 2019 Dec;**41**(1):59.
13. Yamasaki A, Levesque PA, Bleier BS, et al. Improvement in nasal obstruction and quality of life after septorhinoplasty and turbinate surgery. *Laryngoscope* 2019 Jul;**129**(7):1554-60.
14. van der Lei B, Bouman TK. Body Dysmorphic Disorder in Patients Seeking Abdominoplasty, Rhinoplasty, and Rhytidectomy. *Plast Reconstr Surg* 2016 Sep;**138**(3):553e-4e.
15. Ramos TD, de Brito MJA, Suzuki VY, Sabino Neto M, Ferreira LM. High Prevalence of Body Dysmorphic Disorder and Moderate to Severe Appearance-Related Obsessive-Compulsive Symptoms Among Rhinoplasty Candidates. *Aesthetic Plast Surg* 2019 Aug;**43**(4):1000-5.
16. Guyuron B, Bokhari F. Patient satisfaction following rhinoplasty. *Aesthetic Plast Surg* 1996 Mar-Apr;**20**(2):153-7.
17. Arima LM, Velasco LC, Tiago RSL. Nariz torto: avaliação de resultados em rinoplastia. *Brazilian journal of otorhinolaryngology* 2011;**77**:510-5.
18. Balikci HH, Gurdal MM. Satisfaction outcomes in open functional septorhinoplasty: prospective analysis. *J Craniofac Surg* 2014 Mar;**25**(2):377-9.
19. Schwitzer JA, Sher SR, Fan KL, Scott AM, Gamble L, Baker SB. Assessing Patient-Reported Satisfaction with Appearance and Quality of Life following Rhinoplasty Using the FACE-Q Appraisal Scales. *Plast Reconstr Surg* 2015 May;**135**(5):830e-7e.
20. Khansa I, Khansa L, Pearson GD. Patient Satisfaction After Rhinoplasty: A Social Media Analysis. *Aesthet Surg J* 2016 Jan;**36**(1):Np1-5.
21. Rezaei F, Rezaei F, Abbasi H, Moradi H. A Comparison of Doctor/Patient Satisfaction with Aesthetic Outcomes of Rhinoplasty: a Prospective Study. *J Med Life* 2019 Oct-Dec;**12**(4):374-80.
22. Yang F, Liu Y, Xiao H, Li Y, Cun H, Zhao Y. Evaluation of Preoperative and Postoperative Patient Satisfaction and Quality of Life in Patients Undergoing Rhinoplasty: A Systematic Review and Meta-Analysis. *Plast Reconstr Surg* 2018 Mar;**141**(3):603-11.