

Examining Preoperative Expectations and Postoperative Satisfaction in Rhinoplasty Patients: A Single-Center Study

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Abstract

Background: In Rhinoplasty, understanding patient expectations are pivotal in achieving an optimal surgical outcome.

Objective: To understand preoperative expectations and postoperative satisfaction in patients undergoing rhinoplasty for functional, aesthetic, or both.

Method: Adult patients undergoing functional, aesthetic, or combined rhinoplasty from March 2017 to June 2019 were prospectively enrolled. Only patients with complete preoperative functional and cosmetic expectation visual analog scales (VAS) and at least one postoperative functional and cosmetic satisfaction VAS were included. Nasal Obstruction and Symptom Evaluation Scale score and Standardized Cosmesis and Health Nasal Outcomes Survey score were also collected.

Results: In the functional subgroup (mean preoperative functional expectation VAS score [17.98 (22.49)] higher mean (standard deviation) postoperative functional satisfaction VAS score were observed at postoperative time interval <2 months [29.59 (27.08), $p=0.008$] and 8–12 months [31.43 (28.25), $p=0.035$]. In the aesthetic subgroup mean preoperative cosmetic expectation VAS score [89.69 (17.74)], lower mean postoperative aesthetic satisfaction VAS scores were observed at <2 months [79.09 (20.01), $p=0.0001$], 2–5 months [79.79 (20.79), $p=0.032$], 5–8 months [72 (18.27), $p<0.0001$], 8–12 months [78.15 (24.50), $p=0.021$], and >12 months [75 (20.64), $p=0.00020$]. In the combined subgroup (mean preoperative aesthetic expectation VAS score [85.85 (18.19)]), lower mean postoperative aesthetic satisfaction VAS scores were observed at 2–5 months [78.94 (20.88), $p=0.01$] and at >12 months [75.86 (25.57), $p=0.01$].

Conclusion: Although rhinoplasty patients tend to be less satisfied with aesthetic than the functional outcome of surgery, preoperative aesthetic expectations are higher in cosmetic rhinoplasty and functional and cosmetic rhinoplasty patients.

Introduction

Rhinoplasty affects both nasal breathing and nasal aesthetics. Hence, there is a consensus for assessing patients' nasal function and nasal aesthetics regardless of their presenting complaint.¹ The evolution and development of patient-reported outcome measure in rhinoplasty, where the concurrent assessment of nasal function and form is possible, reflect this consensus.² Apart from these assessments, there is an unmet need to evaluate patients' motivation for seeking nasal surgery and, more importantly,

their expectations of postsurgical results.¹ Expectation of the effectiveness of a procedure plays a vital role in patients' decision to undergo surgery.³

Surgeon skill and expertise alone do not yield a perceived optimal surgical outcome. Psychopathological comorbidities, unrealistic preoperative expectations of surgical outcomes, and inadequate understanding of the procedure further complicate an adequate patient selection process for nasal surgery.^{1,4} Although rhinoplasty procedures are known to improve self-esteem among

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KEY POINTS

Question: How do preoperative expectations and postoperative satisfaction in patients undergoing functional, aesthetic, and combined (functional and aesthetic) rhinoplasty compare?

Findings: Although there were no differences in preoperative functional expectations between groups, preoperative aesthetic expectations were higher in the aesthetic and the combined subgroup. Postoperatively, functional satisfaction was higher in the functional subgroup only. Aesthetic satisfaction was lower for the aesthetic subgroup despite improvement on subjective Standardized Cosmesis and Health Nasal Outcomes Survey scores.

Meaning: (1) Preoperative aesthetic expectations are higher in patients undergoing cosmetic and combined rhinoplasty. (2) Rhinoplasty patients tend to be more satisfied with the functional outcome than the aesthetic outcome.

those with concerns about their nasal appearance,¹ the profile of patients requesting nasal surgery for functional reasons is very different from those with aesthetic reasons.⁵ More importantly, there exists an increased prevalence of psychopathological comorbidities, specifically, body dysmorphic disorder, in patients seeking aesthetic rhinoplasty.^{6–8} Despite increased awareness, these psychopathological comorbidities remain mostly underdiagnosed in patients seeking rhinoplasty.⁸

It is paramount that a patient's expectations of their surgical outcome align with the surgeon during preoperative counseling. In most cases, it is possible to temper unrealistic expectations with adequate counseling. In instances where such realignment of expectations is unachievable, surgeons must explore the possibility of associated mental health diagnoses and reassess the necessity of a surgical option.¹ Pursuing a surgical option in patients with unrealistic expectations without adequate mental health screening will affect an otherwise optimal surgical outcome attributed mainly to patient dissatisfaction. Such dissatisfaction carries an inherent risk to both patient and surgeon safety in terms of physical harm and possible litigation.

Although there have been attempts to develop and validate instruments specifically to assess preoperative expectations in rhinoplasty,⁹ utilizable universal instruments for such purposes are scarce. This prospective study was, therefore, carried out to quantify and compare the preoperative expectation and postoperative satisfaction in patients undergoing functional, aesthetic, or combined (functional and aesthetic) rhinoplasty.

Methods

A prospective cohort study was undertaken at an academic facial plastic and reconstructive surgery practice after institutional review board approval. Patients who

underwent rhinoplasty by the senior author (S.P.M.) from March 2017 to June 2019 were enrolled.

The following clinical instruments were utilized for the study.

Visual analog scale

Patient's subjective preoperative expectation of their surgical results was assessed utilizing a stand-alone instrument. This instrument consisted of two visual analog scales (VAS; scale 0–100), one assessing preoperative functional expectation (Fig. 1a), and the second assessing the patient's preoperative aesthetic expectation. For the functional expectation VAS, "0" indicates no problem in nasal breathing, and "100" indicates a severe problem. For the aesthetic expectation VAS, "0" indicates no satisfaction with appearance and "100" indicates complete satisfaction. To assess postoperative patient satisfaction, a functional and aesthetic VAS (Fig. 1b) that mirrored the preoperative VAS was utilized.

Nasal obstruction symptom evaluation scale

The nasal obstruction symptom evaluation (NOSE) scale is a quality of life (QOL) instrument developed to assess nasal obstruction symptoms (Supplementary Fig. S1).^{10–12}

Standardized Cosmesis and Health Nasal Outcomes Survey

The Standardized Cosmesis and Health Nasal Outcomes Survey (SCHNOS) is a QOL instrument developed to assess both nasal obstruction symptoms and cosmesis in rhinoplasty patients (Supplementary Fig. S2).^{2,13–20} Questions 1–4 of the instrument constitute the obstruction domain (Standardized Cosmesis and Health Nasal Outcomes

a PREOPERATIVE EXPECTATION VAS

1) Please mark on this line how troublesome you expect your difficulty in breathing through your nose will be after surgery (Functional)

NONE (0) MEDIUM (50) SEVERE (100)

2) Please mark on this line how satisfied you expect to be with the appearance of your nose after surgery (Aesthetic)

NOT AT ALL (0) SOMEWHAT (50) VERY SATISFIED (100)

b POSTOPERATIVE SATISFACTION VAS

Please mark on this line how troublesome is your difficulty in breathing through your nose (Functional)

NONE (0) MEDIUM (50) SEVERE (100)

Please mark on this line how satisfied you are with the appearance of your nose (Aesthetic)

NOT AT ALL (0) SOMEWHAT (50) VERY SATISFIED (100)

Fig. 1. Preoperative expectation VAS (a) and postoperative satisfaction VAS (b). VAS, visual analog scale.

Survey (obstructive domain) [SCHNOS-O]) and questions 5–10 constitute the cosmesis domain (Standardized Cosmesis and Health Nasal Outcomes Survey (cosmetic domain) [SCHNOS-C]), with each domain producing a separate score.

Only 18 years or older patients with complete preoperative functional and aesthetic expectation VAS scores and at least one complete postoperative functional and aesthetic VAS were included in the study (Fig. 1a, b). Available pre- and postoperative NOSE and SCHNOS scores were also collected. Patients were divided into three subgroups based on the type of surgery: functional, aesthetic, and combined (functional and aesthetic). Postoperative time intervals were defined as <2, 2–5, 5–8, 8–12, and >12 months.

Data analysis

Demographic and operative details were collected for each subgroup. Three distinct statistical analyses were carried out:

- (1) A paired *t*-test was utilized to explore significant mean differences between preoperative expectation VAS score and postoperative satisfaction VAS scores within each subgroup at each postoperative follow-up interval.
- (2) One-way analysis of variance (ANOVA) was utilized to explore differences in preoperative expectation VAS scores and postoperative satisfaction VAS scores comparing subgroups. The significant differences were then assessed using a Bonferroni post hoc analysis.
- (3) A paired *t*-test was also utilized to explore significant mean differences between pre- and postoperative NOSE, SCHNOS-O, and SCHNOS-C scores within each subgroup at each postoperative follow-up interval.

A two-tailed $p < 0.05$ was considered significant. Data analysis was carried out in STATA/IC, release 14.2 (StataCorp, College Station, TX).

Results

The study consisted of 277 (functional-99, aesthetic-96, and combined functional and aesthetic-82) rhinoplasty patients. The mean age, years (standard deviation [SD]) of the patients were 40 (14.6) functional, 32 (9.9) aesthetic, and 34 (13.1) combined subgroups. Whereas 58 (59%) of the functional subgroup were males, 79 (82%) in the aesthetic subgroup, and 52 (63%) in the combined subgroup were females. Thirteen percent of patients in the functional, 22% in the aesthetic, and 14% in the combined subgroup were revision rhinoplasty patients. Range of follow-up period for the entire cohort was 13 days–2 years and 2 months.

Functional subgroup

The mean preoperative functional expectation VAS score (SD) of 17.98 (22.49) were significantly different from mean postoperative functional satisfaction VAS scores at postoperative time interval <2 months [29.59 (27.08), $p = 0.008$], and 8–12 months [31.43 (28.25), $p = 0.035$], only (Fig. 2a and Table 1).

The mean preoperative cosmetic expectation VAS score of 77.07 (22.91) was significantly different from mean postoperative aesthetic satisfaction VAS score at postoperative time interval <2 months [85.71 (18.14), $p = 0.006$], only.

Aesthetic subgroup

The mean preoperative functional expectation VAS score of 25.52 (25.50) was significantly different from the mean postoperative functional satisfaction VAS score only at postoperative time interval 8–12 months [10.37 (15.81), $p = 0.018$] (Fig. 2b and Table 1).

The mean preoperative aesthetic expectation VAS score of 89.69 (17.74) was significantly different from the mean postoperative aesthetic satisfaction VAS scores at every postoperative time interval: <2 months [79.09 (20.01), $p = 0.0001$], 2–5 months [79.79 (20.79), $p = 0.032$], 5–8 months [72 (18.27), $p < 0.0001$], 8–12 months [78.15 (24.50), $p = 0.021$], and >12 months [75 (20.64), $p = 0.0002$].

Combined subgroup

The mean preoperative functional expectation VAS score (SD) of 17.93 (17.97) was not significantly different from mean postoperative functional satisfaction VAS scores at any postoperative time interval (Fig. 2c and Table 1).

The mean preoperative aesthetic expectation VAS score (SD) of 85.85 (18.19) was significantly different from mean postoperative aesthetic satisfaction VAS score at postoperative time interval 2–5 months [78.94 (20.88), $p = 0.01$] and >12 months [75.86 (25.57), $p = 0.01$], only.

Differences in VAS scores between subgroups

Difference in preoperative functional expectation VAS scores between subgroups. A significant difference in mean preoperative functional expectation VAS scores were observed between functional 17.98 (22.49), aesthetic 25.52 (25.50), and combined 17.93 (17.97) subgroups [one-way ANOVA, $F(2,274) = 3.58$, $p = 0.029$] (Table 1). To explore differences between specific subgroups, a Bonferroni post hoc test revealed no significant difference in mean preoperative functional expectation VAS scores between functional and aesthetic subgroups ($p = 0.058$), aesthetic and combined subgroups ($p = 1$), and functional and combined subgroups ($p = 0.075$).

Table 1. Mean preoperative expectation (functional and aesthetic) visual analog scale score and mean postoperative satisfaction (functional and aesthetic) visual analog scale scores at five defined postoperative time intervals, by functional, aesthetic and combined subgroup

Functional only	Preoperative VAS	Postoperative satisfaction VAS									
		<2 Months	p	2–5 Months	p	5–8 Months	p	8–12 Months	p	>12 Months	p
<i>Functional expectation</i>		<i>Functional satisfaction</i>									
<i>n</i>	99	49		64		25		28		38	
Mean	17.98	29.59	0.008	19.06	1	22	0.606	31.43	0.035	20	0.233
SD	22.49	27.08		17.34		25.82		28.25		24.27	
<i>Aesthetic expectation</i>		<i>Aesthetic satisfaction</i>									
<i>n</i>	99	49		64		25		28		38	
Mean	77.07	85.71	0.006	79.38	0.876	86	0.101	72.86	0.85	78.68	0.660
SD	22.91	18.14		26.48		16.83		31.49		29.05	
<i>Aesthetic only</i>	<i>Functional expectation</i>	<i>Functional satisfaction</i>									
<i>N</i>	96	77		47		30		27		22	
Mean	25.52	22.73	0.514	20.43	0.198	21	0.407	10.37	0.018	14.55	0.091
SD	25.50	21.19		22.93		22.64		15.81		19.69	
<i>Aesthetic expectation</i>		<i>Aesthetic satisfaction</i>									
<i>n</i>	96	77		47		30		27		22	
Mean	89.69	79.09	0.0001	79.79	0.032	72	<0.0001	78.15	0.021	75	0.0002
SD	17.74	20.01		20.79		18.27		24.50		20.64	
<i>Combined only</i>	<i>Functional expectation</i>	<i>Functional satisfaction</i>									
<i>n</i>	82	53		47		29		27		29	
Mean	17.93	25.09	0.107	21.06	0.603	15.52	0.577	20.74	0.574	20	1
SD	17.97	25.47		22.58		19.01		27.31		24.35	
<i>Aesthetic expectation</i>		<i>Aesthetic satisfaction</i>									
<i>n</i>	82	53		47		29		27		29	
Mean	85.85	81.51	0.109	78.94	0.01	84.14	0.662	81.48	0.547	75.86	0.01
SD	18.19	20.42		20.88		18.62		22.65		25.57	

Significant *p*-values are in bold.

SD, standard deviation; VAS, visual analog scale.

Difference in preoperative aesthetic expectation VAS scores between subgroups. A significant difference in mean preoperative cosmetic expectation VAS scores were observed between functional 77.07 (22.91), aesthetic 89.69 (17.74), and combined 85.85 (18.19) subgroups [one-way ANOVA, $F(2,274)=10.31$, $p \leq 0.0001$]. Bonferroni post hoc test revealed statistically significant difference in mean preoperative aesthetic expectation VAS scores between functional and aesthetic subgroups ($p < 0.0001$), and functional and combined subgroups ($p = 0.010$), but not between aesthetic and combined subgroups ($p = 0.6$).

Difference in postoperative functional satisfaction VAS scores between subgroups. A significant difference in postoperative mean functional satisfaction VAS scores were observed between functional 31.43 (28.25), aesthetic 10.37 (15.81), and combined 20.74 (27.31) sub-

groups [one-way ANOVA, $F(2,79)=5.08$, $p = 0.008$] at postoperative time interval 8–12 months only. Bonferroni post hoc test revealed statistically significant difference in mean postoperative functional satisfaction VAS scores between functional and aesthetic subgroups ($p = 0.006$) only, but not between functional and combined subgroups ($p = 0.33$), aesthetic and combined subgroups ($p = 0.37$).

Difference in postoperative aesthetic satisfaction VAS scores between subgroups. A significant difference in postoperative mean aesthetic satisfaction VAS scores were observed between functional 86 (16.83), aesthetic 72 (18.27), and combined 84.14 (18.62) subgroups [one-way ANOVA, $F(2,81)=5.11$, $p = 0.008$] at postoperative time interval 5–8 months only. Bonferroni post hoc test revealed statistically significant difference in mean postoperative aesthetic satisfaction VAS scores

Table 2. Mean pre- and postoperative NOSE, SCHNOS-O, and SCHNOS-C scores at different postoperative time intervals, by functional, aesthetic, and combined subgroups

	Functional				Aesthetic				Combined			
	n	Mean (SD)	Range	p	n	Mean (SD)	Range	p	n	Mean (SD)	Range	p
NOSE												
Preoperative	99	71 (19)	10–100		96	22 (26)	0–95		82	66 (25)	0–100	
PO <2 months	49	27 (24)	0–100	<0.0001	77	23 (20)	0–70	0.731	54	24 (23)	0–100	<0.0001
PO 2–5 months	64	19 (16)	0–75	<0.0001	47	19 (18)	0–70	0.213	47	21 (22)	0–100	<0.0001
PO 5–8 months	25	20 (23)	0–95	<0.0001	30	17 (20)	0–70	0.282	29	14 (16)	0–70	<0.0001
PO 8–12 months	28	27 (26)	0–85	<0.0001	26	11 (17)	0–60	0.010	27	21 (27)	0–90	<0.0001
PO >12 months	37	23 (25)	0–100	<0.0001	22	14 (19)	0–70	0.599	28	22 (24)	0–80	<0.0001
SCHNOS-O												
Preoperative	78	73 (19)	10–100		84	21 (24)	0–80		73	65 (27)	0–100	
PO <2 months	40	32 (27)	0–80	<0.0001	70	27 (22)	0–75	0.081	49	26 (24)	0–100	<0.0001
PO 2–5 months	50	20 (20)	0–80	<0.0001	41	17 (17)	0–70	0.317	41	17 (20)	0–95	<0.0001
PO 5–8 months	19	22 (26)	0–85	<0.0001	25	17 (19)	0–55	0.363	26	14 (16)	0–70	<0.0001
PO 8–12 months	22	23 (21)	0–75	<0.0001	26	10 (13)	0–40	0.007	24	18 (21)	0–60	<0.0001
PO >12 months	28	26 (27)	0–80	<0.0001	18	13 (18)	0–65	0.778	26	21 (23)	0–75	<0.0001
SCHNOS-C												
Preoperative	78	29 (27)	0–87		84	58 (21)	10–93		73	59 (24)	3–100	
PO <2 months	40	10 (17)	0–60	0.002	70	16 (19)	0–100	<0.0001	49	16 (20)	0–87	<0.0001
PO 2–5 months	50	7 (14)	0–67	<0.0001	41	17 (19)	0–83	<0.0001	41	14 (16)	0–60	<0.0001
PO 5–8 months	19	6 (9)	0–23	<0.0001	25	20 (16)	0–57	<0.0001	26	10 (14)	0–47	<0.0001
PO 8–12 months	22	7 (14)	0–57	0.0009	26	24 (29)	0–77	<0.0001	24	12 (16)	0–53	<0.0001
PO >12 months	28	7 (12)	0–50	0.0001	18	22 (26)	0–93	<0.0001	26	19 (21)	0–80	<0.0001

Significant *p*-values are in bold.

NOSE, nasal obstruction and symptom evaluation; PO, post operative; SCHNOS-C, Standardized Cosmesis and Health Nasal Outcomes Survey (cosmetic domain); SCHNOS-O, Standardized Cosmesis and Health Nasal Outcomes Survey (obstructive domain).

between functional and aesthetic subgroups ($p=0.015$), and aesthetic and combined subgroups ($p=0.034$) but not between functional and combined subgroups ($p=1$).

NOSE score

Significantly lower mean postoperative NOSE scores were observed at all postoperative intervals ($p<0.0001$) compared with mean preoperative scores for both functional and combined subgroups (Table 2, Fig. 3a). For the aesthetic subgroup, a significantly lower mean postoperative score was observed at 8–12 months ($p=0.01$) only.

SCHNOS scores

For the SCHNOS-O score, mean postoperative scores were significantly lower at all postoperative intervals ($p<0.0001$) compared with mean preoperative scores for both the functional and combined subgroups (Table 2, Fig. 3b). For the aesthetic subgroup, a significantly lower mean postoperative score was observed at 8–12 months ($p=0.007$) only.

For the SCHNOS-C score, compared with the mean preoperative score, significantly lower mean postoperative scores were observed at postoperative time interval <2 months ($p=0.002$), 2–5 months ($p<0.0001$), 5–8 months ($p<0.0001$), 8–12 months ($p=0.0009$), and >12 months ($p=0.0001$) for the functional subgroup, and also at all postoperative intervals ($p<0.0001$) for aesthetic and combined subgroup (Table 2, Fig. 3c).

Discussion

This study is the first to prospectively examine patient expectations and satisfaction in rhinoplasty in conjunction with validated instruments for rhinoplasty and nasal obstruction and aesthetics. The presented results contribute to the limited evidence in the existing literature regarding preoperative expectation levels in patients undergoing rhinoplasty and their satisfaction level after surgery. VAS instruments were utilized to quantify levels of expectations and satisfaction for both nasal function and aesthetics. VAS was chosen for its simplicity as a subjective measuring instrument, involving minimal patient burden and being sensitive to small changes in assessing specific patient characteristics.²¹

There were no differences in postoperative functional satisfaction VAS scores at follow-up intervals 2–5, 5–8, and >12 months and preoperative functional expectation VAS score in functional rhinoplasty patients, indicating functional expectations were generally met postoperatively. Patients also reported lower mean NOSE and SCHNOS-O scores at all postoperative intervals than their preoperative level. In this subgroup of patients, the postoperative aesthetic satisfaction VAS score and preoperative aesthetic expectations VAS score was different only at follow-up interval <2 months, indicating aesthetic expectations were also generally met. Mean postoperative SCHNOS-C scores were lower at all follow-up intervals than their preoperative level. This helps validate functional rhinoplasty methods as having a minimal aesthetic impact as perceived by patients.

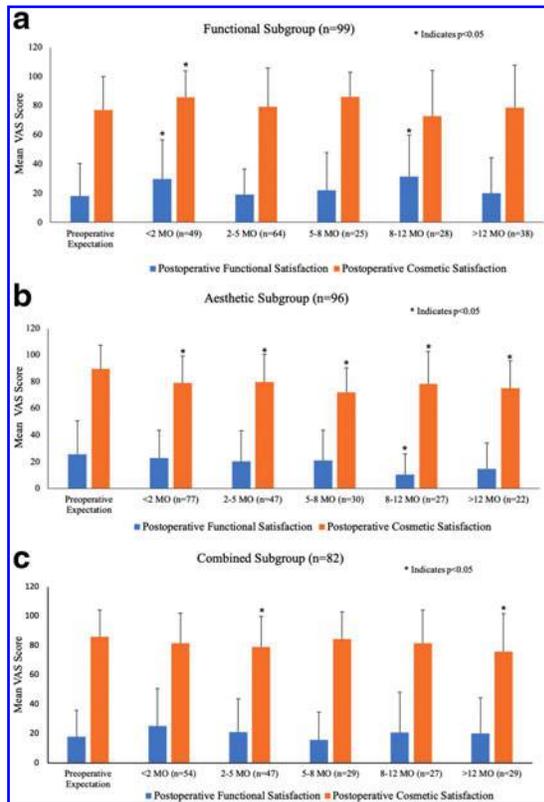


Fig. 2. Mean preoperative expectation VAS scores (functional and aesthetic) and mean postoperative satisfaction VAS scores (functional and aesthetic) at five postoperative intervals by functional (a), aesthetic (b), and combined (c) subgroups.

In aesthetic rhinoplasty patients, mean SCHNOS-C scores at all postoperative intervals were lower than their preoperative level, indicating a favorable surgical outcome. Despite the subjective postoperative improvement in this subgroup, lower aesthetic satisfaction VAS scores than preoperative aesthetic expectations were reported at all follow-up intervals, indicating that the aesthetic surgical outcome did not meet preoperative expectations at any follow-up interval. The postoperative functional satisfaction VAS score and preoperative functional expectations VAS score was different at follow-up interval 8–12 months only, indicating functional expectations in this subgroup were generally met. The mean postoperative NOSE and SCHNOS-O scores were not different from their preoperative level except at 8–12 months follow-up interval, normalizing at the longer (>12 months) follow-up period. Together, these factors suggest long-term structural airway compromise was avoided, as measured by these subjective instruments.

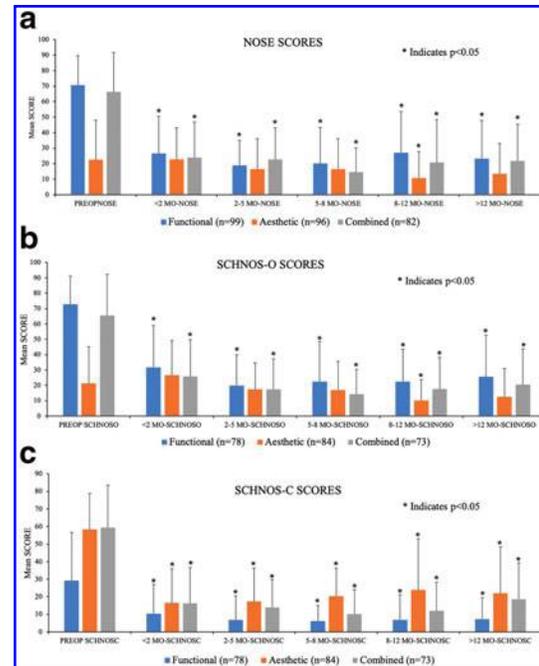


Fig. 3. Mean pre- and postoperative NOSE, SCHNOS-O, and SCHNOS-C scores at defined postoperative time intervals, in functional (a), aesthetic (b), and combined (c) patient subgroups. NOSE, nasal obstruction and symptom evaluation; SCHNOS-C, Standardized Cosmesis and Health Nasal Outcomes Survey (cosmetic domain); SCHNOS-O, Standardized Cosmesis and Health Nasal Outcomes Survey (obstructive domain).

In patients who underwent rhinoplasty for combined functional and aesthetic reasons, mean postoperative NOSE and SCHNOS-O scores were lower than the preoperative level at all postoperative intervals, indicating a subjective postoperative improvement in nasal breathing. Functional satisfaction VAS scores and preoperative functional expectation VAS score were not different at any postoperative interval suggesting, patients met functional expectations in this subgroup. Whereas postoperative aesthetic satisfaction VAS scores and preoperative aesthetic expectation VAS score were different at follow-up intervals 2–5 and >12 months, which implies that aesthetic expectations were not met. Patients in this subgroup report subjective postoperative improvement in nasal aesthetics demonstrated by lower postoperative SCHNOS-C scores across all follow-up intervals than preoperative levels.

Herein emerges a very discernable pattern in understanding preoperative expectations and satisfaction in rhinoplasty. Evidence from this study suggests that

when nasal surgery involves an aesthetic component, patient expectations of aesthetic postsurgical outcomes could be challenging to achieve compared with meeting expectations related to functional outcomes. This difference in achievable expectations depend on patient priorities and goals. Expectations in rhinoplasty are based on improvements on three dimensions: social impact, psychological factors, and aesthetic appearance.⁹ In aesthetic surgery, it is suggested that patients with higher expectations show more dissatisfaction postoperatively.⁹ Given the relatively high out-of-pocket costs for aesthetic surgery, there is a chance for greater discrepancy between expectations and postoperative satisfaction. In addition, patients with higher socioeconomic status have higher expectations regarding rhinoplasty.⁹ In a top-down model of sensory experience, whereby perception is influenced by data presented before a stimulus,²² preoperative imaging, although an invaluable counseling tool, can often affect the level of expectation for an aesthetic outcome.

Unrealistic expectations are known to result in dissatisfaction and lower health-related QOL.^{23,24} Hence, identifying patients with unrealistic expectations is imperative in minimizing post-treatment dissatisfaction. Studies in the field of psychology have suggested that sensory experience (i.e., perception) may be influenced by prior expectation.^{22,25–27}

This study is limited by the fact that the patients enrolled may not represent the general population as they were from a single surgeon practice part of a tertiary referral center with a majority female patient population. The VAS questionnaires that were utilized to assess preoperative expectations and postoperative satisfaction are not standardized or validated. None of the patients undergoing rhinoplasty for correction of their cosmetic components were screened for coexisting psychopathological conditions that could be potential confounders to the study results. Nevertheless, the results from this study support the absolute need to understand patient expectations better before surgery, as indicated in the Rhinoplasty Clinical Practice Guidelines.^{1,28}

Conclusion

Preoperative cosmetic expectations are higher in patients undergoing cosmetic and combined (functional and cosmetic) surgery compared with functional nasal surgery. Patients tend to be more satisfied with their functional outcome of their nasal surgery as opposed to postoperative cosmetic outcome, despite significantly improved subjective scores on the SCHNOS. This may be influenced by preoperative stimuli (photo simulations).

Author Disclosure Statement

No competing financial interests exist.

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Supplementary Material

Supplementary Figure S1

Supplementary Figure S2

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