

A PROSPECTIVE STUDY ON THE POSTOPERATIVE OUTCOMES OF OPEN SEPTORHINOPLASTY

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Abstract

Background: Septorhinoplasty is one of the most frequently performed reconstructive operations. Preoperative planning is crucial for selecting the right candidates for septorhinoplasty and obtaining good outcomes. This study aimed to prospectively evaluate patient satisfaction using the Septorhinoplasty Outcome Evaluation (SROE) questionnaire before and after functional septorhinoplasty. **Materials and Methods:** We carefully selected 30 patients who underwent external nose deformities with or without nose obstruction/nasal valve collapse. Satisfaction analyses were conducted using the SROE questionnaire before and at least four weeks after the surgery. Patients were divided according to age (≤ 30 vs >30 years) and follow-up duration of 1 to 12 months, and the mean differences between pre and postoperative SROE score was reported between both age groups. **Result:** Male predominance 27 (90%) was reported with a mean age of 30.1 ± 9.0 years. The most being crooked noses, 8 (27%) cases, followed by hump noses, 7 (23%) cases. The mean satisfaction score in all the patients significantly increased after functional septorhinoplasty (from 33.93 ± 2.22 to 40.85 ± 1.46). Sixteen patients were 30 years or younger, and 14 were older than 30. Moreover, the increment in mean satisfaction scores did not differ with age or follow-up duration. **Conclusion:** The study concludes that the ROE questionnaire can help surgeons select suitable candidates for functional septorhinoplasty who will most benefit from the surgery.

INTRODUCTION

Septorhinoplasty is a surgical procedure mainly aimed at working on the nose to give the patient both cosmetic and functional betterment.^[1] Septorhinoplasty modifies the nose's functional properties and aesthetic appearance through operative manipulation of the skin, underlying cartilage, bone, and lining.^[2] Septorhinoplasty is one of the most frequently performed reconstructive operations. The major indications for septorhinoplasty are cosmetic or cosmetic-functional. Often, patients request this procedure because they need to please other people or fulfil their social or professional ambitions; the surgeon is responsible for deciding whether to accept or refuse the patient's request.^[3] Preoperative planning is crucial for selecting the right candidates for septorhinoplasty and obtaining good outcomes. Before septorhinoplasty, the surgeon must meticulously examine the nose to determine the

underlying pathological condition and select the appropriate surgical procedure.^[4]

The surgical outcomes can be assessed using objective measures, examinations, and evaluating patients' subjective satisfaction using quality-of-life questionnaires. Quality of life refers to an individual's perception of their life situation, considering the cultural and value system they adhere to and their goals, expectations, standards, and concerns.^[3] Recently, numerous authors have tried to develop a dependable questionnaire for measuring patient satisfaction following cosmetic surgery.^[5,6] The Septorhinoplasty Outcome Evaluation (SROE) questionnaire was initially developed by Alsarraf et al. in 2001. It comprises six questions, two for each key factor contributing to patient satisfaction: physical, emotional, and social.^[7]

This study focuses on various deformities selected for surgery using an open approach and assesses their effectiveness through post-surgical follow-up. We conducted a prospective evaluation of subjective

satisfaction in 30 patients who underwent functional septorhinoplasty using the SROE questionnaire.

MATERIALS AND METHODS

This prospective study includes 30 patients with external nose deformities with or without nose obstruction/nasal valve collapse in the Department of ENT, Government Rajaji Hospital & Madurai Medical College, Madurai, from September 2017 to September 2019. Ethical committee approval and informed consent were obtained before the study started. Each patient underwent full clinical evaluation and CT facial bone/PNS.

Inclusion Criteria

Patients of either sex, ageing > 18 years, with Nasal trauma causing cosmetic and functional deformities that failed medical treatment, and patients with congenital nose deformities such as crooked, saddle, hump or poly beak were included.

Exclusion Criteria

Patients under 18 years and medical conditions such as craniofacial syndromes, sinonasal malignancy, chronic rhino sinusitis, radiotherapy to head & neck, and pregnant/lactating females were excluded.

Table 1: Septorhinoplasty outcome evaluation (SROE) instrument

Please circle the correct response. Do you like how your nose looks? Absolutely no (0) A little (1) Moderately (2) Very much (3) Absolutely yes (4)
Do you breathe well through your nose? Absolutely no (0) A little (1) Moderately (2) Very much (3) Absolutely yes (4)
Do you believe your friends and people dear to you like your nose? Absolutely no (0) A little (1) Moderately (2) Very much (3) Absolutely yes (4)
Do you think the current appearance of your nose hampers your social or professional activities? Always (0) Frequently (1) Sometimes (2) Rarely (3) Never (4)
Do you think your nasal appearance is as good as it could be? Absolutely no (0) A little (1) Moderately (2) Very much (3) Absolutely yes (4)
Would you undergo surgery to change your nose's appearance or improve your breathing? Definitely (0) Very likely (1) Possibly (2) Probably not (3) No (4)

Methodology

Clinical history followed by anterior rhinoscopy, external nose assessment, and diagnostic nasal endoscopy was done. Radiological evaluation on CT facial bones/PNS was done in frontal/basal/lateral views. After obtaining the patient's willingness, blood investigations and anaesthetic assessment were done. Surgery by an external approach using a similar technique by our surgeons in our department was carried out. Pre and postoperative evaluations of cosmetic and functional problems were studied using an SROE questionnaire. Just before surgery, the patient was given a questionnaire and asked to rate a

score ranging from 1 to 10. A total of 5 questions are asked, and 50 points are available for scoring. The total preoperative score was noted and proceeded with surgery. The follow-up of patients after one month, followed by the 3rd, 6th, and 12th months were studied with the help of the SROE questionnaire.

Statistical Analysis

SROE score and photographs are maintained for all 30 patients individually, and further statistical analysis will be carried out. Data collected were plotted and calculated in a Microsoft Excel sheet and analysed using SPSS-18 software. Postoperative outcomes in patients subjected to open septorhinoplasty were analysed using the Chi-square test based on the SROE scoring system in the 1st, 3rd, 6th month, and one year of their postoperative period. The value of $P < 0.05$ is considered statically significant.

RESULTS

Male predominance 27 (90%) was reported with a mean age of 30.1 ± 9.0 years. Out of 30 cases, there were different proportions of diagnostic cases selected for surgery, the most being crooked nose 8 (27%) cases, followed by hump nose 7 (23%) cases. Of all, only 5 (16.7%) cases were selected due to trauma-related deformities, and the rest 25 (83.3%) cases were non-trauma [Table 2].

The mean preoperative SROE score of the patient was reported to be 33.93 ± 2.22 (range 30-38), and the postoperative mean SROE score was 40.85 ± 1.46 (range 38-43). The difference was statistically significant ($p < 0.05$) [Figure 1].

Sixteen patients were 30 years or younger, and 14 were older than 30. The mean differences between pre and postoperative SROE scores were 6.63 ± 2.66 (range 4-13) and 7.25 ± 2.47 (range 4-13), respectively, between patients below 30 years and more than 30 years. However, the increase in subjective satisfaction after the surgery was similar in the two age groups ($p = 0.377$) [Table 3, 4].

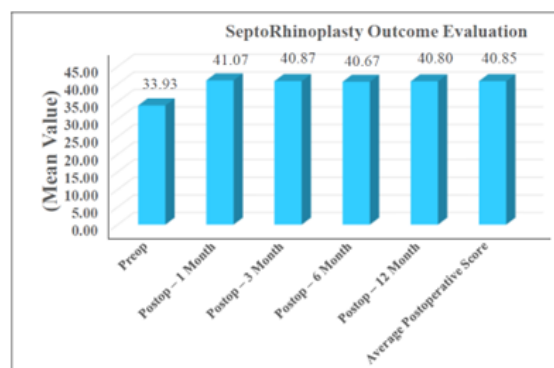


Figure 1: Observation of septorhinoplasty outcome evaluation among patients

Table 2: Observation of demographic and other parameters of patients

Parameters		Observation N (%)
Gender	Male	27 (90%)
	Female	3 (10%)
Age group	<30	16 (53.3%)
	≥30	14 (46.7%)
Age group (years) (mean± SD)		30.1 ± 9.0
Case distribution	Trauma	5 (16.7%)
	Non-trauma	25 (83.3%)
Type of Deformities	Crooked nose	8 (27%)
	Hump nose	7 (23%)
	Caudal dislocation	6 (20%)
	Alar collapse	4 (13%)
	Saddle nose	3 (10%)
	Tip deformity	2 (7%)

Table 3: Observation of SROE score of patients

SROE	Mean ± SD (Min, Max)	P-value
Preop	33.93 ± 2.22 (30, 38)	-
Postop – 1 Month	41.07 ± 2.01 (38, 45)	<0.001
Postop – 3 Month	40.87 ± 1.47 (37, 43)	<0.001
Postop – 6 Month	40.67 ± 1.49 (37, 43)	<0.001
Postop – 12 Month	40.80 ± 1.42 (38, 43)	<0.001
Average Postoperative Score	40.85 ± 1.46 (38, 43)	<0.001

Table 4: Observation of average differences between pre and postoperative scores in different age groups

Age Group (in yrs)	Frequency (N)	Average differences between pre and postoperative score	
		Mean ± SD (Min, Max)	P-value
<30	16	6.63 ± 2.66 (4, 13)	0.377
≥30	14	7.25 ± 2.47 (4, 13)	

DISCUSSION

Rhinoplasty presents a complex challenge in facial aesthetic procedures. When performed skillfully, it can yield satisfactory outcomes for the patient and the surgeon.^[8] Septorhinoplasty aims to achieve an aesthetically pleasing appearance and a functional airway.^[4] It is crucial to comprehend the patient's expectations regarding septorhinoplasty to achieve favourable results. Apart from patient expectations, preoperative considerations encompass breathing difficulties and aesthetic preferences. The patient's perception of the relative importance of these factors can influence the surgeon's approach. Patients who overly focus on minor imperfections might experience dissatisfaction even with excellent surgical outcomes. Additionally, individuals with breathing issues who would benefit from a more functional septorhinoplasty targeting a deviated septum or obstructive hypertrophic inferior turbinates may also desire a cosmetically appealing nose. Selecting appropriate candidates for septorhinoplasty can pose challenges for surgeons, but careful patient selection is vital to achieving optimal results.^[5]

Septorhinoplasty encompasses functional and cosmetic aspects associated with lower patient satisfaction rates. Patient satisfaction can be influenced by various factors, including life experiences, cultural backgrounds, and expectations, some of which may be practical and others not.^[9] Using a valid questionnaire to classify patients can assist surgeons in identifying individuals who would benefit the most from septorhinoplasty. Therefore,

employing a satisfaction scale before and after the surgery is reasonable. In recent years, numerous physicians have conducted studies to assess the effectiveness of satisfaction scales.^[10] One such scale is the ROE questionnaire, which allows cosmetic surgeons to subjectively and qualitatively analyse the outcomes of rhinoplasty. It is recommended for use in prospective studies.^[7,11] Izu et al. compared patients referred for septorhinoplasty with healthy volunteers to establish the reference range of ROE scores. Their findings revealed that healthy volunteers had a mean ROE score of 74.75, while septorhinoplasty candidates had a score of 27.5.^[6] While the ROE questionnaire has been utilised in recent studies, most of these investigations retrospectively calculated preoperative satisfaction scores based on preoperative photographs and patients' recollections. However, Alsarraf et al. and Meningaud et al. conducted prospective assessments to determine preoperative and postoperative satisfaction scores.^[7,10] These studies concluded that the SROE questionnaire is effective and suitable for preoperative and postoperative evaluations. Additionally, they observed an increase in SROE scores following septorhinoplasty and septoplasty. Arima et al. reported a mean SROE score increase from 24.6 preoperatively to 76.1 postoperatively in patients who underwent rhinoplasty for correcting a deviated nose.^[12] Similarly, Alsarraf et al. noted an increase in ROE scores from 38.8 (preoperative) to 83.3 (postoperative) in patients undergoing rhinoplasty, regardless of the surgical technique employed.^[7] Arima et al. suggested that the larger difference between their study's preoperative and

postoperative scores compared to the study by Alsarraf et al. (51.5 vs. 44.5) can be attributed to the lower average preoperative scores, which resulted from a higher proportion of patients with functional complaints.^[7,12] In our study, we observed a significant increase in mean SROE scores after functional septorhinoplasty (from 33.93 ± 2.22 to 40.85 ± 1.46). Moreover, our study's preoperative satisfaction scores were comparable to those reported by Arima et al., as all our patients underwent the procedure for functional reasons.^[12] The average preoperative satisfaction scores in our study were lower than those reported by Alsarraf et al., likely due to the mixed surgical indications in their study. However, all three studies share a common finding of increased postoperative satisfaction.^[7]

Age can play a significant role in determining patient satisfaction scores. Litner et al. found that younger patients tend to have higher expectations regarding the cosmetic outcome, potentially influenced by peer pressure and difficulty accepting changes to their self-image.^[13] Arima et al. reported that the average increase in satisfaction scores was lower in patients younger than 30 years compared to those aged 30 years or older.^[12] In our study, the mean differences between pre and postoperative SROE scores were higher in the age group over 30 years (7.25 ± 2.47) than those younger than 30 years (6.63 ± 2.66). These findings in our study align with the observations made by Arima et al. and Litner et al.^[12,13]

CONCLUSION

We concluded functional septorhinoplasty significantly increased the patients' satisfaction with the appearance of their noses, as assessed using the SROE questionnaire. Moreover, the increment in

patient satisfaction did not significantly differ with age or duration of follow-up. As an evaluation tool, we consider that the SROE questionnaire can help surgeons identify suitable septorhinoplasty candidates.

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