

## Quality of life assessment after rhinoplasty - result from a tertiary care center

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**Conflicts of Interest:** Nil

### Abstract

**Introduction:** The success of rhinoplasty is dependent on quality of life (QOL) as well as functional outcome. Limited QOL studies are available, and their utility are yet to be published successfully. In this prospective study we aimed to measure the objective result of rhinoplasty patients using Rhinoplasty outcome Evaluation a simple questionnaire.

**Methods:** 31 patients were selected from AIIMS New Delhi in ENT department between 2012 to 2013 and ROE was applied along with preoperative photographs to compare the changes post operatively.

**Results:** By analyzing the raw data there was significant changes in the quality-of-life outcome which was supplemented subjectively by Photographic changes

**Conclusion:** ROE scale and photo documentation are essential tools for rhinoplasty surgeons to objectify the surgical results.

**Keywords:** Rhinoplasty, ROE, Quality of Life, Facial photography

### Introduction

Facial asymmetry due to nasal deformities are central to society’s perception about person’s health and attractiveness and this plays an important role in social interaction and partner selection. The midface is the central feature of face which houses nose and its volume and proportion with respect to the face determines the beauty of a person. Cosmetic rhinoplasty is a surgical procedure to address the imperfection in nose to achieve good aesthetic results<sup>1</sup>. But many surgeons are criticized by their opponents as the results lacking substantive benefits. Yet the rhinoplasty clinics are flooded with patient testimonial to the contrary reflecting enormous positive and in many cases with good health related quality of life results. Rhinoplasty is fifth most common cosmetic surgical procedure worldwide, accounting for 8.8% of the total surgical procedures worldwide, as per

study in 2013<sup>2</sup>. Quantitative assessment of facial plastic procedures has become a standard norm now a days. There has been paucity of adequate literature which can measure the real gain from the surgical procedure and the surgeon and patients are left alike with the subjective measurement of patient satisfactions as the only real means of analyzing the results of such intervention. To compare the different surgical techniques, different approaches and in between surgeon comparison we must follow some standard methods which does all this in a objective fashion.

Application of outcome measurement requires the availability of standardized instruments or questionnaire that have been used previously by researchers showing their reliability and validity. We have used a simple questionnaire method like Rhinoplasty outcome evaluation (ROE)<sup>3</sup> to characterise our patient before and after intervention to quantify objectively the degree of improvement in functional as well as quality of life outcome. With the above background our current study was designed with an objective of assessing the cosmetic outcome of rhinoplasty using Rhinoplasty Outcome Evaluation questionnaire and facial photography before and after intervention.

### **Methods**

The study was conducted at AIIMS New Delhi during the Post graduation of author during March 2012 to October 2013. A total of 31 patients with various form of external nasal deformity were taken for study after obtaining necessary consent. The study was prospective in design and the outcome measures were assessed by using ROE using preoperative and post operative data assembly and by photography. Only those patients with nasal deformity giving written consent for surgery and Patients between 18 to 60 years without any significant

comorbidities were included in the study. Psychologically unstable patients having unrealistic expectation from surgery were excluded from study.

After enrolment in the study patients were subjected to detailed work up, which included thorough history taking and clinical examination. All the data regarding history, clinical findings, preoperative investigations, and photographic documentation were recorded prior to surgery in a specially designed proforma. Surgeries were done as per the individual requirements like Augmentation rhinoplasty, reduction, and corrective rhinoplasty tip plasty etc. Most surgeries were done under local anaesthesia except few which were done under general anaesthesia. All patients were administered the ROE questionnaires before surgery and 3 and 6 months after surgery. The photo documentation were done by comparing preoperative and 6 months post operative photographs

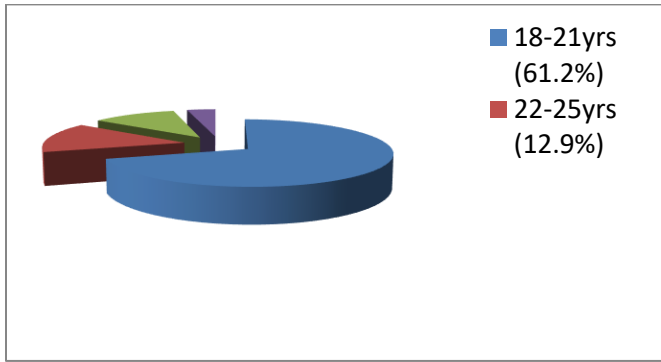
### **Statistical Analysis**

All statistical analysis were done using SPSS software with the help of statistician. Descriptive Statistics have been used to summarise the base line data. Paired t tests were used to analyse data before & after intervention involving 2 variables. Multivariate analysis & ANOVA was applied to compare the mean significant difference between scores in groups with multiple variables. P value  $\leq 0.05$  was considered significant.

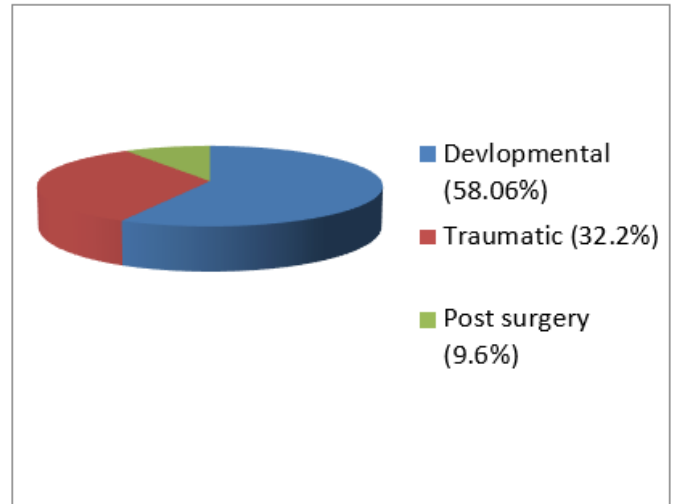
### **Observation And Results**

A total of 31 pts underwent the procedure between March 2012 to oct 2013 in the dept of ENT & HNS AIIMS of which 2 pts have not completed their 6 months follow up. Among the available pts, data was used to calculate the patient's satisfaction & improvement in QOL improvement before & after surgery. The patients profile is depicted in pie charts as follows:

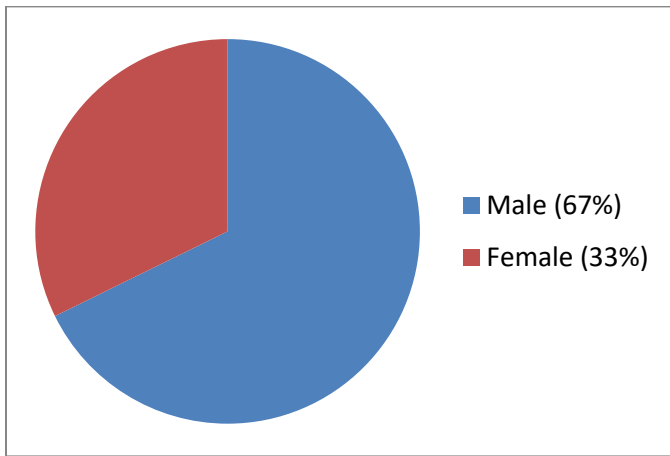
**Age**



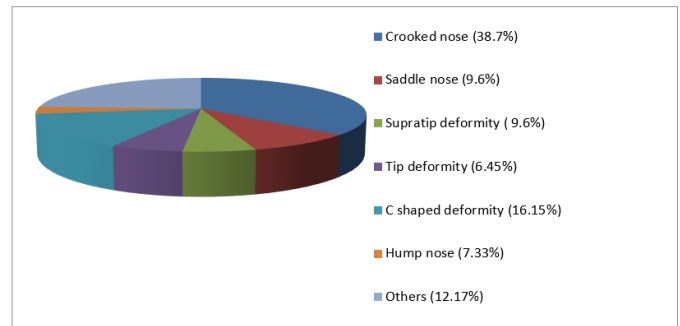
**Etiology of Deformity**



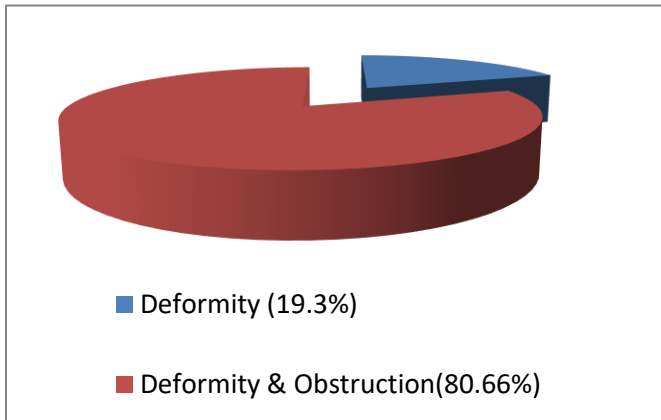
**Sex Distribution**



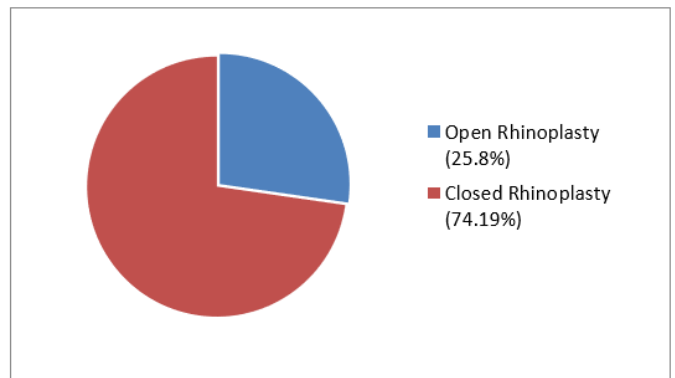
**Types of Deformities**



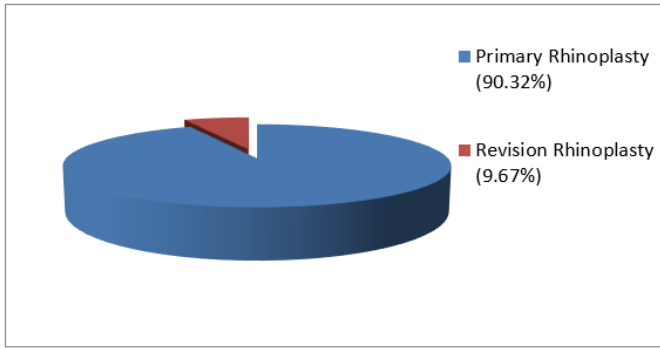
**Nature of complaints**



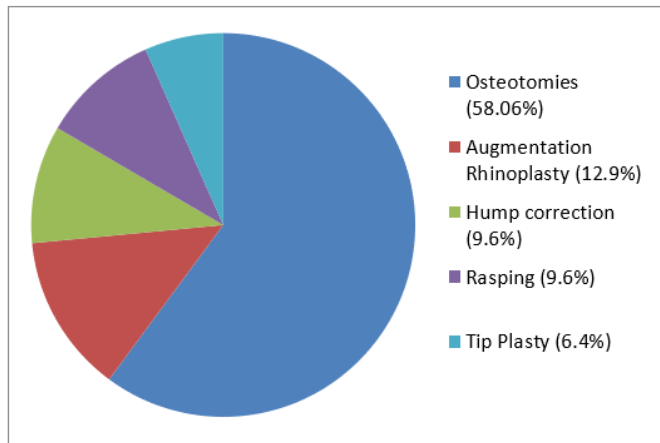
**Open /Closed Rhinoplasty**



### Stage of Surgery



### Techniques of Surgery



### Roe Scale

Roe	Mean	Standard Error	95% C I	
			Upper Bound	Lower Bound
0 Month	39.13	2.197	34.618	43.652
3 Month	51.23	1.798	47.537	54.928
6month	57.57	1.824	53.829	61.326

### Descriptive Analysis

The mean ROE scores for male & female before & after surgery and after primary and revision surgeries are compared in the following table.

### Comparison Among Sexes

SEX	MEAN	SD	N	P value
ROE0 M	39.41	11.53	21	0.006
F	18.57	11.58	10	
ROE3 M	50.46	9.83	21	0.038
F	52.77	8.59	10	
ROE6 M	56.75	9.4	21	0.292
F	59.21	9.8	10	

### Comparison between primary and revision surgery

Type of surgery	MEAN	SD	P value
ROE0 Primary	29.34	11.76	0.000
revision	22.55	09.22	
ROE6 Primary	62.38	10.04	0.001
Revision	31.22	9.333	

#### BEFORE SURGERY



#### AFTER SURGERY (6 MONTHS)



#### (FRONTAL VIEW)

#### BEFORE SURGERY



#### AFTER SURGERY (6 MONTHS)



#### (FRONTAL VIEW)



#### (OBLIQUE VIEW)



**(OBLIQUE VIEW)**



**(BASAL VIEW)**



**(LATERAL VIEW)**



**(LATERAL VIEW)**



**(BASAL VIEW)**

### Discussion

Surgeon has to be extremely cautious while selecting the patients who wish to go for a corrective rhinoplasty as the outcome is dependent upon multiple factors. Most of the dependent variables are complex. Surgeon's understanding of the nasal anatomy with aesthetic concept and patient's expectations have to be taken into account before operating on the patient to have a satisfactory outcome. But despite all necessary understanding of the complexities of surgery and its outcome surgeons invite trouble because of a mismatch between surgeons result and patients anticipation of the outcome. This subjectiveness has been studied by multiple authors and multiple attempts to simplify it have been reported.

The most important surgical outcome which has to be objectively assessed is quality of life and nasal obstructive symptoms. In this regard our simple questionnaire ROE is a much accepted method adopted by plastic surgeons and rhinologists. The questionnaire has obstructive symptom outcome question (Question number 2) and questions related to social acceptability, self perception of nasal symmetry and objective satisfaction all indicating quality of life of patients before and after surgery

In our series of patients we can see that mostly youngsters with external nasal deformity were selected with male predominance(67.74%). Nasal obstructive symptoms were rare and most patients underwent rhinoplasty to correct the deformity mainly. The most common deformity was crooked nasal deformity and surgeons mostly preferred closed rhinoplasty to correct the deformity. Most patients came for a primary rhinoplasty and a few subset opted for revision corrective surgery due to unsatisfactory result obtained from previous surgical procedure.

We applied the questionnaire in the form of Rhinoplasty Outcome Evaluation pre operatively and after three months and six months after the procedure. Two follow up were done to see for any extra benefit after prolonged period as there is tissue remodeling soon after surgery and it may continue till long. The answers from individual patient were analysed & mean value was obtained. The mean value of satisfaction (in terms of cosmetic & respiratory function) obtained was 39.13% preoperatively which improved to 51.23% after 3 months of surgery & 57.57% after 6months of surgery which can be considered to be significant change. Study by Izu SC<sup>4</sup> et al administered an easy-to-use questionnaire(ROE) that allows comprehensive assessment of rhinoplasty-related patient satisfaction in 62 patients. The case's mean score was 6.6 or 27.5% (SD 3.18; min 0; max 15) and control's mean score was 17.94 or 74.75% (SD 3.91; min 7; max 24). The best cutoff was 12 or 50%, with 95.16% sensitivity and 95% specificity.

For comparison among sexes the average mean ROE score was taken into account. As we can see the average mean score for female is 50.191 whereas for male patients it is 48.877. Although the improvement as

depicted in the graph is marginally higher in case of female (in terms of quality of life & respiratory function) , the change is statically insignificant.(p value 0.737). Another comparative study was done among primary and revision cases in which we obtained a mean improvement of score from 29.34 to 62.38 and to 22.55 to31.32 respectively after the end of 6 months. We can see that primary surgical outcome can be more pleasing than revision cases which could be due to more surgical scarring or the patient anticipating an unrealistic expectation. In a similar Study by G B. Faidiga, Lucas, R<sup>5</sup> for long term objective assessment of degree of patient satisfaction one year after rhinoplasty using the Rhinoplasty Outcome Evaluation questionnaire, obtained a mean value of 72.25% of satisfaction for primary rhinoplasty and a mean value of 72.02% of satisfaction for secondary rhinoplasty.

Photography was used in our patients to demonstrate the quality of intervention and document proven benefit. Despite taking objective methods of assessment we resorted to standard photography for pre operative planning, comparing pre and post intervention results and for medicolegal documentation . Standard photography described in literature includes frontal view oblique views, basal views and smiling views even when objective results are used, patients often rely on measurement taken from photos or observers opinion from photos.<sup>6 7,8</sup> The end objective of rhinoplasty was fundamentally to alter the patients psyche in a positive manner. By making what the patients perceive as improvement in appearance, the patient's self-perception of his/her body is changed, resulting in an impact on the patients well-being and conduct.

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