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Clinical and Psychosocial Outcomes of Rhinoplasty: A Prospective Study Using Glasgow Benefit Inventory

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Abstract:

Background:

Rhinoplasty presents a unique challenge to facial cosmetic surgeons due to the intricate nasal anatomy, lack of standardization in surgical approaches, and the diverse expectations of patients. This study aims to address the growing trend of rhinoplasty among young individuals, focusing on the need for comprehensive data collection and outcome analysis. Patient-reported outcomes, particularly quality of life (QOL) assessments, are gaining significance in evaluating the success of facial cosmetic procedures.

Methodology:

A prospective longitudinal study was conducted on 30 patients with various forms of nasal deformities at SLN Medical College and Hospital, Koraput, Odisha. Surgeries were performed by senior consultants, and the outcomes were analyzed using the Glasgow Benefit Inventory (GBI). Patients were assessed using GBI questionnaires in English and Hindi at 3 and 6 months post-surgery. Inclusion criteria involved patients aged 18 to 60 with parental support and consent for rhinoplasty, while exclusion criteria included psychologically unstable patients and those medically unfit. Detailed preoperative evaluations, standardized surgeries, and postoperative assessments were conducted.

Results:

Among 31 patients undergoing rhinoplasty, the most common deformity was a crooked nose (38.7%). The mean total GBI score was 63.21, with significant differences observed in total scores, general benefit, and social support scores over 3 and 6 months. Descriptive analysis revealed no

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significant differences between male and female patients or among different forms of nasal deformities. The study indicated an overall improvement in health status, with a notable impact on general benefit and social support.

Discussion:

Surgeons undertaking rhinoplasty must navigate the complex interplay of nasal anatomy and psychosocial expectations. Patient satisfaction, a key metric, necessitates scrutiny of surgical outcomes. This study employs GBI, a validated post-intervention questionnaire, to comprehensively assess clinical, QOL, and psychological improvements. The positive results underscore the significance of aesthetic and functional rhinoplasty in enhancing the QOL of the study population.

Conclusion:

This study concludes that rhinoplasty positively impacts patients' psyches by improving their self-perception and overall well-being. Through meticulous preoperative assessment, proper patient selection, and standardized surgical procedures, rhinoplasty can achieve excellent clinical and psychological outcomes. The Glasgow Benefit Inventory emerges as a vital tool for post-intervention assessment in rhinoplasty studies.

Keywords: Rhinoplasty, Nasal Deformity, Quality of Life, Glasgow Benefit Inventory, Patient Satisfaction, Clinical Outcome, Psychosocial Impact

Introduction

Rhinoplasty presents a unique challenge for facial cosmetic surgeons due to the intricate anatomy of the nose, the absence of standardized surgical approaches, and patients' often unrealistic expectations. The roots of corrective nasal surgery can be traced back to the Edwin Smith Papyrus, an Ancient Egyptian medical text dating from 3000 to 2500 BC. Cosmetic correction of nasal deformities is also documented in the Sushrata Samhita, an ancient Indian text authored by Sushruta around 800 BC, highlighting nasal reconstruction techniques.

In contemporary times, there is a rising trend among young individuals opting for various plastic surgical procedures to reshape different body parts. Rhinoplasty stands out as the most common procedure performed on teenagers, followed by augmentation mammoplasty, otoplasty, and liposuction. Despite this surge in procedures, the medical literature lacks comprehensive studies examining this trend and analyzing outcomes, especially within this significant demographic. Collecting data and exploring success rates are imperative to understand the intricate interplay between patient motivation, expectations, and surgical outcomes.

Evaluation of facial cosmetic procedure outcomes often relies on subjective improvements reported by the patients, influenced by functional, social, and psychological factors. Patient-reported outcome measurements have gained prominence, particularly focusing on Quality of Life (QOL) assessment tools as objective indicators of overall health intervention benefits.

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Whether disease-specific or generalized, QOL assessment has become a standard method for objectively evaluating patient outcomes.

The success of rhinoplasty hinges on proper patient selection, a profound understanding of nasal framework basics, grasp of surgical dynamics, and the development of an aesthetic concept for the ideal nose shape. To address the subjectivity inherent in these assessments, the present study aims to evaluate clinico psychological outcomes using the Glasgow Benefit Inventory, a validated QOL assessment questionnaire method.

Materials and Methods

The study focused on 30 patients with various forms of nasal deformities within a tertiary healthcare setting. Senior consultants, including the author as an assistant, conducted the surgeries at SLN Medical College and Hospital, Koraput, Odisha. This prospective longitudinal study aimed to analyze the outcomes of rhinoplasty in terms of Quality of Life (QOL) using the Glasgow Benefit Inventory (GBI) questionnaire. Patients received both English and Hindi versions of the questionnaire at 3 and 6 months post-surgery. The participants were informed about the study's purpose, motivated to participate, and assured of the confidentiality of their involvement.

Inclusion Criteria:

- Patients with nasal deformities consenting to Rhinoplasty with parental support.

- Patients aged >18 and <60 years without severe comorbidities.

Exclusion Criteria:

- Psychologically unstable patients with unrealistic surgery expectations.

- Patients under 18 or over 60 years old or medically unfit.

Patient Evaluation:

After enrollment, patients underwent a comprehensive workup, including detailed history and clinical examination. A specially designed proforma recorded data on history, clinical findings, preoperative investigations, and photographic documentation before surgery.

Surgery:

The surgical approach was standardized based on individual patient needs, such as augmentation, reduction, corrective rhinoplasty, and tip plasty.

Postoperative Evaluation:

Patients were assessed for QOL using the Glasgow Benefit Inventory at 3 and 6 months for comparison. Demographic data, including age, sex, type of rhinoplasty (open vs. closed, primary vs. revision), and medical history, was collected for all patients.

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The Glasgow Benefit Inventory:

The GBI is a validated post-intervention questionnaire designed to assess surgical outcomes, especially for head and neck procedures, including nasal corrective procedures. It gauges changes in health status, encompassing general perception of well-being and total psychological, social, and physical well-being.

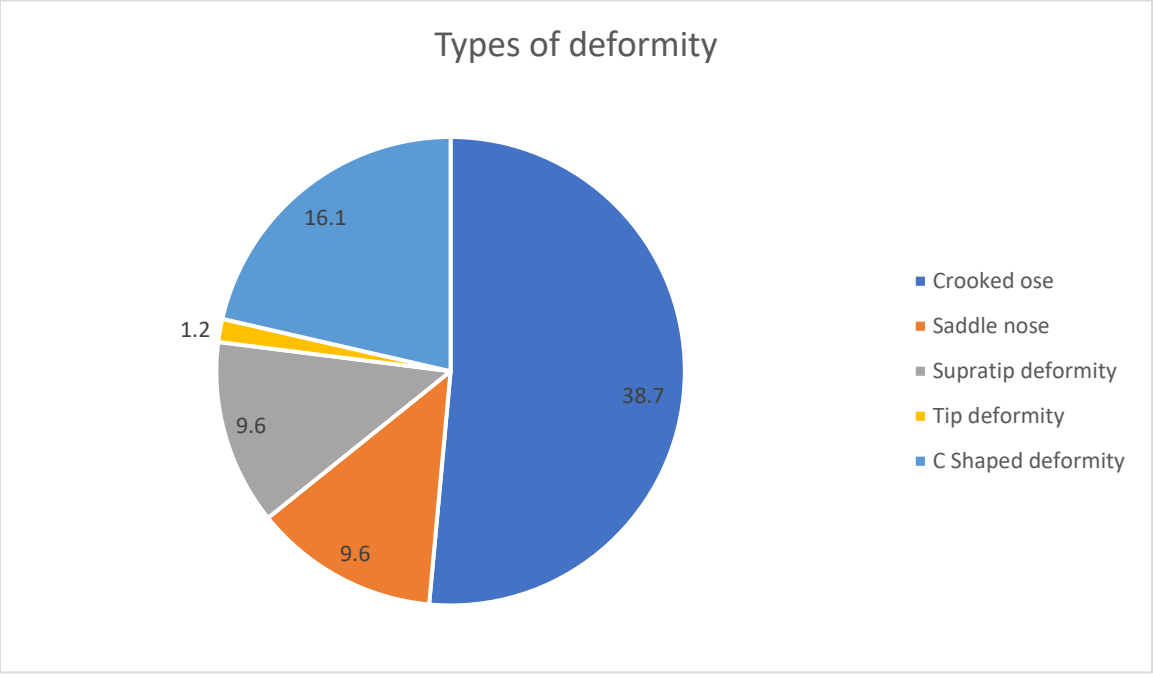
The GBI comprises 18 questions on a 5-point Likert scale, measuring patient benefit from surgical intervention. It includes three subscales: general benefit (12 questions), social support (3 questions), and physical health status (3 questions). The GBI was used to assess potential improvements in health status among patients undergoing rhinoplasty.

Statistical Analysis:

All statistical analyses were performed using SPSS software with the assistance of a statistician. Descriptive statistics summarized baseline data, while paired t-tests analyzed data after intervention at 3 and 6 months. Multivariate analysis and ANOVA were applied to compare mean significant differences between scores in groups with multiple variables. A significance level of $p \leq 0.05$ was considered.

Results:

A total of 31 patients underwent the procedure between April 2018 and November 2019 in the Department of ENT & HNS, SLN Medical College and Hospital, Koraput, of which 2 patients were lost to follow up. Among the available patients, data was utilized to calculate patient satisfaction and improvement in Quality of Life (QOL) after surgery.



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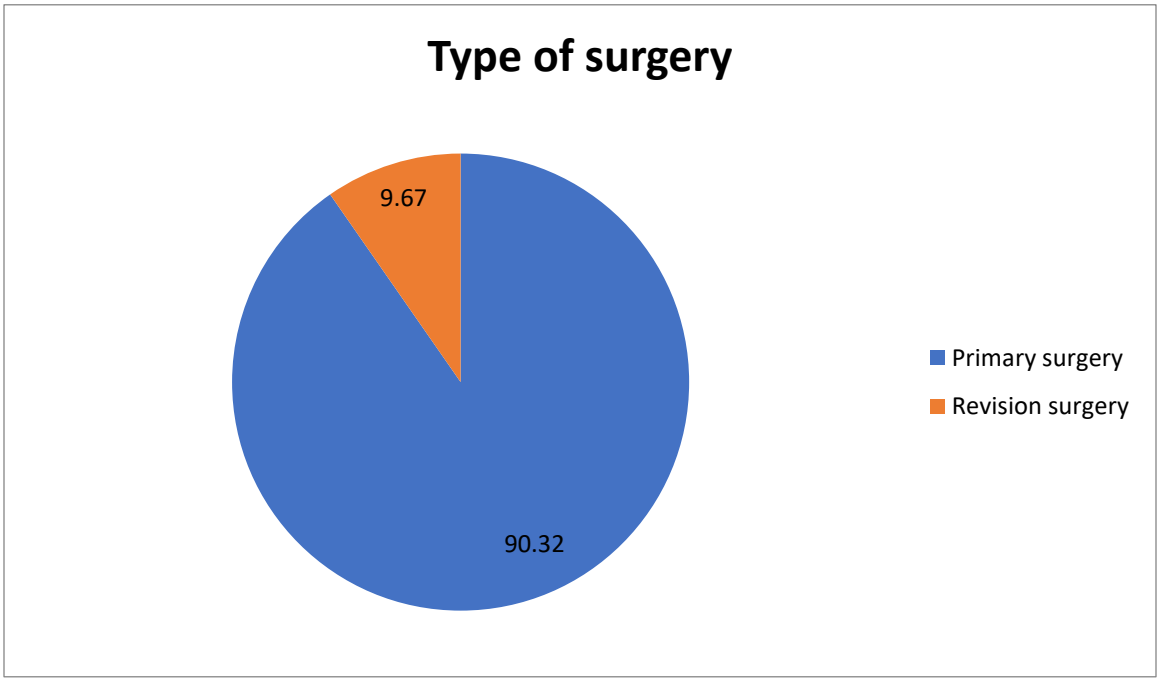
The most prevalent nasal deformity observed among the patients was a crooked nose, accounting for 38.7% (12 patients). Other deformities included saddle nose (9.6%), supratip deformity (9.6%), tip deformity (6.45%), and 'C'-shaped deformity (16.1%) of the total study population.



Out of the total 31 patients, 28 (90.32%) were primary candidates for surgery, and 3 (9.67%) were revision cases, having been operated on at our institute or elsewhere.

SCALE & SUBSCALE	MEAN	SD	STANDARD ERROR OF MEAN	P VALUE
TOTAL 3 month 6month	 53.86 63.21	 5.42 4.60	 0.943 0.802	0.040
GENERAL BENEFIT 3 MONTHS 6 MONTHS	 54.28 65.02	 7.75 7.21	 1.35 1.25	0.000
SOCIAL SUPPORT 3 MONTH 6 MONTH	 53.02 64.13	 14.70 15.09	 2.55 2.62	0.006
PHYSICAL HEALTH 3 MONTH 6 MONTH	 53.53 55.55	 14.88 13.60	 2.59 2.36	0.292

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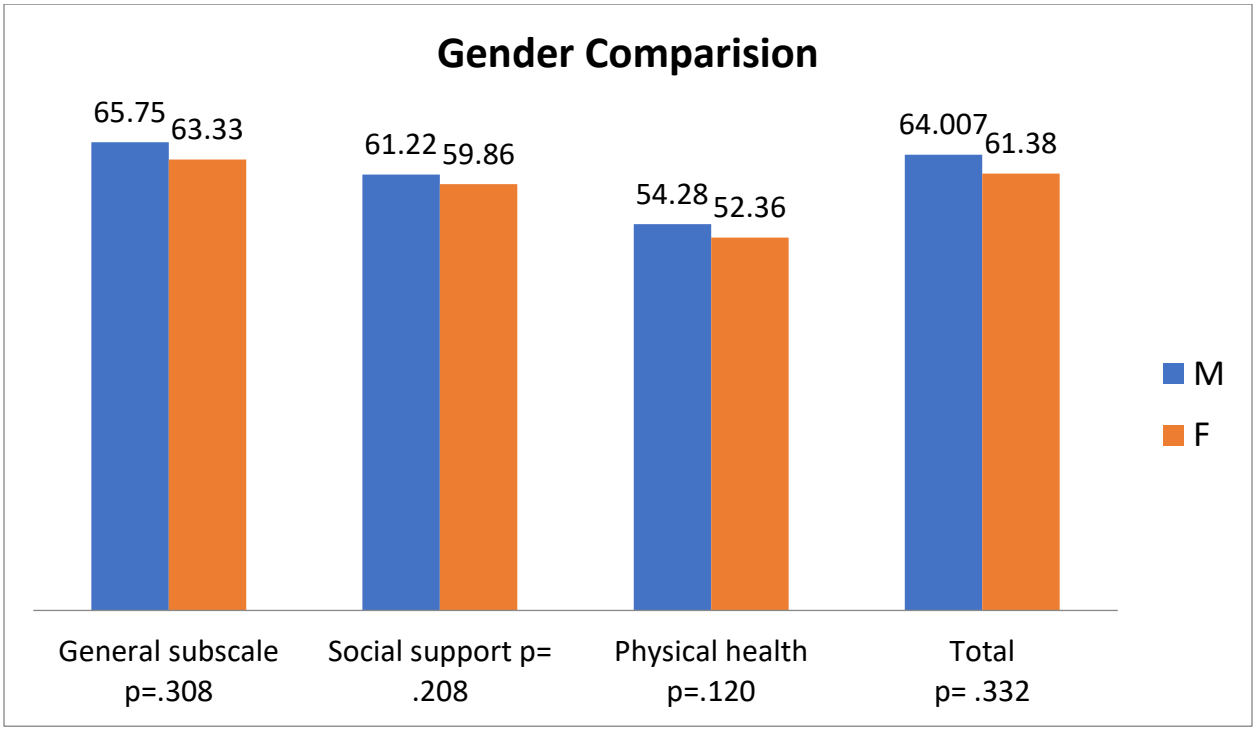
The mean total GBI score was 63.21, with the mean general subscale score at 65.02, mean social support score at 64.13, and mean physical health score at 55.55. An exploratory analysis was conducted to assess the effect of follow-up time on patient benefit from rhinoplasty. Significant differences were observed in the total scores, general benefit score, and social support score (indicated in the table with corresponding 'p' values). However, the mean score for physical health did not show any significant differences (p-value 0.292).

VARIABLES	**GRAND MEAN**	**SE**	**95 % CI**	
			LOWER BOUND	UPPER BOUND
TOTAL GBI SCORE	62.693	0.806	61.047	64.340
MALE	64.007	0.888	62.194	65.820
FEMALE	61.380	1.346	58.630	64.130

Descriptive Analysis: Comparison between Male & Female (Total Score & Individual Score):



No significant differences were observed in the grand total mean score as well as individual scores between males and females (p-values mentioned in the table).

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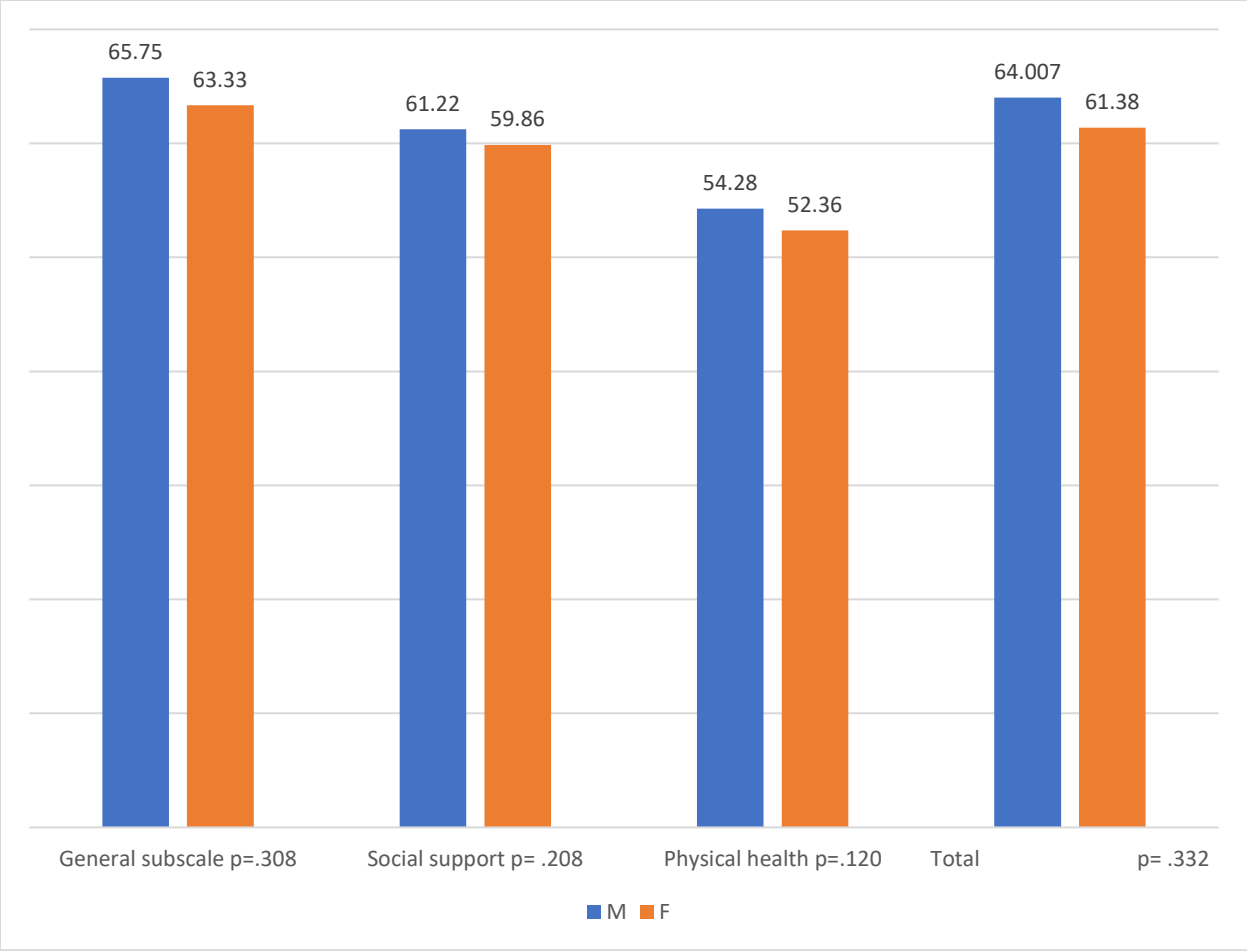

Comparison of Primary and Revision Surgeries, and Different Forms of Nasal Deformities:

The scale was utilized to examine differences among patients undergoing primary and revision surgeries, as well as among patients with different forms of nasal deformities. Graphs depicted no significant differences among the score values in any of the descriptive variables and were considered insignificant.

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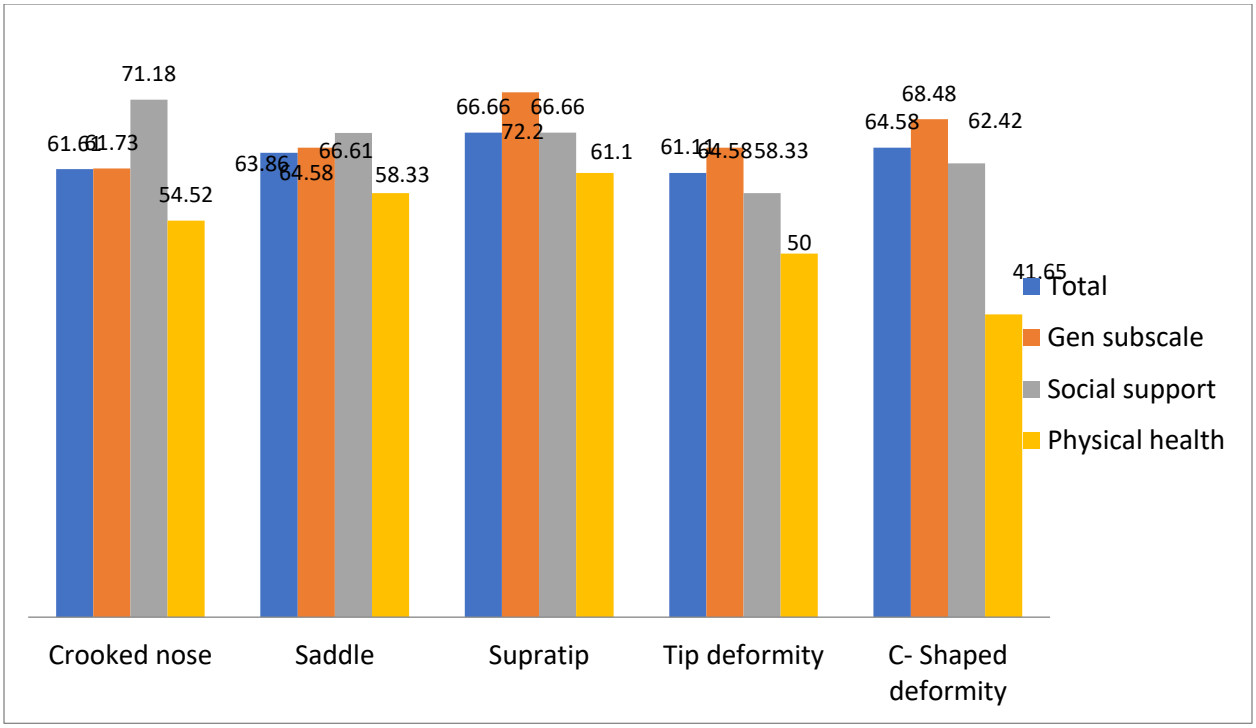

Discussion:

Rhinoplastic surgeons face the challenge of careful patient selection due to the intricate interplay of nasal anatomy and psychosocial expectations. Evaluating surgical success requires scrutiny of outcomes, with patient satisfaction serving as a crucial metric for facial cosmetic surgeries. A successful procedure is defined by the satisfaction of the patient, not just the surgeon.

While various objective measures exist in medical literature, they often focus on specific aspects of nasal form or are complex to administer. To achieve a comprehensive and meaningful objective assessment of clinical quality of life function and psychological improvement, we employed the Glasgow Benefit Inventory (GBI). This tool is reliable for retrospectively measuring Quality of Life (QOL) after surgery, providing a more accurate assessment of patient benefit.

In our study population, the mean total GBI score was 63.21%, indicating a substantial positive improvement in health status after surgery within a possible score range of -100 to +100. Subscale analysis revealed higher scores for general benefit and social support than for physical health status (63.21 & 64.13 vs 55.5, respectively). The questionnaire was administered at 3 and 6 months post-surgery, showing marked differences in total score, general benefit, and social support scores. In contrast, the physical health score demonstrated no significant change. This could be attributed to the improving nasal appearance as postoperative edema subsides, and patients gaining self-confidence, becoming less self-conscious as they assimilate their new body image.

Conclusion:

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The primary goal of rhinoplasty is to positively impact the patient's psyche. By achieving perceived improvements in appearance, rhinoplasty can alter the patient's self-perception, influencing well-being and behavior. Our study demonstrates that aesthetic and functional rhinoplasty enhances the Quality of Life in the study population. With proper preoperative assessment and patient selection, excellent clinical and psychological outcomes can be achieved. The Glasgow Benefit Inventory emerges as a crucial post-intervention assessment tool for studying rhinoplasty outcomes.

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