



“QUALITY OF LIFE OUTCOMES FOLLOWING SEPTOPLASTY: A PROSPECTIVE STUDY WITH SNOT-22.”

Otorhinolaryngology

Dr. Kirti Tyagi*	Postgraduate Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.) *Corresponding Author
Dr. Yamini Gupta	Professor And HOD Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.)
Dr. Jagram Verma	Associate Professor Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.)
Dr. Sarita Uikey	Postgraduate Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.)
Dr. Arbaz Sheikh	Postgraduate Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.)
Dr. Anil Kumar Choudhary	Postgraduate Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.)
Dr. Shyam Sunder Carpenter	Postgraduate Department Of ENT M.G.M. Medical College And M.Y.H. Hospital, Indore (M.P.)

ABSTRACT

Introduction: A deviated nasal septum (DNS) is one of the most common causes of chronic nasal obstruction, leading to breathing difficulties, sleep disturbances, recurrent sinus infections, and a significant reduction in quality of life (QoL). Septoplasty is the standard surgical procedure performed to correct DNS and restore normal nasal airflow. Assessing surgical outcomes requires reliable, patient-centred tools. The Sino-Nasal Outcome Test-22 (SNOT-22) is a validated questionnaire designed to evaluate the physical, functional, and emotional impact of sinonasal disorders. It provides an objective measure of QoL changes following septoplasty, making it an essential tool in outcome assessment. **Methods:** A prospective observational study was conducted on 40 patients undergoing septoplasty. The SNOT-22 questionnaire was administered preoperatively and at 3 months postoperatively. **Results:** The median preoperative SNOT-22 score was 44 (range: 28–65), which decreased to 16 (range: 5–32) postoperatively ($p < 0.001$). The greatest improvements were observed in nasal obstruction, facial pressure, and sleep quality. Clinically meaningful improvement (≥ 9 -point reduction) was achieved in 85% of patients. **Conclusion:** Septoplasty leads to a significant improvement in QoL in patients with DNS. The SNOT-22 questionnaire is a reliable tool for evaluating postoperative outcomes.

KEYWORDS

Septoplasty, SNOT-22, Quality of life, Deviated nasal septum, Nasal obstruction

INTRODUCTION

Nasal obstruction is among the most common complaints encountered in otorhinolaryngology, and a deviated nasal septum (DNS) is frequently identified as a leading cause. Patients with DNS typically report chronic nasal blockage, mouth breathing, snoring, impaired sleep, facial pain or pressure, hyposmia, and reduced overall productivity. Although these symptoms are not life-threatening, they exert a considerable burden on quality of life (QoL).

The nasal septum plays a critical role in ensuring laminar airflow, supporting nasal structure, and facilitating efficient mucociliary clearance. When deviated, airflow becomes turbulent, often exacerbated by compensatory turbinate hypertrophy, leading to worsened obstruction. Additionally, chronic nasal blockage contributes to poor sleep quality, resulting in daytime fatigue, diminished concentration, and impaired functionality.

Septoplasty, aimed at correcting DNS to restore midline septal alignment and optimize airflow, represents the standard treatment for patients with persistent obstruction unresponsive to medical therapy. Although objective measures such as acoustic rhinometry or rhinomanometry assess anatomical and airflow improvements, they often fail to fully capture patient-perceived benefits. This discrepancy underscores the need for validated patient-reported outcome measures (PROMs) to evaluate surgical success from the patient's perspective.¹

Among available PROMs, the Sino-Nasal Outcome Test-22 (SNOT-22) questionnaire has emerged as the most widely used and validated instrument for assessing sinonasal-specific QoL. It comprises 22 items spanning physical, functional, and psychological domains, each rated on a 0–5 Likert scale, yielding a total score from 0 to 110. A reduction of at least 9 points is generally accepted as the minimal clinically important difference (MCID) — a threshold for meaningful improvement as perceived by patients.²

Multiple studies have underscored the QoL improvement following septoplasty as measured by SNOT-22. An assessment of 188 patients revealed significant postoperative improvement in nasal obstruction, rhinorrhoea, facial pain, and sleep-related items at 6 months (67% response rate), although generalized well-being as measured by the 15D instrument did not always parallel these gains, particularly among older patients or those with minimal symptom improvement.³ A systematic review and meta-analysis of randomized controlled trials further validated that septoplasty provides superior improvement in SNOT-22 scores at 6 and 12 months compared to non-surgical management, with a low complication rate.⁴ A prospective observational cohort from Northeast India also demonstrated significant postoperative improvement across all 22 SNOT-22 items, with the most pronounced changes in nasal blockage and headache.⁵ In addition, a climate-based comparative study reported that septoplasty improved QoL irrespective of season, as captured by SNOT-22, although postoperative bleeding was higher in summer.⁶

Several investigations have explored factors predicting the degree of improvement after septoplasty. Larger baseline SNOT-22 scores have been associated with greater postoperative benefit; for example, patients with baseline scores exceeding 42.5 were approximately six times more likely to achieve MCID, especially women and non-smokers.⁷ Other studies identified that combining septoplasty with inferior turbinate intervention enhanced outcomes, while comorbidities like asthma or obstructive sleep apnoea (OSA) were linked to higher pre- and postoperative scores — emphasizing the importance of preoperative patient counseling.⁸

Given potential demographic, cultural, and clinical variations across populations, it is essential to evaluate PROM-based outcomes in diverse settings. In many regions, access to specialized otorhinolaryngologist care varies, and patient expectations may differ. A prospective study that uses standardized PROMs like SNOT-22 can

provide robust data on improvement trajectories, symptom domain changes, and proportions achieving clinically meaningful improvement.

This study therefore aimed to prospectively assess QoL improvement following septoplasty in a cohort of 40 patients with DNS, using preoperative and three-month postoperative SNOT-22 scores. Key objectives included quantifying overall score improvement, identifying domains with the greatest change, and estimating the proportion of patients meeting the MCID threshold.

In conclusion, DNS frequently impairs QoL, and septoplasty remains the gold-standard surgical intervention for refractory obstruction. Objective anatomical measures alone are insufficient to evaluate the full benefit of surgery. The SNOT-22 questionnaire offers a reliable, validated means to assess patient-centered outcomes. By assessing postoperative QoL changes in a defined patient cohort, this study adds valuable evidence to support the use of SNOT-22 in evaluating septoplasty outcomes and guiding patient counselling.

MATERIALS AND METHOD

A Prospective observational study was conducted on 40 patients who reported in the Department of ENT from 01 March 2024 to 28 February 2025.

Inclusion Criteria:

- 1. Patients of age 18-50 years who presented to the Department of ENT with symptoms nasal obstruction for >6 months.
- 2. Patients giving consent for Diagnostic Nasal Endoscopy were included.
- 3. Patients giving consent for Septoplasty were included.

Exclusion Criteria:

- 1. Patients who did not give consent for Diagnostic Nasal Endoscopy or Septoplasty.
- 2. Patients having atrophic rhinitis, allergic rhinitis, benign and malignant lesions of the nasal cavity.
- 3. Patients of developed Antrochoanal polyp.
- 4. Patients of mucormycosis operated for FESS before the study.
- 5. Patients with the immunocompromised state due to Chemotherapeutic drugs, cancer or HIV were excluded from this study.
- All the patients who presented to the Department of ENT with symptoms of nasal obstruction for more than 6 months and having a deviated septum, were included in this study after a thorough history taking and clinical examination.
- All patients underwent Diagnostic Nasal Endoscopy to look for septal deviation.
- After proper informed and written consent ,Septoplasty was performed under local

Or general anesthesia through a standard hemitransfixion incision.

Mucoperichondrial flaps were elevated on one or both sides, the deviated cartilaginous and bony portions of the septum were corrected or excised as required, and the septal framework was repositioned to restore a straight midline nasal septum

- Preoperative and 3 month post operatively, The SNOT -22 questionnaire was evaluated and compared.

DISCUSSION

Our analysis of baseline patient characteristics reveals a sample primarily composed of young to middle-aged adults, with a median age of 27 years (range 18–45). Age-group stratification indicates that most patients (72.5%) fell into the 18–35-year range, with a slight male predominance (65%). These demographics align with typical septoplasty populations reported in literature, where nasal obstruction frequently leads younger individuals to seek surgical correction due to lifestyle-related symptoms (e.g., impaired sleep, reduced productivity).

Regarding laterality, septal deviation was almost evenly distributed between the left (55%) and right (45%) nasal passages, suggesting no inherent side predilection in our cohort. The median duration of symptoms was 4 years (range 1–12 years), highlighting a chronic and persistent burden of nasal obstruction prior to intervention; indeed, prolonged symptom duration is often associated with greater

functional impairment and stronger motivation for surgery.

Our core outcome, QoL as measured by SNOT-22 scores, demonstrated striking improvement. The median preoperative score of 44 fell to 16 postoperatively—an absolute reduction of 28 points—which far exceeds the minimal clinically important difference (MCID) of 9 points.⁹ This robust decrease underscores the substantial relief experienced by patients following septoplasty, mirroring findings from multiple clinical studies demonstrating meaningful QoL gains in sinonasal surgery.

Delving into specific symptom domains, we observed that nasal obstruction, facial pain/pressure, and sleep disturbance all exhibited significant median reductions—from 4 to 1 for the first two and from 4 to 1 for sleep issues (all $p < 0.001$). Fatigue and psychological distress also improved, albeit to a slightly lesser degree (both $p < 0.01$). These improvements span the physical, functional, and emotional dimensions of QoL, reinforcing the multifaceted benefit of septoplasty beyond mere anatomical correction. Similar domain-specific benefits have been reported in the context of sinonasal surgery, where physical symptom relief often precedes—but is accompanied by—improvements in sleep and psychological well-being.

Notably, 85% of patients achieved clinically meaningful improvement (≥ 9 -point SNOT-22 reduction), indicating that the majority derive substantial benefit from surgery. This aligns with evidence suggesting that individuals with higher baseline symptom scores—typically above 42.5—tend to experience greater postoperative gains in all domains.¹⁰ Our cohort's median baseline score of 44, therefore, may partly explain such high rates of significant improvement.

These findings hold important implications for clinical practice. First, they affirm the value of septoplasty in meaningfully alleviating symptoms that impair daily functioning. Second, they highlight the importance of using validated patient-reported outcome measures like SNOT-22 in routine care. Whereas anatomical measurements alone (e.g., rhinomanometry or acoustic rhinometry) may not fully reflect patient experience, tools like SNOT-22 capture the subjective relief that truly defines surgical success.

Furthermore, integrating domain-level analysis—such as nasal obstruction versus sleep quality—can illuminate which symptoms resolve most readily and which may require additional attention. For instance, while obstruction and facial pressure resolve dramatically, sleep disturbance and emotional symptoms, though improved, may warrant adjunctive support (e.g., sleep hygiene counseling or psychological follow-up).

Finally, these findings can inform preoperative counseling. Patients with higher baseline SNOT-22 scores can be advised that they are more likely to achieve clinically meaningful improvement, helping align expectations. Similarly, understanding that psychologic and sleep-related symptoms may persist to a lesser extent can guide perioperative planning and postoperative support.

In summary, our study confirms that septoplasty yields robust, clinically meaningful improvements across both physical and psychosocial domains of QoL in patients with deviated nasal septum. Incorporating tools such as the SNOT-22 into routine practice enhances outcome assessment, fosters patient-centered care, and supports evidence-based decision-making in rhinologic surgery.

CONCLUSION

Septoplasty leads to marked improvement in the quality of life of patients with a deviated nasal septum. Most individuals experience a clinically significant decline in Sino-Nasal Outcome Test-22 (SNOT-22) scores, demonstrating clear benefits in terms of nasal breathing, sleep quality, and daily functioning. These outcomes highlight that evaluating success after septoplasty requires more than anatomical correction; the patient's subjective experience is equally important. Regular use of validated patient-reported outcome tools, particularly the SNOT-22 questionnaire, is therefore recommended in both clinical practice and research to ensure comprehensive assessment and to support patient-centered care.

Tables

Table 1: Distribution Of Patients According To Age And Sex

AGE (YRS)	NO OF PATIENTS	MALE	FEMALE
-----------	----------------	------	--------

18–25	15 (37.5%)	10 (25.0%)	5 (12.5%)
26–35	14 (35.0%)	9 (22.5%)	5 (12.5%)
36–45	11 (27.5%)	7 (17.5%)	4 (10.0%)
Total	40 (100%)	26 (65.0%)	14 (35.0%)
Median age (range)	29 (18–45)	29	30

Table 2: Distribution Of Patients According To Laterality OfDNS

LATERALITY	FREQUENCY (%)
Left	22 (55%)
Right	18 (45%)

Table 3: Distribution Of Patients According To Duration Of Symptoms.

DURATION OF SYMPTOMS	NO OF PATIENTS	PERCENTAGE
1–3	14	35.0
4–6	12	30.0
7–9	8	20.0
10–12	6	15.0
Total	40	100
Median (range)	4 (1–12)	—

Table 4: Distribution Of Patients According To Overall Snot22 Score

TIME POINT	MEDIAN (RANGE)	P-VALUE
Preoperative	44 (28–65)	
Postoperative (3months)	16 (5–32)	<0.001

Table 5: Distribution Of Patients According To Improvement In Major Snot 22 Domains.

DOMAIN	PRE-OP MEDIAN (RANGE)	POST-OP MEDIAN (RANGE)	P-VALUE
Nasal obstruction	4 (2–5)	1 (0–3)	<0.001
Facial pain/pressure	3 (1–5)	1 (0–2)	<0.001
Sleep disturbance	4 (2–5)	1 (0–3)	<0.001
Fatigue	3 (1–4)	1 (0–2)	<0.01
Psychological distress	3 (1–4)	1 (0–2)	<0.01

Table 4: Distribution Of Patients According To Degree Of Improvement

CATEGORY OF CHANGE	PATIENTS (N=40)	PERCENTAGE
≥ 9-point reduction (significant)	34	85%
< 9-point reduction	6	15%

SNOT-22

DATE: _____

How you will find a list of symptoms and social/functional consequences of your rhinosinusitis. We would like to know more about your problems and would appreciate your answering the following questions to the best of your ability. There are no right or wrong answers, and only you can provide us with this information. Please rate your problems as they have been over the past two months with you for your participation. Do not hesitate to ask for assistance if necessary.

1. Considering how severe the problem is when you experience it and how often it happens, please rate each item below on how "bad" it is by circling the number that corresponds with how you feel using this scale: -->

No problem

Very Mild Problem

Mild or slight Problem

Moderate Problem

Severe Problem

Bad to the point of being unbearable

Very Bad Problem

2. Please mark the most important items affecting your health (maximum of 5 items).

1. Need to blow nose

2. Nasal Blockage

3. Sneezing

4. Runny nose

5. Cough

6. Post nasal discharge

7. Thick nasal discharge

8. Ear fullness

9. Discharge

10. Ear pain

11. Facial pain/pressure

12. Decreased Sense of Smell/Taste

13. Difficulty falling asleep

14. Wake up at night

15. Lack of a good night's sleep

16. Wake up tired

17. Fatigue

18. Reduced productivity

19. Reduced concentration

20. Frustrated/restless/irritable

21. Sad

22. Embarrassed

Figure 1: Snot 22 Score

REFERENCES:

1. Stewart et al. (development of NOSE scale and importance of PROMs) PMC
2. Hopkins et al. (psychometric validation of SNOT-22) & general SNOT-22 info msjonline.orgPMC
3. Hytönen et al., European Archives of Oto-Rhino-Laryngology 2012 PubMed SpringerLink
4. Systematic review and meta-analysis (2024) PubMed

5. Siddique et al., IJRMS 2025 msjonline.org
6. PubMed study on climate effect (2022) PubMed
7. Study on allergic rhinitis patients and determinants of outcome PubMed
8. PMC study on comorbidities and inferior turbinate impact.
9. <https://doi.org/10.1016/j.anorl.2023.10.010>
10. Ho Y-T, Lee T-J, Fu C-H. Association between Clinical Factors and Surgical Outcomes for Patients with Persistent Allergic Rhinitis. Ear, Nose & Throat Journal. 2022;104 (2):102-108. doi:10.1177/01455613221091098

International Journal of Scientific Research

11