

Retrospective cohort study- a gender-based analysis of symptom severity and age correlation in nasal septum deviation

Afiya Afrin Nadaf*, Chepyala Pranavi, Dhadi Abhinaya and Shravan Kumar Dholi

Department of Clinical Pharmacy Vaageswari College of Pharmacy, Karimnagar.

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Abstract

A deviated septum (NSD) can lead to nasal obstruction and is often associated with genetic connective tissue disorders. This study investigates the occurrence and severity of nasal symptoms across genders, examining potential influences of sexuality.

Methodology: Conducted at Chalmeda Anandh Rao Institute of Medical Sciences, Karimnagar, over six months, this study involved participants meeting specific inclusion criteria. The Nasal Obstruction Symptom Evaluation (NOSE) Scale was utilized to assess symptoms in individuals with NSD.

Results: A total of 264 participants were analyzed, with females comprising 59.84% and males 38.63%. The highest prevalence of NSD was observed in the 21-30 age group, while the lowest occurred in those aged 10 years (0.71%). Women exhibited more severe symptoms than men, with nasal congestion/stuffiness (98.71%) and sleep disturbances (98.7%) being the most common complaints.

Conclusion: NSD is a prevalent condition, particularly affecting women aged 21 to 40 more than their male counterparts and other age groups. This suggests the possibility of gender-specific factors or hormonal influences contributing to the development of NSD in this demographic. The findings underscore the importance of gender considerations in understanding and managing nasal abnormalities.

Keywords: Antihistamines; Rhinoplasty; Septoplasty; Turbinoplasty

1. Introduction

Nasal septum deviation (NSD) is a condition affecting 80% of the general population, causing headaches and breathing difficulties. It is caused by trauma, developmental defects, race, hierarchical factors, aging, degenerative changes, and environmental factors. Risk factors include trauma, childbirth pressure, genetic predisposition, aging, and other anatomical abnormalities. Deviated septum can cause issues like difficulty breathing, nasal blockage, nasal congestion, and recurring sinus infections. It can also cause dry nasal tissue, leading to nosebleeds, facial pain, noise breathing during sleep, and preference for sleeping on one side. Treatments include CT scans, nasal endoscopy, anterior rhinoscope, and nasal speculum examination. Misaligned nose palate (NSD) can be treated using conservative methods, surgical and non-invasive approaches, and surgeries like septoplasty, rhinoplasty, and Turbinoplasty.

* Corresponding author: Afiya Afrin Nadaf.

2. Material and methods

2.1. Study Site

The research was conducted at Chalmeda Ananda Rao Institute of Medical Sciences in Karimnagar.

- **Study Design:** This study utilized a retrospective cohort design, conducted as an observational analysis in the inpatient (IP) and outpatient (OP) departments of ENT.
- **Study Duration:** 6 months.
- **Sample Size:** 261 patients.

2.2. Study Criteria

2.2.1. Inclusion

The study includes patients aged 15-60 with nasal septal deviation and external nasal deformities, no history of sinus condition, no nose or sinus surgery, no current use of nasal medications, and gender.

2.2.2. Exclusion

Exclusion criteria include previous nasal surgery patients, multiple medical issues, pregnancy, polypharmacy, unwilling participants, and current use of medications affecting nasal symptoms.

2.3. Sources of Data

- Patient interviews
- Data collection forms
- Review of patient records

2.4. Parameters Considered

- Demographic details
- Chief complaints
- Nasal Obstruction Symptom Evaluation (NOSE) Scale: The NOSE scale is a validated tool comprising five straightforward questions and a 20-point scoring system. It offers a quick and reliable method to gauge the impact of nasal obstruction on patients' quality of life.

2.5. Study Procedure

Patients admitted to the inpatient and outpatient ENT departments with nasal-related problems were included in the study. A structured data collection form was used to gather demographic details and NOSE survey responses, assessing nasal symptom severity over the past month. The data provided insights into the effects of nasal obstruction on quality of life.

2.6. Data Analysis

Statistical analysis was conducted using IBM SPSS version 29.0.2.0 and Microsoft Excel 2013. Data entry and analysis were performed in Excel. The Mean \pm SD for each NOSE survey question and the overall NOSE score were calculated. The Chi-square test assessed the significance of p-values (0.05).

3. Results

The dataset includes 261 individuals, with 103 males (39.5%) and 158 females (60.5%), highlighting a gender imbalance favoring females. Age distribution shows the majority of patients in the 21-30 age group, followed by younger age brackets, with a declining trend in older groups.

Severity levels of symptoms are categorized into "Not a problem," "Mild," "Moderate," "Severe," and "Extreme." Most participants (87.4%) reported moderate to severe problems, with 12.6% experiencing extreme issues, underlining the need for targeted interventions. Statistical analysis using a P-value <0.05 indicates significant differences in severity levels.

Gender-wise, females predominantly reported moderate to severe symptoms, with 30.26% experiencing moderate and 17.62% reporting severe problems. Males showed varying severity but emphasized the need for gender-specific interventions.

The mean and standard deviation of severity scores reveal a gradient of problem severity, but for some analyses, $P > 0.05$ indicates no significant differences in experiences among participants.

This data highlights the predominance of moderate to severe symptoms in the population and underscores the importance of addressing these issues through focused interventions.

Table 1 Gender Incidence

Total	261	Percentage %	Cumulative Percent
Male	103	39.5	39.5
Female	158	60.5	100.0

The table shows a gender disparity in the distribution of individuals, with males comprising 39.5% of the total and females making up 60.5%, outnumbering males in the sample of 261 individuals, indicating a significant gender imbalance.

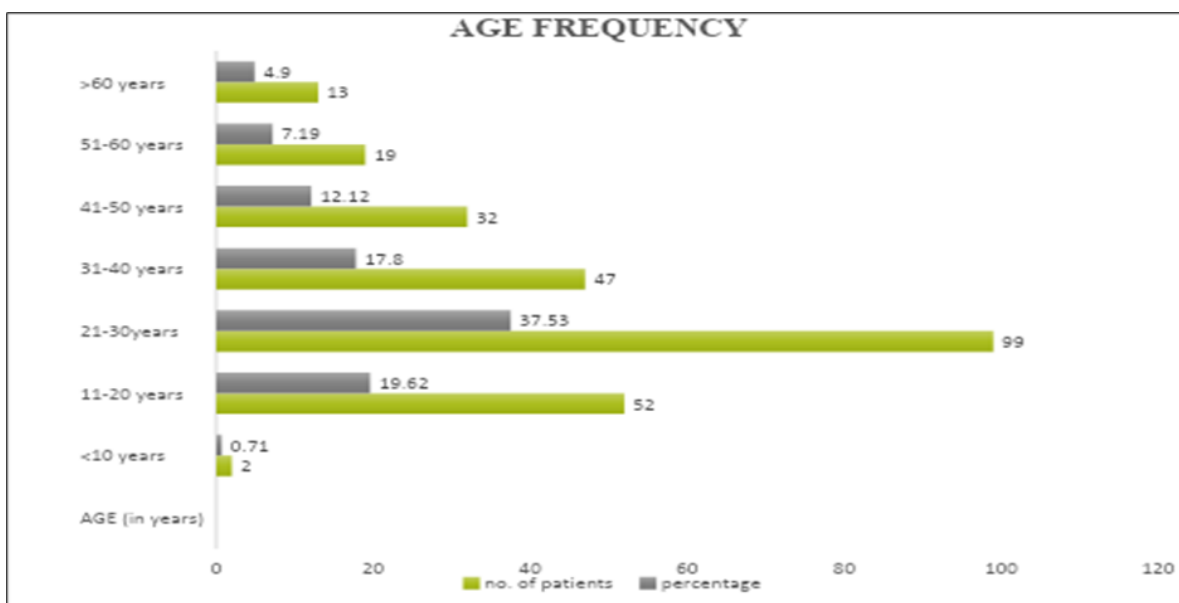


Figure 1 Age Frequency

Figure 1 shows the age distribution of patients, with 0.71% under 10, 19.62% between 11-20, 37.53% between 21-30, 17.80% between 31-40, 12.12% between 41-50, 7.19% between 51-60, and 4.9% over 60. This indicates a significant age distribution in the patient population.

Table 2 Symptoms Severity Distribution

Severity Level	N	Percent	Cumulative Percent	Mean ± SD
Not a problem	24	9.2%	9.2%	0.04 ± 0.20
Very Mild Problem	82	31.4%	40.6%	0.31 ± 0.46
Moderate Problem	72	27.6%	68.2%	0.31 ± 0.46
Fairly Bad Problem	77	29.5%	97.7%	0.29 ± 0.45
Severe Problem	6	2.3%	100%	0.02 ± 0.15

The table shows that 87.4% of participants reported moderate to fairly bad problems, while 12.6% experienced severe issues, indicating the need for targeted interventions. The P-value (<0.05) indicates significant differences in severity levels, and the mean and standard deviation show a gradient of symptom severity, emphasizing diverse experiences among participants.

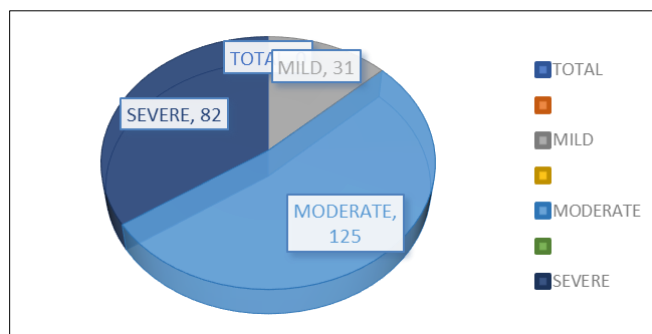


Figure 2 Severity

The Figure reveals a severity distribution within the sample population, with 11.9% reporting mild symptoms, 47.9% experiencing moderate symptoms, 31.4% experiencing severe symptoms, and 8.8% experiencing extreme symptoms.

4. Discussion

The study investigates variations in the occurrence and intensity of nasal nonspecific disorders (NSD) clinical presentation among males and females. A groundbreaking study in 2005 found that 60.3% of participants were diagnosed with a bowed deviation of nose, with this condition being more prevalent in men than in women. The incidence of RND shows a steady rise, with stages going from 15% among 7-8-year-old children to 39.7% in adults. The study found that <10-year-olds had 0.71% affected, 11-20 duration with 19.62%, 21-30 duration with 37.53%, 31-40-time group 17.80% with SND, 41-50 periods 12.12%, 51-60 with 7.19%, and >60 years 4.9% with deformed nozzle. There is a correlation between advancing age and the likelihood of developing NSD. Bayram Sahin et al. explored the potential correlation between the NOSE Scale, localization, and severity of NSD. Various classification systems have been proposed to evaluate NSD, with some focusing on the degree, severity, shape, or location of the divided sniffer position. The study found that 94.17% of patients experienced nasal congestion/ stuffiness, while 96.9% overelaborate nasal blockage/obstruction. Difficult breathing through the nose was common and terrible, with 91 people (34.4%) experiencing troublesleeping Severity of symptoms in gender was highest in males (3.40%), followed by females (5.58%) and males (17.42%). In the study, 59.83 were female patients and 38.61% were affected with NSD in men.

5. Conclusion

Septal deviation (NSD) is a common condition causing nasal breathing issues, with a higher incidence among females aged 21-40. Research shows that women aged 21-40 are disproportionately affected by SND compared to men. This suggests potential gender-specific risk factors or hormonal influences specific to this stage of life. Out of 261 samples, most subjects experienced difficulty breathing through their nose.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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