

Deviated nasal septum and fibromyalgia-related symptoms in women seeking rhinoplasty

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Research Article

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Abstract

Background: There are some similarities between symptoms associated with fibromyalgia and complaints associated with a deviated nasal septum. This study aimed to investigate nasal septum deviation and fibromyalgia-related symptoms in women requesting rhinoplasty.

Methods: This prospective, cross-sectional, comparative, and correlational study was conducted with a total of 104 women seeking rhinoplasty throughout 2025. The cases were divided into two groups based on the presence (n=54) and absence (n=50) of a deviated nasal septum. The two groups were compared in terms of fibromyalgia-related symptoms and nasal deviation complaints, which were assessed using the Revised Fibromyalgia Impact Questionnaire (FIQR) and the Standardised Cosmetic and Health Nose Outcomes Survey (SCHNOS), respectively. Additionally, a correlational analysis was performed between FIQR and SCHNOS scores.

Results: The two groups were statistically similar in terms of age, weight, height, and BMI ($p>0.05$). The nasal deviation group had significantly higher scores of SCHNOS function and FIQR than the group without nasal deviation ($p=0.001$). As median (Q1, Q3), SCHNOS function scores were 70.0 (51.25, 83.75) versus 17.50 (6.25, 48.75), and total FIQR scores were 36.08 (11.21, 56.33) versus 5.75 (1.67, 30.62). Additionally, there were significant positive correlations between the SCHNOS and FIQR scores in cases with nasal deviation ($p\leq 0.019$).

Conclusion: An association was observed between fibromyalgia-related symptoms and nasal deviation complaints in women requesting rhinoplasty. This topic is underexplored and should be more investigated in future.

Introduction

Fibromyalgia is a common chronic syndrome that causes widespread body pain and significantly reduces quality of life (1). Despite extensive research to date, fibromyalgia remains a multifaceted and multifactorial disease with an unknown etiopathogenesis (1–3). The pathogenesis of fibromyalgia includes central sensitization, inflammation, immune and endocrine dysfunction, oxidative stress, and genetic and psychosocial influencers (4, 5). It is well known that fibromyalgia is associated with various complaints and comorbidities such as pain, fatigue, exhaustion, sleep problems, cognitive dysfunctions, and psychological and rheumatic disorders (2, 6). Its multifactorial etiopathogenesis and multifaceted nature pose challenges in diagnosis and treatment (1–3). The diagnosis of fibromyalgia is based on clinical evaluation and defined diagnostic criteria (2, 7). Given its complex nature and the wide range of symptoms, fibromyalgia requires a multidisciplinary approach in both diagnosis and treatment (1–3, 6). Therefore, treatment tailored to the predominant symptoms and comorbidities (1–3, 8) and combination therapies have been recommended in fibromyalgia (9). In this context, it is important to identify problems associated with fibromyalgia and to consider comorbidities when applying personalized treatment.

Nasal septum deviation is a common condition in which the osteocartilaginous wall between the nasal cavities is not straight (10). Minor deviated septum is more common and accepted a normal structural variation. Nasal septum deviation may be asymptomatic or may cause nasal obstruction and impaired sense of smell (10, 11) Clinical symptoms include headaches, maxillary sinusitis, rhinosinusitis, hypertension, sleep apnea, and noisy breathing (10, 12). Additionally, nasal septum deviation is associated with an asymmetrical nose and facial appearance as an aesthetic issue (13, 14). The diagnosis is made through clinical evaluation and imaging techniques. In the treatment of nasal septum deviation, septoplasty is the most commonly used procedure, providing high satisfaction and low complication risk (10, 15).

Fibromyalgia-related symptoms and the complaints of nasal septum deviation exhibit some similarities. For example, sleep disturbance (2, 16), appearance-related dissatisfaction (14, 17), and mood disorders and psychological distress (17–19). For this reason, there is a reasonable basis for investigating fibromyalgia-related symptoms in cases of nasal septum deviation. This topic has not been adequately addressed to date. We aimed to investigate fibromyalgia-related symptoms in cases of nasal septum deviation.

Materials and Methods

This is a cross-sectional comparative and correlational study with prospectively recruited participants. The study was performed on the cases requesting rhinoplasty. After obtaining ethical approval for the study from the Hospital Ethics Committee (decision number: 258 and date: November 22, 2024), the study was started and conducted in accordance with the ethical guidelines for medical research recommended in the Declaration of Helsinki.

The cases' demographic characteristics were recorded in a structured form during face-to-face interviews. The Turkish version of Standardised Cosmetic and Health Nose Outcomes Survey (SCHNOS) was used to assess patients' dissatisfaction with their nose (20). This survey consists of 10 questions, each answered using a Likert scale (0 to 5). The first four questions assess the functional status of the nose, and the maximum score is 20. Questions 5–10 of the questionnaire assess the appearance of the nose, and the maximum score for this section is 30. The first four questions assess the functional status of the nose, and their sum is divided by 20 and multiplied by 100. Questions 5–10 of the questionnaire assess the appearance of the nose, and their sum is divided by 30 and multiplied by 100. Higher scores indicate greater dissatisfaction with the nasal functions and appearance. This questionnaire has been shown to be reliable and valid for assessing the appearance and functional status of the nose before and after rhinoplasty (21).

The Turkish version of Revised Fibromyalgia Impact Questionnaire (FIQR) was used to measure the symptomatology and impact of fibromyalgia. The FIQR includes 21 items weighted domains to measure function (9 items/3, min.-max. 0–30 points), general condition (2 items/1, min.-max. 0–20 points), and symptoms (10 items/2, min.-max. 0–50 points). The items are visual analog scales scored between 0

and 10. The calculation provides a standardized total score between 0 and 100. It reflects the patient's status over the past week. Higher scores indicates a greater negative outcomes (22). For all participants, the questionnaire was administered in its original form, with some minor modifications, considering that it was designed for fibromyalgia patients. In the study form, the term fibromyalgia-related symptoms were used instead of fibromyalgia (e.g., your fibromyalgia, my fibromyalgia).

Women seeking rhinoplasty first completed the SCHNOS and FIQR questionnaires; they were then divided into two groups based on the presence or absence of a deviated nasal septum, as determined by ENT examination and anterior rhinoscopy findings. The same examiner evaluated all participants. Cases with and without nasal septum deviation were evaluated and compared in terms of nasal functions, nasal appearance, and fibromyalgia-related symptoms. Written informed consent was obtained from all participants.

Inclusion and exclusion criteria for the study: Individuals requesting rhinoplasty were informed about the study and invited to participate. Patients were also provided with information about the symptoms of fibromyalgia, and these symptoms were listed using the FIQR form. Those who provided written consent to participate, were literate, and had normal cooperation and consciousness levels were included in the study. On the other hand, cases under the age of 18 or over the age of 40, those requesting revision rhinoplasty, those with systemic diseases such as diabetes mellitus, hypertension, hypo/hyperthyroidism, those with congenital craniofacial anomalies or with asymmetry in facial structures other than the nose, and those who had undergone prior facial aesthetic procedures were excluded. Since both fibromyalgia symptoms and the demand for rhinoplasty are more common in women, men were excluded. In addition, since both menopause and osteoarthritis begin after the age of 40, these were taken into account to eliminate their confounding effects when exclusion criteria were identified.

This study focused on the association between fibromyalgia and nasal septum deviation. For this end, throughout 2025, a total of 104 cases requested rhinoplasty were evaluated. Statistical comparisons were performed between cases with and without nasal septum deviation.

Statistical Analysis

The IBM SPSS Statistics program (V 27.0) was used to analyze the study data. The Kolmogorov-Smirnov test was used to assess if continuous variables showed a normal distribution. Nonparametric tests (Mann-Whitney U test and Spearman test) were used for comparison and correlation analyses. Statistical results were presented in accordance with recommendations in the medical literature. Continuous variables were given as median (IQR). Categorical variables were given as frequency (percentage). A p-value < 0.05 was accepted statistically significant.

Results

Figure 1 shows the flowchart of the study. After exclusions a total of 104 women seeking rhinoplasty were included in the study.

The two groups exhibited statistically similar demographic characteristics, including age ($p = 0.319$), weight ($p = 0.580$), height, and BMI ($p = 0.292$). Table 1 presents a statistical comparison of the demographic data for the two groups.

Table 1
Comparison of women requesting rhinoplasty with and without nasal septum deviation for demographics

Age, years	Women with NSD (n = 54)	Women without NSD (n = 50)	p
	23.50 (21.25, 26.0)	25.0 (21.25, 29.75)	0.319
Weight, kg	58.0 (52.25, 65.0)	59.50 (56.25, 64.75)	0.580
Height, m	1.65 (1.62, 1.68)	1.64 (1.60, 1.67)	0.270
BMI, kg/m ²	21.07 (19.62, 24.71)	22.37 (20.94, 23.88)	0.292
Married, n (%)	14 (25.93)	17 (34)	0.398
Education, n (%)	3 (5.56)	3 (1.50)	0.850
Primary School	30 (55.56)	25 (12.50)	
High School	21 (38.89)	22 (11.0)	
University			
Working, n (%)	9 (16.67)	13 (6.50)	0.627
Housewife	22 (40.74)	17 (13.50)	
Employed	10 (18.52)	7 (3.50)	
Unemployed	13 (24.07)	13 (6.50)	
Student			
NSD: Nasal septum deviation			
Data were expressed as median (Q1, Q3) or n (%)			

The nasal deviation group had significantly higher scores of SCHNOS function and FIQR than the group without nasal deviation ($p = 0.001$). For example, SCHNOS function scores, as median (Q1, Q3), were 70.0 (51.25, 83.75) versus 17.50 (6.25, 48.75), and total FIQR scores, as median (Q1, Q3), were 36.08 (11.21, 56.33) versus 5.75 (1.67, 30.62). After Holm correction, FIQR scores and SCHNOS function scores remained significantly different between groups, whereas SCHNOS appearance scores did not (Table 2).

Table 2

Comparison of women requesting rhinoplasty with and without nasal septum deviation for clinical data

SCHNOS, function	Women with NSD (n = 54)	Women without NSD (n = 50)	p (95% CI)	Holm p
	70.0 (51.25, 83.75)	17.50 (6.25, 48.75)	0.001 (0.574–0.865)	0.001
SCHNOS, appearance	80.0 (60.83, 90.00)	73.33 (56.67, 83.33)	0.248 (-0.092–0.374)	0.248
FIQR, general	6.0 (0.00, 12.75)	1.0 (0.00, 3.75)	0.003 (0.127–0.533)	0.008
FIQR, function	6.67 (1.00, 14.75)	1.50 (0.67, 7.17)	0.010 (0.073–0.504)	0.020
FIQR, symptom	21.50 (7.38, 34.50)	2.0 (0.50, 16.00)	0.001 (0.246–0.640)	0.001
FIQR, total	36.08 (11.21, 56.33)	5.75 (1.67, 30.62)	0.001 (0.237–0.636)	0.001
FIQR: The Revised Fibromyalgia Impact Questionnaire				
SCHNOS: The Standardised Cosmetic and Health Nose Outcomes Survey				
Data were expressed as median (Q1, Q3)				

In cases with nasal septum deviation (n = 54), SCHNOS function demonstrated moderate positive correlations with FIQR general (r = 0.555, 95% CI 0.337–0.716, p < 0.001), FIQR function (r = 0.468, 95% CI 0.228–0.654, p < 0.001), FIQR symptom (r = 0.546, 95% CI 0.326–0.710, p < 0.001), and FIQR total (r = 0.618, 95% CI 0.420–0.760, p < 0.001). Similarly, SCHNOS appearance was positively correlated with FIQR general, FIQR function, FIQR symptom, and FIQR total (r = 0.317–0.438, all p ≤ 0.019) (Table 3).

Table 3
Correlations between SCHNOS and FIQR scores in cases with deviation (n = 54)

		FIQR, general	FIQR, function	FIQR, symptom	FIQR, total
SCHNOS, function	r	0.555	0.468	0.546	0.618
	p	0.001^a	0.001^a	0.001^b	0.001^b
	95%CI	0.337–0.716	0.228–0.654	0.326–0.710	0.420–0.760
SCHNOS, appearance	r	0.378	0.317	0.372	0.438
	p	0.005 ^a	0.019 ^a	0.006 ^a	0.001 ^a
	95%CI	0.123–0.586	0.054–0.539	0.116–0.582	0.193–0.631
FIQR: The Revised Fibromyalgia Impact Questionnaire					
SCHNOS: The Standardised Cosmetic and Health Nose Outcomes Survey					
^a : Spearman test					
^b : Pearson test					

In cases without nasal septum deviation (n = 50), no significant correlations were observed between SCHNOS function and FIQR general, FIQR function, FIQR symptom, and FIQR total ($r = 0.158$ – 0.276 , $p \geq 0.052$). However, SCHNOS appearance was significantly positively correlated with FIQR general ($r = 0.301$, 95% CI 0.025 – 0.535 , $p = 0.033$), FIQR function ($r = 0.529$, 95% CI 0.294 – 0.704 , $p < 0.001$), FIQR symptom ($r = 0.438$, 95% CI 0.182 – 0.639 , $p = 0.001$), and FIQR total ($r = 0.514$, 95% CI 0.275 – 0.693 , $p < 0.001$) (Table 4).

Table 4
Correlations between SCHNOS and FIQR scores in cases without deviation (n = 50)

		FIQR, general	FIQR, function	FIQR, symptom	FIQR, total
SCHNOS, function	r	0.158	0.245	0.231	0.276
	p	0.273	0.086	0.106	0.052
	95%CI	-0.126- 0.418	-0.036-0.490	-0.051-0.479	-0.003- 0.515
SCHNOS, appearance	r	0.301	0.529	0.438	0.514
	p	0.033	0.001	0.001	0.001
	95%CI	0.025–0.535	0.294–0.704	0.182–0.639	0.275–0.693
FIQR: The Revised Fibromyalgia Impact Questionnaire					
SCHNOS: The Standardised Cosmetic and Health Nose Outcomes Survey					
Spearman test applied for all correlation analyses.					

Discussion

In this cross-sectional comparative and correlational study with prospectively recruited participants, we evaluated the relationship between fibromyalgia symptoms and nasal septum deviation in women requesting rhinoplasty. We found that women with nasal deviation have significantly higher scores of SCHNOS function and FIQR than those without nasal deviation. Also, both SCHNOS function and SCHNOS appearance were associated with FIQR divisions in cases with nasal deviation (significant positive correlation). However, only SCHNOS appearance was associated with FIQR divisions in cases without nasal deviation (significant positive correlation). These findings suggest a potential association between fibromyalgia symptoms and nasal deviation complaints.

Hypothetically, fibromyalgia symptoms and nasal septum deviation may share many common associated conditions such as oxidative stress (5, 23), sleep disorders (2, 16), appearance issues (14, 17), and mood and psychological problems (17–19). Additionally, chronic inflammation-related conditions may also play a role in common mechanisms (24, 25). Therefore, there is a sound background for addressing the relationship between fibromyalgia symptoms and nasal septum deviation is worth investigating. However, this potential relationship has not been sufficiently studied. Hypothetically, it is possible that some biological mechanisms such as sleep fragmentation, chronic hypoxia, autonomic dysfunction, central sensitization may be involved in the relationship between nasal deviation and fibromyalgia symptoms.

Previous studies have revealed the link of fibromyalgia with various nasal pathologies such as rhinosinusitis (26), allergic rhinitis (27), and nasal mucociliary dysfunction (28). On the other hand,

previous studies on the potential relationships have yielded limited data. It has been observed that cases with nasal septum deviation had higher fibromyalgia frequency than healthy controls, but difference was not statistically significant (29, 30). In addition, Cilesizoglu Yavuz and Coluk (31) have reported that fibromyalgia symptoms improved after correction of nasal septum deviation. In the current study, we found that cases with nasal septum deviation have significantly higher scores of SCHNOS function and FIQR than those without nasal deviation. Also, we found significant positive correlations between SCHNOS and FIQR scores in cases with nasal deviation. These findings may be associated with nasal pathologies (e.g., rhinosinusitis, allergic rhinitis, and nasal mucociliary dysfunction) (26–28) and the common conditions (e.g., oxidative stress, sleep disorders, appearance issues, and mood and psychological problems, chronic inflammation) shared by fibromyalgia and nasal septum deviation (2, 5, 14–19, 23–25).

Study strengths and limitations: This study addresses a topic that has received relatively little attention in the literature. Specifically, its investigation of the relationship between nasal septum deviation and fibromyalgia symptoms in women seeking rhinoplasty may contribute original insights to the literature. On the other hand, the following limitations should also be considered: single-center study, cohort consisting only of women, cross-sectional design, inability to establish cause-and-effect relationships, and the lack of objective measurement of nasal airflow. Another limitation is that this study did not address confounding factors that may be associated with both nasal complaints and FIQR (e.g., mood disorders, sleep disorders, pain, rhinitis, smoking, medication, nasal trauma, and socioeconomic status). In addition, there is currently no peer-reviewed scientific evidence that supports using the FIQR in a general rhinoplasty population without established fibromyalgia.

Conclusion

In this selected sample of women seeking rhinoplasty, clinically identified nasal septal deviation was associated with higher self-reported fibromyalgia-related symptom burden. Because of the cross-sectional design, potential confounding, and absence of diagnostic assessment for fibromyalgia, these findings should be considered exploratory.

Declarations

Funding: This study received no financial support.

Conflicts of interest/Competing interests: The authors have no conflicts of interest to declare.

Ethics Statement: Ethics Committee approval was obtained from the Gazi Yaşargil Hospital Clinical Research Ethics Committee (Date: November 22, 2024, Decision No: 258).

Consent to participate: Confirmation of participation has been received from all participants.

Written Consent for publication: Written consent was obtained from all participants.

Availability of data and material: The data that support the findings of this study are available on request from the corresponding author.

Code availability: Not applicable.

Authors' contributions: Concept: S.G.K., Ö.E.; Design-Methods: S.G.K., Ö.E.; Formal Analysis: S.G.K., Ö.E.; Data Collection: S.G.K.; Writing-Original Draft: S.G.K.; Writing-Review-Editing: S.G.K., Ö.E.

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Figures

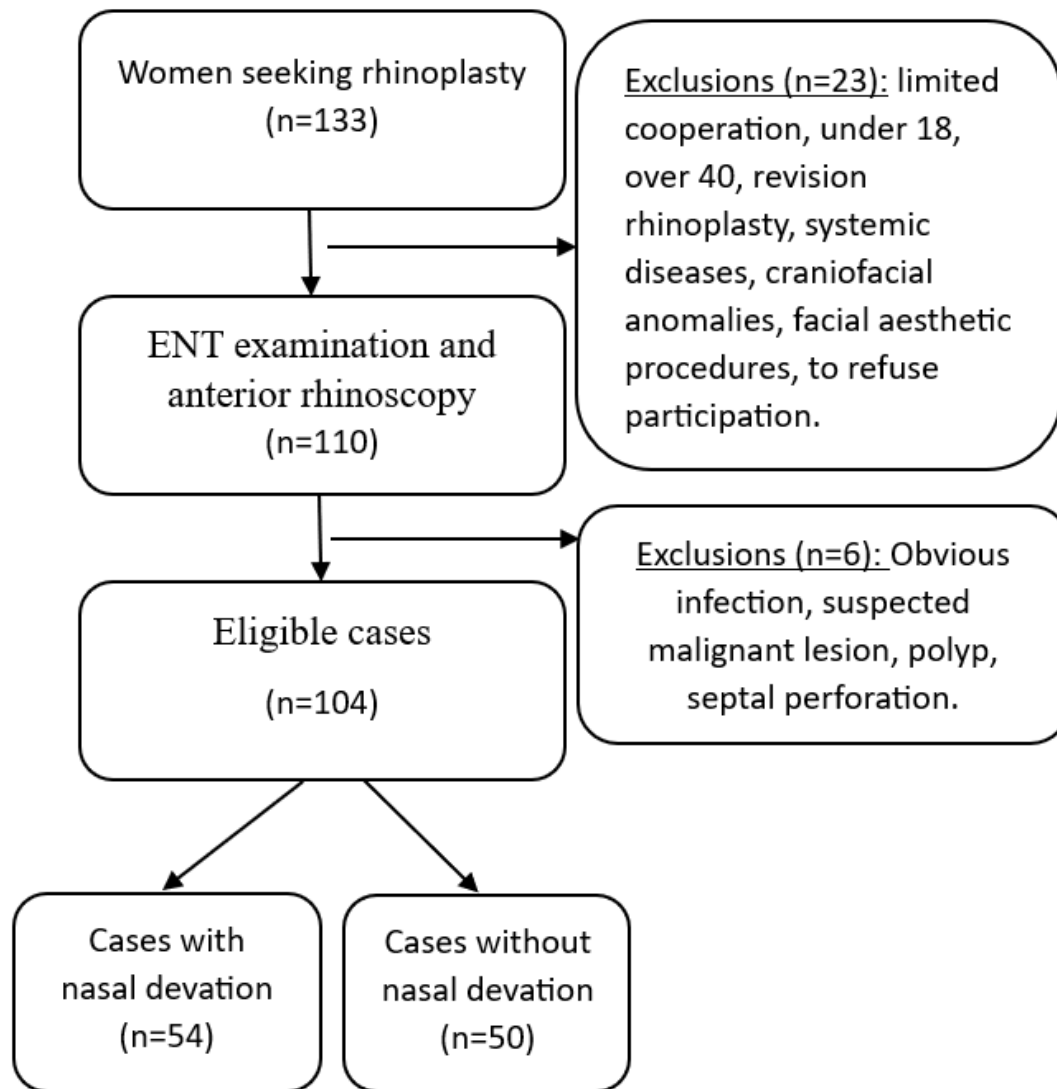


Figure 1

The flowchart of the study.