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Nasal obstruction in adults: how it affects psychological status?

YS Yıldırım[1], E Deveci[2], B Ozucer[3] and Y Kurt[4]

[1]Department of Otolaryngology Head and Neck Surgery, Doğuş University, Istanbul, Turkey, [2]Department of Psychiatry, Medipol University, Istanbul, Turkey, [3]Private Practice, İstanbul, Turkey and [4]Department of Otolaryngology Head and Neck Surgery, KBB Uzmanı, Antalya Finike Devlet Hastanesi, Antalya, Turkey

Abstract

Objective. This study investigated the psychological status of patients with unilateral or bilateral complete nasal obstruction.

Method. The study included 49 consecutive cases of unilateral or bilateral complete nasal obstruction. In order to assess participants' personality traits, both groups completed the Personality Belief Questionnaire, State–Trait Anxiety Inventory form, Beck Depression Inventory and Beck Anxiety Inventory.

Results. The groups were similar in terms of demographic characteristics. Patients with unilateral or bilateral complete nasal obstruction had higher scores on all the psychological assessments compared with the healthy controls, except for the Beck Anxiety Inventory. Although all personality assessment scores were higher in patients, the only differences that were statistically significant were in the dependent, antisocial and avoidant personality trait scores.

Conclusion. The psychological conditions of patients with structural deformities that cause nasal obstruction may be affected, and appropriate treatment should be provided to improve their symptoms and quality of life.

Main Article

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Corresponding author:
Yavuz Selim Yıldırım;
Email: dryavuzselim@yahoo.com

Introduction

A stuffed-up nose adversely affects a child's development. It has also been reported that nasal obstruction has an important effect on facial growth and development, especially in the first decade of life.[1,2] Therefore, determining nasal obstruction in children and informing their families about its potential harmful effects may be important to prevent developmental problems with regard to facial growth, snoring, upper airway infections and respiratory problems that can result from nasal obstruction.

The aetiology of nasal obstruction is associated with developmental problems and trauma. Nasal obstruction causes impaired nasal breathing and several pathologies, such as developmental disorders, frequent infections, mental disorders and olfactory and gustatory disorders, that may develop as a result of impairment of respiration, which is one of the most significant functions of the nose.[3] Recent studies have reported nasal obstruction as a cause of sleep disturbance.[4,5] Patients may be asymptomatic during the daytime but present with complaints of nasal obstruction that are particularly troublesome at night.[5] It is known that the quality of both sleep and life is impaired in the presence of nasal obstruction. However, there are few studies and publications regarding neuropsychiatric evaluations of this disorder and the interventions it may require.

The present study mainly evaluated the psychological status and personality profiles of patients diagnosed with unilateral or bilateral complete nasal obstruction based on the hypothesis that nasal obstruction may affect psychological status because of impaired sleep and daytime irritability. In the literature on the relationship between psychological status and nasal obstruction, there are few studies in English.

Materials and methods

The present study was performed at a tertiary referral centre in the clinics of the Departments of Otorhinolaryngology and Psychiatry, according to the Helsinki declaration (World Medical Association 2010). All volunteers were included in the study with the approval of the university's ethics committee and in accordance with the guidelines of the National Health and Medical Research Committee. All volunteers were provided with information about the evaluation, and written informed consent was obtained prior to the study.

The study's design was prospective, observational, controlled and single-blinded, and it included 49 consecutive patients (20–42 years old) with unilateral or bilateral complete nasal obstruction who presented to the otorhinolaryngology clinic. Patients whose chief complaint was 'nasal obstruction' (caudally complete nasal septal deviation, bilaterally

or unilaterally) were included, and diagnoses were confirmed by endoscopic examination using a 0° 4.0-mm nasal endoscope.

The study's exclusion criteria included patients who had nasal polyps, chronic sinusitis or allergic rhinitis. Likewise, any history of psychiatric disease or use of psychiatric medications excluded a participant from the study.

The patients were compared with a group of healthy controls that included 41 volunteers with similar demographic characteristics but no nasal obstruction. These volunteers were questioned about any history of other diseases or the use of medications.

Data collection instruments

A sociodemographic data form was prepared, and volunteers were questioned about age, gender, history of nasal trauma and level of education.

Personality belief questionnaire

Originally developed and introduced by Beck TA *et al.*, the Personality Belief Questionnaire includes an equal number of items representing avoidant, dependent, obsessive compulsive, histrionic, passive aggressive, narcissistic, paranoid, schizoid and antisocial personality disorders.[6] The scale contains the following instructions: 'Please read the statements below and rate how much you believe each one. Try to judge how you feel about each statement most of the time'. The scale asks respondents to circle a number reflecting how much they believe a statement. The options are 0 ('I don't believe it at all'), 1 ('I believe it slightly'), 2 ('I believe it moderately'), 3 ('I believe it very much') and 4 ('I believe it totally'). The questionnaire was translated into Turkish, followed by an appropriate validity and reliability study.[7]

Beck Anxiety Inventory

This inventory was developed by Beck *et al.* in 1988[8] and measures the severity of an individual's anxiety symptoms. It asks about subjective anxiety and physical symptoms using 21 questions that patients answer using a Likert-type scale ranging from 0–3. Its point range is from 0–63. The higher the total score, the more severe the individual's anxiety. The Turkish validity and reliability study for the inventory was conducted by Ulusoy *et al.*[9]

Beck Depression Inventory

The Beck Depression Inventory aims to objectively evaluate the symptoms of depression rather than diagnosing it.[10] The inventory consists of 21 questions, each of which has 4 possible answers that are scored from 0–3. The total score demonstrates the severity of depression. The validity and reliability study for this inventory was conducted by Hisli.[11]

Spielberger's State–Trait Anxiety Inventory I–II

This inventory was developed by Spielberger *et al.* and is composed of two subscales, state and trait, each of which consists of 20 questions.[12,13] The State–Trait Anxiety Inventory I identifies how an individual feels about himself or herself at a certain time and under particular conditions. The State–Trait Anxiety Inventory II scale identifies how an individual feels about himself or herself irrespective of the state and conditions he or she is involved in. It is a simple self-inventory. It was adapted to Turkish by Öner and LeCompte.[14] The personality questionnaires were evaluated by a psychiatrist, and the scores were statistically compared.

Table 1. Education profiles of the groups

Parameter	S (% (*n*))	HC (% (*n*))	Total (% (*n*))
Elementary school	30.6 (15)	31.7 (13)	31.1 (28)
Intermediate school	16.3 (8)	17.1 (7)	16.7 (15)
High school	30.6 (15)	29.2 (12)	30.0 (27)
University	22.4 (11)	21.9 (9)	22.2 (20)
Total	100 (49)	100 (41)	100 (90)

S = unilateral or bilateral complete nasal obstruction; HC = healthy control group

Statistical analysis

The statistical data were analysed using SPSS® (version 16.0) statistical analysis software. Descriptive statistics were given as the mean and standard deviation. Normal distribution was assessed using a Kolmogorov–Smirnov test. For non-normally distributed parameters, non-parametric tests were used. In order to establish significance in the comparison of quantitative data between the groups, a Kruskal–Wallis test was performed. In order to compare the groups pairwise, a Mann–Whitney U test was used. A value of p less than 0.05 was considered statistically significant.

Results

The mean age of patients with unilateral or bilateral complete nasal obstruction was 31.4 ± 11.1 years, whereas in the healthy controls, it was 33.4 ± 10.2 years. The groups were similar in terms of demographic data and education levels. In both groups, the highest level of education obtained by the largest number of participants was elementary school, followed by high school and university (Table 1).

Patients with unilateral or bilateral complete nasal obstruction had higher scores on all personality traits compared with the healthy controls (Table 2). Although all personality scores were higher in patients, the only differences that were statistically significant were the dependent, antisocial and avoidant

Table 2. Comparison of psychological status

Psychological status	S (mean ± SD)	HC (mean ± SD)	*P*-value
Antisocial	28.4 ± 11.0	17.9 ± 9.8	0.014*
Dependent	22.2 ± 9.8	18.1 ± 9.0	0.042*
Avoidant	20.4 ± 8.3	17.1 ± 8.0	0.05*
Paranoid	19.4 ± 11.1	15.9 ± 11.1	0.14
Narcissistic	16.8 ± 9.7	14.0 ± 9.6	0.17
Schizoid	24.7 ± 9.8	21.0 ± 9.0	0.18
Histrionic	16.1 ± 9.7	14.4 ± 9.1	0.39
Passive aggressive	23.8 ± 10.7	22.2 ± 10.9	0.47
Obsessive compulsive	29.9 ± 8.8	28.5 ± 11.0	0.54

*Statistically significant $p < 0.05$. S = unilateral or bilateral complete nasal obstruction; SD = standard deviation; HC = healthy control group

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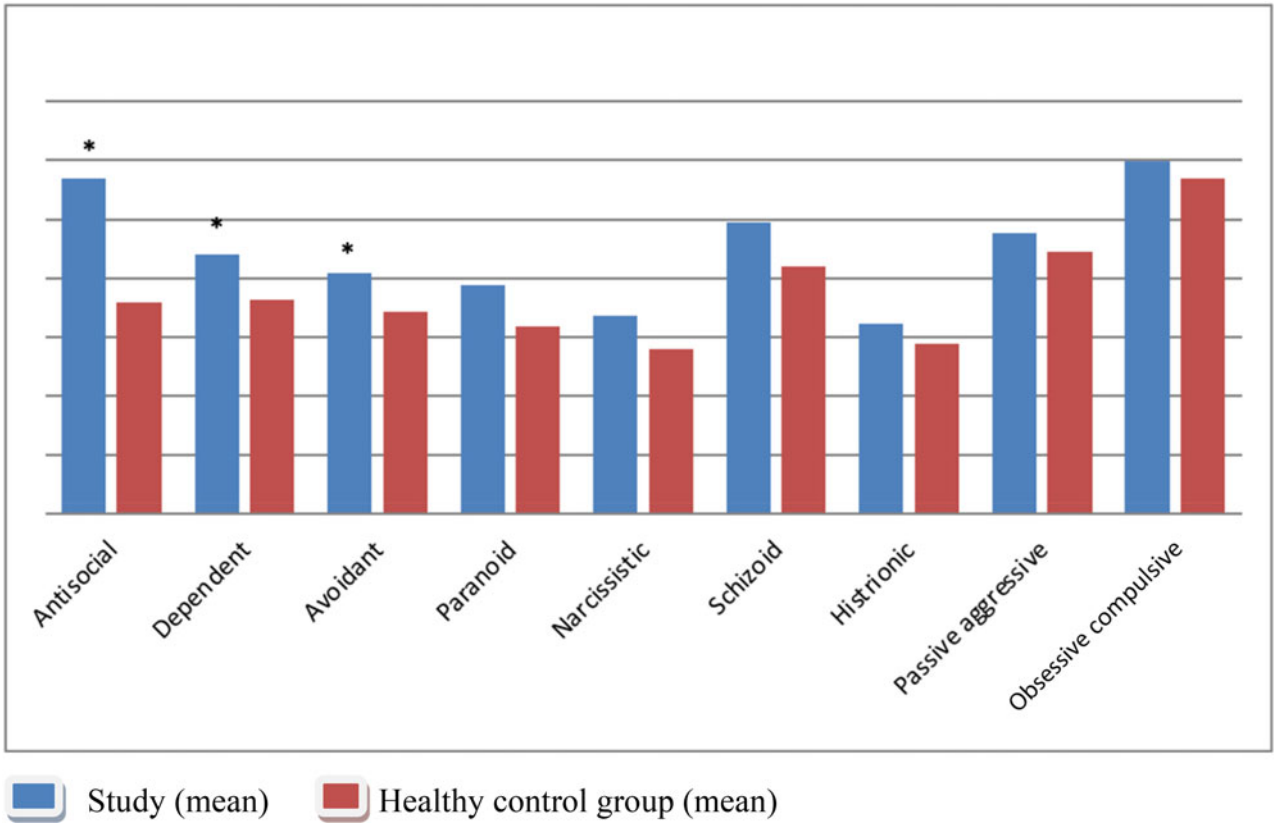

Figure 1. Comparison of psychological status. Asterisk indicates statistically significant difference ($p < 0.05$).

personality trait scores ($p = 0.042$, $p = 0.014$ and $p = 0.05$, respectively) (Figure 1, Table 2). Patients with unilateral or bilateral complete nasal obstruction had scores that were higher than those of the healthy controls on all the depression and anxiety evaluation scales except the Beck Anxiety Inventory, although these scores were not significantly higher (Table 3).

Discussion

The present study mainly evaluated the psychological status and depression and anxiety levels of patients with diagnosed nasal obstruction based on the belief that nasal obstruction may affect psychology because of impaired sleep and daytime irritability.

A study by Ekici *et al.* assessed 97 patients with sleep apnoea, comparing them in terms of personality traits to patients in similar age groups who snored. Sleep apnoea patients were significantly more hypochondriacal, and higher scores on psychopathic deviation and personality traits were also observed.[15]

Table 3. Comparison of anxiety and depression levels

Test used	S (mean ± SD)	HC (mean ± SD)	*P*-value
Beck Depression Inventory	9.5 ± 11.9	7.2 ± 7.4	0.29
STAIX I	39.0 ± 9.8	37.8 ± 8.5	0.54
STAIX II	38.6 ± 7.9	37.6 ± 7.5	0.56
Beck Anxiety Inventory	8.0 ± 9.2	9.3 ± 10.1	0.51

*Statistically significant $p < 0.05$. S = unilateral or bilateral complete nasal obstruction; SD = standard deviation; HC = healthy control group. STAIX = State–Trait Anxiety Inventory

- Nasal obstruction has been reported to have an important effect on facial growth and development, especially in the first decade of life
- The present study mainly evaluated the psychological status and personality profiles of patients diagnosed with unilateral or bilateral complete nasal obstruction
- Patients with unilateral or bilateral complete nasal obstruction had higher psychiatric symptom scores compared with healthy controls
- Nasal obstruction may affect psychological status because of impaired sleep and daytime irritability
- More attention should be paid to the psychological status of patients with nasal deformities

Every individual is unique in terms of qualities and traits. Our personalities define our thoughts, feelings and behaviour in terms of how we think and feel, the decisions we make and the actions we take. Personality is the determining factor in how we live our lives. Psychological status is determined, in part, by our genetics as well as our environment. People with obsessive compulsive (anankastic) and anxious or dependent personality disorders are often viewed as anxious and fearful. These individuals are excessively afraid of social relations and have feelings of tension, apprehension, insecurity and inferiority. Fidan *et al.* studied the psychiatric symptoms of patients with nasal septum deviation, assessing somatisation, obsession, interpersonal sensitivity, depression, anxiety, phobic anxiety, hostility, paranoid thoughts, psychotism and quality of life. They found that psychiatric symptoms were significantly more pronounced in patients with septal deviations.[3]

Vamanshankar *et al.* researched the personality traits of patients with allergic rhinitis and the correlation between its severity and personality. Using the International Personality

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Disorder Examination questionnaire, they found that the C-type personality was more frequent in patients with allergic rhinitis and that dominant anxious traits were more pronounced compared with healthy controls.[16,17]

Although it has been acknowledged in the literature that patients diagnosed with nasal obstruction have a lower quality of sleep and a lower quality of life, there is limited data about the relationship between psychological status and nasal obstruction and about how poor mental health may result from negative emotions because of obstructed airflow.[18]

Aikens and Mendelson found that compared with patients with primary snoring, patients with sleep apnoea had significantly higher absolute scores and nearly twice the rate of clinical elevation on scales of both depression and hypochondriasis. They concluded that sleep apnoea patients had relatively more inactivity, anergia, guilt, pessimism and low self-esteem accompanied by dominant somatic concerns.[19]

Patients with unilateral or bilateral complete nasal obstruction had higher psychiatric symptom scores for all personalities (Table 2). Although all scores were higher, only the dependent and antisocial personality traits were significantly higher compared with the healthy controls (Table 2). It would not be wrong to state that unilateral or bilateral complete nasal obstruction are related to higher psychiatric symptom scores. Patients with nasal obstruction had higher scores indicating depression or anxiety compared with healthy controls, although the scores were not significantly higher (Table 3). Studies have shown that nasal surgery, such as septoplasty or septorhinoplasty, improves scores regarding nasal symptoms and nasal obstruction. Patients with psychiatric symptoms can be evaluated from an otorhinolaryngological perspective. Patients with antisocial and dependent personality status can benefit from nasal surgery. Prospective studies with longitudinal designs should be designed for further research.

Conclusion

Patients with unilateral or bilateral complete nasal obstruction had higher psychiatric symptom scores compared with healthy controls, although the differences were not statistically significant, except for the scores regarding dependent and antisocial personality traits. The psychological conditions of patients with structural deformities that cause nasal obstruction may be affected by these obstructions, and appropriate nasal treatment should be provided to improve their symptoms and quality of life.

Competing interests. None declared

References

1 Grymer LF, Bosch. The nasal septum and development of the midface. A longitudinal study of a pair of monozygotic twins. *Rhinology* 1997; **35**:6–10
2 Yildirim I, Okur E. The prevalence of nasal septal deviation in children from Kahramanmaras, Turkey. *Int J Pediatr Otorhinolaryngol* 2003; **67**:1203–6
3 Fidan T, Fidan V, Ak M, Sütbeyaz Y. Neuropsychiatric symptoms, quality of sleep and quality of life in patients diagnosed with nasal septal deviation. *Kulak Burun Bogaz Ihtis Derg* 2011;**21**:312–17
4 Meen EK, Chandra RK. The role of the nose in sleep-disordered breathing. *Am J Rhinol Allergy* 2013;**27**:213–20
5 Pevernagie DA, De Meyer MM, Claeys S. Sleep, breathing and the nose. *Sleep Med Rev* 2005;**9**:437–51
6 Fournier JC, Derubeis RJ, Beck AT. Dysfunctional cognitions in personality pathology: the structure and validity of the Personality Belief Questionnaire. *Psychol Med* 2012;**42**:795–805
7 Türkçapar MH, Örsel S, Uğurlu M, Sargın E, Turhan M, Akkoyunlu S *et al.* Kişilik inanç ölçeği Türkçe formunun geçerlik ve güvenirliği. *Klinik Psikiyatri Dergisi* 2007;**10**:177–91
8 Beck AT, Steer RA. *Beck Anxiety Inventory Manual.* San Antonio: Harcourt Brace and Company, 1993
9 Ulusoy M, Şahin N, Erkmen H. Turkish version of Beck Anxiety Inventory: psychometric properties. *J Cog Psychoth* 1998;**2**:163–72
10 Beck AT, Steer RA. Internal consistencies of the original and revised Beck Depression Inventory. *J Clin Psychol* 1984;**40**:1365–7
11 Hisli N. Beck Depresyon Envanteri'nin geçerliliği üzerine bir çalışma. *Psikoloji Dergisi* 1988;**6**:118–22
12 Spielberger CD, Gorssuch RL, Lushene PR, Vagg PR, Jacobs GA. *Manual for the State-Trait Anxiety Inventory.* Palo Alto: Consulting Psychologists Press, 1983
13 Spielberger CD, Sydeman SJ. State-Trait Anxiety Inventory and State-Trait Anger Expression Inventory. In: Maruish ME, ed. *The Use of Psychological Testing for Treatment Planning and Outcome Assessment.* Hillsdale, NJ: Lawrence Erlbaum Associates, 1994;292–321
14 Öner N, Lecompte A. *Durumluk-Sürekli Kaygı Envanteri El Kitabı.* İstanbul: Boğaziçi Üniversitesi Yayınları;1983
15 Ekici A, Ekici M, Oğuztürk O, Karaboğa I, Cimen D, Senturk E. Personality profiles in patients with obstructive sleep apnea. *Sleep Breath* 2013;**17**:305–10
16 Vamanshankar H, Hegde KS, Chaturvedi J, Pratibha CB, Ross A, Nayar RC, Parameshwaran S. Do patients with allergic rhinitis have a particular personality trait? *J Laryngol Otol* 2013;**127**:378–82
17 Akkoca Ö, Oğuz H, Ünlü CE, Aydın E, Ozdel K, Kavuzlu A. Association between nasal obstruction symptoms and anxiety. *Ear Nose Throat J* 2020;**99**:448–52
18 Strazdins E, Nie YF, Ramli R, Palesy T, Christensen JM, Marcells GN *et al.* Association of mental health status with perception of nasal function. *JAMA Facial Plast Surg* 2017;**19**:369–77
19 Aikens JE, Mendelson WB. A matched comparison of MMPI responses in patients with primary snoring or obstructive sleep apnea. *Sleep* 1999; **22**:355–9

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