

Isolated External Auditory Canal Pruritus: A Somatic Obsession

İzole Dış Kulak Yolu Kaşıntısı: Somatik Bir Obsesyon

✉ Mahir Akbudak¹, ✉ Songül Karababa Demir², ✉ Bilal Sizer³

¹Mardin Training and Research Hospital, Clinic of Psychiatry, Mardin, Turkey

²Mardin Training and Research Hospital, Clinic of Otorhinolaryngology, Mardin, Turkey

³Istanbul Arel University Faculty of Medicine, Department of Otorhinolaryngology, İstanbul, Turkey

Abstract

Objective: Patients presenting to otorhinolaryngology (OHL) clinics with isolated external auditory canal (EAC) pruritus are common. Although there are many etiological reasons for this complaint, psychological factors have long been ignored. Psychocutaneous diseases must be considered in the differential diagnosis when no symptoms that might cause pruritus are detected in the OHL examinations, including anamnesis and microscopic otoscopy, of patients with isolated EAC pruritus. Recent studies have shown that psychological factors or disorders must not be ignored in patients with isolated EAC pruritus.

Method: A total of 60 patients who applied to the OHL clinic with EAC pruritus and had not received psychiatric treatment before or yet were included in the patient group (PG) in the study, after excluding other causes of EAC pruritus. We included 62 individuals in the control group (CG) who had no previous or current complaints of EAC pruritus and who had not received psychiatric treatment. We filled out the sociodemographic data form that we had prepared for the PG and CG participants we included in the study. We also applied the psychiatric symptom screening list (SCL-90-R) and Maudsey obsessive compulsive symptom list (MOCI) scales to the participants. However, we had to exclude 3 of the 62 healthy participants in the control group because they filled out the SCL-90-R and MOCI tests incompletely, and we formed the control group with 59 healthy participants.

Results: The difference between SCL-90-R test overall scores and sub-parameters of SCL-90-R test between PG and CG in our study were the difference between obsessive-compulsive symptoms, somatization, interpersonal sensitivity, depression, anxiety, anger-hostility, phobias, paranoid symptoms, psychoticism and additional scale scores was statistically significant ($p<0.05$). A statistically significant difference was also detected between the MOCI test total scores applied to PG and CG and the MOCI test sub-parameters control, cleanliness, slowness, suspicion, and rumination scores ($p<0.05$).

Conclusion: The data obtained in this study showed that the complaint of isolated EAC pruritus might have a psychological basis. The statistically

Öz

Amaç: Kulak burun boğaz (KBB) polikliniklerine izole dış kulak yolu (DKY) kaşıntısı şikayeti ile başvuran hastalara sık rastlanır. Bu şikayetin bir çok etiyolojik nedeni olmasına rağmen psikolojik faktörler uzun süredir göz ardı edilmektedir. İzole DKY kaşıntısı ile gelen hastaların anamnez ve mikroskopik otoskopilerinde içeren KBB muayenesinde, kaşıntıya sebep olacak bir belirtiyeye rastlanmadığı zaman ayırıcı tanıda psikokutanöz hastalıklar düşünülmelidir. Son yıllarda yapılan bazı araştırmalar bize, izole DKY kaşıntısında psikolojik faktörlerin veya psikolojik bozuklukların göz ardı edilmemesi gerektiğini göstermiştir.

Yöntem: Biz çalışmamıza hasta grubu (HG) olarak, DKY kaşıntısı ile KBB polikliniğine başvuran, diğer DKY kaşıntı sebepleri dışlanmış, daha önce ve halen psikiyatrik tedavi almayan 60 hasta aldık. Kontrol grubuna (KG), daha önce veya şimdi DKY kaşıntısı şikayeti olmayan ve psikiyatrik tedavi almayan 62 kişi dahil ettik. Çalışmaya dahil ettiğimiz HG ve KG katılımcılarına kendi hazırladığımız sosyo-demografik veri formunu doldurduk. Katılımcılara ayrıca, ruhsal belirti tarama listesi (SCL-90-R) ve Maudsey obsesif kompulsif semptom listesi (MOKSL) ölçeklerini uyguladık. Fakat kontrol grubuna alınan 62 sağlıklı katılımcıdan 3 kişiyi SCL-90-R ve MOKSL testlerini eksik doldurduğu için çalışma dışı bırakmak zorunda kaldık ve kontrol grubunu 59 sağlıklı katılımcı ile oluşturduk.

Bulgular: Çalışmamızda HG ve KG arasında SCL-90-R testi genel skorları ve SCL-90-R testinin alt parametreleri; obsesif kompulsif belirtiler, somatizasyon, kişiler arası duyarlılık, depresyon, anksiyete, öfke-düşmanlık, fobiler, paranoid belirtiler, psikotizm ve ek skala skorları arasındaki fark istatistiksel olarak anlamlıydı ($p<0,05$). Ayrıca HG ve KG'ye uygulanan MOKSL testi toplam skorları ve MOKSL testi alt parametreleri olan kontrol, temizlik, yavaşlık, kuşku ve ruminasyon puanları arasında istatistiksel olarak anlamlı bir fark olduğu görüldü ($p<0,05$).

Sonuç: Çalışmamızdan elde ettiğimiz veriler bize izole DKY kaşıntısı şikayetinin psikolojik temelli olabileceğini gösterdi. Çalışmamızda iki grup



Address for Correspondence: Mahir Akbudak, Mardin Training and Research Hospital, Clinic of Psychiatry, Mardin, Turkey

E-mail: mahirakbudak21@gmail.com **ORCID:** orcid.org/0000-0002-2201-4468 **Received:** 28.02.2024 **Accepted:** 17.10.2024

Cite this article as: Akbudak M, Karababa Demir S, Sizer B. Isolated External Auditory Canal Pruritus: A Somatic Obsession. Bagcilar Med Bull. 2024;9(4):255-260



©Copyright 2024 by the Health Sciences University Turkey, İstanbul Bagcilar Training and Research Hospital. Bagcilar Medical Bulletin published by Galenos Publishing House. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 (CC BY-NC-ND) International License.

Abstract

significant difference in the parameters measuring the obsession and compulsion scores between the two groups in this study suggested that EAC pruritus might be a somatic obsession. Furthermore, the statistically significant difference between all parameters of the scales in the comparison between the two groups supported the hypothesis that EAC pruritus might have a psychological basis. This result, which was detected in the present study, indicated that psychological factors must not be ignored in EAC-related pruritus. However, more extensive studies are needed on this subject.

Keywords: External auditory canal pruritus, obsessive compulsive disorder, psychiatric disorders, somatic obsession

Öz

arasında obsesyon ve kompülsiyon puanlarını ölçen parametrelerdeki istatistiksel olarak anlamlı fark bize DKY kaşıntısının somatik bir obsesyon olabileceğini düşündürdü. Ayrıca iki grup arasındaki karşılaştırmada, uygulanan ölçeklerin tüm parametreleri arasında istatistiksel olarak anlamlı fark olması DKY kaşıntısının psikolojik temelli olabileceği hipotezimizi destekler nitelikteydi. Bizim çalışmamız ile ortaya çıkan bu sonuç, DKY kaşıntısı şikayetinde psikolojik faktörlerin göz ardı edilmemesi gerektiğini gösterdi. Fakat bu konu ile ilgili daha kapsamlı araştırmalara ihtiyaç vardır.

Anahtar kelimeler: Dış kulak yolu kaşıntısı, obsesif kompülsif bozukluk, psikiyatrik bozukluklar, somatik obsesyon

Introduction

The external auditory canal (EAC) or external ear canal is a cartilaginous structure that includes apocrine and sebaceous glands, and the skin contains hairy cells. EAC pruritus or itching is a common symptom of several etiological factors. Various pathologies, such as seborrheic dermatitis, contact dermatitis, dermatomycosis, psoriasis, dermatophyte (Id) reaction, and EAC carcinoma, should be considered as the etiological causes of EAC pruritus (1).

EAC pruritus can be accompanied by pain, burning, or stinging sensations. The severity of itching could be mild or extreme if sleep disturbance is observed in the patient. Patients commonly present in the otorhinolaryngology (OHL) outpatient clinics with only EAC pruritus. This condition was defined as “itchy ear syndrome” in the literature (2). When there is no evidence of bacterial infection, active dermatological disease (psoriasis, atopic dermatitis, etc.), or otomycosis in the OHL examination, which includes anamnesis and microscopic otoscopy, psychocutaneous diseases should be considered in the differential diagnosis. Several psychocutaneous diseases, such as neurodermatitis, primary essential pruritus, and delusional parasitosis, can cause EAC pruritus (3).

Obsessive compulsive disorder (OCD) is characterized by unwanted recurring thoughts (obsessions) and behaviors intended to ward off the anxiety caused by these thoughts (compulsions). There are several types of obsessions and compulsion. Somatic obsessions are only one type of these (4). Somatic obsessions are obsessive and distorted thoughts that can be observed in OCD, and they involve tactility, mobility, or various sensations associated with a certain body part (5). In the literature, certain studies indicated that individuals with obsessive-compulsive personality traits or OCD were more susceptible to EAC pruritus (6). This may be because OCD patients over-focus on the sensations they feel in their bodies. Based

on these studies, we concluded that all possible causes of EAC pruritus should be investigated in addition to general anamnesis and examinations in patients who presented to the OHL outpatient clinic with EAC pruritus complaints, and the patient’s psychology should be evaluated after all possible organic factors are excluded.

In this study, we set out with the hypothesis that pruritus in patients with EAC pruritus may have a psychological cause when other causes of EAC pruritus are excluded and that this condition may be a somatic obsession (3,5). For this purpose, routine oto-microscopic external ear canal evaluation was performed in patients included in the study. The examinations were performed by the same otolaryngologist using the same ear microscope in a similar manner for all patients. We applied the symptom checklist (SCL-90-R) and the Maudsley Obsessive-Compulsive Inventory (MOCI) to the patient group (PG) and healthy control group (CG) and compared the results between the two groups.

Materials and Methods

Sixty (n=60) 18-65-year-old patients who presented to the OHL outpatient clinic at Mardin Training and Research Hospital with pruritus compliance and voluntarily agreed to participate were included in the study. In addition to a detailed ear, nose, and throat examination, microscopic examination of the EAC and external ear auditory secretion was conducted to exclude infectious and allergic factors that could cause EAC pruritus.

We included 62 individuals in the control group (CG) who had no previous or current complaints of EAC pruritus and who had not received psychiatric treatment. We filled out the socio-demographic data form that we had prepared for the PG and CG participants we included in the study. We also applied the psychiatric symptom screening list (SCL-90-R) and Maudsey obsessive compulsive symptom

list (MOCI) scales to the participants. However, we had to exclude 3 of the 62 healthy participants in the control group because they filled out the SCL-90-R and MOCI tests incompletely, and we formed the control group with 59 healthy participants.

The study was approved by the Non-Interventional Clinical Research Ethics Committee of Mardin Artuklu University (date: 06/04/2022, number: 2022-7). Approval of the participants included in the study was obtained using a voluntary consent form.

Data Collection Instruments

Socio-demographic participant data were collected using a form developed by the authors. SCL-90-R and MOCI were also applied to the participants.

SCL-90-R

SCL-90-R is a 90-item checklist developed by Derogatis (7). This test is used to screen for psychological symptoms, including somatization, obsessive-compulsive symptoms, interpersonal sensitivity, anxiety, depression, phobia, anger/hostility, paranoid traits, psychoticism, an additional scale and general evaluation items. The validity and reliability of the Turkish version of the scale were determined by Dağ (8).

MOCI

The MOCI was developed by Hodgson and Rachman (9) to investigate the type of OCD symptoms and was validated in the Turkish language by Erol and Savaşır (10). The inventory includes checking, cleaning, slowness, doubting, and rumination subdimensions.

Statistical Analysis

IBM SPSS 21.0 for Windows statistical software was used for the statistical analysis of the study data. Measured variables are presented as mean \pm standard deviation and median, and categorical variables are presented as counts

and percentages (%). The normal distribution of the data was checked. The Mann-Whitney U test was employed to compare group data without normal distribution. The chi-square (χ^2) test was employed to compare qualitative variables between the groups. $P < 0.05$ was accepted as statistically significant.

Results

The hg included 46 females (n=46, 76.7%), 14 males (n=14, 23.3%), 60 (n=60) participants. The CG included 41 women (n=41, 69.5%) and 18 men (n=18, 30.5%); a total of 59 (n=59) participants. The socio-demographic data are presented in Table 1.

The age and employment status of the patient and CGs were statistically similar. The distribution of participants according to gender and education level was different ($p < 0.05$, Table 1). We determined that the difference between the general evaluation scores of the patient and CGs was statistically significant in the SCL-90-R. Furthermore, the differences between obsessive-compulsive symptoms, somatization, interpersonal sensitivity, depression, anxiety, anger-hostility, phobia, paranoid symptoms, psychoticism subdimension, and additional scale scores of the groups were statistically significant in the SCL-90-R ($p < 0.001$, Table 2).

The difference between the total scores of the two groups in the MOCI was statistically significant. The difference between the MOCI checking, cleaning, slowness, doubting, and rumination subdimension scores of the PG and CG was statistically significant ($p < 0.001$, Table 3).

Discussion

Isolated EAC pruritus is a common symptom, the etiology of which is still not clear. The literature generally reported

Table 1. Comparison of socio-demographic data of PG and CG

		PG (n=60)	CG (n=59)	p (p<0.05)
Age (mean \pm SD)		31.10 \pm 10.55	32.95 \pm 5.59	0.234
Gender	Female	46 (76.7%)	41 (69.5%)	<0.001
	Male	14 (23.3%)	18 (30.5%)	
Employment	Employed	60 (100%)	53 (89.9%)	0.034
	Unemployed	0 (0%)	6 (10.2%)	
Education	Primary school	2 (3.3%)	4 (6.8%)	0.005
	Middle school	14 (23.3%)	10 (16.9%)	
	High school	24 (40.0%)	26 (44.1%)	
	College	20 (33.3%)	19 (32.2%)	

PG: Patient group, CG: Control group, n: Count, SD: Standard deviation, p: Mann-Whitney U test statistical significance: ($p < 0.05$)

that allergic contact dermatitis is responsible for the etiology of isolated ear itching (11). However, Acar et al. (12) reported that patients with isolated EAC pruritus did not exhibit allergic contact dermatitis symptoms on histopathological analysis (12). Therefore, there is

no consensus on the underlying pathology of isolated EAC pruritus, and the etiologic factors have not been completely determined (13). Due to this uncertainty, patients are frequently diagnosed with idiopathic EAC pruritus. However, recent studies have demonstrated

Table 2. Comparison of the study groups based on symptom checklist (SCL-90-R) and subdimension scores

SCL-90-R	Group	n	Median	Mean ± SD	Mean Rank	U	p
General evaluation	PG	60	1.23	1.20±0.74	78.23	676.000	<0.001
	CG	59	0.31	0.36±0.33	41.46		
Somatization	PG	60	1.29	1.45±0.99	81.45	483.000	<0.001
	CG	59	0.25	0.34±0.27	38.19		
Obsessive compulsive symptoms	PG	60	1.60	1.54±0.84	80.58	535.000	<0.001
	CG	59	0.30	0.43±0.38	39.07		
Interpersonal sensitivity	PG	60	1.39	1.20±0.92	71.45	1083.000	<0.001
	CG	59	0.23	0.42±0.40	48.36		
Depression	PG	60	1.27	1.22±0.87	75.55	837.000	<0.001
	CG	59	0.23	0.37±0.39	44.19		
Anxiety	PG	60	1.05	1.15±0.88	77.82	701.000	<0.001
	CG	59	0.20	0.32±0.33	41.88		
Anger-hostility	PG	60	1.17	1.00±0.78	74.05	927.000	<0.001
	CG	59	0.17	0.38±0.55	45.71		
Phobia	PG	60	0.70	0.86±0.73	77.12	743.000	<0.001
	CG	59	0.14	0.23±0.32	42.59		
Paranoid traits	PG	60	1.00	1.10±0.88	71.75	1065.000	<0.001
	CG	59	0.33	0.50±0.58	48.05		
Psychoticism	PG	60	0.75	0.80±0.78	71.70	1068.000	<0.001
	CG	59	0.10	0.27±0.33	48.10		
Additional scale	PG	60	1.14	1.20±0.90	74.77	884.000	<0.001
	CG	59	0.29	0.44±0.50	44.98		

PG: Patient group, CG: Control group, SCL-90-R: Symptom checklist, n: Count, SD: Standard deviation, U: Mann-Whitney U test, p: Mann-Whitney U test statistical significance: (p<0.05)

Table 3. Comparison of the MOCI total and subdimension scores of study groups

MOCI	Group	n	Median	Mean ± SD	Mean Rank	U	p
Total	PG	60	20.00	20.53±7.85	84.87	278.000	<0.001
	CG	59	7.00	7.31±4.76	34.71		
Checking	PG	60	5.00	4.33±2.65	80.47	542.000	<0.001
	CG	59	1.00	1.15±1.40	39.19		
Cleaning	PG	60	7.00	7.10±2.53	82.68	409.000	<0.001
	CG	59	3.00	3.10±2.05	36.93		
Slowness	PG	60	2.00	2.83±1.91	76.48	781.000	<0.001
	CG	59	0.00	0.98±1.18	43.24		
Doubting	PG	60	4.50	4.27±1.56	84.53	298.000	<0.001
	CG	59	2.00	1.59±0.95	35.05		
Rumination	PG	60	2.00	1.93±1.45	77.02	749.000	<0.001
	CG	59	0.00	0.48±0.77	42.69		

PG: Patient group, CG: Control group, MOCI: Maudsley Obsessive-Compulsive Inventory, n: Count, SD: Standard deviation, U: Mann-Whitney U test, p: Mann-Whitney U test statistical significance: (p<0.05)

that psychological factors (e.g., somatization disorder) should be kept in mind as well as other etiologies in patients with EAC pruritus complaints before describing the symptoms as idiopathic (14).

It has been known for a long time that psychological factors can be effective in the treatment of itching in general (15). The degree of depression or anxiety symptoms was directly associated with the severity of itching in various pruritic skin diseases (16-18). It is also known that itching severity can increase in patients with psychiatric disorders (19,20). Pruritus strongly reduces quality of life and can often be comorbid with other psychiatric disorders, including suicidal ideation (21). Studies have reported a positive correlation between pruritus and depression scores. Patients with high depression scores scored higher on the itching severity test than those with low depression scores (22).

Psychogenic pruritus can accompany other psychiatric conditions, such as depression, anxiety, obsessive-compulsive disorder, psychosis, and substance use (18,23,24). Pruritus is also a symptom of somatoform dissociation, and even milder degrees of dissociation may play a role in the development of psychogenic pruritus (25). Thus, the psychological state of patients with persistent itching should be considered. This approach may also be applicable to isolated EAC pruritus (26).

The obsessions and compulsion observed in OCD patients tend to change over time. Somatic obsessions are among the types of obsessions. Somatic obsessions are when individuals with OCD become excessively interested in any part of their body and/or focus their thoughts on it, causing them to perceive minimal or non-existent physical symptoms more intensely and develop obsessions and compulsions about this issue over time (27). In OCD, somatic obsession can be recognized as abnormal body awareness (27). The following bodily processes are common in individuals who suffer from somatic obsessions: breathing, blinking, salivation, and swallowing; body position; tactile sensations such as heartbeat or itching, tinnitus, "floaters in eyesight", and other visual distractions (e.g., seeing the profile of own nose in peripheral vision) (6).

Yilmaz et al in a 2016 study, Yilmaz et al. (26) claimed that almost half (43%) of patients with isolated ear canal pruritus had a type D personality. These individuals have high levels of anxiety, worry about unimportant thoughts or behaviors, over-attribute thoughts, are introverted, have high social shyness, and fear rejection or disapproval (28). Type D personality has recently been associated with

various diseases, such as irritable bowel syndrome, heart disease, anal fissures, type 2 diabetes, and hemorrhoids (29,30). Yilmaz et al. (26) reported that patients with type D personality experienced more severe pruritus than controls, and higher depressive and anxiety symptoms were observed in these patients than in controls. Furthermore, there was a negative correlation between the extraversion dimension score of the revised Eysenck personality questionnaire short form score and the severity of pruritus (26). Before these patients are diagnosed with idiopathic EAC pruritus, they should undergo a psychiatric examination (26).

The present study findings confirmed that EAC pruritus can be induced by psychological factors. We observed a significant difference between the general evaluation and other subdimension SCL-90-R scores of the patients and CG. Among these parameters, the high obsessive compulsion, anxiety, depression, somatization, interpersonal sensitivity, phobia, anger-hostility and other scores in the PG supported our hypothesis. In the CG, the general evaluation and subdimension scores were lower than those in the HG. These findings suggested that the HG exhibited more psychiatric symptoms.

A review of type D personality traits would reveal similarities with OCD-associated traits, especially perfectionism, social inhibition, and introversion. Thus, the MOCI was applied to PG and CG in our study, and we observed that the findings were more significant than expected. The checking, cleaning, slowness, doubting, and rumination subdimension scores of the HG were significantly higher than those of the CG. There were statistically significant differences between the subdimension scores of the two groups.

Study Limitations

However, the scarcity of similar studies in the literature, the small sample size of the current study, and the fact that some biochemical diagnostic tests were not applied prevented generalization of the hypothesis. These are the limitations of our study. Therefore, more comprehensive analytical studies should be conducted on the same patient population and on patients with OCD and somatic obsessions.

Conclusion

The findings of this study strongly supported the hypothesis and suggested the following: Is EAC pruritus an obsession, and in particular, is it a type of somatic obsession? Both the SCL-90-R and MOCI scores demonstrated that individuals with EAC pruritus should undergo a psychiatric examination after excluding other etiologic factors.

Ethics

Ethics Committee Approval: The study was approved by the Non-Interventional Clinical Research Ethics Committee of Mardin Artuklu University (date: 06/04/2022, number: 2022-7).

Informed Consent: Approval of the participants included in the study was obtained using a voluntary consent form.

Footnotes

Authorship Contributions

Surgical and Medical Practices: M.A., S.K.D., B.S., Concept: M.A., S.K.D., B.S., Design: M.A., S.K.D., B.S., Data Collection or Processing: M.A., S.K.D., B.S., Analysis or Interpretation: M.A., S.K.D., B.S., Literature Search: M.A., S.K.D., B.S., Writing: M.A., S.K.D., B.S.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Derebery J, Berliner KI. Foot and ear disease--the dermatophytid reaction in otology. *Laryngoscope*. 1996;106(2 Pt 1):181-186.
2. King WP. Allergic disorders in the otolaryngologic practice: Symposium on immunology and allergy. *Otolaryngol Clin North Am*. 1985;18(4):677-690.
3. Christopher J, Linstromand FL. Psychocutaneous diseases. In: Byron J. Bailey (editor). *HeadandNeck Surgery-Otolaryngology*. Vol.21993.p.1554-1555
4. American Psychiatric Association. *Diagnosticand Statistical Manual of Mental Disorders*. 5th ed. Arlington, VA: American Psychiatric Publishing, 2013.
5. Hershfeld, J, Corboy T. *The Mindfulness Workbook for OCD, Second Edition: A Guide to Overcoming Obsessions and Compulsions Using Mindfulness and Cognitive Behavioral Therapy*. 2013, Harbringer.
6. Acar B, Babademez MA, Karabulut H, Genç S, Karaşen RM. Treatment-Resistant External Ear Canal Itching. *ENT-Forum* 2008; www.ENT-Forum.net (7):1.
7. Derogatis LR. *SCL-90 Administration, Scoring and Procedure Manual*. 3rd ed. [National Computer Systems, Inc.], [Minneapolis, Minn.], ©1994.
8. Dağ İ. Reliability and validity of the symptom screening list (SCL-90-R) for university students. *Turkish Journal of Psychiatry* 1991;2:5-12.
9. Hodgson RJ, Rachman S. Obsessional-compulsive complaints. *Behav Res Ther*. 1977;15(5):389-395.
10. Erol N, Savaşır I. Maudsley Obsessive Compulsive Question List. XXIV. National Psychiatry and Neurological Sciences Congress Proceedings Book, Ankara, GATA Printing House 1988; 107-114.
11. Li LY, Cruz PD Jr. Allergic contact dermatitis: pathophysiology applied to future therapy. *Dermatol Ther*. 2004;17(3):219-223.
12. Acar B, Karadag AS, Karabulut H, Babademez MA, Zaim M, Karasen RM. Evaluation of contact sensitivity in patients with isolated itching of the external auditory canal. *J Otolaryngol Head Neck Surg*. 2011;40(3):187-190.
13. Golpanian RS, Smith P, Yosipovitch G. Itch in Organs Beyond the Skin. *Curr Allergy Asthma Rep*. 2020;20(9):49.
14. Acar B, Simsek GG, Oguztuzun S, Zaim M, Karasen RM. Isolated itching of external auditory canal: clinicopathological study with immunohistochemical determination of antimicrobial peptides. *J Laryngol Otol*. 2011;125(3):227-30.
15. Misery L, Brenaut E, Le Garrec R, Abasq C, Genestet S, Marcorelles P, et al. Neuropathic pruritus. *Nat Rev Neurol*. 2014;10(7):408-416.
16. Yosipovitch G, Samuel LS. Neuropathic and psychogenic itch. *Dermatol Ther*. 2008;21(1):32-41.
17. Dalgard FJ, Gieler U, Tomas-Aragones L, Lien L, Poot F, Jemec GBE, et al. The psychological burden of skin diseases: a cross-sectional multicenter study among dermatological out-patients in 13 European countries. *J Invest Dermatol*. 2015;135(4):984-991.
18. Lee HG, Stull C, Yosipovitch G. Psychiatric disorders and pruritus. *Clin Dermatol*. 2017;35(3):273-280.
19. Gieler U, Niemeier V, Brosig B, Kupfer J. Psychosomatic aspects of pruritus. *Dermatology and Psychosomatics*. 2002;3(1):6-13.
20. Fried RG. Evaluation and treatment of "psychogenic" pruritus and self-excoriation. *J Am Acad Dermatol*. 1994;30(6):993-999.
21. Hafenreffer S, Comes & Dominus in Castel Georgius Wolfgangus. *Nosodochium, In Quo Cutis, Eique Adhaerentium Partium, Affectus Omnes, Singulari Methodo, Et Cognoscendi Et Curandi Fidelissime*. Kühn, Ulmae, 1660.
22. Misery L, Ständer S. *Pruritus*. London: Springer, 2016; 223-227.
23. Mazeh D, Melamed Y, Cholostoy A, Aharonovitzch V, Weizman A, Yosipovitch G. Itching in the psychiatric ward. *Acta Derm Venereol*. 2008;88(2):128-131.
24. Pacan P, Grzesiak M, Reich A, Szepietowski JC. Is pruritus in depression a rare phenomenon? *Acta Derm Venereol*. 2009;89(1):109-110.
25. Gupta MA, Gupta AK. Medically unexplained cutaneous sensory symptoms may represent somatoform dissociation: an empirical study. *J Psychosom Res*. 2006;60(2):131-136.
26. Yılmaz B, Canan F, Şengül E, Özkurt FE, Tuna SF, Yildirim H. Type D personality, anxiety, depression and personality traits in patients with isolated itching of the external auditory canal. *J Laryngol Otol*. 2016;130(1):50-55.
27. Puranen JP. Bodily obsessions: intrusiveness of organs in somatic obsessive-compulsive disorder. *Med Health Care Philos*. 2022;25(3):439-448.
28. Denollet J. DS14: standard assessment of negative affectivity, social inhibition, and type D personality. *Psychosom Med*. 2005;67(1):89-97.
29. Yıldırım O, Alçelik A, Canan F, Aktaş G, Sit M, Işçi A, et al. Impaired subjective sleep quality in irritable bowel syndrome patients with a Type D personality. *Sleep Biol Rhythms*. 2013;11(2):135-138.
30. Sit M, Yılmaz EE, Canan F, Yıldırım O, Cetin MM. The impact of type D personality on health-related quality of life in patients with symptomatic haemorrhoids. *Prz Gastroenterol*. 2014;9(4):242-248.