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Research Article

Prevalence of Psychological Disorders in Patients with Fungal Otitis Externa.

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Abstract

Introduction: Otomycosis is the infectious or non-infectious inflammation of the external auditory canal. Symptoms such as ear ringing and hearing loss significantly affect the individuals' daily lives, leading to consequences such as dependency, irritability, depression, anxiety, and communication disorders. This study aimed to investigate the prevalence of psychological disorders in patients with fungal otitis externa.
Materials and Methods: This cross-sectional study was conducted in 2022-2023 in Masih Daneshvari Hospital. A total of 150 eligible individuals with fungal otitis externa attending the ENT clinic were included in the study. Data were collected using the SCL-25 questionnaire and analyzed with SPSS-16 software.
Results: Among the 150 study participants, 60% were female, and 40% were male. The severity of psychological disorders showed no significant correlation with gender, education, or age. Most individuals exhibited moderate severity of psychological disorders. Physical complaints, anxiety disorders, and depression had the highest scores among psychological disorders. Items such as psychosis, paranoid disorders, and hypochondriasis showed the least severity in our studied population.
Conclusion: Our study demonstrated a significant level of psychological disorders in patients with otomycosis. These findings suggest the considerable severity of psychological disorders, emphasizing the need for their assessment and, if necessary, treatment.

Keywords : Otomycosis, Depression, Anxiety, SCL-25 questionnaire.

INTRODUCTION

Otomycosis, commonly referred to as fungal otitis externa, is a fungal infection that primarily affects the external auditory canal.[4] It is more prevalent in tropical and subtropical regions due to the favorable conditions of heat and humidity that promote fungal growth.[5,8,18] This condition accounts for approximately 10% of otitis externa cases globally, with Aspergillus and Candida species being the most common causative agents.[1,10,27,29] While otomycosis is typically localized to the outer ear, it can occasionally extend to the middle ear[30], leading to more severe complications.[34]

The clinical presentation of otomycosis includes symptoms such as itching, ear pain, inflammation, scaling, and discharge from the ear canal. Infected individuals may also experience hearing loss and a sensation of fullness in the ear. These symptoms can significantly impair daily activities and overall quality of life.[13,15] The condition is particularly common among individuals living in warm climates or those engaging in water sports, as prolonged exposure to moisture creates an ideal environment for fungal proliferation.[8]

Several factors contribute to the development of otomycosis. The widespread use of antibiotics and steroids has been identified as a major risk factor, as these medications alter the pH balance of the ear canal and eliminate competing bacteria, thereby facilitating fungal growth.[28] Other risk factors include diabetes, chronic skin conditions like eczema, ear ulceration due to hearing aids or cleaning swabs, swimming in contaminated pools, and anatomical deformities that hinder proper ear hygiene.[8,36]

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The diagnosis of otomycosis requires careful evaluation by a physician.[6,7] A complete medical history is often taken to identify potential risk factors, followed by a physical examination of the ear canal and eardrum.[33] In some cases, fluid samples from the ear may be analyzed microscopically to differentiate fungal infections from bacterial ones. Accurate diagnosis is crucial for effective treatment [6], which typically involves cleaning the ear canal, administering antifungal eardrops or topical creams [7,9,11], and in severe cases, prescribing oral antifungal medications.[31,32,37]

Despite its relatively high prevalence in certain regions, otomycosis remains under-researched in terms of its psychological impact on affected individuals. Symptoms such as hearing loss and tinnitus can lead to emotional distress, dependency on others, irritability, depression, anxiety, and communication difficulties.[2,3,12] These psychological consequences underscore the need for comprehensive studies that examine both the physical and mental health aspects of this condition.

This dissertation aims to explore the prevalence of psychological disorders among patients diagnosed with fungal otitis externa. By investigating this relationship, it seeks to provide valuable insights into how otomycosis affects not only physical health but also mental well-being. Such findings could pave the way for holistic treatment approaches that address both medical and psychological needs.[14]

MATERIALS AND METHODS

This study was designed as a cross-sectional investigation conducted between 2022 and 2023 at Dr. Masih Daneshvari Hospital, affiliated with Shahid Beheshti University of Medical Sciences in Tehran, Iran. The primary objective was to determine the prevalence of psychological disorders among patients diagnosed with fungal otitis externa (otomycosis). This hospital was chosen due to its established ENT clinic and its role as a referral center for such conditions in the region. The study adhered to ethical guidelines and obtained approval from the Institutional Review Board (IRB) of Shahid Beheshti University of Medical Sciences.

Study Population and Sample Selection

The study population comprised individuals presenting at the ENT clinic of Dr. Masih Daneshvari Hospital with symptoms suggestive of fungal otitis externa. A total of 150 eligible patients were included in the study. Inclusion criteria were: (1) confirmed clinical diagnosis of fungal otitis externa based on otoscopic examination and, if necessary, microscopic identification of fungal elements in ear canal samples; (2) age 18 years or older; and (3) willingness to provide informed consent for participation. Exclusion criteria were: (1) presence of concurrent bacterial otitis externa or other significant ear infections; (2) a pre-existing diagnosis or history of major psychiatric disorders unrelated to otomycosis (to isolate the specific psychological impact of the fungal infection); and (3) recent treatment (within the past month) for otomycosis, which could confound the assessment of psychological symptoms.

Diagnostic Procedures

The diagnosis of fungal otitis externa was based on a combination of clinical evaluation and laboratory confirmation.[39] Otolaryngologists at the ENT clinic conducted thorough otoscopic examinations to identify characteristic signs such as inflammation, scaling, discharge, and the presence of fungal debris in the ear canal. In cases where the diagnosis was uncertain based on clinical findings alone, samples of ear canal discharge were collected for microscopic examination. These samples were prepared using potassium hydroxide (KOH) wet mounts or Gram staining to visualize fungal hyphae or spores. Specific fungal species, such as *Aspergillus niger, Candida, dermatophytes,* and other less common fungi like *Scopulariopsis*, were identified based on their morphological characteristics under the microscope.

Data Collection Instruments

The primary instrument used for assessing psychological disorders was the Symptom Checklist-25 (SCL-25) questionnaire.[17] The SCL-25 is a validated and widely used self-report measure of psychological distress. It consists of 25 items assessing various dimensions of psychological symptoms, including somatization, anxiety, depression, obsessive-compulsive symptoms, interpersonal sensitivity, hostility, phobic anxiety, paranoid ideation, and psychoticism. Participants were asked to rate the extent to which they had experienced each symptom during the past week on a 5-point Likert scale ranging from “not at all” (0) to “extremely” (4). The SCL-25 was administered in Persian, the native language of the participants, to ensure comprehension and accurate reporting.

Study Protocol

Eligible patients who met the inclusion criteria were approached by trained research assistants and provided with detailed information about the study objectives, procedures, and potential risks and benefits. Written informed consent was obtained from all participants prior to their enrollment. Participants then completed the SCL-25 questionnaire in a private setting under the supervision of the research assistants, who were available to answer any questions and provide clarification as needed. Demographic data, including age, gender, educational level, and relevant medical history, were also collected through a standardized questionnaire.

Data Analysis

The collected data were analyzed using SPSS version 16 software. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize the demographic characteristics of the study population and the severity of psychological symptoms as measured by the SCL-25. The overall prevalence of psychological disorders was determined based on established cutoff scores for the SCL-25 total score and subscale scores.

Inferential statistical analyses were conducted to examine the relationships between psychological disorder severity and demographic variables. Chi-square tests were used to compare the prevalence of psychological disorders across different gender and education level groups. Correlation analyses were performed to assess the association between age and the severity of psychological symptoms. Additionally, t-tests or ANOVA were used to compare the mean SCL-25 scores between different subgroups of patients (e.g., those with and without specific risk factors for otomycosis). A p-value of less than 0.05 was considered statistically significant for all analyses.

RESULTS

This cross-sectional study included 150 participants diagnosed with fungal otitis externa. The data were analyzed using SPSS version 16 to determine the prevalence and severity of psychological disorders within this population.

Table 1. Prevalence distribution of patients in terms of gender

Gender	Frequency	Percentage
Female	90	60%
Male	60	40%
Total	150	100%

Explanation: Table 1 illustrates the gender distribution of the study participants. Out of 150 patients, 60% were female (90 individuals) and 40% were male (60 individuals).

Table 2. Prevalence distribution of patients in terms of education level

Education Level	Frequency	Percentage
Below Diploma	30	20%
Diploma	45	30%
Bachelor's Degree	50	33.3%
Master's Degree or Higher	25	16.7%
Total	150	100%

Explanation: Table 2 shows the distribution of participants based on their education level. 20% had education below a diploma, 30% held a diploma, 33.3% had a bachelor's degree, and 16.7% had a master's degree or higher.

Severity of Psychological Disorders

Table 3. Prevalence distribution of patients in terms of the severity of psychological disorders

Severity of Psychological Disorders	Frequency	Percentage
Mild	35	23.3%
Moderate	80	53.3%
Severe	35	23.3%
Total	150	100%

Explanation: Table 3 indicates the severity of psychological disorders among the participants. A significant portion of the sample (53.3%) exhibited moderate psychological disorders, while 23.3% experienced mild disorders, and another 23.3% experienced severe disorders.

Table 4. Prevalence of psychological disorders in patients with fungal otitis externa.

Psychological Disorder	Mean Score
Physical Complaints	1.85
Anxiety Disorders	1.72
Depression	1.68
Obsessive-Compulsive	1.45
Interpersonal Sensitivity	1.30
Hostility	1.22
Phobic Anxiety	1.15
Paranoid Disorders	0.95
Psychoticism	0.88
Hypochondriasis	0.75

Explanation: Table 4 presents the mean scores for different types of psychological disorders assessed by the SCL-25. Physical complaints, anxiety disorders, and depression had the highest mean scores, indicating that these were the most prevalent psychological issues among the patients with fungal otitis externa. Psychoticism, paranoid disorders, and hypochondriasis showed the least severity in the studied population.

Relationship Between Demographic Factors and Psychological Disorders

Table 5. Distribution of gender and education level in terms of severity of mental disorder

Variable	Mild (n=35)	Moderate (n=80)	Severe (n=35)	p-value
Gender				0.652
Female	20	48	22	
Male	15	32	13	
Education Level				0.715
Below Diploma	8	14	8	
Diploma	10	24	11	
Bachelor's Degree	12	28	10	
Master's or Higher	5	14	6	

Explanation: Table 5 examines the distribution of gender and education level across the severity of mental disorders. The p-values (0.652 for gender and 0.715 for education level) indicate that there was no statistically significant association between the severity of psychological disorders and either gender or education level in this study.

Table 6. Relationship between the patients' age and the severity of psychological disorders

	Pearson Correlation (r)	p-value
Age	0.025	0.762

Explanation: Table 6 shows the correlation between the patients' age and the severity of psychological disorders. The Pearson correlation coefficient (r) is 0.025, and the p-value is 0.762. This indicates that there is no statistically significant correlation between age and the severity of psychological disorders in this study.

DISCUSSION

This study aimed to investigate the prevalence and severity of psychological disorders among patients diagnosed with fungal otitis externa (otomycosis) at Dr. Masih Daneshvari Hospital in Tehran, Iran. The results revealed that a significant proportion of patients with otomycosis experienced psychological distress, with moderate severity being the most prevalent. Among the psychological disorders assessed using the SCL-25 questionnaire, physical complaints, anxiety disorders, and depression had the highest mean scores, indicating that these were the most prominent issues faced by the patients. Conversely, psychoticism, paranoid disorders, and hypochondriasis were less severe in this population.

Comparison with Existing Literature

The findings of this study align with previous research emphasizing the multifaceted impact of otomycosis on patients' lives. Otomycosis is known to cause symptoms such as itching, hearing loss, ear discharge, and a sensation of fullness in the ear. These physical symptoms can disrupt daily functioning and lead to emotional distress, dependency on others, irritability, and communication difficulties.[2,3,12] Similar studies have reported that chronic ear infections often result in anxiety and depression due to their persistent nature and impact on social interactions.[14,20]

The high prevalence of physical complaints observed in this study is consistent with the literature on otomycosis, which highlights the discomfort caused by inflammation and discharge in the external auditory canal.[16] Anxiety disorders were also prominent among the participants, potentially stemming from concerns about hearing impairment or recurrent infections.[23,24] Depression may be exacerbated by feelings of isolation or frustration resulting from communication challenges.[21,22]

Interestingly, no significant correlation was found between the severity of psychological disorders and demographic factors such as gender, education level, or age. This finding contrasts with some studies that suggest women and older individuals are more prone to psychological distress related to chronic conditions.[19] The lack of correlation in this study may be attributed to cultural factors or the relatively small sample size.

Implications for Clinical Practice

The results underscore the importance of addressing both physical and psychological aspects of otomycosis during patient care. While antifungal treatments are essential for resolving the infection [31], healthcare providers should also consider screening patients for psychological distress using tools like the SCL-25 questionnaire[35,38]. Early identification and management of anxiety or depression can improve overall treatment outcomes and enhance patients' quality of life.[25]

Furthermore, education about preventive measures could help reduce the risk of recurrent infections and alleviate anxiety associated with otomycosis. Patients should be informed about proper ear hygiene practices, avoiding contaminated water sources, and minimizing ear manipulation to prevent fungal growth.

Limitations

Several limitations should be noted when interpreting the findings of this study. First, the cross-sectional design does not allow for causal inferences regarding the relationship between otomycosis and psychological disorders. Longitudinal studies would be needed to explore how psychological distress evolves over time in patients with recurrent or chronic otomycosis. Second, while the SCL-25 questionnaire is a validated tool for assessing psychological symptoms, its reliance on self-reporting may introduce bias due to underreporting or overreporting by participants.

Additionally, this study was conducted at a single hospital in Tehran, which may limit the generalizability of its findings to other regions or populations. Factors such as climate conditions (e.g., tropical vs. temperate climates) and healthcare access could influence the prevalence and severity of otomycosis-related psychological disorders.

Recommendations for Future Research

Future studies should aim to address these limitations by employing larger sample sizes and multi-center designs to capture a more diverse patient population. Investigating specific interventions for managing psychological distress in otomycosis patients could also provide valuable insights into improving holistic care approaches.

Moreover, exploring potential biological mechanisms linking fungal infections to psychological symptoms could open new

avenues for research.[26] For example, chronic inflammation caused by otomycosis might contribute to systemic effects that exacerbate anxiety or depression.[26]

CONCLUSION

This study aimed to explore the prevalence of psychological disorders among patients diagnosed with fungal otitis externa (otomycosis). The findings revealed a significant burden of psychological distress in this population, with moderate severity being the most common. Among the psychological disorders assessed using the SCL-25 questionnaire, physical complaints, anxiety disorders, and depression were the most prominent, highlighting the profound impact of otomycosis on patients' mental health. Conversely, psychoticism, paranoid disorders, and hypochondriasis were less severe in this population.

The study also demonstrated that demographic factors such as gender, education level, and age had no statistically significant correlation with the severity of psychological disorders. This suggests that otomycosis-related psychological distress affects individuals across different demographic groups uniformly.

Clinical Implications

The results emphasize the need for a holistic approach to managing otomycosis. While antifungal treatments are critical for addressing the physical symptoms of the condition, healthcare providers should also consider screening for and addressing psychological distress.[31,40] Incorporating mental health assessments into routine care for otomycosis patients could improve overall treatment outcomes and enhance their quality of life.

Preventive measures, such as educating patients about proper ear hygiene and avoiding risk factors like exposure to contaminated water or excessive use of antibiotics, could help reduce the incidence and recurrence of otomycosis. Additionally, early intervention for psychological symptoms could mitigate their long-term impact on patients' well-being.

Limitations and Future Directions

This study was conducted at a single hospital in Tehran, which may limit the generalizability of its findings to other regions or populations. Future research should aim to include larger sample sizes and multi-center designs to capture more diverse patient populations. Longitudinal studies are also needed to examine how psychological distress evolves over time in patients with recurrent or chronic otomycosis.

Investigating specific interventions for managing psychological distress in otomycosis patients could provide valuable insights into improving holistic care approaches. Furthermore, exploring potential biological mechanisms linking fungal infections to psychological symptoms could open new avenues for research.

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