



Research Article

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Prevalence of anxiety and depression in patients with tinnitus

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Abstract

Background: Tinnitus is phantom sound sensation in absence of external source of sound. A close association has been demonstrated between tinnitus and comorbid psychological disorders. In patients suffering from tinnitus a higher prevalence of anxiety and depression has been reported. **Aims and Objectives:** The aim of this study was to assess prevalence of depression and anxiety in patients suffering from tinnitus. **Materials and Methods:** It was cross sectional study conducted at a tertiary care hospital of Punjab. The study recruited 50 patients with history of tinnitus of time period more than twelve months of duration after taking written informed consent. The inclusion criteria was Patients over the age of 18, Patients having tinnitus for past 1 year duration. Patients with prior history of psychiatric illness were excluded. Depression was assessed by using Hamilton rating scale for depression(HRSD) and anxiety by Hamilton anxiety rating scale [18] (HAM-A). Appropriate statistical analysis was done. **Results and Conclusion:** Most of the study sample [27 (54%)] were in the age group of 41-50. Females outnumbered males. Majority of patients were suffering from tinnitus from last 1-5 years (33). Out of 50 subjects, depression was present in 43 patients and anxiety in 14 patients. There was strong correlation between female gender and depression and anxiety.

Keywords: Anxiety, Depression, Tinnitus, Prevalence.

INTRODUCTION

Tinnitus can be defined as a perception of sound resulting from activity within nervous system without corresponding activity within cochlea and not relating to external stimuli. It can also be defined as a phantom sound sensation in absence of external source of sound. It occurs in about 17% of the population and about 1-5% can develop complications of psychosocial nature [1-3]. It can be perceived in either or both ears and is either intermittent or continuous. The sound can vary from something simple as a whistle to something complex as music. The spectrum of sounds may include hissing, ringing, roaring, clicking or chirping. Tinnitus can occur without hearing loss.

Chronic tinnitus is prevalent more in elderly than in younger age group, although it can occur at any age [4,5]. In about 2-3% of general population tinnitus sensation has been found to be disturbing and affecting the quality of life. It can present along with sleep disorder, working difficulty, hearing difficulty and negative emotional reactions.

The noise which is continuous can cause a lot of stress and irritation. Symptoms, in some, can be severe that they are unable to lead a normal life. Management of tinnitus may require a multidisciplinary approach.

A close association has been demonstrated between tinnitus and comorbid psychological disorders. In patients suffering from tinnitus a higher prevalence of anxiety and depression has been reported. In patients with tinnitus depression has been described in up to 33% [6]. Anxiety has also been associated and can be seen in up to 45% of patients with tinnitus [7]. Because of the higher prevalence of anxiety, depression and tinnitus, it requires a review of literature to evaluate the link between these diseases.

The diagnosis of anxiety and depression is generally done upon fulfilling the DSM-V diagnostic criteria [8]. It can be argued and discussed that patients with tinnitus score low on well-being and self-esteem assessments [9-13]. To be able to give adequate treatment for psychological distress, there should be screening or assessment of patients with tinnitus. Many researchers state that chronic pain and

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tinnitus has similar consequences such as reduced involvement in work activities, emotional effects, interpersonal issues, decrease in engagement in previously enjoyable activities [12-16].

MATERIAL AND METHODS

The present study was cross sectional study conducted at a tertiary care hospital, Gian Sagar Medical College and Hospital, Ramnagar, Punjab. All patients having tinnitus were explained the nature of the study in the language suitable for them. Informed consent was obtained from every patient for further interview and assessment. This study was carried out over a period of 6 months.

Study Sample

Patients with history of tinnitus of time period more than twelve months of duration visiting Otorhinolaryngology outpatient department (OPD) during the period of study were involved in the study. A total of 50 patients willing to participate in the study after due consent having tinnitus were selected who fulfilled the inclusion criteria. The patients who fulfilled the inclusion criteria were referred from the ENT OPD to Psychiatry OPD for assessment.

Inclusion criteria

- Patients over the age of 18.
- Patients having tinnitus for past 1 year duration.
- Those who are willing to participate in studies.

Exclusion criteria

- Age below 18 years.
- Prior history of psychiatric illness

Instruments used

The Hamilton rating scale for depression [17]. (HRSD):11 Also called HAM-D, it is a 17 item clinician rated questionnaire used to assess severity of depression. The questionnaire is designed for adults and is used to rate the severity of their depression by assessing mood, feelings of guilt, suicide ideation, insomnia, agitation or retardation. A score of 8-13 is considered to be mild depression. Scores of 14-18 is considered mild depression, 19-22 as severe depression and scores more than 23 indicate very severe depression.

The Hamilton anxiety rating scale [18]. (HAM-A): 10 It is a questionnaire used by clinicians to rate the severity of a patient's anxiety. Each of the 14 items contains a number of symptoms, and each group of symptoms is rated on a scale of zero to four, with zero being "not present" and four being the most severe. This score in the range of 0 to 56. A score of 17 or less indicates mild anxiety, score from 18 to 24 indicates moderate anxiety and a score of 25 to 30 indicates severe anxiety.

Statistical analysis

The data obtained was compiled systematically and then subjected to statistical analysis. A master table was prepared and total data was subdivided and distributed meaningfully and presented as tables along with charts. All the Data Analysis was done using SPSS (Statistical Package for the Social Sciences) version 23.0 IBM [19].

The statistical procedure was carried out in 2 steps

- 1 Data compilation and presentation
- 2 Statistical Analysis

The data was compared using specific statistical tests to find out the significant comparisons.

RESULTS

Table 1 depicts the age frequency and percentage of the participants of the present study. The maximum people 27 (54%) were in the age group of 41-50. These were followed by 11 (22%) the age group 51-60. There were 9 (18%) individuals between the age of 61-70 and least number of people 3 (6%) were between the age of 31-40. It also explains the gender distribution. The study was conducted on 50 individuals of which, 34 (68%) were females and the remaining 16 (32%) were males.

Table 2 details the duration of illness of the participants of this study. The maximum number of people were suffering from 1-5 years (33) (66%) followed by people who were suffering from 5-10 years (16) (32%) and people who were unwell for than 10 years was 1 (2%).

Table 3 depicts the results of depression in the patients of which (7) (14%) were normal (30) (60%) had mild depression and (13) (26%) had moderate depression. The results of anxiety in the patients of which (36) (72%) were normal (11) (22%) suffered from mild anxiety and only (3) (6%) of them had moderate anxiety.

Table 4 presents the results of relationship between Gender and HAM-D. The proportion of males who are normal is 7 (43.8%) and 9 (56.3%) have mild depression and there are no patients who are male and have moderate depression. There are 21 (61.8%) females who have mild and 13 (38.2%) have moderate depression.

Table 5 presents the results of the relationship between Gender and HAM-A. The proportion of males who were reported normal was 16 (100%) while no one had mild or moderate anxiety. The females who had no anxiety were 20 (58.8%).

Table 1: Socio-demographic profile

Variables	Frequency	Percentage
Age group		
31-40	3	6.0
41-50	27	54.0
51-60	11	22.0
61-70	9	18.0
Total	50	100.0
Gender		
Male	16	32.0
Female	34	68.0
Total	50	100.0

Table 2: Duration of Illness

Duration of Illness	Frequency	Percent
1-5 years	33	66.0
5-10 years	16	32.0
>10 years	1	2.0
Total	50	100.0

Table 3: Severity of depression and anxiety on HAM-D and HAM-A

Scale	Frequency	Percent
HAM- D		
Normal	7	14.0
Mild depression	30	60.0
Moderate depression	13	26.0
Severe depression	0	0
Total	50	100.0
HAM-A		
Normal	36	72.0
Mild anxiety	11	22.0
Moderate anxiety	3	6.0
Severe anxiety	0	0
Total	50	100.0

Table 4: Gender distribution of HAM-D score

GENDER	Severity on HAM-D Scale Frequency (Percentage %)			Total
	Normal	Mild	Moderate	
Male	7 (43.8%)	9 (56.3%)	0	16 (100.0%)
Female	0	21 (61.8%)	13 (38.2%)	34 (100.0%)

Table 5: Gender distribution of HAM-A score

Gender	Severity on HAM-A Scale Frequency (Percentage %)			Total
	Normal	Mild	Moderate	
Male	16 (100.0%)	0	0	16 (100.0%)
Female	20 (58.8%)	11 (32.4%)	3 (8.8%)	34 (100.0%)

DISCUSSION

Tinnitus is a "condition when there is a sensation of sound however there is no relating sound present in the surrounding. Amongst the patients attending ENT clinic, tinnitus is one of the most distressing symptoms. Subjective tinnitus is commonly associated with psychological disorders. Severe tinnitus is associated with number of audiological issues such as hearing loss, hyperacusis, middle ear diseases which can cause psychological issues such as irritability, depression and anxiety, insomnia. It eventually becomes cause of stress for the individuals. When compared with others, these patients seem to be more sensitive to stressors of life. Since it affects various aspects of one's life, its treatment also requires holistic approach."

In our study, more than half (60%) of the patients had mild depression, about quarter of them (22%) suffered from mild anxiety. This is significantly greater than in general populations, which have prevalence of depression and anxiety estimated to be 6.7% and 15.2 respectively [20]. These findings are in parallel with findings from existing literature. Sullivan et al reported a 78% lifetime and 60% current prevalence rates of depression among patients with tinnitus, which were higher than healthy controls (21% and 7%, respectively) [21].

About one third (32.4%) females reported to have mild anxiety symptoms in our study. Similarly, Dineen et al also reported that in their study female subjects indicated more difficulties in getting to sleep because of tinnitus as compared to male subjects [22]. The emotional distress associated with tinnitus is sometimes due to lack of control of such noises. The focus on these sounds limits daily life activity of patients having tinnitus. In most of them, habituation to these noises is the normal response but in some this process takes years. Therefore, such suffering can be accepted as a failure of habituation [23]. Hallam et al. have divided cognitive complaints into two parts- one being worries about its significance and other being its intrusiveness, which also includes ignoring possibility of such voices [24].

Use of "tinnitus maskers, psychotherapy, relaxation therapy, meditation (pranayama), palliative medical and surgical options etc. are used in treatment of tinnitus but with little or no success. These treatment modalities improve the impact of the sound rather than curing tinnitus itself. The most accepted theory between the relationship tinnitus and depression is that tinnitus triggers depression in vulnerable patients [25]. Another school of thought says that this relationship is bidirectional in which psychological processes lead to worsening of symptom severity. Thus, there is a mutual relationship between the two. Antidepressants, antipsychotics and sedatives are somewhat effective in treating tinnitus, hence there can be neuropsychological basis to it [26]. Molecular basis of correlation between tinnitus and psychosomatic disorders is also needs to be explored." Patients having anxiety and depression have higher levels of cortisol, leading to the likelihood of a positive feedback loop aggravating tinnitus [27]. This signifies the need for treatment of mental disorders associated with tinnitus. To address all aspects of this complex disease process, clinicians treating such patients must have better inter-departmental referral system and multidisciplinary approach.

To evaluate the association of tinnitus with depression and anxiety, further studies with large sample size, multi centric data collection, and longitudinal perspective are required.

CONCLUSION

Management of "tinnitus is multidimensional which necessitates a holistic approach. The patients having tinnitus suffer from anxiety as well as depression and this relationship is bidirectional. It requires psychological assessment of patients along with assessment of any physical damage or any pathological audiological problems." Thus, there is need to explore this relationship in future studies.

Conflicts of interest

None declared.

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REFERENCES

1. Jastreboff PJ. Tinnitus as a phantom perception: theories and clinical implications. In: Vernon J, Møller AR. Mechanisms of Tinnitus. Boston, Mass, USA: Allyn & Bacon. 1995:p.73–94.

2. Fabijanska A, Rogowski M, Bartnik G, Skarzynski H. Epidemiology of tinnitus and hyperacusis in Poland. In Proceedings of the sixth international tinnitus seminar. 1999;pp.569-71.
3. Martines F, Bentivegna D, Martines E, Sciacca V, Martinciglio G. Assessing audiological, pathophysiological and psychological variables in tinnitus patients with or without hearing loss. *Eur Arch Oto-Rhino-L.* 2010;267:1685–93.
4. Makar SK, Mukundan G, Gore G. Treatment of Tinnitus: A Scoping Review. *Int Tinnitus J.* 2017;21(2):144-56.
5. Dobie RA. Depression and tinnitus. *Otolaryngol Clin North Am.* 2003;36(2):383-8.
6. Zoger S, Svedlund J, Holgers KM. Relationship between tinnitus severity and psychiatric disorders. *Psychosomatics.* 2006;47(4):282-8.
7. Zoger S, Svedlund J, Holgers KM. Psychiatric disorders in tinnitus patients without severe hearing impairment: 24 month follow-up of patients at an audiological clinic. *Audiology.* 2001;40(3):133-40.
8. Vihang N, Vahia. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5.* 5th ed. American Psychiatric Association. 2013;55(3):220-23
9. Wang X, Qi M, Zeng X, Cai W, Yin G, Zhang S, et al. Social Support and Tinnitus Distress: The Importance of Developing Positive Psychological Qualities in Patients with Chronic Tinnitus. *Audiol Neurotol.* 2021;26(4):246-56.
10. Halford JBS, Anderson SD. Anxiety and depression in tinnitus sufferers. *J Psychosom Res.* 1991; 35:383-90.
11. Belli S, Belli H, Bahcebasi T, Ozcetin A, Alpay E, Ertem U, et al. Assessment of psychopathological aspects and psychiatric comorbidities in patients affected by tinnitus. *Eur Arch Oto-Rhino-L.* 2008;265(3):279-85.
12. Folmer RL, Griest SE, Martin WH. Chronic tinnitus as phantom auditory pain. *Otolaryngol Head Neck Surg.* 2001;124(4):394-9.
13. Krog NH, Engdahl B, Tambs K. The association between tinnitus and mental health in a general population sample: results from the HUNT Study. *J Psychosom Res.* 2010;69(3):289-98.
14. Henry JL, Wilson PH. The Psychological Management of Tinnitus: Comparison of a Combined Cognitive Educational Program, Education Alone and a Waiting-List Control. *Int Tinnitus J.* 1996;2:920.
15. Sweetow RW. Cognitive-behavior modification. In: Tyle RS. *Tinnitus Handbook.* San Diego: Singular Publishing Group; 2000:297-11.
16. Simpson RB, Nedzelski JM, Barber HO, Thomas MR. Psychiatric diagnoses in patients with psychogenic dizziness or severe tinnitus. *J Otolaryngol.* 1988;17(6):325-30.
17. Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry.* 1960;23:56-62
18. Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychol.* 1959;32:50-55.
19. IBM. *SPSS Statistics for Windows, Version 23.0.* Armonk, NY: IBM. 2015.
20. Bhatt JM, Lin HW, Bhattacharyya N. Prevalence, Severity, Exposures, and Treatment Patterns of Tinnitus in the United States. *JAMA Otolaryngol Head Neck Surg.* 2016;142(10):959-65.
21. Sullivan MD, Katon W, Dobie R, Sakai C, Russo J, Harrop-Griffiths J, et al. Disabling tinnitus. Association with affective disorder. *Gen Hosp Psychiatry.* 1988;10:285-91.
22. Dineen R, Doyle J, Bench J. Audiological & Psychological characteristic of a group of tinnitus sufferer, prior to the tinnitus management training. *Br J Audiol.* 1996;31:27-38
23. Hallam RS, Jakes SC, Hinchcliffe R. Cognitive variables in tinnitus annoyance. *Br J Clin Psychol.* 1988;27:213-22.
24. Hallam R. *Manual of tinnitus Questionnaire.* The psychology corporation. London: Harcourt Bruce and Co. 1996.
25. Ooms E, Meganck R, Vanheule S, Vinck B, Watelet J-B, Dhooge I, et al. Tinnitus severity and the relation to depressive symptoms: a critical study. *Otolaryngol Head Neck Surg.* 2011;145:276–81.
26. Fornaro M, Martino M. Tinnitus psychopharmacology: a comprehensive review of its pathomechanisms and management. *Neuropsychiatr Dis Treat.* 2010;6:209-18.
27. Yehuda R, Boisoneau D, Mason JW, Giller EL. Glucocorticoid receptor number and cortisol excretion in mood, anxiety, and psychotic disorders. *Biol Psychiatry.* 1993;34:18-25.