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Mental Health Co-Morbidity and Sociodemographic Profile of Tinnitus Patients at a Tertiary Care Hospital: An Observational Cross-Sectional Study.

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ABSTRACT-
INTRODUCTION-Tinnitus is a condition in which a person experiences a constant buzzing, hissing, or ringing sound in their ears or head. It affects approximately 7-19% of the general population and can lead to psychiatric issues such as anxiety, depression, psychosis, obsessive-compulsive disorder, and more among tinnitus patients.
AIM AND OBJECTIVE-To assess the sociodemographic profile and psychiatric manifestations among patients with tinnitus at a tertiary care hospital.
MATERIAL AND METHOD-The study was conducted on 121 patients suffering from tinnitus who developed psychiatric symptoms. Detailed sociodemographic characteristics and psychiatric assessment were recorded in a proforma specially designed for the study. The Tinnitus Handicap Inventory was used to categorize patients, and the ICD-10 was used to make psychiatric diagnoses.
RESULTS- This study contained 121 cases of tinnitus that satisfied the inclusion criteria. In addition, the psychiatric disorders that included depression(40.5%), depression mixed with anxiety(24.8%), psychosis(5.8%), acute stress reaction(11.6%), adjustment disorder(8.3%), Somatization disorder(6.6%), Suicidality(2.5%), the study focused on the patient's age, sex, marital status, education, occupation, socioeconomic status, family type, residence, and religion.
DISCUSSION- Psychiatric evaluations of patients suffering from tinnitus have revealed that acute and severe cases of tinnitus at a young age are more likely to have psychiatric co-morbidity. On the other hand, chronic and older patients tend to cope better with their illness. Depression is the most common co-morbidity associated with tinnitus, followed by depression mixed with anxiety, acute stress reaction, adjustment disorder, psychosis, and others. Effective counseling can immediately relieve anxiety and irritation. Because tinnitus is always associated with psychiatric co-morbidity, it is important for a psychiatrist to treat and counsel patients simultaneously.

Keywords- Tinnitus, Anxiety, Depression

INTRODUCTION-

The sensation of tinnitus is described as a persistent ringing, hissing, or buzzing in the ears and occasionally in the skull. It impacts up to 20% of people in general.(1). Both subjective and objective types are possible; the former is more prevalent and challenging for a trained audiologist to evaluate. Tinnitus impacts three dimensions: auditory, emotional, and cognitive. The auditory domain has been extensively researched in numerous studies. However, further research is needed to determine how much suffering the other two domains produced and whether treating them will improve the patient's overall state. The primary source of the psychopathologic discomfort brought on by tinnitus is its unwelcome and persistent nature. Subjective awareness of tinnitus impairs a patient's ability to focus and sleep, which might cause emotional problems. As a condition becomes more chronic, the level of suffering increases. Patients who suffer from tinnitus frequently have mental co-morbidities. Those with a tinnitus handicap inventory score more than 36 ought to see a psychiatrist.(2). According to a study, 70% of chronic sufferers experienced emotional disorders such as worry, confusion, and suicidal thoughts, while 90% of them complained of poor sleep, social disengagement, and difficulties focusing on work. Anxiety and depression were shown to be the most prevalent manifestations in another study. Another study indicates that sleep

disruptions are the second most common type. Thirty to sixty percent of those with tinnitus report having severe depression symptoms.(3). A clear correlation has been observed between the severity of tinnitus and depressed symptoms. (4). Anxiety disorders affect 45% of tinnitus patients throughout their lives, according to a study. According to a different study, 33% of tinnitus sufferers also had depression. Patients with psychiatric disorders, such as depression and psychoses, may experience more tinnitus development.(5) . The idea of these illnesses existing as co-morbid conditions has been raised because each of these disorders has been characterized as a distinct disease process. Given the high incidence of depression, anxiety, and tinnitus, a review of the literature is necessary to clarify the connections between these conditions. In light of the literature mentioned above, we attempted to determine whether psychiatric disorders manifested in tinnitus patients in the current investigation.

MATERIAL AND METHOD- This observational study, with purposive sampling, was carried out in the Department of Psychiatry and Otolaryngology (ENT) at GMC Vidisha (MP), where 130 diagnosed tinnitus patients were selected; out of which nine did not fulfill inclusion criteria, so 121 patients were taken in the study. In all selected patients, a Tinnitus handicapped inventory was carried out and labeled as mild, moderate, and severe categories followed by psychiatry opinion in patients who had psychiatric manifestations. ICD-10 DCR (International Classification of disease-10, diagnostic criteria for research) was used to diagnose various psychiatric disorders in the psychiatry department.

INCLUSION CRITERIA: Patients giving informed consent; patients in the 20-80 age group; Diagnosed Patients with tinnitus.

EXCLUSION CRITERIA: Patients who do not give consent for the study; Patients <20yrs and >80yrs. Patients who need ICU support; Patients with other diseases of the ears, nose, and throat; Patients with severe medical co morbidity other than tinnitus.

RESULTS: This study contained 121 cases of tinnitus that satisfied the inclusion criteria. In addition with the psychiatric disorders that included depression, depression mixed with anxiety, psychosis, acute stress reaction, adjustment disorder, Somatization disorder, Suicidality, the study focused on the patients age, sex, marital status, education, occupation, socioeconomic status, family type, residence and religion.

Most of our tinnitus patients 48(39.7%) were in the age range of 25-40 years followed by 36(29.8%) belongs to 56-70 years of age, 33(27.3%) belongs to 41-55 years of age. Least 4(3.3%) number of patients found over 70 years of age. There was predominance of male 77(63.6%) patients over female 44(36.4%)patients. Majority of patients 96(79.3%) were married while 18(14.9%) patients were unmarried, and 7(5.8%) patients were widowed. In our study 55(45.4%) subjects were educated up to primary school, 25(20.7%) patients were educated up to middle school, 24(19.8%) patients were educated up to high school, 13(10.7%)patients were educated up to intermediate, while 4(3.3%) patients were educated up to graduate degree. Most of the patients 42 (34.7%) were unskilled worker followed by semiskilled workers 26(21.5%), unemployed 25(20.7%), and skilled workers 21(17.4%). In our study 83(68.6%) patients stayed from lower socioeconomic status, 28(23.1%) from upper lower, 7(5.8%) from lower middle while 3(2.5%) patients participated from upper middle socioeconomic class. Majority of patients were from nuclear family 69(57.0%) followed by 52(43.0%) were from joint family. There was pre dominance of rural 85(70.2%) population followed by urban 36(29.8%) population. Most of the patients 98(81.0%) were hindu by religion, followed by muslims 16(13.2%), and jain 6(5.0%).

On screening of patients for level of disability by using Tinnitus handicap inventory at ENT department, most of the patients 69(57.0%) fall on the moderate handicap category, followed by 38(31.4%) in the mild category while 14(11.6%) patients contained in the severe handicap category.

Depression 49(40.5%) was found the most common mental health co morbidity among patients of tinnitus, followed by depression mixed with anxiety 30(24.8%),acute stress reaction 14(11.6%), adjustment disorder 10(8.3%), Somatization disorder 8(6.6%), psychosis 7(5.8%) , while 3(2.5%) patients had suicide attempts.

Table No 1. Distribution of study subjects according to sociodemographic profile-

Age(years)	Number n(121)	Percentage (%)
25-40	48	39.7
41-55	33	27.3
56-70	36	29.8
>70	4	3.3
Sex		
Male	77	63.6
Female	44	36.4
Marital status		
Unmarried	18	14.9
Married	96	79.3
Widowed	7	5.8
Education		
Up to Primary school	55	45.4
Middle school	25	20.7
High school	24	19.8
Intermediate/Diploma	13	10.7
Graduate/postgraduate	4	3.3
Occupation		
Unemployed	25	20.7
Unskilled worker	42	34.7
Semiskilled worker	26	21.5
Skilled worker	21	17.4
Clerical/shop	5	4.1
Semi-professional	2	1.7
Socioeconomic status		
Upper middle	3	2.5
Lower middle	7	5.8
Upper lower	28	23.1
Lower	83	68.6
Family type		
Nuclear	69	57.0
Joint	52	43.0
Residence		
Urban	36	29.8
Rural	85	70.2
Religion		
Hindu	98	81.0
Muslim	16	13.2
Jain	6	5.0
Other	1	0.8

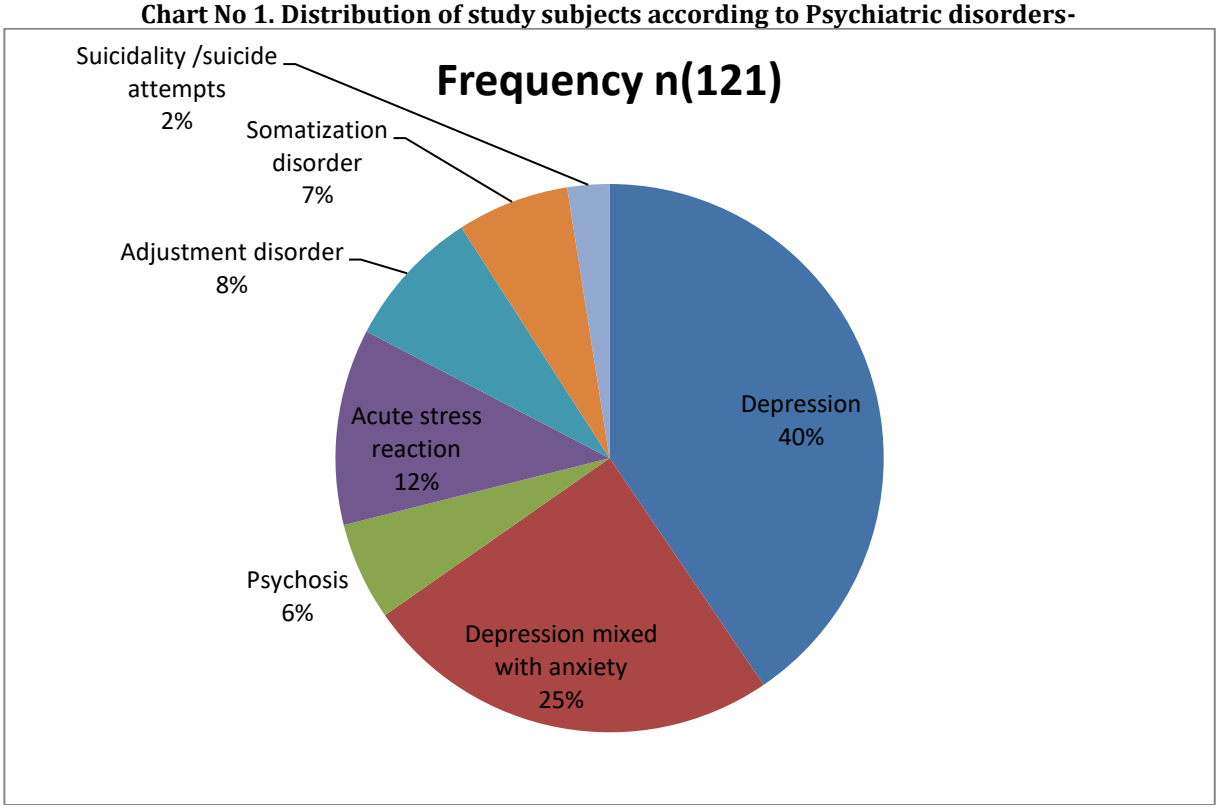
Table No 2. Distribution of study subjects according to Tinnitus Handicap Inventory (THI)-

	Frequency n(121)	Percentage (%)
Mild handicap	38	31.4
Moderate handicap	69	57.0
Severe handicap	14	11.6
Total	121	100

Table No 3. Distribution of study subjects according to Psychiatric disorders-

Psychiatric disorders	Frequency n(121)	Percentage (%)
Depression	49	40.5
Depression mixed with anxiety	30	24.8
Psychosis	7	5.8
Acute stress reaction	14	11.6
Adjustment disorder	10	8.3
Somatization disorder	8	6.6
Suicidality /suicide attempts	3	2.5
Total	121	100.0

Chart No 1. Distribution of study subjects according to Psychiatric disorders-



DISCUSSION:

The goal of the current study was to look at a variety of sociodemographic factors as well as psychiatric co morbidities in patients who had tinnitus.

SOCIODEMOGRAPHIC PROFILE-

Age- The current study indicates that most incidences of tinnitus occur in young adults and in the early age of geriatric population. The majority of our individuals were in the 25-70years age range. Mean age was 46.34±14.27. Least patients found beyond 70years of age. Our finding is consistent with previous researchers.

Sex- Out of total study sample majority of patients 77(63.6%)were males while 44(36.4%) patients of tinnitus were females. It might be because men are more likely than women to be exposed to noise pollution.(6)

Marital Status, Education, Occupation- In our study majority of patients 96(79.3%) were married that is possibly because of the age group 25-70 and 7(5.8%) patients found widowed that is possibly because of the old age. Most of the widowed patients were more than 60years of age. Most of the patients 55(45.4%) were educated up to 5th standard followed by middle school 25(20.7%) and high school 24(19.8%). Least number of patients 4(3.3%) had done graduation.(7) Majority of patients 42(34.7%) were unskilled worker, followed by semiskilled 26(21.5%), and unemployed 25(20.7%).The development of tinnitus is mostly attributed to noise exposure at work.(8,9) our research is consistent with previous findings.

Socioeconomic Status- Bulk of our study subjects 83(68.6%) belongs to lower socioeconomic class followed by upper lower 28(23.1%). Least 3(2.5%) patients belongs to upper middle socioeconomic class that matches with previous research findings.(7) This may also be due to the socioeconomic structure of the community in this region.

Residence And Family Type-

Majority of patients 85(70.2%) belongs to rural area while 36(29.8%) patients belongs to urban area. Greater number of patients 69(57.0%) in our study were from nuclear family, while 52(43.0%) were from joint family. The lack of education, financial strain, and family disputes may be the cause of this.

Religion- Hindu 98(81.0%) followed by Muslims 16(13.2%) and Jain 6(5.0%). Predominance of Hinduism might be a reflection of the fact that Hinduism is the religion of the majority in India and especially in this region.

PSYCHIATRIC CO-MORBIDITIES-

In the present study, the incidence of major depression among tinnitus patients was 49(40.5%) (Table no 3), Various studies reported similar findings.(10,11)

Major depressive disorder (MDD) is a psychiatric illness with feelings of sadness, guilt, hopelessness,

and worthlessness, followed by a high probability of suicide. It is recurrent, disabling, and widely prevalent with estimated lifetime prevalence of 20%. It is also a leading cause of disability and mortality in the world.(12) In 20% of the cases, tinnitus causes distress that manifests as annoyance, anxiety, insomnia, problems of concentration, and depression.(12)

Incidence of depression mixed with anxiety among tinnitus patients was 30(24.8%) (Table no 3).

A possible relationship between anxiety disorder and tinnitus has been strongly suggested by previous studies.(13) According to Lin et al., adults with tinnitus in Taiwan also had a higher prevalence and risk of anxiety disorders.(14) According to Mazurek et al., stress may cause neural plasticity, which can lead to tinnitus and hearing disorders.(15) The limbic system, including the amygdala and hippocampus, the locus coeruleus (LC), the hypothalamus, the hypothalamic–pituitary–adrenal axis (HPA), and the dorsal cochlear nucleus (DCN) have been postulated to be important parts that are involved in tinnitus and anxiety arousal(16–18). Acute stress reaction incidence was found 14(11.6%) while Adjustment disorder incidence was 10(8.3%). In our study sample Somatization disorder was found 8(6.6%) while psychosis was found 7(5.8%).

The relationship between chronic tinnitus and somatoform conditions may be reflected in three possible ways, according to Hiller et al.: (1) chronic tinnitus may exist independently of somatoform conditions; (2) chronic tinnitus and somatoform conditions may frequently be "co morbid"; and (3) both chronic tinnitus and somatoform symptom presentations may share underlying psychological or autonomic processes.(19,20). There was no strong association between tinnitus and psychosis according to previous studies.(21) In our study participants Suicidality was found in 3(2.5%) patients. Previous research suggests a probable but unproven link between tinnitus and suicide.(22,23)

LIMITATIONS:

1. The study is hospital-based, so the results cannot be generalised to the general population.
2. The study included only ICD-10 DCR for the diagnoses of psychiatric disorders; no rating scales were used.
3. The sample size is small.

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