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Anxiety in Hearing Impairment Subjects

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ABSTRACT

Purpose: With an increasing incidence for hearing impairment, it is necessary to search for the psychological impact on patients. Anxiety prevalence may be raised in people with hearing impairment. This study aimed to evaluate the prevalence of anxiety in hearing loss patients.

Methods A case control study included 100 subjects: 50 controls and 50 subjects diagnosed with hearing loss of variable types, degree, and causes. They underwent audiological and Modified Arabic Beck anxiety inventory questionnaire evaluation. First Pure-Tone Audiometry (PTA) was performed in all frequencies to determine the type and level of hearing impairment, then Beck anxiety inventory questionnaire (Modified Arabic form) was done.

Results The sample collected showed results of 42% single sided hearing loss while**,** 58% was bilaterally affected**.** Anxiety was estimated in 68% of hearing impairment patient with a percentage of 41% male and 59% females.

Conclusion Anxiety is a very prevalent problem facing not only subjects with hearing impairment, but also affects a noticeable ratio of apparently normal subjects. So, the psychological assessment and support are needed to be in mind.

Keywords: Anxiety, BAI, Hearing impairment.

INTRODUCTION

Hearing disorders are prevalent in ageing adults; however, hearing deterioration prevalence doubles with every age decade, such that by the age of seventy, two-thirds of adults have hearing loss [1,2].

People with hearing impairment (HI) have been shown to have poorer health outcomes, including reduced function of cognition[3,4] life quality reduction[5,6], and mobility disorders[7]. Healthy ageing key component is mental health. The estimated anxiety disorders prevalence ranges from 9.2% to 28.7% with the highest rates in aging adults [8]. Limited research has examined the way that hearing impairment may affect anxiety [9-12].

Anxiety disorder is defined as a neurosis characterized by anxious over concern and associated with somatic symptoms frequently. It affects the manner we behave and feel. A severe form of anxiety can be extremely debilitating, having a serious effect on daily life while, mild anxiety is vague and unsettling [13].

Anxiety disorders are very prevalent. In Europe prevalence of any anxiety disorder is 13.6% [14]. The ICD-10 criteria reported hat anxiety manifestations include physical manifestations such as dizziness, muscular tension, palpitations, and epigastric discomfort with persistent nervousness [15]. Among common risk factors for anxiety are functional and cognitive disorders, traumatic events, poorer social support networks, and loneliness [16]. All of these risk factors are correlated with hearing impairment[17,18].

The objective of the current study is to evaluate prevalence of anxiety as one of these psychosocial consequences of hearing impairment in Egyptian subjects sample.

METHODS AND MATERIALS

Our study was performed through patients referred from ENT clinic of Shebein Elkoom Teaching Hospital. It was conducted between February 2021 and October 2021. The study groups included 100 subjects. Group A (HL group) represented those diagnosed with any level of hearing impairment and consisted of 22 males and 28 females, with age ranged from eighteen to sixty five years with a mean age of 39.35 years ± 9.45, and group B (control group) represented those healthy volunteers, collected from colleagues and relatives who were apparently free from any disease consisted of 19 males and 31 females, aged 21 to 62 years with a mean age of36.5 ± 9.04. The exclusion criteria were: any subject with past history of psychological consultation or therapy. Any patient with associated audiovestibular symptoms as tinnitus or dizziness.

Ethical Approval

The Research Ethics Committee of Shebein Elkoom Teaching Hospital gave the authors an approval to perform this study. Before being included in the research, all individuals supplied their informed consent. This study was designed to coincide with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

During this study, all subjects underwent the following: Detailed clinical history, audiological evaluation consisting of pure-tone audiometry, using Resonance audiometer R27A DD45 Diagnostic.

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PTA average for speech frequencies (0.5:3 kHz) was done to estimate the level of hearing impairment. Immittancemetry was done using Resonance r26m.Beck anxiety inventory (BAI) questionnaire (Arabic form) was done. The Modified Arabic version of BAI is formed of 21 questions, each questions to be answered, assessed on a scale from 0 to 3, where 0 is not at all, 1 is mildly bothered, 2 is moderately bothered, and 3 is severely bothered. Anxiety levels, according to the BAS, are classified as mild (= 16.5 points), moderate (17 to 24 points), or severe (≥25 points). The modified Arabic version of BAI is sensitive screening tool for primary percentage estimation of anxiety in the Egyptian population. The cutoff value for the anxiety group was estimated by 16.5[19].

Statistical analysis

A statistical power analysis was performed after sample size estimation, based on results obtained from this study (N = 100), comparing patients (n = 50) with controls (n = 50).The data collected were reviewed, coded, and statistically analyzed using SPSS program (Statistical Package for the Social Sciences; SPSS Inc., Chicago, IL, USA) version 20 for Microsoft Windows. Statistical analysis was performed using two types of statistics: descriptive, and analytical. Mann Whitney U test: a non parametric test of significance used for comparison between two groups not normally distributed having quantitative variables. The Chi-square test was used for comparing categorical variables, which were represented as frequency and percentage. The significance level was set at the p value ≤ 0.5.

RESULTS

A study on 50 hearing loss subject, and 50 control revealed a non-significant difference between the studied groups regarding their age or sex (Table 1).

Table I: Demographic presentation of cases and control

	Cases N = 50	Control N = 50	P value
Age (years)			
Mean ±SD	39.35±9.49	36.47±9.04	0.12
Range	18 – 65	21 – 62	
Sex			
Male	22 (44%)	19 (38%)	0.54
Female	28 (56%)	31 (62%)	

PTA evaluation

The entire control group had normal hearing sensitivity. Hearing impairment was presented in this sample unilaterally in 21 patients (42%), which was distributed as 6 right side (29%), and 15 left side (71%). Bilateral hearing impairment was in 29 patients (58%)

Regarding levels of hearing impairment, mild degree was estimated in 28.6%, moderate degree in 23.8%, moderately severe degree in 28.6%, severe degree in 14.3%, and profound degree in 4.8%.

Fifty four percent had high frequency sloping curve, while 35% had flat curve, and 11% had low frequency affection.

Anxiety in study groups

Assessment of anxiety in control group reveals 38% affection. In hearing loss group anxiety was diagnosed in 68% of hearing impairment patient, as disclosed in table 2.

Table 2: Anxiety percentage in study groups

Anxiety	Hearing loss group N (%)	Control group N (%)
Positive	34 (68)	19(38)
Negative	16(32)	31(62)

Hearing loss patients with anxiety was found in 41% male and 59% females.

Table 3: Anxiety distribution among hearing loss group

Anxiety	N 34 (%)
Male	14 (41)
Female	20 (59)

On studying the correlation of anxiety and subjects age and sex the results was insignificant as shown in table 4

Table 4: Anxiety correlation to personal of hearing loss group

	Anxiety		P value
	Positive N = 34(%)	Negative N = 16 (%)	
Age			
Mean ±SD	37.0±8.18	39.13±11.66	0.61
Range	18 – 55	18 – 65	
Sex			
Male	14 (41)	8 (50)	0.56
Female	20 (59)	8 (50)	

DISCUSSION

At this study, control group was reported to have 38% anxiety disorder. Anxiety was present in 68% of hearing loss patient with percentage of 41% male and 59% females. The degree of anxiety was mild in 40.6% (= 16.5 points), moderate in 46.8% (17 to 24 points), or severe at 12.5% (≥25 points) of affected cases.

Using Modified Arabic version of BAI with 16.5 cutoff point, the specificity was 61% while, the sensitivity was 93% so, it can be used as a positive screening test [19].

Anxiety disorders affect up to 33.7% of the population during their lifetime. This high percent in Egyptian population may be owing to the economic status, which greatly affected mood and stability of mind, which may be also owing to the last political issues that Egyptians have been through in the past few years [19].

With sudden one-sided hearing loss, the quality of life of patients with SHL is compromised. In addition to the impact of the hearing loss itself, the quality of life decreases because of a weakening sense of direction, difficulty in understanding due to unilateral hearing loss, vertigo, and, especially, tinnitus [20]

A prevalent disorder with most other psychiatric illness is anxiety. Subjects suffering from hearing disorders have significant anxiety in case of coexistence of tinnitus [21-26], and when their ability to hear deteriorate to be more severe [25,27,28].Hearing deterioration could plausibly contribute to poor mental health outcomes and anxiety through mediating pathways of cognitive impairment [1,3,4], social isolation [28], or disability [7].

Anxiety and disturbances of mood mostly caused by sensory deprivation [30,31]. Alternatively, shared prevalent etiologic factors such as, cardiovascular disease, age [32], or other demographic factors could underlie any noted correlation between HI and anxiety[33].

The mechanisms for correlation of anxiety in subjects with hearing deterioration are not well-understood. So, studying the nature of their association is needed, mainly using longitudinal cohorts. As individuals with hearing disorders live with anxiety disorders for longer[34].

Several mechanisms could explain the noted correlation between HI and anxiety. Microvascular disease mostly correlated with both poorer mental health[35] and hearing disorders[32], suggesting its possibility as a confounder. Likewise, demographic factors, such as education, age, and sex could underlie the correlation. Alternatively, the existence of HL with poorer anxiety outcomes could be interceded through other mental health factors, such as sensory deprived subject and socially isolated. The depression role in the correlation between HL and anxiety is uncertain, in spite of their correlation among aging adults [36].

CONCLUSIONS

Anxiety is a very common problem facing not only subjects suffering from hearing impairment but also affect a respectable ratio in apparently normal subjects. The theory for their correlation is not well understood. Psychological assessment and support need to be under tension, aiming to offer a great help in proper management of these patients.

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