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Original Research Article

Restoration of quality of life in elderly with hearing loss

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ABSTRACT

Background: This study is looking at the daily life consequences of hearing loss in older adults, and how hearing aids (HA) can affect their lives.
Method: Everyone who took part in the study had their hearing checked using basic tests. The McCarty Alpiner scale is a way to measure how much personal affection someone has. The Arabic international outcome inventory for hearing aids was used to measure the benefits of using hearing aids.
Results: There was a moderate correlation between hearing measurements without hearing aids and psychological, social, and vocational affection. The hearing aid improves your ability to hear, and the better your hearing gets, the higher your hearing threshold will be. However, there is no correlation between age and gender, and this is mainly due to differences in how hearing is processed in males and females. The improvement in the audiological profile of the patient suggests that their personal outcome will be better.
Conclusions: Daily life consequences of hearing loss and general life Satisfaction are closely related. Hearing aid is a beneficial rehabilitation method for presbycusis.

Keywords: Presbycusis, Hearing aid, Audiological rehabilitation

INTRODUCTION

Hearing loss is a condition where people can't hear as well as they used to and a hidden disorder.[1,2] Some health professionals think that elderly people don't have hearing problems, but this isn't always the case. Some people may not be aware that dementia can happen to anyone, no matter how young or old they are. This may be because dementia is often grouped with other diseases that often occur in older people.[3] Furthermore, People who have hearing loss often don't feel comfortable talking about it with other people. This can lead to problems like not being able to hear properly or not being taken seriously. Many elderly people don't get their hearing checked or any other kind of professional help. Age-related hearing loss is caused by damage to the ear over time.[4]

Age-related hearing loss is caused by the cumulative damage to the ear over a lifetime. This includes things like getting older and exposure to noise. Presbycusis is a problem with hearing that can be caused by noise. It makes it harder to understand speech in noisy environments, and it can be hard to find where the sound is coming from. Hearing loss happens when your ears can't hear things at high frequencies. This can make it hard to hear consonants like S, SH, F, V, T, P and B. These consonants are essential to the understanding of speech and explain why the most common complaint associated with presbycusis is not that elderly subjects cannot hear, but rather that they cannot comprehend what is being said.[2]

Audiological rehabilitation is about helping people with hearing loss to improve their communication skills, their

psychological well-being, and their ability to interact with others. This can be done through help with hearing aids, learning how to use them effectively, and using listening devices to help them understand conversations.[5] Some people have asked for audiological rehabilitation to focus on the functional effects of hearing loss, such as how it affects our everyday lives.[6]

The aim of this study was to address the consequences of hearing loss and the factors affecting the elderly's prejudices, expectations and experiences of a hearing aid. The overall aim of this study is to gain an understanding and knowledge of hearing loss and hearing aid in the elderly and to develop an audiological rehabilitation program suitable for the Egyptian patient.

METHODS

This is a cohort longitudinal study where 43 patients (15 females and 28 males) were randomly selected from the geriatric patients who attend to the audiovestibular medicine clinic, otorhinolaryngology department, Qena university hospital. The study started in October 2019 and ended in March, 2021.

Inclusion criteria were: 1- age ≥60 years old. 2- Primary complaint was hearing loss or difficulty in oral-aural communication. Exclusion criteria was: 1- Prior experience with hearing aids. All patients who participated in the current study signed a written consent and approval of the study by the ethical guidelines committee was obtained.

Hearing thresholds were measured before and after hearing aid fitting. Assessment of psychological, social and vocational state by IOI-HA questionnaire was fulfilled after use of the fitted HA for assessment of personal benefit of hearing aid after 2 months of regular use.[7]

Statistical analysis

Statistics were done using the SPSS software (version 24). Data were displayed as mean with standard deviation and frequencies according to the type of data displayed. P value all over the study was considered with confidence interval 95%. Paired Samples T test was used for the comparison between the two groups, Pearson correlation coefficient test, "T" test and F test were used also.

RESULTS

The patients' main complaint was hearing loss; hearing aid fitting was the rehabilitation method. Fourteen percent of the patients suffered from moderate hearing loss, 39.6% had moderately severe, 20% had severe hearing loss and 26.4% presented with the profound hearing loss with speech discrimination score 55.63%±14.64%.

Table 1: Patient's demographics.

Gender	Mean ± SD	Min	Max
Females (15)	64±2.4	60.00	68.00
Males (28)	66.1.6	61.00	69.00

Moderate positive correlation was found between the severity of hearing loss and psychological, social and vocational status of the patient by 58.8%, 58.8% and 48.1% respectively.

Table 2: Scores of psychological, social and vocational scores of IOI-HA.

Variables	Mean ± SD	Min	Max
Psychological	34.06±12.3	17.0	44.00
Social	44.30±11.20	35.0	49.00
Vocational	28.44±11.76	27.0	36.00

Hearing threshold showed high significant improvement after the use of hearing aid, hearing threshold for each frequency was measured with the following results.

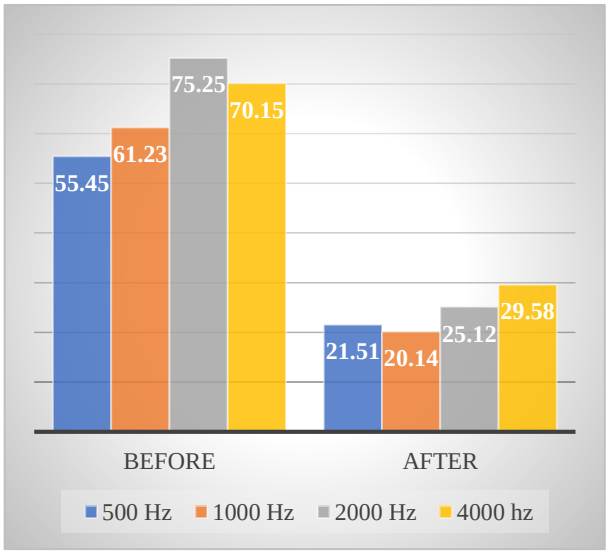

Figure 1: Hearing thresholds before and after hearing aid fitting at 4 frequencies (500, 1000, 2000 and 4000 Hz).

Speech discrimination also showed significant improvement after hearing aid use.

On trial to focus on factors affecting the hearing aid benefit age showed moderate positive correlation; being younger for the first time increase their benefit of hearing aid use. On contrast gender didn't show effect on the benefit of hearing aid use.

On assessment of personal outcome of the hearing aid using IOI-HA it resulted that improvement of audiological profile of the patient almost show better personal outcome.

Table 3: Total score of IOI-HA.

Variables	Mean ± SD	Min	Max
IOI-HA	29.76±3.42	26.00	35.00

DISCUSSION

Most of the patients who came to the clinic had moderately severe hearing loss, 39.6%. More severe degrees of hearing loss are the result of a long time that passed before the patient sought medical attention. Less than that, communication and social life are not nearly as severely affected. Most of the patients were men, nearly 66 percent. According to Jönsson et al presbyacusis is more common in males perhaps due to synergism of multiple risk factors such as noise exposure and smoking.[7]

The finding that experienced activity limitation and general life affection was significantly associated with increased hearing loss, findings that were consistent with previous studies that showed hearing-impaired older adults report greater difficulties with functional activities and more co-morbidities than younger adults without, or with slight, hearing loss in agreement with Barrenän et al and Motl et al.[8,9]

As hearing loss progresses, various problems can occur. Hearing loss has a significant impact on the patient's mental state and daily life in agreement with Dalton et al and Davis et al.[10,11]

As hearing impairment affects communication, subsequently it will also affect social participation. Elderly with a sensory loss frequently experience conversational breakdown and perceive themselves as poor conversationalists (Table 2 and 3) in harmony with Anderson et al reported.

Presbycusis can not only lead sufferers to reduced quality of life, isolation, dependence and frustration, but also affect the healthy people around as in agreement with Parham.[13]

Our finding that perceived participation restriction is associated with general life satisfaction fits well with earlier studies that demonstrate that hearing impairment reduces quality of life.[14] Even mild hearing loss can lead to severe disability, thereby negatively influencing the lives of the elderly according to WHO.[15]

It's perceived that hearing range of the patient with age related hearing loss is greatly improved with the use of hearing aid (Figure 1). Significant change in pure tone measurements before and after hearing aid fitting was reported as ($p>0.001$). Barbosa et al reported that the percentage of patients with severe hearing handicap decreased from 45.6% to 8.8% with hearing aid use.[16]

Getting older increase the chance of having age related hearing loss but, hearing aid fitting almost give better results (according to our study) conflicting with Vestergaard whose study reported that no relationship between age and the net result of hearing aid.[17]

Vestergaard, in contrast; reported that gender has no relationship with how the patient gets benefit from the hearing aid as well as this research did.[17] Staehelin et al reported that there may be a difference according to gender in the personal impact of hearing aid but not in the test results.[18]

Most patients in the current study got the promising outcome from the hearing aid, going on depth this mean that the factors of IOI-HA questionnaire are nearly fulfilled (Table 2).

Limitations of the study included: 1- The pandemic of COVID-19 that made a considerable number of patients unable to complete the study. 2- The high prices of hearing aids in a poor country (Egypt).

CONCLUSIONS

Remarkable limitations of daily activity was found associated with increased hearing loss. On the other hands, proper auditory rehabilitation was related to improved quality of life and enhanced life satisfaction.

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