

Symptoms of Depression in Hearing Impaired Adults and Elderly: Importance of Hearing Aid Use

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SUMMARY

- Introduction:** Hearing impairment brings forth a series of changes in social and family life of the affected individuals, with the beginning or the worsening of depressive symptoms. That can be triggered by the withdrawing from situations of interrelationship, by communication difficulties due to hearing decrease.
- Objective:** The objective of this work was to verify if the use of hearing aid helps to reduce the depressive symptom in adults and elderly with sensorineural hearing loss.
- Method:** The sample was composed by 20 subjects, with ages between 44 and 81 years old (average 65,30 ± 10,16 years), users of hearing aid for the first time. The evaluation of the depressive symptom was made through the application of the Geriatric Depression Scale (GDS), in two moments, pre and pos adaptation.
- Results:** The obtained results evidenced a meaningful decrease of the depressive symptom, being compared the pre and pos adaptation results.
- Conclusion:** These results confirm the importance of the hearing aids for depression symptoms, once the hearing loss can be the origin of the isolation, that can originate or to worsen severity of depression.
- Key words:** depression, hearing aids, aging.

INTRODUCTION

Communication is an essential need for any person, as it allows acquisition of knowledge and experiences by helping people to remain active in social and family life. When communication is damaged, it can cause personal frustration leading the individual to a self isolation and depression (1,2).

According to 2002 Census (3), 5.7 million Brazilians report hearing impairment. This number might be much higher, for the presence of the problem is not noticed or it is denied by individuals. Not assuming such problem implies no therapy, what can worsen non-hearing frustration and then self isolation.

Hearing loss due to aging is called presbycusis (4,5,6). It is a biological phenomenon which everybody is susceptible to. It can start around the age of 30 and from the 40's or 50's signs and symptoms become more noticeable (7,8). Different problems can either antecede or be associated to presbycusis, such as metabolic disorders, arterial hypertension, cardiovascular diseases, bone problems (ostoclerosis), infection on middle ear, ototoxic mediations, long exposure to noise and heredity (9,10).

Hearing impairment is one of the three most common diseases in elderly people. It triggers several effects on functional abilities and health, damaging everyday activities leading to depressive conditions (2,6,11,12,13).

Depression is marked by a change in mood and feeling of sadness, usually of multifactorial origin that can be diagnosed at any time of life (14).

In cases of association of depression and hearing impairment, a follow-up by a physician and by a speech doctor is extremely important in order to provide support to the elderly and family regarding therapies and psychosocial aspects. The use of hearing aid devices is a possible key to help on hearing impairment (5,6,10,13,14,15).

Fear, anxiety, solitude and difficulty in fitting with hearing aids are symptoms often present in hearing impaired people. However, they can change after a constant use of the device (16,17,18).

As hearing impairment can cause different problems, rehabilitation helps the elderly to improve family relation, self esteem, mental health, confidence in performing everyday activities (12).

Choosing hearing aids is the beginning of rehabilitation process, which consists of important factors as adaptation, follow-up and orientation. The process aims to improve communication ability of the elderly in both social and personal manners (19). Besides, hearing training in communication situations is essential to the use of the device (16,17,18,19).

The target of this study is to verify if hearing aids improve symptoms of depression on hearing impaired individuals by considering such impairment in elderly might start or get those symptoms worse.

METHOD

This study was composed by 20 adults and elderly affected by hearing impairment prescribed to hearing aids.

The inclusion criteria were:

- attendance in the two stages of the study (pre and post selection and adaptation of hearing aid);
- aging 40 years or over;
- complete audiological evaluation (preliminary tone audiometry, vocal audiometry, immitanciometry testing);
- presence of sensorineural hearing loss with prescription of hearing aid use;
- hearing aid testing (selection) and use follow-up (adaptation) where research was developed;
- be an applicant for hearing aid use and start it at the *Serviço de Otorrinolaringologia e Cirurgia de Cabeça e Pescoço (Divisão de Saúde Auditiva) do Hospital Universitário da Universidade* – Service ENT and Head and Neck Department;
- non-use of anti-depressive drugs during research.

When individuals attended audiological evaluation and hearing loss was confirmed as well as the use of hearing aids, they were explained of the target of the study and the were invited to make part on the research.

If answer was positive, they signed the Free and Clear Consent Term and also filled a questionnaire especially developed for this study, aiming to obtain data from the individuals. They were asked of age, marital status, education, address, phone number, diseases and medications.

Geriatric Depression Scale (GDS) (shorter version – 15 items) was used to check the presence of depression symptoms. Such tool was chosen for being reliable, for having Portuguese language translation and being largely applied on Geriatrics and Gerontology areas (20,21). Application was performed individually in the clinic. 01

(one) score was assigned to each answer that showed tendency to depression. Score evaluation was done as it follows (22):

- less than 05 scores – absent symptoms of depression;
- between 05 and 10 scores – mild to moderate symptoms of depression;
- more than 10 scores – severe symptoms of depression.

Around one month after starting hearing aid use and four training sections, patient returned to clinic in order to have their aids adjusted and revision of orientation. For this, it was also used the same tool.

Statistical analysis was performed on software Statistical Package for Social Science (SPSS) 10.0 for Windows. All tests were two-sided-performed, having $p \leq 0.05$ as statistical values.

Descriptive analysis of quantity variables was performed through observing average calculation and standard deviation. Absolute frequency was calculated to quality variables.

Comparison between GDS in pre and post-prosthesis period was carried through McNemar test.

This study was part of the project called “Cognition and Depression in adults and elderly people: use effects from hearing aids”, approved by the Research Ethics Committee of the University where the study was done (protocol 223/2006).

RESULTS

20 individuals with average age of 65.30 ± 10.16 were evaluated. Regarding gender, 55% was male and 45% was female, most of them were married (65%), and had low education (70%).

Table 1 displays hearing loss data. 60% of ears presented moderate hearing loss followed by severe type (35%). Hearing loss degree was measured according to World Health Organization (23).

Table 2 displays data and comparison between results from GDS pre and post prosthesis.

From the 20 individuals, 5 (25%) of them did not present depression symptoms. The others presented mild-moderate symptoms (55%) or severe ones (20%). After wearing hearing aids, absent symptoms was reported in 65% of the individuals. Data confirmed that by comparing pre and post adaptation period there was a significant statistical decrease on symptoms of depression.

Table 1. Prevalence of hearing impairment degree in each ear.

Hearing loss	RE		LE	
	n	%	n	%
Mild	1	5	0	0
Moderate	12	60	12	60
Severe	7	35	7	35
Profound	0	0	1	5

Subtitle: n=20, absolute value % - percentage.

Table 2. Comparison between GDS results, during pre and post prosthesis

Symptoms of depression	Pre		Post		pValue
	n	%	n	%	
No symptoms	5	25	13	65	0.005*
Mild-moderate symptoms	11	55	7	35	
Severe symptoms	4	20	0	0	
Total	20	100	20	100	

Subtitle: n=20, absolute value % - percentage.

DISCUSSION

Sensorineural hearing loss is the most common in elderly population as a consequence of aging process (8). This type of loss occurs when lesion is in the cochlea and/or auditory nerve. It affects around 30% of people aging over 65 years and 50% of these are over 75 years old. Regarding hearing impairment degree, research outcomes were similar to the ones from the literature, though bilateral moderate auditory involvement is the most common in the elderly population (18,24).

Regarding symptoms of depression and hearing impairment, it was noticed that during pre-prosthesis, most of individuals presented symptoms. That was expected, once hearing impairment is often associated to depressive conditions, as understanding difficulties contribute to isolation process (1,2,6,11,12,13). There was an expressive change when comparing results of depression symptoms during pre and post-adaptation period. Data reported that there was a decrease on symptoms or a reduction on their seriousness from most of individuals.

The certainty of these positive responses to the use of hearing aids is important, once it confirms hearing rehabilitation on quality of life improvement.

The data found in this study confirm international literature information, which describes that hearing impaired elderly who are non-wearers present symptoms of depression and anxiety, but condition changes as they become hearing aid wearers. Hearing impairment therapy keeps individuals active in social life, and not only wearers are benefited but also their family, as family relation seems to remain maintained (11,25).

The significant statistical difference on the number of individuals with symptoms during pre and post-adaptation period with hearing aids reinforces the need of therapy and importance of intervention. This study, though, differs from other authors'. They assure that the use of hearing aids little contributes to depression symptom improvement, mainly in elderly, who might presents association between depression and insanity (26).

The most common symptoms of depression, which were overcome by wearing hearing aids, are: loss of interest in activities, irritability, bad and empty mood, sadness, short memory and feelings of hopelessness.

By considering that such symptoms are typically from depression, it is believed that they can get stronger by hearing loss, mainly because of social withdrawing. Besides, no social life is a risky factor that can lead to depression (27).

Depression is a multifactorial pathology that can be caused by biological and/or social disorders (14,22). Hearing impairment is believed to be a wide reason to depression condition, once it prevents individual from performing social life totally or partially due to isolation that might occur. That is why early intervention is fundamental to reduce such symptoms. Therapy depends on individual's awareness, though their cooperation is essential for decision taking and follow-up.

Reasons such as lack of motivation, anxiety, unreal expectancy and hearing aid appearance can lead to a rejection towards impairment itself and rehabilitation. In these cases a speech doctor follow-up is required for both individual and family, what can raise rehabilitation acceptance, most of time, and also an improvement on cognitive function and on emotional aspect (5,8,16,17,18,24,28,29).

Another issue is that results showed symptoms improvement in a short period of time, though the

average period between evaluations was 36 days. During that, individuals from this study underwent hearing training, in which aspects regarding aid manipulation, oral reading and speech understanding were analyzed. This kind of exercises provided positive results, by helping individuals to achieve independence and improve conversation performance when wearing hearing aids.

Auditory rehabilitation should raise independence and autonomy, though the handicap caused by hearing impairment prevents social and functional activity to the individuals, what makes them dependent on family or carers (30).

Depression is a very common pathology nowadays, which affects especially elderly and about-to-retire population, due to the thoughts of becoming useless and hearing impairment can worsen such condition, by making individuals apart from everyday life activities.

Medical and phonoaudiology intervention aim to bring the elderly back to their social acquaintanceship. It is needless to say the advances on technology regarding hearing aids, as well as their benefits, as world elderly population has been increasing widely and so have Brazilians in particular. So professionals technically capable have been becoming more required (15).

Considering the study confirmed hearing aid use improves depression symptoms in adult and elderly population, in a small group of wearers, new researchers should be done involving more samples, what would provide better results.

CONCLUSION

This study aimed to analyze the effect of hearing aid use on symptoms of depression on adult and elderly population with hearing loss.

After gathering and analyzing data, there was a confirmation of the hypothesis of reduction or removal of depression symptoms on the evaluated individuals comparing results of pre and post-adaptation of hearing aids.

The obtained data were expressive important for the fields of Phonoaudiology, Otorhinolaryngology, Geriatrics and Gerontology, once the importance of hearing rehabilitation was assured in order to bring individuals back to society and improve their quality of life.

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