
IDENTIFICATION OF HEARING LOSS IN STUDENTS ATTENDING THE OPEN UNIVERSITY TO THE ELDERLY

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ABSTRACT

Hearing handicap, in any moment of someone's life, results in communication difficulties that can vary in amount and quality of the sounds. This study had the objective of identifying the hearing loss in students attending to the program of the Open University to the Elderly, provided to the Bauru community by the Sacred Heart University (USC), and assessing the self-perception of the non-hearing influences by the "Hearing Handicap Inventory for the Elderly-Screening" questionnaire HHIE-S (WIESELBERG, 1997), created by the hearing loss of these people, comparing the results with the auditory find. Forty-seven individuals were subjected to auditory anamnesis, auditory assessment and self-perception assessment by the HHIE-S questionnaire. By this study, it was possible to identify different kinds and levels of the hearing loss in twenty-nine individuals. However, only ten individuals showed handicap perception.

KEY WORD: elderly; hearing loss; presbiacusy

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INTRODUCTION

Aging is a natural phase in one's life in which individual goes through a process of biological, psychological and cultural transformation. With aging, sensory organs undergo alterations that compromise their functions. In the case of hearing, Russo (1999) referred that occurs some decrease in hearing acuity that can prevent from the elder fully playing his/her role in the community.

In general terms, the hearing loss in the elderly is called presbiacusia and may provoke alterations in the psychosocial aspects which can lead elderly people to isolation due to the difficulty to hear, understand and to be understood.

Mondelli (1999) mentioned that the difficulties in communication could lead individuals to become less assured of their abilities in the professional, social and personal sphere leading to modification in the quality of life, depression and isolation.

According to Katz (1999) significant modifications in the hearing threshold start from ages 40 and 50 and continue until the age 80.

Bess and Humes (1998) referred that the auditory sensitivity is progressively deteriorated after 50 years age mainly in high frequencies and the progression is slightly faster in men than in women.

Boone e Plante (1994) and Katz (1999) reported that the hearing loss in the elderly is called presbiacusia and it is characterized by a bilateral and slow progressive hearing loss (BHATT et al., 2001).

Due to this characteristic of hearing loss progression, patients with presbiacusia usually are not aware of its extension. When evaluated, it is possible to observe hearing loss in the high frequencies and compromise of speech understanding. Elderly people with hearing deficit due to aging process typically complaint about the difficulty to understand speech although they report they can hear correctly (HUNGRIA, 2000).

Hungria (2000) reported that presbiacusia may be influenced by environmental factors to which the individual is exposed such as: infections, intoxications, trauma and genetic factors from hereditary source, besides metabolic and vascular disturbances.

According to Katz (1999) presbiacusia can be defined as the sum of hearing losses resulting from a variety of physiological degenerations, including damage caused by exposition to noise, ototoxic agents, clinical alterations and treatments. The same author stresses the possibility of a genetic determined tendency to hearing loss due to age.

Psychoacoustics findings confirm that elder individuals may

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experience difficulty in oral communication as long as the effects of presbiacusia become more pronounced. As a result, a decrease in the efficiency of communication tends to feeble the individual's ability to maintain interpersonal relations and to take part of cultural activities (SCHOCHAT, 1997).

Russo (1999) reported that it is common to observe the hearing decline in elderly people accompanied by a frustrating decrease in the understanding of speech, which compromise the communication with family members, friends, that is, with all individuals in his/her contour. Due to this difficulty of speech understanding, these elderly may develop psychosocial problems, which can lead to isolation from their milieu and of their communicative situations.

The aim of the present study is to identify the auditory loss in students of an Open University to Third Age program sponsored by the University of the Sacred Heart (USC) in Bauru, SP, and to evaluate the self-perception of the non-auditive influences promoted by the auditory loss in this group, comparing results with the audiologic findings.

MATERIALS AND METHODS

The present study was conducted in the Sector of Audiology of the Applied Psychology and Phono Audiology Clinic – CPAF of the University of the Sacred Heart (USC, Bauru-SP). The study got approval from the Committee on Ethics in Research (protocol n° 031/2002).

During 2001 the Open University to Third Age at the University of the Sacred Heart enrolled 80 students. All were personally invited to participate in the study but only 47 accepted.

Therefore, 39 females and 8 males were evaluated with age ranging from 50 to 82 years (mean age 66).

All participants were informed and signed an Informed Consent Term. They underwent audiologic anamnesis, inspection of the external acoustic meatus, audiologic evaluation and auditory self-perception evaluation (handicap).

The audiologic evaluation included pure tone audiometry (PTA) and imitancimetry using a Madsen audiometer model MA-41 and an Interacoustic AZ-7R impedanciometer. For classification of the hearing loss it was used the one proposed by Silman and Silverman (1997).

For the evaluation of the self-perception of auditory limitation it was used the abridged version of the Hearing Handicap Inventory

for the Elderly-Screening (HHIE-S) developed by Ventry and Weinstein (1983) and adapted by Wieselberg (1997) for Brazilian Portuguese.

The HHIE-S consists of 10 questions (ANNEX 1). Five of them investigate social and situational issues related to hearing loss. The questionnaire uses a three-point scale (yes, no and sometimes) and answers should be marked with an X.

Results of HHIE-S were analyzed taking into consideration the criteria of scoring and evaluation of answers proposed by Ventry and Weinstein (1983) adapted by Wieselberg (1997): yes = 4 points, sometimes = 2 point and no = 0 point. The value of scoring can vary percentually from 0 to 40. The higher the classification, the higher the perception of the individual on his/her handicap is: 0-8% - no perception of the handicap; 10-22% - mild perception; 24-40% - severe perception of handicap.

The results from HHIE-S were correlated to auditory complaints and discussed at a 5% level of significance using statistics such as Test of Goodman for contrast between and within multinomial populations (GOODMAN, 1964, 1965).

Low case letters indicate that the results of the comparison between complaints connected to categories of answers and upper case letters in the comparison of categories of answers and the total HHIE-S score within the complaint. For interpretation of letters the list below can be used:

- Two proportions followed by a same low-case letter do not differ in what regards the respective complaint in the answer category or consideration;
- Two proportions followed by the same upper case letter do not differ in what regards the respective categories of answer concerning a given complaint.

RESULTS

Main results can be seen in TABLE 1, 2, 3, 4 and 5.

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hearing	Frequency	
	Absolute	(%)
Normal	18	38.3
Loss	29	61.7
Total	47	100.0

TABLE 1 – Prevalence of hearing loss.

hearing loss	Type of loss		Frequency	
			Absolute	%
bilateral	Sensorineural 21	Conductive 1	22	46.8
unilateral	Sensorineural 7	—	7	14.9
Normal	—	—	18	38.3
TOTAL	—	—	47	100.0

TABLE 2 – Number of individuals according to the laterality and the type of hearing loss.

complaint degree	yes	No	Total
	Normal	2	16
Mild	6	10	16
Mild & moderate	2	1	3
Moderate	5	1	6
Moderate or moderately severe	2	0	2
Moderately severe and severe	1	0	1
Severe	1	0	1
Total	19	28	47

TABLE 3 – Association between auditory complaint and the degree of hearing loss.

Auditory complaint	Degree or perception of the <i>Handicap</i>			Total
	none	mild/moderate	Severe/significative	
No	28 (100.0) b B	0 (0) a A	0 (0) a A	28
Yes	9 (47.4) a B	7 (36.8) b B	3 (15.8) b A	19

TABLE 4 – Percentage of answers of the scoring obtained in the HHIE-S According the auditory complaint.*

* Text of Goodman (1964, 1965)

Degree of handicap perception	Degree of hearing loss			Total
	mild	Moderate	Severe	
None	14	5	0	19
mild/moderate	2	2	3	7
Severe	0	2	1	3
Total	16	9	4	29

TABLE 5 – Distribution of individuals according to the hearing loss and the degree of perception of the hearing handicap.

DISCUSSION

TABLE 1 shows that hearing loss, according to Silman and Silverman (1997) was identified in 29 individuals (61.7%). Twenty-eight of them are suggestive of presbiacusia (KATZ, 1999; BHATT et al., 2001) and one of otosclerosis. These etiological diagnosis was suggested from data obtained in the anamnesis and from audiologic findings.

The predominance of sensorineural hearing loss (TABLE 2) can also be seen in the finding of Saes et al. (2001) that, evaluating 331 elderly ranging from 60 to 90 years of age, have also observed a predominance of sensorineural hearing loss. According to Jerger and Jerger (1989) and Hungria (2000) the

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sensorineural hearing loss is considered as characteristic of hearing loss in elderly individuals.

In terms of laterality it was observed the predominance of bilateral hearing loss (TABLE 2). According to Hungria (2000) and Bhatt et al. (2001) presbiacusia is typically bilateral.

The audiograms show that individuals with unilateral hearing loss have also mild compromise to high frequency in ears considered as normal, according to the classification proposed by Silman and Silverman (1997). This finding can be supported by Bess and Humes (1998) and Katz (1999) that report that the auditory sensibility in the elderly deteriorates progressively, mainly in the high frequencies.

The presence of varied grade hearing loss in individuals without any auditory complain (TABLE 3) may be due to the progressive characteristic of presbiacusia, causing unawareness of the extension of the loss on the part of patients (HUNGRIA, 2000).

In TABLE 3 it can also be seen that two out of the 19 individuals with complaints of hearing loss, showed normal hearing and the remaining 17 showed a varied degree of hearing loss from mild to severe (including here the individual with conductive hearing loss). It was not found in the literature data on the degree of hearing loss in prebiacusia.

TABLE 4 shows statistical association between the auditory complaint and the perception of the hearing handicap.

Fourteen out of the 19 individuals with hearing loss that did not refered perception of the hearing handicap (TABLE 5) which, had mild hearing loss, what may explain the absence of perception of the hearing handicap. Due to the progressive hearing loss individuals with presbiacusia are usually not aware of their auditory compromise (HUNGRIA, 200).

Results from TABLE 5 did not reveal a relation between the degree of hearing loss and the degree of perception of the hearing handicap, which is also a finding of Wieselberg (1997) that reports many individuals with mild hearing loss showing a severe handicap perception. Carlos (1994) cited that the degree of hearing loss can diverge from the handicap perception because, besides the hearing threshold, other factors that characterize the life of an individual such as economic, social and cultural, may interfere in this process.

The emotional and psychosocial problems due to hearing loss that are common in elder people (SHOCHAT, 1994; RUSSO, 1999) were not found in the results of the HHIE-S questionnaire of most individuals evaluated in this studied (36 / 78.7%). Such results could be explained by the participation of these individuals in the Open University of the Third Age that aims to recycle,

update and offer orientation to their students (RUSSO, 1999).

CONCLUSION

Hearing loss was identified in 29 (61.70%) studied individuals but only 10 of them (21.27%) showed perception of the hearing handicap. This finding suggest that the participation in programs such as the Open University of the Third Age may be, probably, considered as a factor that minimize the emotional and psychosocial problems due to hearing loss.

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ANNEX

Hearing Handicap Inventory for the Elderly-Screening – HHIE-S

Instructions: this questionnaire aims to identify non-hearing problems that your hearing loss may be causing to you. Answer “yes”, “no”, or “sometimes” to each question. Please, do not skip any question even if you avoid a situation due to your hearing problem.

E-1. Does a hearing problem cause you to feel embarrassed when you meet new people?

() yes

() sometimes

no
E-2. Does a hearing problem cause you to feel frustrated when talking to members of your family?

- yes
 sometimes
 no

S-3. Do you have difficulty hearing when someone whispers?

- yes
 sometimes
 no

E-4. Do you feel handicapped by a hearing problem?

- yes
 sometimes
 no

S-5. Does a hearing problem cause you difficulty when visiting friends, relatives, or neighbors?

- yes
 sometimes
 no

S-6. Does a hearing problem cause you to attend religious services less often than you would like?

- yes
 sometimes
 no

E-7. Does a hearing problem cause you to have arguments with family members?

- yes
 sometimes
 no

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S-8. Does a hearing problem cause you difficulty when listening to TV or radio?

- yes
- sometimes
- no

E-9. Do you feel that any difficulty with your hearing limits or hinders your personal or social life?

- yes
- sometimes
- no

S-10. Does a hearing problem embarrass you when you go to a restaurant with family or friends?

- yes
- sometimes
- no

Sub-titles

- E** - emotional consequences
- S** - social/situational issues

