http://dx.doi.org/10.23925/2176-2724.2018v30i4p736-747

Perception of elderly people about the restriction of participation related to hearing loss

Percepção de idosos sobre a restrição da participação relacionada à perda auditiva

Restrición de la participación en idosos relacionada a la pérdida auditiva

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Abstract

Introduction: Among the physiological alterations of the human aging process, age-related hearing loss is one of the most frequent and disabling, since it reduces the social contact of the elderly, and can generate impact on health conditions. **Objective:** to verify the perception of the elderly about the restriction of participation related to hearing loss. **Method:** A cross-sectional and quantitative study with elderly individuals over 60 years of age, all with hearing loss, users of hearing aids or not. The Hearing Handicap Inventory for the Elderly (HHIE) questionnaire was applied. **Results:** The sample consisted of 46 individuals, 43.48% (n = 20) of the female sex and 56.52% (n = 26) of the male sex. The average age was 74.78 years, with a standard deviation of 7.96 years. The most frequent hearing loss, in 73.91% (n = 34) of the sample, was bilateral sensorineural type with a descending configuration, with

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Authors' contributions: CC – research elaboration, literature review, data collection and analysis, article writing, article submission and procedures; **ABML** – research guidance, correction of data analysis, article writing, article correction, approval of the final version; **JS** – article revision and correction, and approval of the final version; **DL** - article writing, revision and correction, and approval of the final version; **JM** – Statistics/ data analysis and approval of the final version; **GM** – article writing, revision and correction, and approval of the final version.

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Received: 30/11/2017
Accepted: 17/09/2018

50% (n = 23) not using hearing aids, 45.65% (n = 21) stated using it and 4.35% (n = 2) did not answer that question. The results showed that 82.6% of the elderly reported restrictions to participate in social activities, being 50% of the sample (n = 23) with significant perception. In general, such a restriction was higher in males, sensorineural hearing loss of moderate degree and descending configuration, ages up to 79 years, who did not use hearing aids, although the differences between the variables were not significant. **Conclusion:** Elderly people with hearing loss had a significant perception of the restriction of participation, especially among those who did not use PSAPI, which could negatively impact quality of life.

Keywords: Hearing Loss; Presbycusis; Quality of Life.

Resumo

Introdução: Dentre as alterações fisiológicas do processo de envelhecimento humano, a perda auditiva relacionada à idade é uma das mais frequentes e incapacitantes, pois diminui o contato social do idoso, podendo afetar suas condições de saúde. **Objetivo:** Verificar a percepção de idosos sobre a restrição da participação relacionada à perda auditiva. **Método:** Estudo transversal e quantitativo com idosos maiores de 60 anos que têm perda auditiva, usuários ou não de aparelho de amplificação sonora. Analisou-se a audiometria tonal convencional e aplicou-se o questionário *Hearing Handicap Inventory for the Elderly*. **Resultado:** A amostra foi composta por 46 indivíduos, sendo 43,48% (n=20) do sexo feminino e 56,52% (n=26) do sexo masculino. A idade média foi 74,78 anos, com desvio padrão de 7,96 anos. A perda auditiva de maior ocorrência, em 73,91% (n=34) da amostra, foi do tipo neurossensorial bilateral e de configuração descendente, sendo que 50% (n=23) não usava aparelho de amplificação sonora individual, 45,65% (n=21) afirmou usá-lo e 4,35 (n=2) não respondeu essa questão. Quanto à participação, 82,6% dos idosos relatou restrições para participar de atividades sociais, sendo 50% da amostra (n=23) com percepção significativa. No geral, tal restrição foi maior no gênero masculino, na perda auditiva neurossensorial de grau moderado e configuração descendente, com idade até 79 anos e que não utilizavam o referido aparelho. **Conclusão:** Os idosos com perda auditiva apresentaram percepção significativa da restrição da participação, principalmente os que não utilizam aparelho de amplificação sonora individual, impactando negativamente sua qualidade de vida.

Palavras-chave: Perda Auditiva; Presbiacusia; Qualidade de Vida.

Resumen

Introducción: Entre las alteraciones fisiológicas del proceso de envejecimiento humano, la pérdida auditiva relacionada a la edad es una de las más frecuentes e incapacitantes, pues disminuye la participación social del anciano, pudiendo generar impacto en las condiciones de salud. **Objetivo:** verificar la percepción de los ancianos, sobre la restricción de la participación relacionada a la pérdida auditiva. **Método:** Estudio transversal y cuantitativo con ancianos mayores de 60 años, con pérdida auditiva, usuarios o no de audífonos. Se analizó la audiometría tonal convencional y se aplicó el cuestionario *Hearing Handicap Inventory for the Elderly*. **Resultado:** La muestra fue compuesta por 46 individuos, siendo 43,48% (n = 20) del sexo femenino y 56,52% (n = 26) del sexo masculino. La edad media fue 74,78 años, con desviación estándar de 7,96 años. La pérdida auditiva de mayor ocurrencia, el 73,91% (n = 34) de la muestra, fue del tipo neurosensorial bilateral y de configuración descendente, siendo que el 50% (n = 23) no usaba audífonos, 45,65 % (n = 21) afirmó usarlo y 4,35 (n = 2) no respondió esta cuestión. Los resultados mostraron que el 82,6% de los ancianos relató restricciones para participar en actividades sociales, siendo el 50% de la muestra (n = 23) con percepción significativa. En general, tal restricción fue mayor en el género masculino, en la pérdida auditiva neurosensorial, de grado moderado y configuración descendente, con edad de hasta 79 años y que no utilizaban audífonos, aunque las diferencias entre las variables no fueron significativas. **Conclusión:** Los ancianos con pérdida auditiva presentaron percepción significativa de la restricción de la participación, principalmente aquellos que no utilizan audífonos, pudiendo así impactar negativamente en la calidad de vida.

Palabras claves: Pérdida Auditiva; Presbiacusia; Calidad de vida.

Introduction

Currently, world aging process in the population has been pointing to the importance for old age to be lived in a healthy way, and quality of life has been focused by health professionals throughout their life span. The concept of quality of life is related to self-esteem and personal well-being, comprising individuals' functional capacity, socioeconomic status, emotional status, possibility of social interaction, intelectual activity, self-care, family support, the health status itself, cultural and ethical values, lifestyle, job and/or daily activities satisfaction, and environment where these individuals live in[1].

Thus, in view of this new longevity condition, which focuses on elderly people's well-being, many countries have established policies capable of providing better health conditions, safety and social participation to their aging population[2].

Specifically, in Brazil, individuals are considered elderly at over 60 years of age, as defined by the legal guidelines of the Elderly National Policy. That policy, enacted in 1994 and regulated in 1996, assures social rights to elderly individuals, pointing to the need of creating conditions to promote their autonomy, integration and effective participation in society, reassuring their right to healthcare in the several healthcare levels at SUS (Unified National Health System)[3,4].

Subsequently, in 1999, National Elderly Healthcare Policy pointed out that hearing loss, frequently present among the older population, may negatively influence elders' functional capacity affecting their physical and mental skills, necessary to perform basic and instrumental activities of daily living. In this sense, among the issues to be discussed about the aging process, it is worth mentioning age-related hearing loss or presbycusis, recognized as a sensory deprivation due to hearing loss. That impairment, due to physiological aging, may trigger problems related to elders' social and family participation, which often show less interest in carrying out activities of the daily life, in addition to perceiving themselves as powerless to face life and the other[5].

Along with the sensory limitation from the acquired hearing impairment, it deems to take into account the hearing impairment and participation restriction, also known as hearing disadavantage or handicap. In general, hearing impairment is related to the skill for understanding speech, mainly in noisy environments, and handicap is related to the impossibility for the individuals to perform their role in society effectively[6-8].

Quantifying individuals' self-perception of their hearing disadvantage has been held by means of questionnaire application, which assesses emotional and social issues evolving from the hearing impairment. Ventry and Weinstein (1982) developed the H*earing Handicap Inventory for the Elderly* (HHIE) questionnaire, which was further adapted by Wieselberg[9], objectifying to assess the impact of hearing loss in the emotional and social/situational adjustment of the non-institutionalized older patient. The authors suggested the use of the questionnaire for guidance, as well as in programs of hearing rehabilitation, and assessment of the benefits in the use of Personal Sound Amplification Products (PSAP), enabling to verify the change in the handicap self-perception, in case it occurs.[9]

Studies use the HHIE questionnaire or its short version, HHIE-S, in different situations aiming at investigating the test/retest agreement of the questionnaire[10]; to show the need of audiological screening in a group of older people[11]; to evaluate the sensitivity and specificity of the questionnaire[11], to evaluate the rehabilitation efficiency[12]; to verify the applicability of the questionnaire in screenings[12]; and still to analyze the satisfaction and restriction in the elderly participation[13].

Issues related to older individuals' emotional and social aspects due to their restricted participation in a variety of events where speech understanding is deemed to be necessary, may bring about deleterious consequences in their quality of life. Hearing loss impact on the elderly's quality of life highlights the importance of healthy aging, warning speech-language pathologists and audiologists, who work with this age range, on the need to pay more attention to hearing complaints, in order to reduce the time between diagnosis and prosthesis, thus, avoiding hearing impairment for prolonged time, once better conditions of life for the older subjects may keep them active and healthy[5-8].

Thus, the current study objectifies to assess older people's perception, treated at a high-complexity service in Southern Brazil, on their restriction to participation related to hearing loss.

Method

It's a crosscut study, aproved by the Ethics Board under number 1.180.334, and developed at a Speech-Language Pathology and Audiology Teaching Clinic in Southern Brazil, classified by SUS as a high-complexity service.

Older individuals over 60 years of age, under treatment at the Teaching Clinic, participated in the research, either referred by SUS for audiological assessment or appointed by the clinic for follow-up in the use of the hearing aids, and audiological assessment. All participants signed the Free Informed Consent Form, underwent audiological assessment and subsequently answered *The Hearing Handicap Inventory for the Elderly* (HHIE)[9] questionnaire.

Elderly individuals with neurological, speech, psychiactric and/or cognitive disorders were excluded from the research, as they could hinder answers' accuracy.

Audiological assessment began with the meatus screening in order to verify the presence of any obstructions that could hinder the audiometry. Audiological assessment was held by means of a Maico MA 41 Audiometer, TDH-39P headphones, calibrated according to National Institute of Metrology Standardization and Industrial Quality regulations, and Federal Council of Speech-Language Pathology and Audiology – CS n. 34, March 20, 2010, in a hearing-test booth. Audiometric testing was restricted to tonal thresholds by air conduction, 250 Hz to 8000 Hz frequencies, and bone conduction, 500 Hz to 4000 Hz frequencies. Logoaudiometric was also held, but it was not the study object in this research. Regarding the audiometric results, these were classified according to the guidelines by the Federal Council of Speech-Language Pathology and Audiology[14].

After audiometric testing, the Hearing Handicap Inventory for the Elderly – HHIE questionnaire was applied, comprising 25 questions divided by items related to the social/situational scale, and items corresponding to the emotional scale. The questionnaire was applied to all the participants, "face to face" technique, which consists of the reading of the items by the interviewer, without any explanations added to the reading.

Subsequently, the participants were guided to answer "yes" (4 points), "sometimes" (2 points) or "no" (no points) for each question, according to what they thought would be more appropriate in their case or situation.

Questionnaire scoring may range from zero (no perception of restriction in the participation) to 100 (maximum restriction in the participation). As it was proposed by Grossi and Scharlach[13], the individuals were grouped in three categories: 0-16 points (no perception of their participation restriction); 17-42 points (mild to moderate perception) and 43-100 points (significant perception of their participation restriction).

The analysis was carried out by means of descriptive Statistics (absolute and relative frequency tables), and correlation established by means of Chi-square and Fisher's Exact Tests, being the latter used when the former could not be used. Significance level considered was 0.05 (5%).

Correlations between HHIE results and audiometric findings were performed, taking into account the degree of hearing loss from the better ear.

Results

The sample comprised 46 older individuals, 43.48% (n=20) were female, and 56.52% (n= 26) were male. Mean age observed was 74.78 years; with minimum age of 61 years and maximum age of 92 years (standard deviation = 7.96 years).

Table 1 shows the sample distribution according to the profile: age, gender, use of hearing aids and audiometry testing results.

Table 1. Distribution of the sample according to the profile: age, gender, use of hearing aids and audiometric results (N=46)

VARIABLE	FREQUÊNCY (n)	%
Age		
Under 70 years	14	30.43
70 to 79 years	17	36.96
80 to 89 years	13	28.26
90 years or over	2	4.35
Gender		
Male	26	56.52
Female	20	43.48
Use of hearing aids		
No	25	54.00
Yes	21	45.65
No answers	2	4.35
Type of hearing loss – Right Ear		
Neurosensory	34	73.91
Mixed	9	19.57
Normal	1	2.17
Non-classified	2	4.35
Type of hearing loss – Left Ear		
Neurosensory	34	73.91
Mixed	8	17.39
Normal	1	2.17
Non-classified	3	6.52
Degree of hearing loss – Right Ear		
Moderate	21	45,65
Mild	9	19,57
Moderatedly severe	7	15,22
Severe	4	8,69
Normal	2	4,35
Non-classified	3	6,52
Degree of hearing loss – Left Ear		
Moderate	19	41.30
Mild	9	19.57
Moderatedly severe	8	17.39
Severe	6	13.04
Profound	1	2.17
Non-classified	3	6.52
Audiometric shape – Right Ear		
Descending	34	73.92
Flat	7	15.22
Tent-shaped	1	2.17
Non-classified	4	8.70
Audiometric shape – Left Ear		
Descending	34	73.91
Flat	8	17.39
Notched	1	2.17
Non-classified	3	6.52

Results in table 1 show that 50% (n=23) do not make use of hearing aids, 45.65% (n=21) make use of the hearing device, and 4.35% (n=2) did not answer that.

Regarding the type of hearing loss, neurosensory was prevalent, bilaterally for 73.91% (n=34). In relation to the degree of the hearing loss, moderate was prevalent, being 45.65% (n=21) of the sample in the right ear, and 41.30% (n=19) in the left ear. Descending shape was prevalent: 73.92% in the right ear (n=34), and 73.91% n=34) in the left ear.

Table 2 shows the descriptive statistics regarding tonal threshold audiometry.

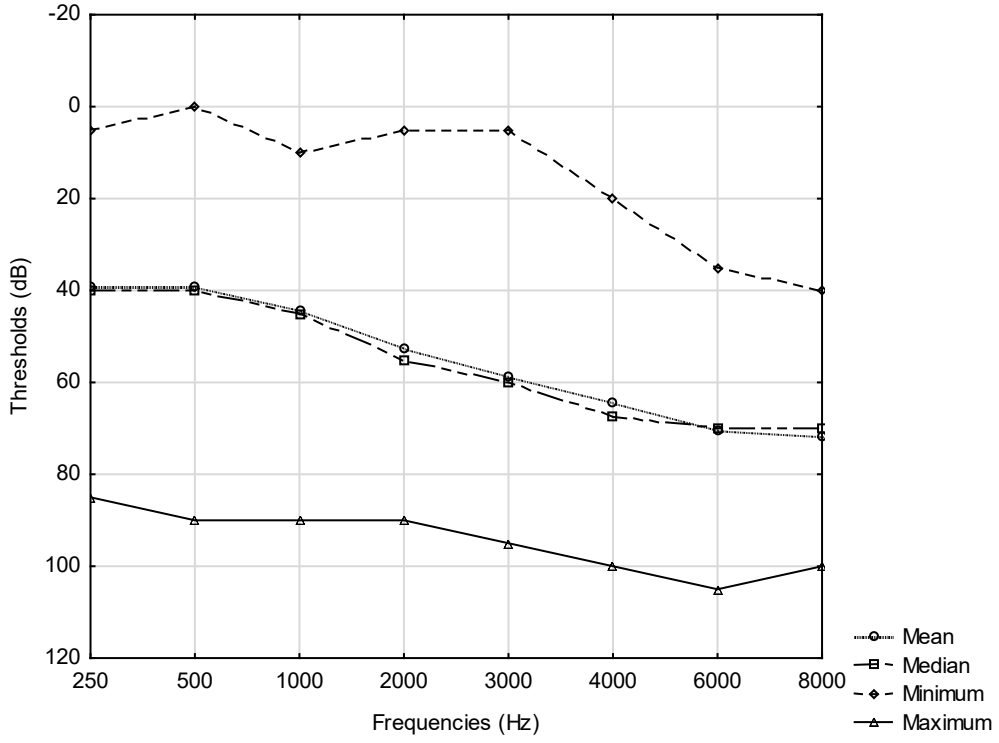
Table 2. Descriptive statistics of the elderly's auditory thresholds, according to ear and test frequency (N=46)

EAR AND FREQUENCY (Hz)	N	MEAN	MEDIAN	MINIMUM	MAXIMUM	STANDARD DEVIATION
RE 250	46	39.0	40.0	5.0	85.0	19.3
RE 500	45	39.1	40.0	0.0	90.0	19.3
RE 1000	45	44.3	45.0	10.0	90.0	17.5
RE 2000	46	52.8	55.0	5.0	90.0	19.5
RE 3000	45	58.8	60.0	5.0	95.0	19.2
RE 4000	46	64.2	67.5	20.0	100.0	18.8
RE 6000	45	70.6	70.0	35.0	105.0	17.9
RE 8000	42	71.9	70.0	40.0	100.0	16.5
LE 250	43	36.9	40.0	10.0	80.0	16.3
LE 500	43	39.5	40.0	15.0	75.0	15.8
LE 1000	43	44.5	45.0	10.0	80.0	15.7
LE 2000	43	54.9	55.0	15.0	75.0	14.2
LE 3000	42	59.9	60.0	20.0	85.0	15.8
LE 4000	40	63.9	70.0	15.0	90.0	17.1
LE 6000	44	71.4	75.0	30.0	110.0	17.0
LE 8000	42	71.8	75.0	30.0	100.0	16.0

OBS: Only the participants with presence of auditory thresholds participated in the analysis. Those with absent thresholds were excluded. RE – right ear LE – left ear.

Graphs 1 and 2 show mean, median, minimum and maximum thresholds, according to the frequency used in the right ear (RE) and left ear (LE), respectively. The worst audiometric thresholds were observed bilaterally at frequencies of 6000 and 8000 Hz.

Graph 1. Mean, median, minimum and maximum of the thresholds according to the frequencies - RE



Graph 2. Mean, median, minimum and maximum of the thresholds according to the frequencies - LE

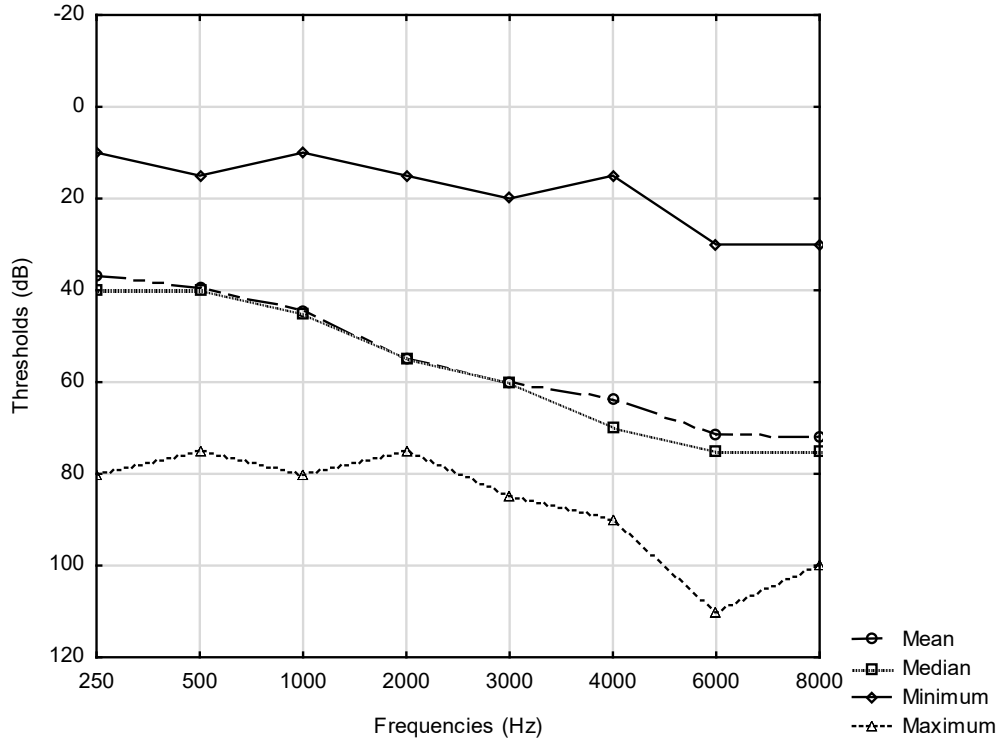


Table 3 presents the assessment of the degree to participation restriction from the results of the HHIE questionnaire.

In Table 3, it can be observed that 50% of the elderly showed significant perception of their participation restriction.

Table 4 shows the association between the variables and degree to participation restriction for the studied sample.

Table 3. Demonstration of the perception degree for the elderly's participation restriction (N=46)

PERCEPTION DEGREE OF THE PARTICIPATION RESTRICTION	FREQUENCY	%
Significant perception	23	50.0
Mild to moderate perception	15	32.6
No perception	8	17.4
TOTAL	46	100.0

Table 4. Association between the variables and the perception degree of the participation restriction

VARIABLE	Perception degree of the participation restriction						p
	No perception		Mild to moderate		Significant		
	n	%	n	%	n	%	
Gender							
Male	4	50.0	8	53.3	12	52.2	0.9358
Female	4	50.0	7	46.7	9	39.1	
Age							
Under 70 years	3	37.5	5	33.3	6	26.1	0.9396
70 to 79 years	2	25.0	5	33.3	10	43.5	
80 to 89 years	3	37.5	4	26.7	6	26.1	
90 years or older	-	0.0	1	6.7	1	4.3	
Type of hearing loss							
Mixed hearing loss	-	0.0	3	20.0	6	26.1	0.4034
Neurosensory hearing loss	6	75.0	12	80.0	16	69.6	
Non-classified	2	25.0	-	0.00	1	4.3	
Degree of the loss							
Normal	1	12.5	1	6.7	-	0.0	0.3452
Mild	-	0.0	2	13.2	4	17.4	
Moderate	3	37.5	7	46.7	12	52.2	
Moderate/severe	1	12.5	3	20.0	4	17.4	
Severe	2	25.0	1	6,7	2	8.7	
Non-classified	1	12.5	1	6,7	1	4.3	
Shape							
Descending	6	75.0	9	60.0	18	78.4	0.9127
Flat	1	12.5	3	20.0	3	13.0	
Notched	-	0.0	-	0.0	1	4.3	
Tent-shaped	-	0.0	1	6.7	-	0.0	
Non-classified	1	12.5	2	13.3	1	4.3	
Use of hearing aids							
No	3	37.5	8	53.3	12	52.2	0.6445
Yes	5	62.5	6	40.0	10	43.5	
No answers	-	0.0	1	6.7	1	4.3	

No significant relationship was verified between the degree to participation restriction and the studied variables (gender, age, hearing loss type, degree and shape, and PSAP use/ or not).

However, observed diferences between some variables are worth pointing out:

- Regarding gender, males feature higher degree of participation restriction than females.
- Regarding age, higher participation restriction among older individuals until 79 years than among older ones.
- Regarding neurosensory hearing loss, 69.6% (n=16) of the elderly featured significant restriction, according to classification proposed by Grossi and Scharlach[13], while for mixed hearing loss, 26.1% of them featured the same restriction.
- Regarding the degree of the hearing loss, 52.2% of the elderly with moderate hearing loss featured significant participation restriction when compared to the elderly featuring higher degree of hearing loss (moderate/severe and severe), totaling 26.1%.
- In relation to the shape of hearing loss, it was possible to verify that the elderly featuring a descending shape had greater degree of restriction (78.4%), while the other shapes totaled only 17.3%.
- Finally, it was perceived that the elderly, who did not wear hearing aids, featured higher participation restriction, once among 22 older individuals who featured significant participation restriction, 52.2% did not make use of hearing aids, while among 14 older people who featured mild/moderate restriction, 53.3% did not make use of hearing aids.

Discussion

The study objectified to assess older individuals' perception on hearing-loss related participation restriction, seen to at a high complexity service in Southern Brazil.

Results in Table 1 show higher number of male participants, compatible with the studies by Castro et al.[15], Jardim *et al.*[16] and Wieselberg[9].

A study carried out by Pinzan-Faria and *Iório*[17] with 112 elderly individuals showed a trend for higher hearing loss among males, and higher perception of hearing handicap than females. The authors likely report higher hearing loss degree among males due to their participation in noisy occupational activities throughout their lives. They also report higher restriction perception in males, as men, despite their age, keep active role in society, and any disadvantage perceptions become a hindrance.

As for the age (Table 1), regarding elders, the findings in the current study match research by Nóbrega *et al*[18]. Such findings corroborate the assumption that presbycusis is a highly prevalent factor among the elderly, and hearing worsens significantly as individuals age. Presbycusis prevalence is 12% among 45 and 64 years of age, rising 24% among 45 and 64 years, and increases 39% over 75 years of age[19].

According to gender and age range variables (Table 1), presbycusis was also found in a study with 50 older individuals, 23 females and 27 males, distributed in two age groups, having an association between age and degree of participation restriction for the analyzed sample in the study by Magalhães and Iório[20].

Regarding the type of hearing loss, degree and shape, findings match presbycusis (Tables 1 and 2, Graphs 1 and 2). That result was already predictable due to the studied population, being compatible with the result found by Menegotto et al.[12] and Jardim *et al.*[16]

As for the hearing aids (Table1), 45.65% of the sample make use of them. Such data show insipient use of hearing aids among the aged population, even with all the advances related to public policies[2-4]. Hearing aids have proved efficient for most neurosensory hearing impairments. In Brazil, such devices are freely provided to the population in the healthcare public systems[21]. Even so, the adherence rate is 5%, much lower than the modest world average of 33%[22], being determinant to identify the individual and socioenvironmental variables that contribute to such statistics. In addition, speech-language therapeutic interventions should be developed due to the insipiente use of the hearing aids.

Table 3 refers to the degree of participation restriction, evaluated by means of the HHIE questionnaire, showing that half of the elderly featured significant perception of participation restriction, according to the classification proposed by Grossi and Scharlach[13]. Studies related to the theme showed similar results[1,12]. Thus, participation restriction could impact negatively on the quality of life, being essential to consider that speech-

language pathology and audiology intervention should contextualize the older individual in a more social perspective. In Brazil, such proposals are still scarce in the public healthcare system.

Regarding Table 4, considering the significance level of 0.05 (5%), it is verified that there is not significant correlation between the degree of participation restriction and the studied variables (type, degree and shape of the hearing loss, gender and age). The findings match the studies by Menegotto *et al.*[12] and Rosis *et al*[11].

Notwithstanding, regarding the association between age and degree of participation restriction, study unveils greater occurrence of restriction, regardless the degree, between 70 and 79 years of age, unlike study by Carvalho and Iório[10], which evidenced significant degree of participation restriction at 90 years or older.

As for the association of type of hearing loss and degree of participation restriction in the studied sample, that corroborates findings by Nóbrega et al.[18] and Jardim *et al*[16]. The association between the degree of hearing loss and the degree of participation restriction in the studied sample is compatible with the findings by Santiago and Novaes[23].

Regarding the association between the type of hearing loss, the most prevalent, regardless the degree of restriction, was the descending audiometric shape, according to findings by Bucuvic and Iório[24].

In the current study, despite the absence of significant correlation, the occurrence of higher participation restriction among the elderly who do not make use of hearing aids was perceived.

Rossino *et al.*[25] state that hearing aids provide individuals with several benefits, as they enable to rescue the perception of speech and environmental sounds, thus enhancing the communicative skill.

However, according to Carvalho and Iório[10], in a study with 33 elderly users of hearing aids, objectifying to verify the agreement between test/retest in the application of the HHIE questionnaire, they report that even wearing hearing aids, many difficulties in speech understanding may persist. For the authors, despite the elderly participants being adapted to the hearing devices, questions from the questionnaire might have been misunderstood once they were read by the examiner, which demanded hearing with satisfactory speech understanding.

In this sense, the current study may have faced the same problem, as the questionnaire was applied to elderly users or non-users of hearing aids. Therefore, it deems necessary a more careful investigation on the way the questionnaire was applied.

Mantello *et al.*[26], in a study with 29 older subjects, verified their participation restriction before and after hearing aids were adapted, and noticed that, quantitatively, there was a significant difference ($p<0.01$) between both situations, corroborating the reduction in the perception of participation restriction after the use of a hearing aids. Mean scoring for the HHIE questionnaire ranged from 30.39 to 8.14.

A study by Luz *et al.*[27] assessed the participation restriction of 27 elders before and after adapting hearing aids, and verified statistically significant difference between both assessed situations, as the mean scoring in the HHIE questionnaire ranged from 41.93 before adapting the hearing aids to 15.78 after the hearing aids adaptation ($p<0.001$).

Angeli *et al.*[28] assessed the impact of a program of hearing rehabilitation on 47 elders by means of the application of the HHIE questionnaire, before and after 30 days of therapeutic intervention, and noticed that the initial mean scoring was 24.2, dropping to 1.8 after the intervention ($p<0,0001$). The authors state that although the research result can be unreal for overestimating the initial impact, the benefit provided by hearing aids cannot be disregarded.

A study carried out by Miranda *et al.*[29] assessed participation restriction among 18 older individuals, newly users of hearing aids, by means of the HHIE questionnaire, in two distinct moments: the moment of the adaptation and after eight weeks of use. The elders were divided in two groups: one group had hearing training, and the other group did not. As for the results, the authors refer that reduction in the participation restriction was higher in the group who underwent the training (mean scoring ranged from 23.75 to 8.75 – $p=0.044$) than in the group who did not undergo the training (mean scoring ranged from 21.1 to 17.33 only), pointing out that the results found in this group may be related to the difficulties experienced in the first weeks of use of the hearing aids, as some elders reported that they did not the devices full time during that period. The authors concluded that weekly follow-up and guidance might have reduced the difficulties found at the beginning of the adaptation to such devices.

Study by Schuster *et al.*[30] assessed the participation restriction of 16 elderly individuals in 2 distinct moments: 15 days before and 15 days

after the adaptation of hearing aids and evidenced that there was reduction in the perception of participation restriction after adaptation of the hearing aids, once mean scoring in the HHIE questionnaire ranged from 70 to 16.

The HHIE questionnaire was useful to evaluate the emotional and social/situational outcomes perceived due to the hearing loss, which can be used in several situations in the clinical routine, from auditory screening to rehabilitation indicators. This research, although presenting some limitations, such as the lack of comparing the results between elders who wear, and those who do not wear hearing aids, as for the variables gender, age, degree of hearing loss and degree of restriction, also disregarding the use of hearing aids, may contribute to the job of speech-language pathologists and audiologists who work with elders, enabling intervention for presbycusis in relation to elders' quality of life, regardless the use of hearing aids and degree of hearing loss, once participation restriction was significant to most of them. It is still suggested that speech-language pathology and audiology intervention focuses on health promotion, turning their attention to objective and subjective conditions in people's lives, thus, the need to consider elders' opinions on their quality of life and social participation is highlighted, with the follow-up of the evolution of the hearing loss, as well as the frequent and steady use of hearing aids.

Therefore, investigations on the probable relations between personal and socioenviornmental factors and quality of life, social participation and rehabilitation of older individuals with hearing loss could be a strategy to optimize processes and use public funding from the Healthcare Network of the Unified National Health System.

Conclusion

Elderly people featuring hearing loss evidence significant perception of their participation restriction, which may negatively impact on their quality of life.

The perception of the participation restriction is not significantly related to gender, age, type, degree and shape of the hearing loss or the use of hearing aids, although it is higher among males with descending neurosensory hearing loss, and among the elderly who do not use hearing aids, regardless the degree of restriction.

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