Original Article

Satisfaction of Hearing Aids Users With Hearing Loss of Severe and Deep Degree

Satisfação de Usuários de Próteses Auditivas, com Perda Auditiva de Graus Severo e Profundo

Alexandre Hundertmarck Lessa*, Maristela Julio Costa**, Karine Thais Becker, Ana Valéria Almeida Vaucher****.***

* Speech therapist. MSc in Human Communication Disorders, Universidade Federal de Santa Maria. Post-graduate master's degree level. Fellow CAPES.
** Speech. Ph.D. in Human Communication Disorders at the Federal University of São Paulo. Associate Professor, Department of Speech Pathology, Federal University of Santa Maria.
*** Speech. MSc in Human Communication Disorders, Universidade Federal de Santa Maria. Post-graduate master's degree level.
**** Speech. MSc in Applied Linguistics from the Catholic University of Rio Grande do Sul

Institution: Universidade Federal de Santa Maria.
Santa Maria / RS - Brazil.
Mail Address: Alexandre Lessa Hundertmarck - Rua Conde de Porto Alegre, 961, Apt. 801 - Centro - Santa Maria / RS - Brazil - Zip code: 97015-110 - Telephone: (+55 55) 8432-9337 - E-mail: alexandrehl@gmail.com
Scholarship Incentive Fund Extension (FIEX-UFSM).
Article received on May 26, 2010. Article accepted on June 20, 2010.

Summary

Introduction: It is necessary to analyze the efficiency of the hearing aids use, considering the necessity of enlargement and communication difficulty.

Objective: To analyze the satisfaction of adults and elders, users of hearing aids with hearing loss of severe and deep degree, using a questionnaire and searching factors that can difficult the adaptation.

Method: A retrospective study of 56 patients, with age group between 18 and 86 years old, hearing loss of severe and deep degree and users of HA by a program of concession of hearing aids, submitted to the questionnaire: "Satisfaction with Amplification in Daily Life". The global average was calculated by sub scale and by question and it was given emphasis to the questions that resulted in best and worse averages.

Results: 58,9% were women and 41,1% men, about of 55% of the patients presented hearing loss of severe degree and 45% deep degree. 87,5% referred use major than 8 hours daily. The users believe that the acquisition of the hearing aid was the best option and this aid very much in the speech understanding. They feel themselves trustful and able with the sounding amplification and refer a good service by professionals of the service. The performance to the telephone was the problem found.

Conclusion: It was demonstrated high degree of satisfaction in the studied population. The hearing loss degree, as well as the incompatibility of systems between telephone and telecoils and the difficulty in the placement of telephone ate factors that difficult the good performance to the telephone. The accentuated hearing loss collaborate for the hearing aid be an integral part of the daily life and essential in the aid to the communication. ACTRN12610000424000

Keywords: public health, hearing loss, hearing aids, patients satisfaction, adult, elders.

Resumo

Introdução: É necessário analisar a eficácia da protetização, considerando a necessidade de amplificação e dificuldade na comunicação.

Objetivo: Analisar a satisfação de adultos e idosos, usuários de próteses auditivas, com perda auditiva de graus severo e profundo, usando um questionário e pesquisar fatores que possam dificultar a adaptação.

Método: Estudo retrospectivo de 56 pacientes, com idades entre 18 e 86 anos, perda auditiva de graus severo e profundo e protetizados por um programa de concessão de próteses auditivas, submetidos ao questionário [i]Satisfaction with Amplification in Daily Life[/i]. Foram calculadas as médias global, por subescala e por questão e deu-se ênfase às questões que resultaram em melhores e piores médias.

Resultados: 58,9% mulheres e 41,1% homens, cerca de 55% dos pacientes apresentaram perda auditiva de grau severo e 45% profundo. 87,5% referiu uso maior que 8 horas diárias. Os usuários acreditam que a aquisição da prótese auditiva foi a melhor opção e que esta auxilia muito no entendimento da fala. Sentem-se mais confiantes e capazes com a amplificação sonora e referem bom atendimento pelos profissionais do serviço. O desempenho ao telefone foi o problema encontrado.

Conclusão: Foi demonstrado elevado grau de satisfação na população estudada. O grau da perda auditiva, assim como a incompatibilidade de sistemas entre telefone e bobina telefônica e a dificuldade no posicionamento do telefone são fatores que dificultam o bom desempenho ao telefone. A acentuada perda auditiva colabora para que a prótese auditiva seja parte integrante do dia-a-dia e essencial no auxílio à comunicação. ACTRN12610000424000

Palavras-chave: saúde pública, perda auditiva, auxiliares de audição, satisfação do paciente, adulto, idoso.

Introduction

Hearing impairment is considered the third most common disability in the population (1). It causes the individual; it was difficult to hear, psychosocial impairments, since there may be withdrawal from social and occupational activities, affecting the quality of life of it.

One way to lessen the impact of hearing loss in an individual's life is through the use of hearing aids. Thus, environmental sounds and speech are amplified, and danger signs and warning (2).

In 2004, considering the conditions of access of the Brazilian population to the procedures for hearing health, the Ministry of Health established the National Policy for Health Care Hearing, through Ordinance No. 2073 (3) September 28, 2004, which guarantees from the diagnosis to prosthesis users of the Unified Health System

In 2006, the Federal University of Santa Maria signed the agreement with the Ministry of Health and has held the concession of hearing aids, according to the policy stated.

Because it is a sound amplifier, hearing aid needs a cochlear reserve enough that there might be a good perception of sound and speech by the patient. Some people, however, have a hearing disorder so important that even a powerful hearing aid cannot help them (4).

In some cases, interestingly, we observe that there are patients who, despite showing benefit with the device are not very satisfied. In contrast, others, even without much benefit, show great satisfaction in being users of a hearing individual - HA (5).

Clinical experience has shown the audiologist that the relationship between amplification systems and acoustic needs found in clinical trials do not guarantee the effectiveness of the adaptation of the user equipment. It was necessary for the speech therapist focuses its evaluation on the subject and no longer in the hearing, to find a more satisfactory clinical practice (6).

Objective tests such as functional gain and speech intelligibility are not enough to know how the adjustment was effective, since even if hearing aids provide good audibility, the patient may not be satisfied if there is still no reduction of hearing difficulties and disadvantages psychosocial (7-8).

Thus, there is growing interest in the development of validation procedures to evaluate the benefit of users outside the clinical environment, thus becoming self-assessment questionnaires (9).

The questionnaire *Satisfaction with Amplification in Daily Life* - SADL (10) was developed with the intention of providing not only an index of overall satisfaction, but also a profile that can be used to identify areas of problems that cause dissatisfaction (11).

Several studies (from 10.12 to 16) who used the SADL questionnaire showed that patients were significantly satisfied, but also identified issues on which there was less satisfaction.

In one of these (15), the author hypothesizes that the fact that 90% of individuals in their sample show tone average grade, mild or moderate has favored the good results obtained satisfaction, because he believes that the performance of hearing aids is worse in cases of severe hearing loss.

This hypothesis prompted the investigation of satisfaction in cases where hearing loss is very pronounced. Thus, the population evaluated in this study shows the important feature of being made precisely for these individuals. Thus, we analyzed the effectiveness of these prosthesis users, considering among other factors, the great need of amplification and the difficulty in communicating them.

In addition, the routine care provided in the grant program hearing aids, after completion of the consultations required in many cases the service loses contact with patients. This fact may lead to the abandonment of the use of hearing aids, besides the possibility of inadequate maintenance of them due to lack of reinforcement of information regarding the use, handling and proper maintenance.

The failure to monitor the hearing impaired brings negative consequences for them and for society. The effective use of the prosthesis does not compromise the social integration, including the educational and occupational.

Due to the cost expended by the health services that provide hearing aids, the complexity of adaptation to hearing aids and the importance of the success of aural rehabilitation to the patients' hearing loss is extremely important to monitor the adaptation process. Such monitoring should objectify the evaluation of clinical procedures and quality assurance services, and analyzing user satisfaction with the equipment that was made available, as these actions reflect the reality of the results achieved with the grant program.

However, the objective of this study is to assess satisfaction with hearing aid users and older adults with hearing losses of severe to profound degree, enrolled in the program to grant hearing aids continuous flow of the Secretary of Health Care Ministry of Health, developed at the University of Santa Maria and research the factors that may hinder effective adaptation of hearing aids in this population.

Method

The study was conducted at the Laboratory of Hearing, Service of speech therapy (SAF), Universidade Federal de Santa Maria (UFSM). Data collection took place during the period between May and August 2009.

This research is a subproject within a larger project entitled: Survey and Database on Hearing Health, registered in the Projects under No. 019 731 and approved by the Ethics in Research with certificate No. 0138.0.243.246-06 in 2005 / 12 / 2006.

We selected hearing aid users, older than 18 years, hearing loss, severe to profound in both ears; prothetizades Laboratory of Hearing UFSM through accreditation agreement between the Health Department of the State of Rio Grande do South and the Federal University of Santa Maria, from 2005, based on Ordinances 587 and 589 (3), the Department of Health Care Ministry of Health, published in October 2004, with a minimum of three months of use amplification, because clinical experience has shown that this is a reasonable time to adjust to hearing aids, being able to verify the actual results of the intervention, since the benefits from the use of amplification did not emerge immediately (17).

Try, by telephone, the calling of 166 patients who met the inclusion criteria. Of these, 60 were not found, since not responded to calls, the phones were outdated or disconnected phones. The remaining 106 were asked about the possibility of attending the Laboratory of Hearing - 3 had died, one had stolen the HA, two recently undergone surgery, three were hospitalized, 5 were awaiting repair of equipment, 12 had consulted recently time, eight could not attend and said they would come into contact when possible.

The 72 remaining subjects had the appointment, of which 66 attended. To these were provided clarification on the purpose and methodology of research and then were subjected to evaluations after agreeing with the procedures and signed an informed consent.

In the consultation, it was found that one of the patients after ear surgery had improvement of their hearing thresholds, with the new configuration of hearing loss characterized as moderately severe, 2 patients did not use the equipment, 2 had neurological abnormalities and 5 had the appliances sent for repair - facts that interfere with data collection and were therefore excluded from the study.

Thus, 56 subjects who met all inclusion criteria comprised the sample.

Procedures

Patients underwent an interview, which was used to select the sample and contains questions, especially about the prosthesis, the effective use of hearing aids and quality.

Already a measure of satisfaction with the hearing aid in daily life was conducted using the questionnaire *Satisfaction With Amplification in Daily Life* - SADL (10), comprising a total of 15 questions.

For each question, there are seven alternatives, scaled 1-7 points awarded to the response, which indicates "no little" to "extremely" satisfy. Thus, the test quantifies satisfaction by a score of four subscales:

The subscale of "Positive Effects" is composed of six items covering issues related to communicative ability, location and sound quality, and addressing psychological issues because of the "Negative Factors" for three items related to performance in noisy environments, feedback and telephone use, created as a "thermometer" of the problems of adaptation.

There is also a subscale of the Services and Costs, "with three items related to professional competence, product price and quality of the apparatus and on the" Personal Image ", which are included three items related to aesthetic factors and the stigma of using prosthesis hearing.

Whereas the sample group consists of patients using the Unified Health System and, therefore, had donated the equipment, the issue related to the price of the product was not applied.

Although the original proposal suggests that the questionnaire should be answered by the patient, the researchers performed reading aloud and recording of responses to the instrument used, in order to minimize

the difficulties of understanding the questions related to the degree of hearing loss.

Data analysis

Data analysis was performed according to the values established by the original study (10), which guided the present analysis.

Therefore, to calculate the overall score of SADL, took the arithmetic mean between the values assigned to answers in 14 questions applied to 56 patients - seven being the highest score, indicating greater satisfaction. For the score of each subscale, the mean value calculated was performed with the score for the answers to the questions that comprise each subscale.

In order to improve understanding of the data used, are presented in Table 1 the values found by the authors of the questionnaire to the interpretation of their results.

If the scores fall below the 20th percentile is indicative of users 'dissatisfied', while that between the 20th and 80th percentile, patients were "satisfied" and above the 80th percentile value, "very satisfied".

Were also calculated arithmetic means of all individuals in each of the issues and conducted a descriptive analysis of data, emphasizing the issues that resulted in the highest and lowest averages.

Results

We evaluated 56 patients, 23 men (41.1%) and 33 women (58.9%) aged between 18 and 86 years (mean 52.5 years). Results are presented below, in the form of tables showing the distribution of patients according to different variables. These, taken from the data of anamnesis and SADL (Tables 2, 3 and 4).

Discussion

The predominant sex of the patients was female, as in the study (16.18 to 19) who investigated the satisfaction of hearing aid users. Generally speaking, there is a consensus regarding the major hearing impairment in men than in women (20-21), however, on the part of man towards the woman, little demand for health services (22-24), which is presented as a justification for more women in research studies deafness.

Table 1. Values of mean, 20th and 80th percentile for overall scores and each subscale of the Satisfaction with Amplification in Daily Life (10).

Score	Average	20º Percentile	80º Percentile
Global	4,9	4,3	5,6
Positive effects	4,9	3,8	6,1
Negatives factors	3,6	2,3	5,0
Personal image	5,6	5,0	6,7
Services and Costs	4,7	4,0	5,7

Table 2. Distribution of patients according to the variable degree of hearing loss, separated by ear.

	Right ear		Left ear	
Hearing loss degree	N	%	N	%
Severe	32	57,1	31	55,3
Deep	24	42,9	25	44,7
Total	56	100	56	100

Table 3. Distribution of patients according to the variable of time of daily use of the HA.

Hours	N	%
Between 4 and 8	7	12,5
More than 8	49	87,5
Total	56	100

Table 4. Introducing the average value of Global Score and averages per subscale and issues of questionnaire Satisfaction with Amplification in Daily Life (10).

Global Score	5.77
Subscale 'Positive Effects'	6.15
Help of hearing aids in understanding speech	6.43
Conviction that the adaptation of hearing aids was your best option	6.84
Reducing the need for repeat speech intelligibility	5.73
Compensation of the problem with the use of appliances auditory	5.98
Increased self-confidence with the use of appliances auditory	6.53
Naturalness of the sound received with the use of Hearing Aids	5.4
Subscale 'Negative Factors'	5.08
Frustration with environmental noise pickup	5.45
Occurrence of feedback with increasing volume	6.2
Of hearing aid use on the phone	3.61
Subscale 'Personal Image'	5.53
Perception of hearing loss by others, following the use of hearing aids	5.21
Satisfaction with the appearance of hearing aids	5.16
Feeling menosvalia by the use of hearing aids	6.23
Subscale 'Services and Costs'	6.01
Competence of service professionals	6.66
Satisfaction with the quality of hearing aids	5.36

The age of studied subjects was very diverse and well distributed, since the average age of all of them were pretty rough that would result between the minimum and maximum age of tested and that were distributed as follows: 21 adults, 15 middle-aged 20 and older.

Not found in the literature that proposes to specifically assess the satisfaction of hearing aid users with hearing losses of severe and profound. In the surveys found, most evaluates individuals with hearing losses of mild to moderate; including some of the severe and only one of these studies (15) added 2.5% of patients with profound hearing loss.

Regarding the time of prosthesis use most of the patients using sound amplification for more than eight hours daily, which means that the individual spends most of the day using the prosthesis, or use during periods longer be subject to communication situations. This is a considerable time because of 24 hours a day, about eight hours spent sleeping, the remaining 16 hours, of which at least eight in use is being made by the majority, which shows that hearing aids are an integral part of day- to-day lives of these individuals.

The average final score in global SADL was 5.77, higher than those found in studies (12,15-16), who obtained values of 5.05, 5.28 and 5.5 and higher still for mean and 80th percentile of the original study (10), revealing very satisfied patients.

One researcher (15) said in its study that the high rate of satisfaction of its subjects could be explained by the fact that most of them showed normal tone average or mild to moderate and hypothesized that the performance of hearing aids is worse in cases hearing loss more severe. However, in this study all patients were suffering from hearing loss, severe and profound and the average overall score was higher - 5.77 - to the study referred to - 5.28.

The Positive Effects subscale had the highest average - 6.15, than those found in studies (12,15-16), which scored 4.99, 5.66, and 5.87, and than the average and 80th percentile found in original research (10). This was the subscale with the highest score, and compared to the original study, shows great satisfaction in this important item to check the sound quality and improved communication.

In the subscale of negative factors, other studies (12,15-16) found averages of 4.5, 4.18 and 5.2 - more than just this of this study - 5.08. As in all other studies, this was the subscale with the lowest score, as it assesses aspects as problems in adaptation. Still, users evaluated in this study are very satisfied, compared to the results of original research of SADL (10) and obtained average above the 80th percentile. Two current problems in research conducted with the questionnaire are: the use of telephone (confirmed in this study) and uncomfortable with environmental noises (possibly the auditory characteristics of the patients showed no influence on the fall of the score, as they often do not listen and when they do not bother them or even like).

The subscale that assesses the Personal Image had an average of 5.53, consistent with the averages found in other studies (10,12,15-16) and indicates satisfaction for this group of questions that address the stigma of hearing aids.

Already subscale Services and Costs was applied to individuals of studies (12,15), which had averaged 4.94 and 5.61 - lower than found in this study - 6.01. This score is above the 80th percentile of original research (10) and indicates a lot of satisfaction in the item. In evaluating these aspects deleted the question regarding the cost of hearing aids - as individuals in the study benefited from the grant program hearing aids - which possibly together in contentment with the service received and the low need for repairs, helped increase in this average.

Some test questions are worth mentioning, as they stood in raising the overall score: the question it addresses is “the purchase of the equipment was the best option” had the highest average - 6.84. Also resulted in high average questions concerning the competence of professionals who attended the user - 6.66, an increase in confidence with the use of hearing aids - 6.53, the aid that gives the user the prosthesis for speech understanding - 6 , 43, could not feel less need for the use of hearing aids - 6.23 and the lack of feedback when the volume is increased - 6.2.

Like mentioned earlier, which raised the average, one should pay attention to the issue that concerns the use of the phone, because this was only shown a low score - 3.61.

The high average for the question that addresses whether the hearing was the best option for the user - 6.84 - reflects the high level of satisfaction of individuals surveyed. In this case, the large hearing impairment may just be the reason for the high rate, since during the questionnaire, comments like “I really like, I can not live without my phone” were frequent. That is, these users are so dependent on hearing aids - and hear so little without it - meaning that the benefit is extremely large.

So it may be supposed a relationship between satisfaction and dependence on the hearing aid user.

The question of the competence of personnel service also achieved a high score - 6.66. It is noteworthy that the researcher applied the questionnaire is not the same responsible for the prosthesis of the patient, thus leaving him free to any settings on the actual conditions of service. We know that hearing aids have a high cost and the possibility of hearing impaired receive your free of charge, to exercise function in this high rate. The extreme gratitude shown by the users, besides the good performance of employees, appears to influence the score and be closely linked to the fact that they were benefited by the program of granting of prostheses, since there have been several reports, such as "I will not bother" and " thank you, here you are very helpful, nor is SUS. "

The high degree of confidence regarding the increase in the use of hearing aids - 6.53 - shows how much the sound amplification is important for these patients.

This can be seen also by examining the high score - 6.23 - to the question "Do you think using the device makes you feel less capable?". Patients reacted with surprise to this question and responded by stating that "not, however, with it is that I feel more able" or "no he is not listening and I could not talk to people." Confidence and performance of them in conversation, demonstrated through the high satisfaction in other questions, makes us realize and understand how really feel more empowered. The individual with hearing loss, particularly in more severe degrees, is usually affected by psychosocial impairments - use the prosthesis, able to communicate and feel inserted / reinserted in society makes him feel more capable.

The average for the aid they give the user the prostheses for speech understanding - 6.43 - shows how much they help and allow us to understand this. Whereas hearing loss of the patients, this result also refers to the confidence gained by users with the use of hearing aids, as much as is often the implants do not give as large a gain to the point where users listen to the speech, in association with visual cues, consider it a great help by leaving them more confident to talk.

Most users reported no feedback when the volume is increased, which led to the high score of 6.2 for the question measuring this aspect. However, because they are affected by hearing losses of severe and profound, often the feedback is to increase the volume - as seen during the consultations - but they do not hear the beep.

As mentioned, the question regarding the assistance that the hearing aid gives the user in using the phone had a low rate - 3.61 - as well as in research (from 10.12 to 14.16), that this was the item less satisfaction.

As researchers (12) reported the use of the phone is a status hearing in which the technological limitations of hearing aids are highlighted.

In this case, it is noteworthy that in patients with hearing losses of severe and profound, has been as an aggravating factor the need for great sound amplification, and loss of visual clues, which is much used by them, further complicates the use of phone.

Furthermore, one should also note that, when approaching the phone of the prosthesis, feedback can occur. Aside from that, in general, but more often in the elderly, there is a difficulty with placing the phone in the correct position next to the microphone of the prosthesis, which in the case of BTE, is above the ear, or near where the signal from the telecoil will be more active, as well as the limitation of systems that must be compatible with the phone and telecoil for signal transmission takes place in a satisfactory manner.

Thus, training and reorientation, especially in positioning the phone into the microphone of the hearing aid and the improvement in performance using the telecoil in this situation, must be strengthened in these patients.

Conclusion

The present study demonstrated the high degree of satisfaction among adults and elderly hearing aid users with hearing loss severe and deep, fitted with hearing aids through a grant program hearing aid.

While there is no dissatisfaction, the problem was perceived in relation to the performance of individuals in situations of phone use, which in the case of assessed combines some variables: degree of hearing loss, incompatibility of systems between phone and telecoil and difficulty in positioning the phone conversation. So there is need for training to remedy this and other difficulties that might arise in the process of adaptation.

The sharp of hearing loss evaluated contributes to a hearing aid is an integral part of your day to day and essential aid in communication. Thus, they believe this to be the best option to reduce their difficulties and are satisfied with the choice, which makes them feel more capable.

Bibliographical References

1. Instituto Brasileiro de Geografia e Estatística. Censo Demográfico 2000 - Tabulação avançada - resultados preliminares da amostra. Acesso em: 03 de junho de 2009. Disponível em: http://www.ibge.gov.br/home/presidencia/noticias/08052002tabulacao.shtm.

2. Campos AHC, Russo ICP, Almeida K. Indicação, Seleção e Adaptação de Próteses Auditivas: Princípios Gerais. In: Almeida K, Iorio MCM. Próteses auditivas: fundamentos teóricos & aplicações clínicas. 2ª ed. São Paulo: Editora Lovise; 2003. p. 35-54.

3. Portal da Saúde. Acesso em: 20 de junho de 2009. Disponível em: http://www.saude.gov.br/sas/ .

4. Bento RF, Brito Neto RV, Castilho AM, Goffi Gomez MA, Giorgi SB, Guedes MC. Resultados auditivos com o implante coclear multicanal em pacientes submetidos à cirurgia no Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo. Rev Bras Otorrinolaringol. 2004, 70:632-37.

5. Assayag FHM, Russo ICP. Avaliação subjetiva do benefício e dos efeitos proporcionados pelo uso de amplificação sonora em indivíduos idosos. Rev Dist Comun. 2006, 18(3):383-90.

6. Russo IEP. Intervenção fonoaudiológica para a terceira idade. Rio de Janeiro: Revinter; 1999.

7. Bucuvic EC, Iorio MCM. Próteses auditivas: estudo comparativo das dificuldades auditivas e do benefício da amplificação em pacientes usuários de amplificação não linear e linear. Rev Ciên Méd Biol. 2003, 2(1):77-87.

8. Costa MHP, Sampaio ALL, Oliveira CACP. Avaliação do benefício da prótese auditiva digital e da percepção da desvantagem auditiva ou "handicap" em idosos não institucionalizados. Arq Int Otorrinolaringol. 2007, 11(2):159-68.

9. Almeida K. Avaliação dos Resultados da Intervenção. In: Almeida K, Iorio MCM. Próteses auditivas: fundamentos teóricos & aplicações clínicas. 2ª ed. São Paulo: Editora Lovise; 2003. p. 335-52.

10. Cox RM, Alexander GC. Measuring satisfaction with amplification in daily life: the SADL scale. Ear Hear. 1999, 20(4):306-20.

11. Veiga LR. Investigação sobre a satisfação com a prótese auditiva na vida diária em usuários do sistema de saúde do exército [dissertação]. Porto Alegre: Universidade Federal do Rio Grande do Sul - Faculdade de Medicina; 2004.

12. Veiga LR, Merlo ARC, Mengue SS. Satisfação com a prótese auditiva na vida diária em usuários do sistema de saúde do exército. Rev Bras Otorrinolaringol. 2005, 71(1):67-73.

13. Hosford-Dunn H, Halpern J. Clinical application of the satisfaction with amplification in daily life scale in private practice I: statistical, content and factorial validity. J Am Acad Audiol. 2000, 11(10):523-39.

14. Northern JL. Pacient satisfaction and hearing aid outcomes. The Hearing Journal. 2000, 53(6):10-16.

15. Carvalho JSA. Satisfação de idosos com aparelhos auditivos concedidos no estado do Tocantins. Arq Int Otorrinolaringol. 2007, 11(4):416-26.

16. Soares DO, Tavares RA, Ferreira RT, Guglielmino G, Dinato C, Franchi VM. Satisfação dos usuários de prótese auditiva em seu dia-a-dia. ACTA ORL. 2007, 25(4):290-92.

17. Weinstein B. Treatment efficacy: hearing aids in the management of hearing loss in adults. Journal of Speech and Hearing Research. 1996, 39(5):S37-S45.

18. Magni C, Freiberger F, Tonn K. Avaliação do grau de satisfação entre os usuários de amplificação de tecnologia analógica e digital. Rev Bras Otorrinolaringol. 2005, 71(5):650-57.

19. Teixeira CF, Augusto LGS, Caldas Neto SS. Prótese auditiva: satisfação do usuário com sua prótese e com seu meio ambiente. Rev CEFAC. 2008, 10(2):245-53.

20. Megighian D, Savastano M, Salvador L, Frigo A, Bolzan M. Audiometric and epidemiological analysis of elderly in the veneto region. Gerontology. 2000, 46(4):199-204.

21. Helfer KS. Gender, age and hearing. Seminars in Hearing. 2001, 22(3):271-86.

22. Courtenay WH. Constructions of masculinity and their influence on mens well-being: a theory of gender and health. Soc Sci Med. 2000, 50(10): 1385-1401.

23. Figueiredo W. Assistência à saúde dos homens: um desafio para os serviços de atenção primária. Cien Saude Colet. 2005, 10(1):105-109.

24. Costa-Junior FM, Maia ACB. Concepções de homens

hospitalizados sobre a relação entre gênero e saúde. Psic.: Teor. e Pesq. 2009, 25(1):055-063.