

# Applicability of satisfaction questionnaires to the users of hearingaids: systematic review

## Aplicabilidade das medidas de satisfação em usuários de aparelho de amplificação sonora individual: revisão sistemática

## Aplicabilidad de las medidas de satisfacción de usuarios de aparatos de amplificación sonora individual: revisión sistemática

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### Abstract

In view of the growing interest and concern regarding the adaptation of the hearing aids and the satisfaction of their users, numerous studies have been performed with measures of self-assessment, to check the users' level of satisfaction. The objective of this study is to verify the applicability of satisfaction questionnaires to the hearing aids users. It is characterized by a systematic review of the literature, in which the studies were selected according to the previously established inclusion criteria. The self-assessment questionnaires bring important indicators of satisfaction in both, private and public services. It is necessary that the interviewees understand the questions, because it is a measure that can be applied, periodically, for measuring the level of satisfaction throughout the adaptation process. It was

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found that the questionnaires used in the published researches are fundamental to measure satisfaction of users of hearing aids.

**Keywords:** hearing; hearing loss; hearing aids; quality of life; questionnaires.

## Resumo

*Tendo em vista o crescente interesse e a preocupação com a adaptação dos Aparelhos de Amplificação Sonora Individuais (AASI) e a satisfação dos usuários, inúmeras pesquisas foram realizadas com medidas de autoavaliação, para verificar o nível de satisfação dos usuários. O objetivo deste estudo é verificar a aplicabilidade de questionários de medidas de satisfação, em usuários de AASI. Caracteriza-se por ser uma revisão sistemática de literatura, em que os estudos foram selecionados a partir de critérios de inclusão, previamente estabelecidos. Os questionários de autoavaliação trazem importantes indicadores de satisfação tanto em serviços particulares como públicos. É necessário que os entrevistados compreendam as questões, pois se trata de uma medida que pode ser aplicada, periodicamente, para mensurar o nível de satisfação ao longo do processo de adaptação. Verificou-se que os questionários utilizados nas pesquisas publicadas são fundamentais para mensurar a satisfação de usuários de AASI.*

**Palavras-chave:** *audição, perda auditiva; auxiliares de audição; qualidade de vida; questionários.*

## Resumen

*En vista del creciente interés y preocupación con la adaptación de los aparatos de Amplificación Sonora Individual (AASI) y la satisfacción de los usuarios, se han realizado numerosos estudios con medidas de autoevaluación, para verificar el nivel de satisfacción de los usuarios. El objetivo de este estudio es verificar la aplicación de encuestas para medir la satisfacción de los usuarios de prótesis auditivas. Se caracteriza por ser una revisión sistemática de la literatura, en que los estudios fueron seleccionados a partir de criterios de inclusión previamente establecidos. Las encuestas de autoevaluación proporcionan importantes indicadores de satisfacción tanto en los servicios privados como en los públicos. Es necesario que los entrevistados comprendan lo que se está preguntando, pues se trata de una medida que puede aplicarse periódicamente, para evaluar el nivel de satisfacción durante el proceso de adaptación. Resultó que las encuestas utilizadas en las investigaciones publicadas, son fundamentales para evaluar la satisfacción de los usuarios de AASI.*

**Palabras clave:** *Audición, Pérdida Auditiva, Audifonos, Calidad de Vida, Encuestas.*

## Introduction

Hearing is one of the most important senses, which is related to communication and balance. Hearing is considered a key direction for the development of human communication<sup>1</sup>. Sensorineural hearing loss is irreversible, and is one of the most common disorders in the elderly; it results in impairment of communication, leading to sensory deprivation and of them being away from home and

social activities due to the difficulty of understanding the speech of those who surround them. These social problems make the elderly to be isolated and have low self-esteem and may lead even to loneliness and depression<sup>2</sup>.

Several authors highlight the increase in life expectancy, and the consequent search for a better quality of life. In cases of sensorineural hearing loss, the most widely used resource for rehabilitation is Hearing Aids (HA).

The adaptation of a HA provides the rescue of sound perception with a sound quality close to that of natural hearing, improving the communication skills of these individuals<sup>2-4</sup>. Digital technology and the various existing resources currently in hearing aids provide users, besides the salvage of sounds, better speech understanding, returning to these individuals the desire for social interaction.

One of the most frequent reports with hearing loss is the great difficulty of speech recognition in competitive environments. For this, they account with HA with its own technology and resources, such as compression and directionality<sup>5</sup>. In most hearing centers, the patient gets a HA and also the follow-up to adaptation and the necessary revisions. For many individuals awareness of the use of a HA is difficult, since many of these users seek this feature at the insistence of the family; many of them do not realize the presence of hearing loss, reaching even to deny such difficulty<sup>1</sup>.

The successful adaptation of a HA includes various factors, such as the choice of the appropriate algorithm to the degree of hearing loss, the patient's complaint, the desire to take advantage of this feature, the persistence in use, frequent adjustments and monitoring journal.

In the first months of HA use, the difficulties encountered by users are very common because it is a foreign body that is part of the new experience for that individual, requiring him a while to such adaptation. They are often referred to complaints about the handling of hearing aids for battery replacement, cleaning and changes in the specific programs, as well as difficulties for its placement and removal, discomfort to loud sounds, such as traffic noise, difficulty of understanding speech in competitive environments and short daily use of hearing aids. Some authors suggest that the higher the daily use of hearing aids, the greater the ease of handling and care of it<sup>6,7</sup>.

Clinical experience has shown the audiologist that the relationship between amplification systems and acoustic needs found in clinical trials do not guarantee the success of adaptation. It is necessary that the professional approach the issues related to adapt the subject and not just the hearing, finding thus a more satisfactory clinical practice<sup>8</sup>.

There is growing interest and concern with the adaptation and satisfaction that cannot be measured

only by functional gain testing, integration and speech intelligibility, because the patient cannot be satisfied. Numerous surveys were conducted with self-assessment measures, to check the level of HA users satisfaction<sup>8-11</sup>.

Thus, the objective of this study is to verify the applicability of the measure satisfaction questionnaires in HA users.

## Method

The method chosen for this study is a systematic review of literature on the applicability of the measures of satisfaction in HA users.

To survey descriptors, we have used the vocabulary of structured Descriptors Health Sciences (MeSH), created for indexing articles from scientific journals and other publications, as well as to be used when performing the literature on the basis of data.

This study was conducted from the SciELO database, and the following descriptors: hearing, hearing loss, hearing aids, quality of life, patient satisfaction, rehabilitation and questionnaires.

In the search, there were evaluated and selected only studies whose title, abstract or article body was related to the purpose of this study, in national journals articles published in the last five years.

The studies were selected from inclusion criteria previously established, and from this data were extracted.

## Description

Um The aim of a review is to add strong research evidence to guide clinical practice. At the end of the survey, in this sense, there were found 18 articles in the database searched, but only 12 were within the inclusion criteria.

Of the twelve studies surveyed, ten involved the following validated questionnaires: Hearing Ability Questionnaire, Location of Sound Source<sup>4</sup>, Short Form Health Survey (SF-36)<sup>2</sup>, International Outcome Inventory for Hearing Aids (IOI-HA)<sup>7,9,1,12</sup>, Satisfaction With Amplification in Daily Life (SADL)<sup>8,13,14</sup>, and *World Health Organization Quality of Life Questionnaire* (WHOQOL)<sup>3</sup>; the other two involved not validated questionnaires that have been developed for such studies<sup>15,6</sup>.

All articles selected for the study were classified as 2B level of evidence<sup>1,3,4,6-15</sup>, but one of them obtained level 1B<sup>2</sup>.

Eight of the surveyed studies aimed to evaluate the HA user satisfaction: the quality of daily life after the adaptation, and about care on use and cleaning of the HA<sup>1,7-9, 12-15</sup>.

Two studies had as focus the quality of life of users before and after the adaptation. One has also proposed to evaluate the importance of HA for the balance of elderly patients<sup>2,3</sup>.

Two other studies have developed different goals from the others: one analyzed the benefit of HA on the location of the sound source in subjects with unilateral hearing loss, and the other found the retention of information about the use of HA by individuals fitted<sup>4,6</sup>.

Four studies chose the questionnaire International Outcome Inventory for Hearing Aids (IOI-HA) as a measure of satisfaction, used in its original version, and in the version in Portuguese.

The authors concluded, in all studies, high level of satisfaction in the seven domains assessed in the questionnaire, emphasizing the high level of quality of life after adaptation. This questionnaire assesses areas important for success in adapting, such as: use, benefits, limitations of residual activity, satisfaction, residual participation restriction, the impact on others and quality of life. In the studies surveyed, the quality of life domain was the one with the most significant value statistically, showing that amplification provided more satisfaction to users. These and other studies have shown the importance of monitoring the patient, and how necessary it is the use of self-assessment questionnaires, showing the effectiveness of the use of HA and reducing the number of patients who abandon it because of dissatisfaction<sup>1,7,9,12</sup>.

Three studies used as a measure of satisfaction, the questionnaire SADL. The authors attributed high degree of user satisfaction with the adaptation, showing, too, that user satisfaction is not related to other variables, such as age, time of adjustment, gender and type of HA. Some of the problems identified in the studies, for example, telephone use, performance in noisy environments, feedback and time of daily use of it, would be minimized with more frequent returns of users to the place where the HA was adapted, as to be monitored, trained and

oriented, thus reducing these and other difficulties that may arise during the adaptation process<sup>8,13,14</sup>.

One study showed that, after fitting of HA, patients rated their quality of life as good or very good, i.e., the HA helped to improve the overall quality of life of individuals participating in the research. The authors used the WHOQOL, as a measure of satisfaction, aiming mainly at the quality of life after adaptation. Amid the question of negative feelings, it was observed that even after this process, some patients continued to have such feelings, which may originate in other factors related to aging, such as depression and loneliness<sup>3</sup>.

Other study, aimed to assess the effects of adaptation on balance and fear of falling in the elderly, showed that the use of amplification led to significant improvement in the areas of quality of life. This research used the quality of life assessment instrument SF-36. The effective adaptation to the HA reflected more confidence, and, therefore, reduced the fear of falling<sup>2</sup>.

Another research examined the benefit of auditory localization after adaptation of HA in individuals with unilateral hearing loss and showed that patients whose hearing loss was mild to moderate, showed a reduction in the difficulty of sound localization after six months of use of HA. On the other hand, those with severe to profound hearing loss had benefits, but smaller. The authors concluded that there was benefit with the use of HA, as the sound localization, stressing the importance of amplification. The study did not mention the use of the instrument as a measure of satisfaction, but it appears that from the clear improvement in sound localization, user satisfaction was promoted<sup>4</sup>.

In order to verify the retention of information about hearing loss, the use and care of HA in new users, a study showed that there is a significant difference between the retention of information by adults and the elderly. The authors concluded that there is a greater loss of information provided on the use and care of the HA and the hearing loss among the elderly, since the memory is more committed, requiring the use of measures to facilitate the retention of these guidelines. The study does not mention the use of the questionnaire as a measure of satisfaction but as a means to measure the retention of information, but it is possible to conclude that the higher the retention of information on the care and

use of HA, the better the adaptation of the individual, thus getting satisfaction with amplification<sup>6</sup>.

To determine whether the instrument is suitable in the implementation phase, another study used a questionnaire with 17 questions. This instrument has not been validated, but created by the authors of the study. It showed the need to reform and reappraisal the instrument, and found that patients are relatively satisfied with the service and with the HA, but the majority of respondents reported not using it, with several complaints in adaptation. In such cases, few individuals returned to the health service for reviews and guidelines. Of the 17 respondents, 12 reported problems using the HA and nine mentioned being bothered about the noise<sup>15</sup>.

This, as well as other questionnaires addressed in this study was applied in an interview to patients with the intention to facilitate understanding of the questioning conducted. Still, many of the research participants had difficulties in understanding the questions, obtaining, thus, non-reliable answers. Based on these problems, we question how the interviewer made the question. There is also the possibility that the interviewer did not understand the patient's response. These are some of the hypotheses that could have influenced the levels of satisfaction and as a counterpoint to the interviewees with problems during the hearing aid fitting.

The studies showed the importance of self-assessment questionnaires as HA user satisfaction measures. These measures provide important indicators of satisfaction, both in private and public services. It is necessary that respondents understand the issues, because it is a measure that can be applied periodically to measure the level of satisfaction throughout the process of adaptation.

## Final considerations

Through this study it was found that the questionnaires used in researches published in national journals are essential to measure the satisfaction of hearing aid users. They can complement other methods of evaluation and, together with the audiologist, lower levels of dissatisfaction.

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