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Systematic Review

*Revisão Sistemática*

# Tools for evaluation of restriction on auditory participation: systematic review of the literature

## *Instrumentos para a avaliação da restrição à participação auditiva: revisão sistemática de literatura*

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**Keywords**

Questionnaires
Hearing Loss
Hearing
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## ABSTRACT

**Purpose:** To systematically review studies that used questionnaires for the evaluation of restriction on auditory participation in adults and the elderly. **Research strategy:** Studies from the last five years were selected through a bibliographic collection of data in national and international journals in the following electronic databases: ISI Web of Science and Virtual Health Library — BIREME, which includes the LILACS and MEDLINE databases. **Selection criteria:** Studies available fully; published in Portuguese, English, or Spanish; whose participants were adults and/or the elderly and that used questionnaires for the evaluation of restriction on auditory participation. **Data analysis:** Initially, the studies were selected based on the reading of titles and abstracts. Then, the articles were fully and the information was included in the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist. **Results:** Three-hundred seventy studies were found in the researched databases; 14 of these studies were excluded because they were found in more than one database. The titles and abstracts of 356 articles were analyzed; 40 of them were selected for full reading, of which 26 articles were finally selected. In the present review, nine instruments were found for the evaluation of restriction on auditory participation. **Conclusion:** The most used questionnaires for the assessment of the restriction on auditory participation were the Hearing Handicap Inventory for the Elderly (HHIE), Hearing Handicap Inventory for Adults (HHIA), and Hearing Handicap Inventory for the Elderly — Screening (HHIE-S). The use of restriction on auditory participation questionnaires can assist in validating decisions in audiology practices and be useful in the fitting of hearing aids and results of aural rehabilitation.

**Descritores**

Questionários
Perda Auditiva
Audição
Revisão
Fonoaudiologia

## RESUMO

**Objetivo:** Revisar sistematicamente estudos que utilizaram questionários de avaliação da restrição à participação auditiva em indivíduos adultos e idosos. **Estratégia de pesquisa:** Estudos, dos últimos cinco anos, foram selecionados por meio de levantamento bibliográfico, em periódicos nacionais e internacionais, nas bases de dados eletrônicas: *ISI Web of Science* e Biblioteca Virtual em Saúde - BIREME, que engloba as bases de dados LILACS e MEDLINE. **Critérios de seleção:** Estudos disponíveis na íntegra; publicados em Português, Inglês ou Espanhol; cujos participantes eram adultos e/ou idosos e que utilizaram questionário para avaliação da restrição à participação auditiva**. Análise dos dados:** Inicialmente, os estudos foram selecionados com base na leitura dos títulos e resumos. Em seguida, os artigos foram lidos na íntegra e as informações foram incluídas no *checklist* do *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE). **Resultados:** Foram encontrados 370 estudos nas bases de dados pesquisadas. Destes, 14 foram excluídos, pois foram encontrados em mais de uma base. Foi realizada análise dos títulos e resumos de 356 artigos, sendo que 40 foram selecionados para a leitura na íntegra e, ao final, 26 artigos foram selecionados. Na revisão, foram encontrados nove instrumentos para a avaliação da restrição à participação auditiva. **Conclusão:** Os questionários mais utilizados para avaliar a restrição à participação auditiva foram o *Hearing Handicap Inventory for the Elderly* (HHIE), *Hearing Handicap Inventory for Adults* (HHIA) e *Hearing Handicap Inventory for the Elderly - Screening* (HHIE-S). A aplicação de questionários de restrição à participação auditiva pode auxiliar na validação de decisões na pratica clínica audiológica e ser útil na prática de adaptação dos aparelhos de amplificação sonora individual e resultados da reabilitação auditiva.

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## INTRODUCTION

According to the demographic census of 2010, conducted by the Brazilian Institute of Geography and Statistics (IBGE), 45,606,048 Brazilians have some sort of deficiency. Out of these, 9,722,163 present some hearing impairment, being that 7,574,797 individuals reported having some difficulty; 1,799,885, great difficulty; and 347,481 said they could not hear anything[1].

The World Health Organization (WHO) defines impairment as an abnormality in organs, systems, and structures of the body. In addition, the inability is characterized as the consequence of the deficiency from the functional point of view, and the impairment reflects the adaptation of the individual to the environment as a consequence of the deficiency and the inability[2]. Therefore, hearing impairment is considered as the individual's own perception regarding his or her hearing limitations, which affects his or her lifestyle, family connections, and social and emotional standing[3].

The WHO conceptualizes as disabling the permanent elevation of the auditory threshold in the better ear to levels of 30 dBA in children, and to levels of 40 dBA in adults, using pure tones in the frequencies of 0.5, 1, 2, and 4 kHz[2].

In the life cycles of adults and the elderly, hearing loss can cause different emotional and psychological impacts on each individual. These impacts are related to life experience, health-related perspectives, the ability to adapt to the limitations, and the level of socialization. So, subjects with similar hearing loss can present distinct impacts on communication, social and emotional aspects, as well as quality of life[2].

The protocols for evaluation of hearing impairment help to complement the data obtained in hearing evaluations, making them important for the identification of the specific needs of each individual and in the evaluation of the results obtained from the interventions.

## OBJECTIVE

The objective of study was to investigate which instruments are used to evaluate hearing impairment in adults and the elderly, through a systematic review of studies.

## RESEARCH STRATEGY

The first step of this study consists in elaborating the investigative question: "Which questionnaires are used to evaluate hearing handicaps in adults and the elderly?"

Studies from the last five years were selected in a bibliographic collection of data, in national and international journals, in the following electronic databases: ISI Web of Science and Virtual Health Library – BIREME, which includes the databases LILACS and MEDLINE.

The selection of the descriptors was elaborated by consulting the Health Sciences Descriptors (DeCS) and these were combined together using the Boolean operators AND and OR. The following descriptors were used in English, Portuguese, and Spanish: "Hearing Loss" ("*Perda Auditiva"* and "*Pérdida Auditiva*"), "Hearing" ("*Audição*" and "*Audición*"), and "Questionnaires" ("*Questionários*" and "*Cuestionarios*").

Descriptors (DeCS and MESH) were used to recover topics in the literature: MH: "*Hearing*" OR "*Audición*" OR "Audição" OR "*Hearing Loss*" OR "*Pérdida Auditiva*" OR "*Perda Auditiva*" AND "*Questionnaires*" OR "*Cuestionarios*" OR "*Questionários*" OR "*Questionário*". The following filters were also used: adult, middle age, elderly, and the years 2009–2014.

## SELECTION CRITERIA

The following inclusion criteria were adopted: studies that were fully available; published either in Portuguese, English, or Spanish; whose participants were adults or the elderly and those that used a questionnaire to evaluate hearing impairment. The following exclusion criteria were used: papers with lower level of scientific evidence according to criteria proposed by the literature[4], that is, papers with a specialist's opinions, case reports, or series of cases.

This study focused on studies for a systematic review without meta-analysis; therefore, the studies selected did not test the same hypotheses, but used the same evaluation instrument.

## DATA ANALYSIS

Initially, the studies were selected based on the reading of their titles and abstracts. Then, the articles were fully read and the information was analyzed according to Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)[5] checklist. The STROBE initiative has the objective of offering recommendations and giving assistance in the reporting of observational studies through its checklist, in addition to being available as supporting bibliography for researchers[5].

The study analysis protocol constituted in the objective and design of the study and the methods and variables analyzed in each instrument and paper.

## RESULTS

In the search results, 370 studies were found in the databases researched. From these studies, 14 were eliminated, as they were found in more than one database, and only the first instance was considered. Based on the inclusion criteria, 365 articles were selected. After the application of the exclusion criteria, 40 studies were selected to be read in their entirety. From these, seven were excluded for not answering the guiding question of the study and another seven were excluded for not presenting the results of the application of the evaluation instruments for hearing handicap. In the end, 26 papers were selected for the review (Figure 1).

While verifying the studies that were selected (Table 1), it was noted that seven studies utilized the hearing handicap protocols only in the adult population[8,9,11,16,18,23]. In 12 studies, the sample was composed exclusively of the elderly[6,10,13-15,17,22,25-29]; while the remaining papers, seven[3,7,12,19-21,24], evaluated hearing handicaps in both adults and the elderly.

The literature shows that the population growth of the elderly is a worldwide phenomenon. Hearing loss in elderly people is one of the most disabling communication disorders and it can cause serious social consequences and greatly affect an individual's quality of life[7,9,24]. In this review of literature, an important portion of studies evaluated the hearing handicap in the elderly. Verifying the impacts of hearing loss on this population is indispensible, so that preventative actions and interventions can be planned and can assist in the improvement of quality of life for these individuals.

For a long time, hearing deficiencies were considered disabling diseases. Throughout the years, actions are taken to ease this stigma and provide an improvement in the quality of life of the individuals with a hearing deficiency; among the possibilities is the adaptation of personal hearing amplification devices.[3].

In the studies selected[3,7,8,17,20,29], the questionnaires for hearing handicap were utilized to evaluate the intervention plan and if the aural rehabilitation were effective in decreasing the disabilities and handicaps. As a result, it was noted that the use of the personal hearing amplification devices aided in the reduction of the perception of handicaps and hearing difficulties.

As for the design of the studies, it was found that the majority of them were cross-sectional studies[3,6,14-16,22,23,27]. The highest level of scientific evidence[4] found in the studies selected was the randomized controlled clinical trial, present in only three papers[24,25,28], all international. The cross-sectional studies are important; however, they do not infer upon the cause or aid in the comprehension of the perception of changes in hearing handicaps over time.

Among the themes addressed in the randomized controlled clinical trials, a study worth highlighting is one that evaluated the efficacy of aural rehabilitation of individuals or groups, the quality of life of individuals with hearing loss, and their respective spouses. It was noted that aural rehabilitation had a positive impact on the quality of life of the participants in both groups and with their partners; however, those who participated in the group rehabilitation had a better evaluation[24].

Another study evaluated hearing handicaps in young adults and older adults who had received bilateral or unilateral cochlear implantation. The study revealed that the groups evaluated presented a decrease in the perception of a hearing handicap; no statistically significant difference was observed between the cochlear bilateral and unilateral subjects. The young adults presented an improvement in their performance and self-evaluation of their hearing abilities[25].

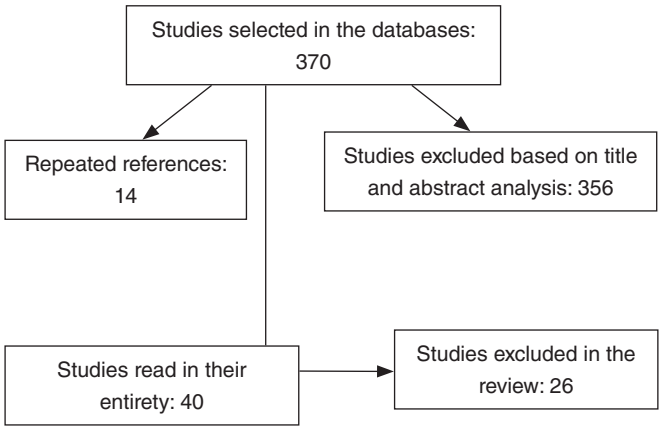


**Figure 1.** Synthesis of the selection criteria of the studies

Randomized clinical trials with elderly participants distributed into two groups: the first performed individual therapy and the second, group aural rehabilitation, putting into evidence that the participants who received group rehabilitation presented lower scores in reference to the perception of the handicaps of hearing loss[28].

Among the studies selected for the present systematic review, the majority was set in the clinic or ambulatory care of the tertiary educational institution of the researchers or in clinics that have partnerships with the institution[3,7,9-18,20-22,24-26,28,29] and provided service in the speech language pathology and audiology area. Other studies were also done in hospitals[16,23], a reference center for the elderly[6], and in a gerontology ambulatory care[27]. Thus, it can be noted that in various environments for patient care and attention, studies are being developed in reference to the theme here studied.

Noise-induced hearing loss (NIHL) offers risks to an individual's quality of life, seeing that, even at its initial stages, it can be noted and can interfere in the oral communication of the individual and cause social and emotional compromises[16]. A national study[16] conducted a trans-cultural adaptation of the evaluation instrument for hearing handicaps in individuals with NIHL. The instrument was considered of easy comprehension and applicability and obtained acceptable reliability and validity; however, the authors suggested that new studies should be conducted and the questionnaire be applied on a more representative sample. The availability of an instrument specific for individuals with NIHL is important to motivate research in this area, which is seldom studied in Brazil.

In the health field, over the years, there has been an increase in systematically measuring, demonstrating, and documenting the advances and results of interventions[16]. From the selected studies for the systematic review, two presented results of the validation of evaluation instruments for hearing handicaps[15,18] and one presented a trans-cultural adaptation[16]. These studies present high reliability and validity in comparison to their original versions. The three instruments had adults[18], the elderly[15], or both[16], and their target population.

In the analysis of the studies selected, it was observed that, during the last five years, there was a heterogeneous distribution of scientific productions that utilized questionnaires to evaluate hearing handicaps. The years 2011, 2013, and 2009 presented the highest number of studies.

In this review, nine instruments for the evaluation of hearing handicap were found: Auditory Disability and Handicap (AIADH), Hearing Handicap Inventory for Adults (HHIA), Hearing Handicap Inventory for Adults – Screening (HHIA-S), Hearing Handicap Inventory for the Elderly (HHIE), Hearing Handicap Inventory for the Elderly – Screening (HHIE-S), Hearing Handicap Inventory for the Elderly – Spouse (HHIE-SP), Hearing Handicap and Disability Inventory (HHDI), Hearing Handicap Questionnaire (HHQ), and Hearing Disability and Handicap Scale (HDHS).

**Table 1.** Description of the results of the studies selected

| Author (year) | Country | Study design | Sample | Instrument | Main findings from the study |
|---|---|---|---|---|---|
| Campos et al. (2014)[3] | Brazil | Cross-cut | Experienced hearing aid users: 37 New hearing aid users: 37 | HHIA and HHIE | There was no difference in the ability to handle the hearing aid between the new and experienced users of hearing aids. The handling abilities are related to the overall benefit obtained with the use of the device. |
| Chiossi et al. (2014)[6] | Brazil | Cross-cut | 72 | HHIE-S | The self-awareness of the hearing impact in daily life became interconnected with the rate of vocal handicap. The quality of life was negatively influenced by the increase in self-awareness regarding the hearing and vocal difficulties in daily life. |
| Silva et al. (2013)[7] | Brazil | Cross-cut | 34 | HHIA and HHIE | A reduction of statistical significance was verified in the difficulties caused by the auditory deprivation after the adaptation of the hearing aid. |
| Guarinello et al. (2013)[8] | Brazil | Longitudinal | 29 | HHIA | A significant difference was verified among the average score of the evaluation of handicap before and after the adaptation to the hearing aid. There was a decrease in the awareness of the hearing handicap after the use of the hearing prosthetic in the study group. |
| Fuente et al. (2013)[9] | Chile | Longitudinal | Study group: 48; control group: 48 | AIADH | Exposure to solvents is associated to the difficulties in daily life related to the functions of the peripheral and central auditory system. |
| Tomioka et al. (2013)[10] | Japan | Longitudinal | Homens: 781 Women: 950 | HHIE-S | The HHIE-S had a high reliability and was specific in the detection of hearing handicaps. The instrument was sensitive for evaluating the impact of hearing handicaps on the quality of life. |
| Håkan et al. (2013)[11] | Sweden | Cross-cut | Normal hearing: 20 Hearing loss: 20 | HHIA | The employees with hearing handicaps reported good quality of life in relation to the population with normal hearing; however, with less physical performance and higher effort noticed in noise than their peers with normal hearing. |
| Yamamoto and Ferrari (2012)[12] | Brazil | Retrospective | 200 | HHIA and HHIE | The time between the start of hearing complaints and the moment when treatment was sought was, on average, 7.6 years. There were weak or inexistent connections between the audiometric data, demographic data, awareness of handicap, and the time to seek treatment. |
| Magalhães and Iório (2012)[13] | Brazil | Cohort | 50 | HHIE | The analysis of the HHIE revealed that there was a reduction in the participation restriction in the emotional and social scales in the period post intervention. |
| Fuente et al. (2012)[14] | Chile | Cross-cut | Normal hearing: 20 Hearing loss: 20 | AIADH | The version in Spanish of the AIADH presented good criteria reliability. Significant statistical differences for all the answers to the items in the questionnaire were observed between individuals with normal hearing and with hearing deficiency. |
| Deepthi and Kasthuri (2012)[15] | India | Cross-cut | 175 | HHIE-S | The sensitivity, specificity, positive, and negative predictive values of the screening tools were compared with the tona averages over 25, 40, and 55 dB of hearing level. The HHIE-S produced a sensitivity of 26.2% and a specificity of 95.9%. |

Continue...

**Table 1.** Continuation

| Author (year) | Country | Study design | Sample | Instrument | Main findings from the study |
|---|---|---|---|---|---|
| Holanda et al. (2011)[16] | Brazil | Cross-cut | 43 | HDHS | The instrument was considered of easy comprehension and applicability and obtained acceptable reliability and validity. The HDHS needs to be tested in samples that are representative of the working Brazilian population with noise-induced hearing loss. |
| Magalhães and Iório (2011)[17] | Brazil | Retrospective | 50 | HHIE | The HHIE revealed that the emotional and social scales in the period post-adaptation to the hearing aid were significant, in gender and age group. |
| Aiello et al. (2011)[18] | Brazil | Prospective | Normal hearing: 30<br>Hearing loss: 113 | HHIA | The questions from the questionnaire were considered easy to read. High internal consistency overall and of items. No difference was observed between the points of the testing and retesting. |
| Menegotto et al. (2011)[19] | Brazil | Retrospective | 51 | HHIA-S and HHIE-S | The instruments revealed low sensitivity and high specificity. There was no statistical significance between the degree of hearing loss and the degree of handicap. |
| Luz et al. (2011)[20] | Brazil | Longitudinal | Adult Groups: 27<br>Elderly Groups: 17 | HHIA and HHIE | There was a reduction in the limitation of activities and the handicap in daily life activities in adults and the elderly with the use of hearing aids. |
| Silverman et al. (2011)[21] | USA | Longitudinal | Elderlies | HHIA and HHIE | There was no statistical significance in the blind monitoring of the implementation of the protocols. |
| Solheim et al. (2011)[22] | Norway | Cross-cut | 84 | HDHS | There was statistical significance in the association between the limitations of activities and the increase in the degree of hearing loss and handicap related to lower satisfaction with the overall conditions of life. |
| Araújo et al. (2010)[23] | Brazil | Cross-cut | 52 | HHIA | The subscales of the emotional and social/situational aspects were scored, with 73.1% of handicap presence. The application of the questionnaires revealed itself to be an efficient procedure. |
| Preminger and Meeks (2010)[24] | USA | Randomized clinical trial | Hearing loss: 36<br>Cônjuge: 36 | HHIA, HHIE, HHIE-SP | The individual with hearing loss who participated in the program for aural rehabilitation presented an improvement in quality of life, which also happened to their spouse. The main impact of the program was a better understanding of the spouse in the experiences lived by their partner. |
| Noble et al. (2009)[25] | Australia | Randomized clinical trial | 68 | HHIE and HHQ | The groups showed a benefit after the implantation. No difference was observed between patients with unilateral and bilateral implants. The younger cohort presented increases in performance and self-evaluation and abilities. |
| Calviti and Pereira (2009)[26] | Brazil | Prospective clinical study | 71 | HHIE and HHIE-S | The HHIE-S as well as the HHIE score presented a correlation to the auditory threshold. Both instruments presented good sensitivity and average specificity. |
| Rosis et al. (2009)[27] | Brazil | Cross-cut | Audiology: 55<br>Geriatrics/ Gerontology: 23 | | HHIE-S |
| Collins et al. (2009)[28] | USA | Randomized clinical trial | Individual: 329<br>Group: 330 | | HHIE |
| Metselaar et al. (2009)[29] | The Netherlands | Exploratory | 247 | | HHDI |

**Caption:** HHIA = Hearing Handicap Inventory for Adults; HHIE = Hearing Handicap Inventory for the Elderly; HHIE-S = Hearing Handicap Inventory for the Elderly – Screening; AIADH = Auditory Disability and Handicap; HDHS = Hearing Disability and Handicap Scale; HHIA-S = Hearing Handicap Inventory for Adults – Screening; HHIE-SP = Hearing Handicap Inventory for the Elderly – Spouse; HHQ = Hearing Handicap Questionnaire; HHDI = Hearing Handicap and Disability Inventory

**Table 2.** List of questionnaires found in the review

| Instrument | Area | Main thematic lines of the study | Number of inclusive studies |
|---|---|---|---|
| HHIE | Emotional and social | Handicap in the elderly population[3,10,12,17-20,24,27,28] | 10 |
| HHIE-S | Emotional and social | Handicap in the elderly population[8,13,15,24,25] | 5 |
| HHIE-SP | Emotional and social | Evaluates how the spouse believes the partner reacts to the hearing loss[28] | 1 |
| HHIA | Emotional and social | Handicap in the adult population[6,7,9,10,17,18,20,21,23,28] | 10 |
| HHIA-S | Emotional and social | Handicap in the adult population[19] | 1 |
| HDHS | Perception of speech and non-verbal sounds, interpersonal relationships, angst, and threat to self-image | Handicap in individuals with NIHL[16] and evaluation of hearing handicap in the elderly[22] | 2 |
| AIADH | Intelligibility in noise, intelligibility in silence, sound distinction, sound detection, and sound localization | Handicap[6,11] | 2 |
| HHDI | Emotional, social, and awareness of others | Handicap in users of hearing aids[29] | 1 |
| HHQ | Emotional, social, and handicap | Handicap[25] | 1 |

**Caption:** HHIE = Hearing Handicap Inventory for the Elderly; HHIE-S = Hearing Handicap Inventory for the Elderly – Screening; HHIE-SP = Hearing Handicap Inventory for the Elderly – Spouse; HHIA = Hearing Handicap Inventory for Adults; HHIA-S = Hearing Handicap Inventory for Adults – Screening; HDHS = Hearing Disability and Handicap Scale; AIADH = Auditory Disability and Handicap; HHDI = Hearing Handicap and Disability Inventory; HHQ = Hearing Handicap Questionnaire

Table 2 presents the relationship between the questionnaires for the evaluation of hearing handicaps found in this review, the areas evaluated, the thematic lines used by the authors of the studies for the use of the questionnaires, and the quantity of studies each one used.

It was noted that the most used protocols in the selected studies were HHIA[10,17,18,20,21,23,28], HHIE[3,10,12,17-20,24,27,28], and HHIE-S[8,13,15,24,25].

The questionnaires HHIA and HHIE are composed of 25 items each, 13 of which involve emotional aspects and 12, situational or social aspects. The HHIA is given to individuals between the ages 18 and 60 and the HHIE, to the population over 60 years old.

These questionnaires can be taken by the subject himself or herself or be given through an interview; for each question of the HHIA and the HHIE, the interviewee should answer "yes," "sometimes," or "no." The value points can vary in percentage indexes from 0 to 100, there being a correlation between the score obtained and the perception of the handicap, being that a high score suggests a significant perception of auditory deficiency by the evaluated subject. This way, a score from 0 to 16 indicates an absence of perception of the handicap; from 18 to 30, a light handicap; from 32 to 42, moderate handicap; and above 42 indicates significant handicap.

The HHIE-S questionnaire is a reduced version of the HHIE, also given to the population over the age of 60. The instrument is composed of 10 items, being that five involve emotional aspects and the other five social and situational aspects. The questionnaire can be answered by the subject himself or herself or through an interview. When answering, the individual should opt for a single answer for each item: "yes," "sometimes," or "no." The total score varies from 0 to 40, being that 0 to 8 points indicates the absence of perception in handicap; 10 to 23 points, light to moderate perception; and from 24 to 40 points, significant perception of handicap.

The comparison between the instruments revealed that the emotional and social aspects are the most used[3,7-10,12-15,17-21,23-29]. Such fact is related to the impact hearing loss has on these aspects, seeing that, when confronting auditory limitations, the patient is faced with alterations in his or her social and functional routines, such as social isolation and difficulties in the professional scope. These barriers generate negative emotions (anxiety, anger, sadness, etc.). On the other hand, the process of rehabilitation can generate positive experiences and, therefore, minimize the perception of auditory handicaps.

The evaluation of the social aspect of the instruments shows that the social aspect is an important factor as hearing plays a predominant role in an individual's social life, be it in the access to oral communication with his or her peers, in routine activities in the workplace (meetings, customer service, receiving verbal orders), in a family setting, or in cultural activities (movies, theater, etc.)[22,25].

In this sense, another fundamental aspect is worth highlighting, which is the analysis of the impact of hearing loss according to the measurement of the restriction in the participation of activities, which is contemplated in the instrument HDHS[16,22]. The NIHL has psychosocial repercussions, which can be reflected in short-term job performance and, in more severe situations, can lead to the inability to work. Among the aspects related to the hearing handicap addressed by the HDHS, some aspects worth mentioning are speech perception, perception of non-verbal sounds, and the threat to self-image; these areas are of great importance not only in professional contexts but in personal contexts as well.

The complexity in the process of determining perceptual impact of hearing loss on one's life is noted in the diversity of instruments proposed by the literature and the thematic lines addressed. However, it is fitting to consider that such perception is subjective and, therefore, has a relationship with the

life story of each person and with social, cultural, and demographic aspects.

## CONCLUSION

The studies revealed that the questionnaires most often used to evaluate hearing handicaps were HHIA, HHIE, and HHIE-S. Through the analysis of the selected studies, it was observed that the use of questionnaires for hearing handicaps can assist in validating decisions in the audiological clinical practice, in addition to being useful in the adaptation of hearing aids and the results of aural rehabilitation. These questionnaires are also important in the evaluation of services that promote hearing health, as, through their use, it is possible to monitor how the inability and handicaps affect the quality of life of individuals.

**VCS was responsible for the conception and design of the study, analyzing, writing, interpreting the data and approving the final version for publication; SMAL was responsible for the conception and design of the study, analyzing and interpreting the data, advising the stages of execution, writing, proofreading, and approving the final version for publication.*

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