



SELF-EFFICACY IN HEARING AID USE AMONG MALAYALAM SPEAKERS

Audiology

Kripa Sophi Vinod* Speech Language Pathologist, Neuro Gen Brain And Spine Institute, Navi Mumbai, Maharashtra 400706 *Corresponding Author

Dr. Binoy Shany M S Professor Audiology, Marthoma College Of Special Education, Institute Of Speech & Hearing, Badiadka, P.O. Perdala, Kasaragod-671551, Kerala.

ABSTRACT

Background: Self-efficacy is a main factor for non-compliant hearing-aid use (West & Smith, 2007). The measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids questionnaire assesses the confidence that individuals have in their abilities to care for and to use their hearing aids in various listening situations. **Method:** The study included 55 older adult hearing aid users above 60 years of age who are using a hearing aid for more than 6 months, and subjects using either unilateral (33 subjects) or bilateral digital hearing aids (22 subjects) were included. **Result:** Cronbach's alpha coefficient demonstrated that the measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids questionnaire- Malayalam version items can reliably differentiate the degree of auditory development in the children evaluated in this study. **Conclusion:** Using the Malayalam version of the questionnaire as a clinical tool should result in better hearing-aid outcomes for patients with hearing aids, including increased hearing-aid self-efficacy.

KEYWORDS

INTRODUCTION

According to Garg et al. in 2009, 63 million individuals (6.3%) in India alone suffer from hearing loss. The after-effects of hearing impairment include inability to interpret speech sounds, often producing a reduced ability to communicate, delay in language acquisition, economic and educational disadvantage, social isolation, and defame (Mathers et al., 2000).

Unaided Hearing impairment can have a negative impact on functional life experience. According to Appollonio et al. in 1996, unmanaged Hearing loss was associated with poor mood and decreased self-sufficiency in daily tasks. The confidence a patient feels in their capacity to use, take care of, and handle all aspects of hearing aid usage is referred to as self-efficacy for hearing aids. Self-efficacy may be a key factor in hearing aid discontinuation because people who are having trouble adjusting to hearing aids are more likely to abandon them if they lose faith in their ability to solve their problems. The importance of self-efficacy is a major contributing factor to non-compliant use of hearing aids (West & Smith, 2007). The most common reasons for hearing aid rejection fall into three main categories which include poor benefit in various listening situations (background noise), concerns about proper device handling, (insertion, battery replacement, volume control adjustments), adjusting to wearing the hearing aids (Brooks & Hallam, 1998; Fino et al., 1992).

Hearing aid success should depend on self-efficacy for maintenance and use, especially for continuous use in light of the difficulties. Individuals with high hearing-aid self-efficacy should be more likely to continue using their hearing aids, while those with low self-efficacy should be more likely to give up trying after experiencing some initial adjustment difficulties (Smith & West, 2006). Smith and West (2006) give a thorough analysis of the idea of hearing-aid self-efficacy and describe how the self-efficacy framework might be used in audiologic rehabilitation procedures. Considering that self-efficacy may have an impact on how well hearing aids work, a measure for evaluating self-efficacy beliefs has to be developed, according to West and Smith's (2007) research. They argued that people are more likely to reject their hearing aids if they lack confidence in their abilities to solve their difficulties. As a result, they created the Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids (MARS-HA; West & Smith, 2007).

MARS-HA self-efficacy questionnaire to assess the confidence that individuals have in their abilities to care for and to use their hearing aids in various listening situations. The scale includes 24 items related to hearing aid usage. The MARS-HA was created with specific sub-skills in consideration. In particular, the aspects of successful hearing-aid use were highlighted, such as handling of hearing aids (battery insertion & removal, hearing-aid insertion/removal), hearing-aid adjustment (own voice issues, physical fit), and aided listening skills

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Hearing-aid intervention improves speech perception abilities and quality of life. Audiologists and hearing-rehabilitation therapists have encountered the patient's rejection of hearing aids countless times during daily practice over the years. Low self-efficacy for the care and use of hearing aids has been a major reason for discontinued use of hearing aids (Carson & Pichora-Fuller, 1997; Kricos, 2000, 2006; Weinstein, 2000). The creation of a valid and reliable procedure for evaluating self-efficacy beliefs concerning hearing aids would be of great value. Individuals having trouble adjusting to hearing aids are likely to stop using the device if they lose confidence in their ability to handle their adjustment issues. Although many validated surveys for assessing the quality of life in patients with hearing loss are available in English, previously validated instruments in Malayalam to evaluate hearing aid self-efficacy are limited. The purpose of this research was to translate and validate a measure of hearing-aid self-efficacy, that is, a questionnaire that assesses the confidence that individuals have in their abilities to care for and to use their hearing aids in various listening situations.

METHOD

This present study aimed to translate and validate the Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids (MARS-HA) Questionnaire in Malayalam and produce a Malayalam version of MARS-HA for use with Malayalam-speaking individuals. The study includes 55 older adult hearing aid users. Individuals above 60 years of age (mean: 66) who are using a hearing aid for more than 6 months and subjects using either unilateral (33 subjects) or bilateral digital hearing aids (22 subjects) were included.

Materials And Procedure:

MARS-HA Questionnaire: The Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids (MARS-HA) (West & Smith in 2007) questionnaire is a 24-item self-assessment of a patient's ability to do certain activities with a hearing aid, as well as the patient's abilities to hear in certain situations. The MARS-HA measures: 1) Basic Handling, 2) Advanced Handling, 3) Adjustment, and 4) Aided Listening. Assessing the patient's perceptions within these areas can help the clinician target specific areas of audiological rehabilitation for hearing aids.

The Malayalam version of the MARS-HA was translated from the original English version. A "back-translation" method was used to ensure identical or highly similar meanings between the translated and original versions of the MARS-HA. The "back-translation" method includes translation from the original language into the target

language, then a "back-translation" from the target language to the original language, and finally a comparison of the back-translation with the original version. The Malayalam version (MARS-HA-M) of the questionnaire thus produced consists of 24 questions arranged in four factors: 1) Basic Handling, 2) Advanced Handling, 3) Adjustment, and 4) Aided Listening.

The questionnaire consists of twenty-four closed questions with a 10-unit interval scale; the response scale ranges from 0% (cannot do this at all) to 100% (I am certain I can do this) in 10-unit intervals. A high score indicates a high level of self-efficacy concerning the use and management of hearing aids. Each response given by the subject will be further compared with the scale provided within MARS-HA. The MARS-HA-M subscale and total scale scores are calculated by taking the average of the item responses. An average of less than or equal to 80% (i.e., where the patient is reporting low or moderate self-efficacy) indicates the need for counselling/rehabilitation in this area.

Required statistical methods were carried out using SPSS version 27.0 to translate and validate the Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids (MARS-HA) to the Malayalam Language. The statistical tests which were used include Cronbach's Alpha, Kruskal-Wallis Test to compare the factors of the questionnaire, Mann-Whitney U test and Independent Sample t Test as post hoc for multiple comparisons between the factors.

RESULT

To examine the reliability and validity of the Malayalam version of the MARS-HA, item analyses were computed. The results obtained are described under the following sub-sections:

1) Item Analysis:

Table 1 indicates the Cronbach's alpha value of Malayalam MARS-HA.

Cronbach's Alpha	No of Items
.907	24

Table 1 depicts the reliability of the Malayalam version of the MARS-HA Questionnaire using Cronbach's Alpha. If Cronbach's Alpha is ≥ 0.7 , it indicates a strong positive correlation, while Cronbach's Alpha ≤ 0.3 shows a weak correlation. The measure of internal consistency will generally increase when the correlations between the items increase. Since the Cronbach's Alpha obtained is above 0.700, it can be stated that the reliability of the questionnaire is 'high'. The total correlation of the questionnaire (Cronbach's Alpha) obtained was 0.907, which is highly reliable.

Parameters Of The Item Analysis:

When the parameters of items were analysed, the item-total statistics of the MARS-HA-M Questionnaire indicated the Cronbach's alpha coefficient value less than 0.907 when an item is deleted for all items of the Malayalam MARS-HA, suggesting that the responses from subjects are greatly consistent and reliable across the Malayalam MARS-HA items. The values of Cronbach's alpha coefficient demonstrated that the MARS-HA-M items can reliably differentiate the degree of auditory development in the children evaluated in this study.

2) Analysis of various factors (a) Basic Handling, b) Advanced handling, c) Adjustment, and d) Aided Listening)

Normality checking by One Sample Kolmogorov Smirnov Test:

To check the normality One-Sample Kolmogorov-Smirnov Test was performed. The results obtained indicated that all groups except basic handling are normal therefore, a non-parametric test was used to analyse the data.

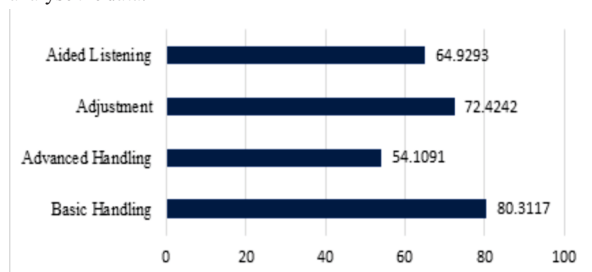


Figure 1 indicates the Mean score of the four factors of the questionnaire

Figure 1 indicates the mean score of the questions in each factor. Comparing each group's basic handling had a high score compared to other groups.

Table 2 indicates the Kruskal-Wallis Test score to compare the factors.

	Score
Kruskal-Wallis H	58.615
Df	3
p-value	.000

The Kruskal-Wallis test score is indicated in Table 2, which shows that there exists a significant difference between groups. This indicates the need to do a post hoc test to know which pairs are significantly different.

The Mann-Whitney U test and independent-sample t-test were performed for multiple comparisons of the four-factor groups. The results indicate that there exists a significant difference between the four groups. From the statistical analysis, it can be concluded that the Malayalam version of the MARS-HA Questionnaire can be used as an effective tool in evaluating Malayalam-speaking subjects. MARS-HA-M can be a reliable instrument for identifying self-efficacy for hearing aids.

DISCUSSION

Based on the findings of the present study, the psychometric properties of the MARS-HA-M indicate the high reliability of the measures. The results of the current study suggest that Malayalam MARS-HA is a suitable instrument for measuring self-efficacy for hearing aids, as indicated in the item analysis, which showed strong reliability and validity. The results obtained from the item analyses and the high values of Cronbach's alpha coefficient (0.907) demonstrate that this final version of the Malayalam MARS-HA can be used with confidence to estimate self-efficacy. The analysis of the factors (Basic Handling, Advanced Handling, Adjustment, and Aided Listening) indicated that, comparing the mean score of the questionnaire of each group, Basic Handling had a high score compared to the other groups. The Mann-Whitney U test and independent-sample t-test for multiple comparisons of the four-factor groups indicated that there exists a significant difference between the four groups. The current study results suggest that the MARS-HA-M has strong reliability and is a useful tool for understanding how individuals assess their hearing aid.

CONCLUSION

The study's overall finding shows that MARS-HA-M is a useful tool for assessing hearing aid self-efficacy. The usefulness of the MARS-HA-M in a clinical and research setting has high potential. The questionnaire may help guide the audiologic rehabilitation process. The MARS-HA-M may also assist in planning initial hearing-aid orientation sessions or refining goals for follow-up visits with patients who have hearing aids. Using the MARS-HA-M as a clinical tool should result in better hearing-aid outcomes for patients with hearing aids, including increased hearing-aid self-efficacy.

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