TRANSLATION AND ADAPTATION OF HEARING HANDICAP INVENTORY FOR ADULT (HHIA) INTO MALAY LANGUAGE: A PILOT STUDY

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ABSTRACT

Introduction: Patient's self-perceived handicap inventory is an important tool for modern's healthcare management including hearing loss. The HHIA is a self-reporting outcome measurement invented to identify hearing-impaired patients' complaints for appropriate client-centred rehabilitation program. HHIA has been

reported among one of the valid self-perceived hearing handicap measures, and could even address issues for patients with mild and unilateral hearing loss. This study aims to translate HHIA into Malay language (HHIA-M) and to adapt the questionnaire culturally for clinical use among Malaysian population.

Methods: Ten participants involved in this preliminary study. The questionnaire was initially translated using forward-backward techniques by four-panelists (2 panels for each level). The translated questionnaire was then reconciled and harmonized for cultural and content validations by the authors and two expert panels. Next, the harmonized version of the questionnaire was piloted among 10 hearing-impaired patients and 10 normal hearing participants for face and discriminant validation. All participants were recruited from IIUM Hearing and Speech Clinic.

Results: The finding shows that the HHIA-M was easy to understand and took a short time to complete. Statistical analysis identified significant mean differences in HHIA scores between normal and hearing-impaired participants.

Conclusions: This preliminary finding concluded that the HHIA-M has the potential to be an effective tool to evaluate the hearing handicaps among hearing-impaired patients in Malaysia and further study to investigate its psychometric property is warranted.

KEYWORDS: Hearing-impaired; HHIA; HHIA-M; Translation; Pilot study

INTRODUCTION

Self-reported outcome measurement that quantify patient's disability and functioning affected by hearing impairment play an important role in aural rehabilitation. This is in parallel with the International Classification of Functioning, Disability and Health (ICF) requirement, where specific areas of difficulty experienced by the patients need to be identified, and clinicians may use this information for direct intervention to the relevant areas of need (Lynn, 1986). Traditionally, objective outcome measures such as real ear measurement and speech recognition test are widely used by audiologist in Malaysia (Aiello et al., 2011). While the objective tests have several advantages, these tests only measure the functional improvement in sounds perception resulted from amplification. For that reason, subjective test such as the self-outcome measurement is also used as it provides more information on patient's quality of life resulting from the hearing impairment (Davis & Hardick, 1981; Cox et al., 2002).

Many outcome measurement questionnaires are available for the use of people with hearing impairment, that include International Outcome Inventory for Hearing Aids (IOI-HA) and Parents' Evaluation of Aural/Oral Performance of

Children (P.E.A.C.H.). However, up until now, no hearing-specific questionnaire for adult has been translated and validated into Malay language to our knowledge. Therefore, in the present study, we describe the protocol used in the translation and adaptation of the HHIA-M and the preliminary report of the feasibility the HHIA-M based on findings from both hearing-impaired patients and normal hearing participants recruited from IIUM Hearing and Speech Clinic.

MATERIALS AND METHODS

HHIA Questionnaire

The HHIA was first developed by Newman et al. (1990) from the modification of the Hearing Handicap Inventory for Elderly (HHIE; Ventry & Weinstein, 1982). The HHIA is a self-reported questionnaire designed to assess the hearing handicap level of hearing-impaired adults. The HHIA has two subscales; social and emotional. The Social (S) subscale consists of 12-items that are related to the socializing difficulties due to the hearing impairment whereas the Emotional (E) subscale consists of 13-items that describe the undesirable emotional impact faced by the hearing-impaired. Respondents were asked to answer the questions based on their daily life experience using a 3-likert scale as follows: Yes (4 points), Sometimes (2 points) and No (0 points). Apart from measuring the handicap perception level among the hearing-impaired adults, it has been shown to be a reliable tool for the post-hearing amplification outcome measurement (Newman et al., 1991).

Subjects

The participants in this study consisted of two groups, the experimental and control group. For the experimental group, 10 hearing-impaired adults; 5 males (50%); and, 5 females (50%), age ranging from 22 to 63 (mean = 45.70, SD = 14.85) participated. The participants were recruited from IIUM Hearing & Speech Clinic's registry list. All participants met the same inclusion criteria;(1) hearing-impaired patients, and; (2) able to understand Malay.

The control group consists of 10 normal hearing adults; 5 males (50%); and, 5 females (50%), age ranging from 24 to 49 years old (mean = 36.60, SD = 8.92). Pure tone audiometry was conducted on every participant and their hearing level was normal on both ears and every frequency from 250 to 8000 Hz.

Each of the participants were recruited through convenience sampling. Each of them was given information regarding the study in written and verbal, and informed consent was obtained before participating. All participants were currently employed.

Translation procedures

The translation process followed the forward-backward method as per suggested by the Guillermin's guideline for translation (Guillermin et al., 1993). The translation procedures were conducted in 4 phases; (1) forward translation; (2) backward translation; (3) translation review by expert committees; and, (4) initial testing of the translated questionnaire.

Forward translation

The HHIA was translated from English into Malay by two panellists who have reasonable knowledge with audiology in general and hearing impairment specifically. Both panellists were bilingual (Malay and English) native speakers of Malay. One of the panellists has been working as an audiologist in Brunei, and the other panellist completed her postgraduate study in the United Kingdom for 2 years and had worked professionally as lecturer in speech-language pathology in the local university. The two independent translators produced two initial Malay versions of HHIA, BM1 and BM2. The translators then, together with the first author discussed and compiled both BM1 and BM2 to be HHIA-M. The compiled version of HHIA was finalized by choosing the appropriate wording to suite the Malay semantics and Malaysian culture. The result of the forward translation produced the Harmonized HHIA-M (BMH).

Backward translation

Next, the BMH was given to another two bilingual native Malay speakers (Malay and English) and have academic background in teaching English language at least at secondary level. Both panellists graduated from University of Wellington, majoring in English education and have been working as English teachers for 6 years. The panellists were blinded to the original HHIA. They were instructed to translate BMH back into English independently to produce E1 and E2. Next, comprehensive review and discussion were moderated by the first author, to produce the initial compiled English version of back-translated HHIA. The wording and language flow were reviewed by both panellists and the first author before being finalized into Harmonized English HHIA (EH).

Translation review by expert committees

The EH then was given to the committee together with BMH and all previous translations of HHIA for further review before proceeding with the pilot testing. The expert committee was formed of 3 researchers and 2 practicing audiologists. This process intends to identify flaws which can affect patients' comprehension, by focusing on word arrangement and the representation in culture (Beaton et al., 2000). Based on the discussion, a few alterations were made by the committee to suite the cultural value in Malaysia while at the same time maintaining the context

as in the original HHIA. For example, the item *'I no longer went to watch movies in cinema or theatre'* was emphasized over the literal translation of *'cinema'* and *'theatre'* into *'I no longer went to watch performance in a closed and surrounded hall'* in Malay. This is because in Malaysian culture, watching movies and theatres is uncommon among middle-age adults and elderly. The BMH was concise as literal as possible to the original HHIA to maintain the context equivalence. Thus, a satisfactory forward translation was reflected on BMH, producing the initial HHIA-M.

Test of the initial version of the questionnaires

After approval by the expert committee, the initial HHIA-M was tested on 10 hearing-impaired patients. The participants were briefed regarding the study and all of them agree to participate voluntarily. The hearing-impaired adult participants were asked to complete the initial HHIA-M. Time taken by each participant to answer the questionnaire was noted. A short close-ended question was asked to all participants; *'Do you have a problem understanding any word or sentence in this questionnaire?'*, with the choice of answer being only *'yes'* or *'no'*. All the hearing-impaired patients answered "yes" to the close-ended question, in all the HHIA-M questionnaire items.

Statistical analysis

The total score for the questionnaire was calculated by adding the participants' responses from every item in the HHIA-M. This total score represents the handicap perception experienced by each participant in both experimental and control groups.

Normality assumption was not met based on the Shapiro-Wilk's W test ($p<0.05$) and visual inspections to the data through histogram and boxplot. Thus, comparison between both groups was performed with non-parametric Mann–Whitney U test.

RESULTS

The HHIA-M scores for the experimental group (better ear threshold, mean = 70.63 dB HL, SD = 26.88) were compared to the control group (average threshold for both ears less than 20dB). 6 participants had moderate hearing loss (60%), 1 had severe hearing loss (10%), and 3 had profound hearing loss (30%). The HHIA-M score was significantly higher in hearing-impaired participants compared with normal hearing. Table 1 shows that the total HHIA-M score in hearing-impaired participants ranged from 10 to 70, while all normal hearing participants scored 0. Median total HHIA-M score was 51 (interquartile range; 10-70) in hearing-

impaired participants and 0 (interquartile range; 0) in normal hearing (Mann-Whitney U test, $p<0.05$).

Table 1: Distribution of responses between experimental and control groups in HHIA-M total score

	Experimental (n=10)			Control (n=10)		
	Yes	Sometimes	No	Yes	Sometimes	No
Social						
S1	3	2	5	0	0	0
S3	4	3	3	0	0	0
S6	3	4	3	0	0	0
S7	4	6	0	0	0	0
S9	2	5	3	0	0	0
S11	2	4	4	0	0	0
S13	2	5	3	0	0	0
S15	3	6	1	0	0	0
S16	2	2	6	0	0	0
S19	1	2	7	0	0	0
S21	3	5	2	0	0	0
S23	2	4	4	0	0	0
Emotional						
E2	3	4	3	0	0	0
E4	3	4	3	0	0	0
E5	3	4	3	0	0	0
E8	4	6	0	0	0	0
E10	2	7	2	0	0	0
E12	4	3	3	0	0	0
E14	1	4	5	0	0	0
E17	2	5	3	0	0	0
E18	2	4	4	0	0	0
E20	3	1	6	0	0	0
E22	0	5	5	0	0	0
E24	2	6	2	0	0	0
E25	1	6	3	0	0	0

DISCUSSION

This article discusses the translation and adaptation of the HHIA-M into Malay language. This questionnaire was successfully translated into target language with minor alterations to suit the cultural context (Beaton et al., 2000). In addition, the HHIA-M was found to be easily administered as it only took about 10–15 minutes for each participant in experimental group to be completed All participants reported to have no problem understanding the HHIA-M and no item needed to be revised based on their feedback suggesting that the HHIA-M is time-wise and easy to understand.

The hypothesis adopted in the present study was the score in the experimental group would differ from the score in the control group. Results showed that the experimental group had significantly higher HHIA-M scores as compared to the control group. As hearing-impaired patients often reported difficulties in social activities and emotional impacts as compared to normal hearing people, this key difference was reflected through the outcome scores of the HHIA-M. This finding further suggests that the construct of HHIA-M is solely related with the handicap perception of the hearing-impaired and can be differentiated when a person without any handicap perception answers the questionnaire. Based on the preliminary data analysis, it shows the initial evidence that the HHIA-M can classify patients with hearing impairment from the normal hearing as reported in the previous studies (Sato et al., 2004; Monzani et al., 2007; Aiello et al., 2011).

CONCLUSION

The findings of this study show that the Malay version of HHIA was easy to understand and acceptable in Malay-speaking population. Proper validation and reliability evaluation in larger sample size which includes all races in Malaysia may be beneficial for future research and for future clinical use of HHIA-M in the audiology clinic

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