Translation and validation study of Malay version of dizziness handicap inventory (MYDHI)

Baş dönmesi handikap envanterinin Malay versiyonunun çeviri ve geçerlilik çalışması

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ABSTRACT

Several outcome measures are in use for dizzy patient to assess change of symptoms, balance performance and disabling effects of dizziness on everyday life. However, yet none of these questionnaires exist in validated Malay version, except for Malay Version of Vertigo Symptoms Scale (MVVSS). Therefore translation and validation of the Malay version of Dizziness Handicap Inventory (myDHI) for use in Malay speaking population was planned. This study had a cross-sectional design and it was performed for translation and validation of the myDHI. In this study, 15 non-dizzy subjects were recruited for validation phase and 14 patients with dizziness (associated with vestibular disorder), aged between 18 and 60 years were recruited for reliability test. The internal consistency of myDHI was estimated using Cronbach's alpha coefficient (α). Standard translation process (forward and backward) was done and it was successful. Validation process consisted of two components namely content validity and face validity and it showed that myDHI has good content and face validity. At the reliability test, 14 patients filled out the myDHI within the time provided. Statistical analysis was performed using Statistical Package for Social Science, SPSS version 21 for reliability test using Cronbach's alpha coefficient. The myDHI showed acceptable value of internal consistency. As a conclusion, the myDHI demonstrated good validity, acceptable reliability and is recommended as a measure of disability in patients with dizziness and unsteadiness.

Keywords: *Dizziness, dizziness handicap inventory, quality of life, disability*

ÖZ

Baş dönmesi olan hastalarda semptomların değişimini, denge performansını ve baş dönmesinin gündelik yaşamda olan olumsuz etkilerini değerlendirmek amacıyla çeşitli sonuç ölçütleri kullanımdadır. Bununla birlikte, Malay vertigo semptom ölçeği dışında, bu anketlerden hiçbiri, geçerliliği onaylanmış Malay versiyonunda mevcut değildir. Bu nedenle, Malezya dili konuşan nüfusta kullanılabilmesi için baş dönmesi Handikap Envanteri'nin (myDHE) Malay sürümünü çevrilmesi ve onaylanması planlandı. Bu kesitsel çalışma, myDHE'nın çevirisini ve doğrulamasını yapmak için yapılmıştır. Bu çalışmada, doğrulama evresi için baş dönmesi olmayan 15 kişi ve yaşları 18-60 arasında değişen baş dönmesi olan 14 hasta güvenilirlik testi için çalışmaya alındı. MyDHE'nin iç tutarlılığı Cronbach alfa katsayısı (α) kullanılarak tahmin edildi. Standart çeviri işlemi yapıldı. Doğrulama süreci; içerik geçerliliğinden oluşmaktaydı ve myDHE'nin içerik geçerliliğinin iyi olduğu gösterildi. Güvenilirlik testinde 14 hasta, verilen süre içinde myDHI'yi doldurdu. İstatistiksel analiz, güvenilirlik testi için Cronbach alfa katsayısı kullanan SPSS sürüm 21 kullanılarak yapıldı. MyDHE, iç tutarlılığın kabul edilebilir değerini gösterdi. Sonuç olarak, myDHE iyi geçerlilik, kabul edilebilir güvenilirlik gösterdi ve baş dönmesi ve dengesizliği olan hastalarda özürlülük ölçütü olarak önerildi.

Anahtar kelimeler: *Baş dönmesi, baş dönmesi handikap envanteri, yaşam kalitesi, yetersizlik*

INTRODUCTION

Dizziness covers symptoms such as "sensation of faintness and whirling or inability to maintain normal balance in a standing or seated position"[1]. The ca-

uses of dizziness may be varied, and may have vestibular, neurological, cardiovascular or psychological etiologies[2] and it is reported that vestibular system disorder is a common cause of dizziness referred to ORL clinics. Dizziness can be divided into four sub-

types as vertigo, presyncope and light headedness, disequilibrium, and other forms of dizziness[3]. Vertigo is one of the most commonly reported symptoms of the patient with vestibular disorder. Vertigo is defined as an illusion of movement, which is commonly present with a sense of rotation[4].

Dizziness is a subjective disorder that causes psychological, functional or social abnormalities rather than a simple pathological illness[5]. The subjective perception of dizziness is influenced by the patient's personality, anxiety with regard to unforeseeable recurrence, associated symptoms (neurovegetative symptoms, hearing disorder, etc), and the unpredictable evolution of the underlying disease[6].

It often leads to reduced quality of life, anxiety and emotional distress, loss of fitness, lack of confidence in balance, unsteadiness and increased risk of falling. However, there is a difficulty in figuring out how much inconvenience patients with dizziness are experiencing and how much the subjective symptoms have been reduced. Therefore, to figure it out, a subjective measure such as questionnaire is used to quantify the symptoms and impact of problems on patient's life and also for the evaluation of treatment outcomes.

It is important to investigate the site of lesion and the etiology of vestibular problem in patients. This useful information will guide further treatment and rehabilitation for patients with vestibular dysfunction. Usually, clinical examination involves several tests which include Dix-Hallpike test, head thrust test, roll test, head shaking test, straight line test, Romberg test, and Fukuda test. All of these tests will help in diagnosing the vestibular disorders in the patient.

Other than clinical examination, the diagnosis can be further confirmed by using objective and subjective tests. However, clinical examination and objective tests are still not enough in diagnosing the problem. Thus, we still need subjective tests to know more about the patients' symptoms, their effects on physical, emotional, functional state of the patient, and also their quality of life from their point of view.

Dizziness Handicap Inventory was developed in 1990 by Jacobson and Newman to evaluate the self-perceived handicapping effects imposed by vestibular system disease[7]. The items were subgrouped into three content domains representing functional, emotional, and physical aspects of dizziness and unsteadiness.

There are all 25 questions including a 7-item physical subscale, a 9-item emotional subscale, and a 9-item functional subscale. Each question requests from patients to choose one response over three choices that are either yes (4 points), sometimes (2 points), or no (0 point). The minimum point can be 0 (suggesting no handicap) and the maximum point can be 100 (suggesting severe handicap). The scores are divided into three groups suggesting mild (0-29 pts), moderate (30-59 pts) handicap, and severe impairment (60-100 pts). The original version of the DHI demonstrated high internal consistency for total scale (α=0.89) and test-retest reliability (r=0.97) in a population of patients with dizziness[7].

MATERIALS and METHODS

This study with cross sectional design was conducted in the Universiti Sains Malaysia (USM), Malaysia.

Subject

Study patients had to suffer dizziness or unsteadiness associated with vestibular disorder. Patients aged from 18 to 60 years who were able to understand and communicate in Malay language were included in the study. Between February 2014, and May 2014, subjects were recruited from the Vertigo Clinic, Hospital Universiti Sains Malaysia. All patients that fulfilled the inclusion criteria were asked to participate in the study after they had signed the written consent form. For validity phase, the subjects included were experts and professionals in this field, family members, friends, and individuals from various backgrounds.

An ethical approval from Research Ethics Committee (Human) USM was obtained prior to the study.

Translation of DHI from English to Malay version

A well-established method suggested by World Health Organisation (WHO) to achieve this objective is by using forward and backward translation. Firstly, the forward translation of DHI from English into Malay version was performed by three qualified professionals consisting of medical doctors and university lecturers. They were given one week time to complete the translation on their own, without referring from others. After that, meetings were conducted to discuss the results of the translation. Then, the first version of myDHI was produced.

After that, a backward translation from Malay into English version was conducted by three qualified professionals. The procedure was the same as translators were given one week time to complete the translation by themselves and a meeting was conducted to discuss and compare the translated version with the original English version of DHI. Some issues were considered such as culture and community acceptance of terms used in the questionnaire and after performing the necessary corrections, the final version of myDHI was produced.

Content Validity

Content validity of the final translated DHI was assessed by individuals who were experts in this field. This process is important to ensure that the contents of questionnaire are appropriate and could produce reliable outcome.

Face Validity

Cultural issue should be considered in producing a valid questionnaire. Therefore, in investigating the cultural adaptation factor in myDHI, the questionnaire underwent face validation. It was conducted on normal subjects. The patients were asked to complete the questionnaire by themselves within an pre-determined time period. Then, subjects were asked and encouraged to give comments regarding the language used, their understanding and overall view about the questionnaire.

Test Reliability

In addition, a valid questionnaire should have a high internal consistency (reliability) to be able to use as a reliable tool in clinical setting. To serve this purpose, subjects were recruited and asked to complete the myDHI to determine the internal consistency of the myDHI. The data were then analyzed using Cronbach's alpha coefficient.

Statistical analysis

Descriptive statistics of the patients' characteristics were performed. To estimate the internal consistency of the myDHI, Cronbach's alpha coefficient was performed. The analyses were made using the SPSS version 21.

RESULTS

Translation of DHI from English to Malay version

Three qualified professionals were assigned for the forward and backward translation of the Dizziness Handicap Inventory from English to Malay version. The result showed that more than 80% of items were agreed by majority of the translators in both forward and backward translations.

Content validity

Ten subjects were recruited to complete the questionnaire to assess its content validity. All subjects were normal. The contents of this questionnaire were assessed by five experts in the field of audiology consisting of lecturers, audiologists, and ENT specialists. The contents of the questionnaire were assessed based on four factors which are relevancy, clarity, simplicity and ambiguity. Overall result, majority of them agreed that the contents of the qu-

estionnaire were relevant and covered all important elements in assessing handicapping effects caused by dizziness.

Face validity

In this stage, ten subjects from various backgrounds were recruited to assess the face validity of this questionnaire. All respondents were asked to give feedback regarding the language and format used in the questionnaire, as well as their overall understanding and appropriateness of the questionnaire for Malaysian population. This questionnaire showed good face validity as majority of respondents were able to understand the questionnaire well. Other than that, this questionnaire was also culturally acceptable based on the responses given by the respondents.

Test reliability

Researcher recruited 20 subjects with dizziness associated with vestibular problem to estimate the internal consistency of the questionnaire. However, data from only 14 subjects were analyzed and the other six subjects were excluded due to incompleteness. All subjects were recruited randomly in Vertigo Clinic, HUSM and most of them were Malaysian women

Table 1. Subjects' detail.

Demographic information		Frequency	Percentage
Gender	Female	10	71
	Male	4	29
Ethnicity	Malay	12	86
	Chinese	1	7
	Indian	1	7
Age	21-31	1	7
	31-40	1	7
	41-50	4	29
	51-60	8	57

Table 2. Internal consistency of total scale and each subscale.

	n	Cronbach's alpha
myDHI total scale	14	0.74
Physical subscale	14	0.37
Emotional subscale	14	0.67
Functional subscale	14	0.44

aged 51 to 60 years. The demographic details of subjects are described in Table 1. The Cronbach's alpha coeffiecients for internal consistency were 0.74 for the myDHI total scale and 0.37, 0.67 and 0.44 for the physical, emotional and functional subscale, respectively (see Table 2).

DISCUSSION

The translation of this questionnaire was done using the standard process of translation suggested by Yardley et al. and WHO. The translation process begins with forward translation and then follows with backward translation of the original version of the Dizziness Handicap Inventory. The final outcome of translation process showed that the myDHI was acceptable. The professionals involved in the translation process were medical and health science lecturers. In both forward and backward translations, more than 80% of the items were agreed by majority of the translators. This result was expected as the other translations into different languages also did not face any difficulty. This result may be attributed to simple and clear language.

The content validity assessment covered four elements in the questionnaire, which were relevance, clarity, simplicity and ambiguity. Based on the responses given by the experts, the researcher concluded that 15 items were considered as very relevant, 13 items as very clear, 10 items as very simple and lastly 13 items as having clear meaning.

Based on the results obtained, researcher concluded that majority of experts in this field agreed that the contents of the questionnaire were relevant, clear, simple and the meaning is clear. Other than that, the questionnaire also reportedly covered all important elements in dizziness. As a result, no amendment was done and all items were retained.

All respondents gave satisfactory feedback regarding the language and format used in the myDHI, their overall understanding and appropriateness of contents to populations in Malaysia. Based on the-

ir feedback, researcher concluded that the myDHI showed good face validity as the majority of respondents were able to understand this culturally acceptable questionnaire very well.

The internal consistency was estimated by using the Cronbach's Alpha coefficient (α). The myDHI showed acceptable internal consistency based on[8] alpha (α) value of 0.74. The Cronbach's Alpha coefficient for the myDHI was acceptable and the score were comparable to the original English version of DHI (α=0.89). Other than that, translation and cross-cultural adaptation of DHI into other versions also showed good and acceptable reliability. However, all subscales had small alpha values compared to other versions which might be due to inadequate sample size of the study. Tables 5. 2 below show the comparison of α value of the myDHI with original and other versions. This result proves that the translation and cross-adaptation of the DHI is unproblematic.

CONCLUSION

Standard translation process was performed and validity of the questionnaire was confirmed . In conclusion, the myDHI was established and the reliability of the myDHI was shown to be within acceptable range based on the classification by [8]. In addition of its good validity and acceptable reliability, this questionnaire is simple and easy to be administered. Based on the results obtained, the myDHI is valid and reliable to be used in clinical settings as a measure of disability in patients with dizziness and unsteadiness associated with vestibular problems.

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