Turkish Adaptation of Motor Activity Log-28

Motor Aktivite İzlemi-28 Ölçeği'nin Türkçe'ye Adaptasyonu

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Summary

Objective: The purpose of the work reported here was to provide a practical model for translation and cultural adaptation of a rehabilitation test instrument, while carrying out the Turkish adaptation of Motor Activity Log-28 (MAL-28). We translated the MAL-28 into Turkish in a manner that would allow the work carried out with Turkish speaking patients to be compared directly with the published studies using this instrument, which have mainly had English speaking subjects.

Materials and Methods: The translation and cultural adaptation were carried out according to the International Society for Pharmacoeconomics and Outcomes Research guideline (ISPOR) using the following steps: forward translation, reconciliation, back translation, back translation review, harmonization, cognitive debriefing, review of cognitive debriefing test results and finalization. The participants were thirteen eligible patients chosen from a total of 21 post-stroke patients.

Results: Twenty-two of the 28 items were identical in the three forward translations, while six required minor modifications to make them appropriate for use in Turkish-speaking patients.

Conclusion: A practical model for translation and cultural adaptation of the MAL-28 into Turkish was employed. The translated and adapted test proved to be easily understood by the patients and interviewer. *Turk J Phys Med Rehab 2010;56:1-5.*

Key Words: Stroke, rehabilitation, cultural adaptation, translation, Motor Activity Log 28, constraint-induced movement therapy

Özet

Amaç: Bu çalışmanın amacı, Motor Aktivite İzlemi -28 (MAİ-28) ölçeğinin Türkçe'ye adaptasyonunu yaparken, rehabilitasyon alanında kullanılan bir değerlendirme ölçeğinin çevrilmesi ve kültürel adaptasyonu için pratik bir örnek sunmaktır. MAİ-28 ölçeğini, Türkçe konuşan hastalarda yapılan çalışmaların, genel olarak İngilizce konuşan hastalarda yapılmış çalışmalarla karşılaştırılmasına olanak sağlayacak şekilde Türkçe'ye çevirdik.

Gereç ve Yöntem: Çeviri ve kültürel adaptasyon Uluslararası Farmakoekonomi ve Sonuç Araştırma Derneği kılavuzuna göre aşağıdaki basamaklar takip edilerek yapılmıştır; İleri çeviri, uzlaşma, geri çeviri, geri çevirinin gözden geçirilmesi, uyum sağlama, bilişsel sorgulama, bilişsel sorgulama sonuçlarının gözden geçirilmesi ve sonuçlandırma. Katılımcılar inme nedeniyle hemipleji kliniği olan 21 hasta arasından seçilen 13 vakadan oluşmuştur.

Bulgular: Ölçekteki 28 maddeden 22'si yapılan üç ileri çeviride de birbirinin aynısı iken, 6 maddede Türkçe konuşan hastalara uygun hale getirmek için küçük değişiklikler yapılması gerekli oldu.

Sonuç: MAİ-28'in Türkçe'ye çevirisi ve kültürel adaptasyonu için pratik bir örnek uygulandı. Çevirisi ve adaptasyonu yapılmış ölçeğin hastalar ve uygulayıcılar tarafından kolaylıkla anlaşılabildiği kanıtlandı. *Türk Fiz Tıp Rehab Derg 2010;56:1-5.*

Anahtar Kelimeler: İnme, rehabilitasyon, kültürel adaptasyon, çeviri, Motor Aktivite İzlemi 28, zorunlu kullanım tedavisi

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Turk J Phys Med Rehab 2010;56:1-5
Türk Fiz Tıp Rehab Derg 2010;56:1-5

Introduction

Throughout the world, a wide range of therapeutic interventions is used in the field of rehabilitation. There is also a broad range of outcome measures available to evaluate the efficacy of treatment. However, when we wish to identify the most effective treatment modalities at the international level, we need outcome measures which are convenient for this purpose. In this context, translation of outcome measures into other languages and cross-cultural adaptation are important as far as standardization in rehabilitation is concerned. An adequate translation and cross-cultural adaptation become essential to determine whether or not different language versions of such measures are truly equivalent. Poorly translated instruments threaten the validity of research data and the meaningful accumulation of global data sets (1,2).

Stroke is one of the leading causes of death and serious long-term disability. Impaired motor dysfunction, especially upper limb hemiparesis, is a major consequence and primary impairment underlying disability after stroke. Because of its impact on ability to perform activities of daily living, interventions to reduce upper limb hemiparesis have a priority (3,4).

Commonly used measures of upper limb function after stroke assess motor capacity in laboratory settings. However, studies have shown differences between what patients can do with their more impaired arm and how much they actually use it in a life situation. The motor activity log-28 (MAL-28) is a structured interview to evaluate actual use of the more impaired arm outside the treatment setting (5).

The population of Turkey is approximately 70 million and almost 5 million people are over 65 years. Life expectancy in Turkey is about 70 years (6). Stroke is a growing health problem in our country and clinical trials of the rehabilitation of stroke survivors are gradually increasing.

In order to contribute to the standardization of future rehabilitation clinical trials involving several countries in which different languages are spoken, we translated the MAL-28 into Turkish and culturally adapted it using the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) guidelines. There are numerous guidelines that have been used for this purpose, resulting in a lack of consistency in terminology. The ISPOR - Translation and Cultural Adaptation group (TCA group) guideline represents an attempt to synthesize the existing major guidelines and create a user-friendly version (2), which will eliminate the widespread confusion regarding the appropriate procedure to use.

The present study was carried out to provide a practical model for the translation and cultural adaptation of a rehabilitation test to aid in the standardization of future international clinical trials and cross-cultural comparison of results. Specifically we translated the MAL-28 into Turkish and culturally adapted it.

Materials and Medhods

Motor Activity Log-28

MAL is a structured interview developed by Taub et al. (7) to measure the effects of Constraint-Induced Movement Therapy (CIMT) on actual use of the more impaired arm outside the treatment setting in individuals with stroke. It also has the potential for use in upper extremity rehabilitation interventions other than the CIMT, because it has a comprehensive structure. During the interview, patients are asked to rate how well (quality of movement scale) and how much (amount of use scale) their more-impaired arm was used to accomplish each of 28 activities of daily living. When available, the MAL is also administered independently to an informant who is usually a participant's primary caregiver. Both MAL scales are anchored at six points (0-never used, 5-same as pre-stroke), and participants may select scores halfway between the anchors. Scale totals are the mean of the item scores. The original version of the MAL had 14 items. Subsequently, some new items were added and some were replaced to include activities of daily living (ADL) that might be accomplished by individuals with greater impairment of their hemiparetic limb than participants in early CIMT studies. Lastly, the 28 item version of the MAL was found reliable and valid for stroke survivors. Interview procedures were also more explicitly codified; current interview procedures are presented in the MAL testing manual (7-11).

Procedure

We employed the ISPOR guideline for the translation and cultural adaptation of the MAL, because of its user-friendly format and practical step-by-step procedure (2).

Step 1. Preparation

Initial contact was established with the developer (Dr. Edward Taub) to obtain permission for translation and cultural adaptation of the instrument and he was invited to be involved in the study in order to remove any ambiguities and to clarify the concepts behind the items. Having been granted the developer's permission and commitment for the contribution, the project manager prepared information about the conceptual basis for the items in the measure to be used by the translators in the process.

Step 2. Forward Translation

Three independent translators translated the MAL-28 into Turkish. The first translator was the project manager [physical medicine and rehabilitation (PMR) specialist]; the others were another PMR specialist and a linguist (out of discipline).

Step 3. Reconciliation

An expert group consisting of the project manager, a PMR specialist (second forward translator), a physiotherapist, a consultant psychiatrist, a clinical nurse, and a linguist prepared a consensus version from the three independent forward translations.

Step 4. Back Translation

The consensus version was translated back into English by an independent native speaker of English who lives in Turkey and is fluent in Turkish. He had not been involved with the forward translations. The primary purpose of the back translation process was to provide a quality-control step so as to ensure that the meaning of the source version was preserved in the translation, as would be indicated when the translation was moved back into the source language.

Step 5. Back Translation Review

The same expert group reviewed the back translation and problematic items were identified.

Step 6. Harmonization

The project manager again had a contact with the developer and requested him to review the back-translated version and refine the conceptually problematic items that the expert group had defined. The developer's contributions were then discussed with the expert group before the cognitive debriefing (pilot testing).

Step 7. Cognitive Debriefing (Pilot Testing)

The pilot testing was performed on a group of stroke survivors in order to assess the comprehensibility of the pilot version and identify any issues that cause confusion. ISPOR guidelines advise pilot testing of the new translation on a group of 5 to 8 patients who are drawn from the target population. In this study, the inclusion criteria were as follows: more than six months post-stroke, Mini-Mental test score higher than 24, at least 20 degrees of wrist extension and 10 degrees of extension at each of the fingers. In order to choose 8 patients for the cognitive debriefing, 21 patients were selected from the GATA Haydarpaşa Training Hospital Physical Medicine and Rehabilitation (PMR) Department's outpatient records. Information about the study was given to the patients during a telephone call and 17 patients, who agreed to participate, were invited to take part in the project. At the evaluation, a detailed physical examination was performed and the Mini-Mental test was administered. Thirteen patients were found suitable for the study. Patient characteristics are presented in the table (Table 1). After full information on the project was provided and the consent of the patients was obtained, the MAL interview was carried out. First, the amount of use scale was administered, then the demonstration video was shown and finally the quality of movement scale was administered.

Step 8. Review of Cognitive Debriefing Results and Finalization

The project manager, the other PMR specialist and the physiotherapist reviewed the results of the cognitive debriefing and discussed translation modifications in relation to respondents' comments in order to improve the accuracy of the translation. The translation was then finalized.

Step 9. Proofreading

After the final check for minor errors of spelling and grammar had been conducted, the translated instrument to be used with the target population was established (Appendix 1).

Step 10. Final Report

The project manager wrote a final, detailed report on the methodology used.

Results

As noted, the expert group discussed the three forward translations and derived a consensus version of the MAL-28. Twenty-two item forward translations were identical in the three versions. The expert group had some discussion on 6 items. On the 4th, 20th and 26th items the verb "pick up" is used to define the different activities. In Turkish, there are several verbs that can be used for these activities. The expert group tried to choose the best verb to give the exact meaning and decided to use "tutup kaldırma" on the 4th and 26th items to define "pick up phone" and "pick up a cup by a handle", respectively. The expert group also preferred "tutup alma" on the 20th item to define "pick up a glass, bottle, drinking cup, or can".

The 8th item, "open a door by turning the door knob", was ambiguous because door knobs are rare in Turkey and Turkish people are familiar with "door handle". Although the movements of the wrist and fingers are not identical in the usage of a knob and a handle, the aims of the movements and contributions to the activities of the daily living are the same. Therefore, the expert group preferred to use "door handle" instead of "door knob" in the consensus version. In item 11, "turning water on/off with knob/lever on faucet", the expert group considered that there was no need to use the term "knob/lever" because "musluğu açma kapama", which means "turning water on/off on faucet," was regarded appropriate for describing the activity. In item 28, "eat half a sandwich and finger foods", instead of "half a sandwich" the term "bir sandviç" which means "a sandwich" was chosen to conform to common usage. Also, the term "finger foods" does not have an identical synonym in Turkish; therefore, the term "elle yenebilen yiyecekler" ("foods that can be eaten by using hand") was employed and an explanatory example "like chips" was added.

The expert group considered that the term "weaker arm" in the MAL scales might be confusing or might be insufficient to describe the affected arm, because the commonly used terms in Turkish are "etkilenen kol" which means "affected arm" and "felçli kol" which means "paralyzed arm". The expert group also considered that the term "paralyzed arm" might have a negative effect on some patients' mood or perception of their motor ability; therefore, the term "etkilenen kol" ("affected arm") was chosen for the consensus version.

The consensus version was sent to the native speaker to assess the back translation and his comments were discussed by the expert group. All of the items were identical or almost identical in the back translation, therefore, the expert group decided to send the back-translated version to be checked out by the developer. In particular, the developer was asked to evaluate the use of "door handle" instead of "door knob" and "affected arm" instead of "weaker arm" and also the modification of item 28 (use of "a sandwich" and the explanatory phrase of "finger foods").

The developer's evaluation of the modifications was positive and he advised that they might be pilot tested in order to determine if they were clear to the patients. The pilot version of the MAL-28 was then deemed ready for cognitive debriefing.

All 13 patients, eligible for participation in this phase of the work, were given the test and all of them were able to complete it. The interviews lasted 47 to 61 minutes (including 14 minutes in which the MAL scoring demonstration video was watched). All patients found the procedure to be clear and well arranged, the items were easily understood, and the response

Table 1. Patient characteristics.

Sample size (n)	13
Age (years)*	61.7±10.9
Time post-stroke (months)*	18.3±21.4
Mini-Mental test score*	26.9±2.4
Etiology	
-Ischemic	10
-Hemorrhagic	3
Affected side	
-Dominant	5
-Non-dominant	8

*Mean±SD

category options appropriate. In particular, modified items were discussed with patients and the expert group proposals were explained to them.

The first five patients needed some extra explanation during the instruction period about the rating scales. Therefore, an extra sentence was added: "The scales are divided into six response categories between (0) and (5)", and an example of half ratings was given. These explanations were satisfactory for the patients and they did not express any further problems concerning the instructions.

In terms of content validity, all participants said that the items covered the essential activities of daily living that were affected by their stroke.

The project manager, the other PMR specialist and the physiotherapist reviewed the results from the cognitive debriefing. They then made final modifications based on the respondents' comments, and finalized the translation.

Discussion

The overall aim of this study was to provide an appropriate model for the translation and cultural adaptation of a rehabilitation test instrument. In particular, we generated a Turkish version of the MAL-28 that is equivalent to the original and is relevant to the Turkish culture. The ISPOR guideline followed for this process is a synthesis of 12 different previous guidelines made by a "Translation and Cultural Adaptation Group" formed by ISPOR (2). This guideline is clear and easy to administer. Although this guideline was developed for patient-reported outcomes and the MAL-28 is a structured interview instrument, we selected this guideline due to its clear applicability.

The interview format might be an advantage of the MAL-28, because the self-reporting format on a non-interview basis might decrease the response rate in an elderly population of stroke patients (12) and might not uncover errors in interpretation by subjects that might be present.

We found that 22/28 of the items could be translated without change into Turkish. Minor changes were required in six items because of cultural differences. In three items, the verb "pick up" was adapted by using a verb which specifies the intended activity appropriately in Turkish. The usage of "door handle" instead of "door knob" in item 8 proved to be more understandable to Turkish subjects during pilot testing. It was mentioned previously that the movements of the hand and fingers are not exactly the same during the use of these two objects, but the contribution that the use of both objects make to the intended ADL is the same. Also, in item 11, the omission of the term "knob/lever" in relation to turning off a faucet caused no problems; the item was easily comprehensible to the patients. The ambiguity caused by the term "finger foods" was dealt with by using a term that was more understandable to a Turkish audience. The use of the term "affected arm" instead of "weaker arm" did not cause any confusion. The same usage was also seen in a previous study with English-speaking subjects (13).

Initially, the aim was to involve 5-8 patients for pilot testing in conformity with the ISPOR guideline. However, more patients were willing to participate in the study. Therefore, all of the eligible patients were employed for pilot testing since it was felt that the increased number of the patients would enhance the potential power of the results.

Conclusion

A Turkish version of the MAL-28 was translated from English and culturally adapted for use in a Turkish environment using the ISPOR guideline. Stroke patients given the Turkish translation had no difficulty in understanding the instructions, any of its terms, or its rating scales, and the interviewer had no difficulty in administering the test. In addition, no difficulty was encountered, while employing the ISPOR guideline. Thus, this study might be considered a model for the future translation and cultural adaptation of other instruments into languages other than the one in which it was originally formulated. Studies of the long term reliability, validity and sensitivity to change of this new Turkish version of the instrument are needed in the future.

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APPENDIX 1.

Item	Original Version (English)	Back Translation (English)	Final Version (Turkish)
1	Turn on a light with a light switch	Turn on the light using the power switch	Elektrik düğmesi ile ışığı açma
2	Open drawer	Open the drawer	Çekmece açma
3	Remove an item of clothing from drawer	Take an article of clothing from the drawer	Çekmeceden bir giysi çıkarma
4	Pick up phone	Pick up the telephone	Telefon ahizesini tutup kaldırma
5	Wipe off a kitchen counter or other surface	Wipe the kitchen counter or another surface	Mutfak tezgahı ya da başka bir yüzey silme
6	Get out of a car	Get out of a car	Arabadan inme
7	Open refrigerator	Open the refrigerator door	Buzdolabını açma
8	Open a door by turning a door knob	Open a door by using a door handle	Kapı kolu kullanarak kapıyı açma
9	Use a TV remote control	Use a TV's remote control	TV uzaktan kumandasını kullanma
10	Wash your hands	Wash your hands	Elleri yıkama
11	Turning water on/off with knob/lever on faucet	Turn on-off the sink's faucet	Musluğu açma kapama
12	Dry your hands	Dry your hands	Elleri kurulama
13	Put on your socks	Put on your socks	Çorapları giyme
14	Take off your socks	Take off your socks	Çorapları çıkarma
15	Put on your shoes	Put on your shoes	Ayakkabı giyme
16	Take off your shoes	Take off your shoes	Ayakkabı çıkarma
17	Get up from a chair with arm rests	Get up from an arm chair	Kolçaklı bir sandalyeden kalkma
18	Pull chair away from table before sitting down	Pull your chair away from the table before sitting	Oturmadan önce sandalyeyi masadan çekme
19	Pull chair toward table after sitting down	After sitting down pull your chair up to the table	Oturduktan sonra sandalyeyi masaya doğru çekme
20	Pick up a glass, bottle, drinking cup, or can	Pick up a glass, bottle, cup or can	Bir bardak, şişe, kupa ya da konserve kutusu tutup alma
21	Brush your teeth	Brush your teeth	Diş fırçalama
22	Use a key to unlock a door	Use a key to open a door	Kapı açma için anahtar kullanma
23	Carry an object in your hand	Carry an object in your hand	Elinde bir objeyi (cismi) taşıma
24	Use a fork or spoon for eating	Use a fork or a spoon for eating	Yemek için çatal ya da kaşık kullanma
25	Comb your hair	Comb your hair	Saç tarama
26	Pick up a cup by a handle	Take a cup by the handle	Kulplu bardak ya da fincanı kulpundan tutarak kaldırma
27	Button a shirt	Button your shirt	Gömlek ilikleme
28	Eat half a sandwich or finger foods	Eat a sandwich or finger foods (like chips) by using hands	Sandviç ya da elle yenebilen yiyecekleri (patates kızartması gibi) elle yeme