

## Reproducibility of the Persian Version of the ABILOCO Questionnaire for Stroke Patients

### Abstract

**Background:** The ABILOCO is a questionnaire assessing and measuring the locomotion ability to perform activities daily living from easy to hard in stroke patients. **Methods:** The ABILOCO was translated into Persian and retranslated into English. Forty hemiplegic stroke patients with an average age ( $60 \pm 7.5$  years) participated in the study. The participants were interviewed using ABILOCO and were assessed by the interviewer and observer. The total logit score of the participants was also assessed by using the interclass correlation coefficient (ICC). **Results:** The results were showed the high correlation between the first interview of interviewer and the observer ( $ICC = 0.8, P < 0.05$ ). In addition, a strong relationship was observed between the interviewer's first and second interviews after a week ( $ICC = 0.85, P < 0.05$ ). **Conclusions:** The Persian edition of ABILOCO is reliable to assess walking ability of stroke patients in clinics and studies.

**Keywords:** ABILOCO questionnaire, CVA, stroke

### Introduction

Stroke is one of the most common neurological disorders,<sup>[1]</sup> resulting in chronic functional disability.<sup>[2,3]</sup> Stroke patients experience difficulties of walking and moving even the following rehabilitation treatment. Patients' locomotion ability is assessed by various methods such as the walking analysis, walking observation, and self-report analysis.<sup>[4]</sup> One way of assessing the locomotion ability is questionnaire, being inexpensive, time-saving, and easier to use. ABILOCO consists of a 13-item Rasch-built questionnaire designed to assess the locomotion ability of adult patients with stroke.<sup>[5-7]</sup>

ABILOCO is a unidimensional questionnaire linearly assessing and measuring the locomotion ability to perform activities of daily living from easy to hard. The cross-cultural validity of the ABILOCO was approved to assess locomotion in adult stroke patients,<sup>[8]</sup> but no standard Persian ABILOCO questionnaire is available.

### Participants and Methods

This questionnaire was translated into Persian with the permission of Caty *et al.*, the first authors of this scale [Table 1].<sup>[6]</sup> Another therapist translated the Persian ABILOCO

version into English to compare it with the original version. Those parts of the Persian to English translation that did not comply with the original questionnaire were re-translated and compared until a translation similar to the original version was obtained. Forty patients (25 male and 15 female patients) who had been suffering from stroke for 3 to 6 months (chronic phase) with an average age of  $60 \pm 7.5$  years participated in this study. Furthermore, before setting the study, the research method was explained to the patients and then the patients signed consent forms. All of the participants were assessed twice with a one-week break by means of interviews using a questionnaire. To assess the inter-test consistency of the scale, the questionnaire was completed after a week by the interviewer similar to the first assessment. The raw information for each assessment was collected and analyzed online using a website introduced by the original author of ABILOCO and the Rasch analysis method to obtain the final logit value.<sup>[6]</sup>

The data were analyzed by 18 version of SPSS (SPSS Inc., USA). The interclass correlation coefficient (ICC) in the intra-rater test (between the observer and interviewer) and the inter-rater test (between the interviewer's first and second interviews) was used.

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Daryoush Didehdar<sup>1,2</sup>,  
Ameneh Kharazinejad<sup>3</sup>

<sup>1</sup>School of Medicine, Zabol University of Medical Sciences, Zabol, Iran, <sup>2</sup>School of Para Medicine, Yasuj University of Medical Sciences, Yasuj, Iran, <sup>3</sup>Dentistry School, Yasuj University of Medical Sciences, Yasuj, Iran

**Address for correspondence:**  
Dr. Daryoush Didehdar,  
School of Rehabilitation  
Sciences, Shiraz, Iran.  
E-mail: [daryoush1383@yahoo.com](mailto:daryoush1383@yahoo.com)

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## Results

The original ABILOCO questionnaire was translated into Persian and re-translated into English to draw a comparison between the translated version and the original version. No significant difference was observed between the different parts of the ABILOCO after translating the original ABILOCO into Persian and re-translating it into English.

**Intra-rater reliability:** The calculated total logit ABILOCO score showed a high correlation between the first visit of the interviewer and the observer ( $P < 0.05$ , ICC = 0.83) [Chart 1].

**Inter-rater reliability:** The logit score of the ABILOCO scale revealed the strong inter-rater correlation between the interviewer's first and second visits ( $P < 0.05$ , ICC = 0.85) [Chart 2].

## Discussion

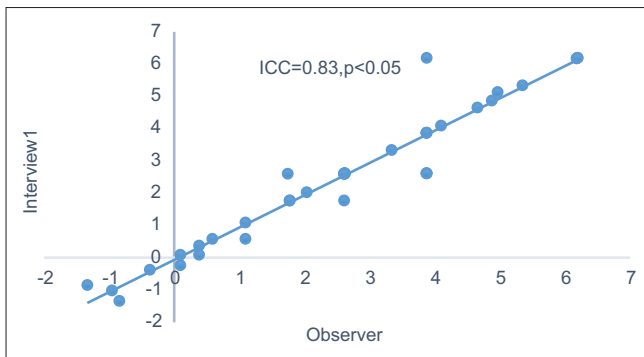
The ABILOCO scale is used to assess the locomotion ability of the patients at home and in treatment centers and societies. The ABILOCO scale has the following advantages over the similar questionnaire<sup>[9-12]</sup>:

1. It can be completed more easily, quickly, and inexpensively

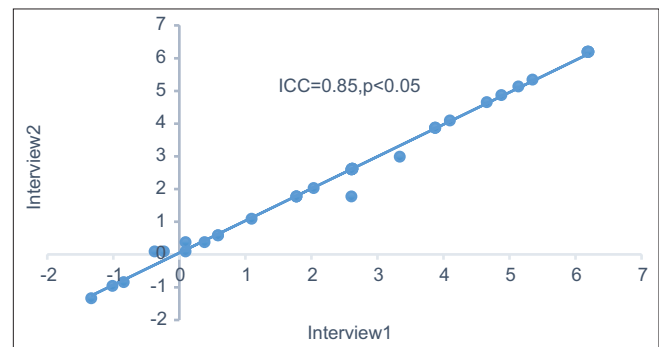
2. It is capable of assessing the mobility of patients and their limited participation in real-life activities
3. It allows for the regular assessment of a large number of patients.<sup>[5]</sup>

The reliability and validity of the ABILOCO have been assessed and confirmed in the previous research.<sup>[5-8]</sup> In addition, the reproducibility of the Korean translation of the scale was examined and confirmed.<sup>[7]</sup> Similar to the previous research,<sup>[5-7]</sup> the present research results reflected the high correlation between the data recorded using the Persian ABILOCO version by the observer and the interviewer's first interview (ICC = 0.83), and the correlation between the first record and the data after a week by the interviewer (ICC = 0.85). According to these results, the Persian translation of the ABILOCO scale was accurate, and this measure could be used to assess stroke patients.

The advantage of the ABILOCO is that 10 various combinations of questions are arranged randomly in this questionnaire to reduce the learning effect.<sup>[6,13]</sup> Moreover, its value can be changed to a quantity of logit value to provide statistical comparisons.<sup>[7]</sup> In any case, this questionnaire cannot assess the mental and psychological behavior of patients, and thus stroke patients with mental



**Chart 1:** Correlation between interviewer first visit and observer



**Chart 2:** Correlation between interviewer first and second visits

**Table 1: ABILOCO questionnaire**

Could you estimate your ability to realize the following activities?		Impossible	Possible	?
1	Going up an escalator alone.			
2	Hopping on the healthy foot			
3	Going upstairs putting each foot on the next step.			
4	Walking backwards.			
5	Striding over an object with the paretic foot first.			
6	Striding over an object with the healthy foot first.			
7	Walking more than 5 m alone, indoors, on flat ground without assistive device			
8	Walking with the help of a person who guides but does not support			
9	Walking <5 m with the help of a person to support			
10	Walking while holding a fragile object (such as a full glass)			
11	Walking less than 5 m alone without the help or supervision of a person.			
12	Turning and walking in a narrow space.			
13	Walking <5 m, indoors, holding pieces of furniture			

and psychological conditions cannot be assessed by this questionnaire.

In conclusion, the ABILOCO has good quality in assessing the locomotion ability of stroke patients. It is also reliable, economical, and clinically applicable.<sup>[6,7,14]</sup> The results of the current study revealed that the Persian translation of ABILOCO had high reproducibility of intra-rater and inter-rater tests similar to the original ABILOCO.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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