Original Article

Journal of Iranian Medical Council, Volume 6, Issue no. 4
http://dx.doi.org/10.18502/jimc.v6i4.13447

Translation and Cultural Adaptation of Constant Score into Persian

Morteza Nakhaei Amroodi[1], Keihan Mostafavi[1], Amir Sobhany[1], Leila Oryadi Zanjani[1], Zahra Rahimi Khalifeh Kandi[2], Fatemeh Montazer[1], Sheila Yousefi[1] and Pouria Tabrizian[1]*

1. Bone and Joint Reconstruction Research Center, Department of Orthopedics, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Department of Education and Health Promotion, School of Health, Iran University of Medical Sciences, Iran University of Medical Sciences, Tehran, Iran

*** Corresponding author**
Pouria Tabrizian, M.D.
Bone and Joint Reconstruction Research Center, Department of Orthopedics, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
Tel: +98 21 3354 2001
Email: tabrizian.pouria@gmail.com

Received: 20 Dec 2022
Accepted: 15 May 2023

Citation to this article:
Nakhaei Amroodi M, Mostafavi K, Sobhany A, Oryadi Zanjani L, Rahimi Khalifeh Kandi Z, Montazer F, *et al*. Translation and Cultural Adaptation of Constant Score into Persian. *J Iran Med Counc.* 2023;6(4):674-78.

Abstract

Shoulder disorders are one of the most common problems in orthopedic patients. With the development of shoulder disease treatment methods and the invitation of new therapies, the need for a standard tool to assess shoulder function increases. One of these tools is a questionnaire that should have acceptable reliability and validity. Constant Score (CS) is one of the first shoulder scoring systems that has been used as the most common scoring system to assess shoulder disorders. This questionnaire was redeveloped in 2008 with a change in terms and methodology and is currently in use in many countries. Due to the lack of a Persian version, this questionnaire is used in inaccurate translation without any specific and standard instructions in Iran right now. As a result, this study provides a complete and standard translation of this questionnaire.

Keywords: Humans, Iran, Persian people, Reproducibility of results, Shoulder, Surveys and questionnaires

Introduction

Shoulder disorders constitute one of orthopedic patients' most common chief complaints. To assess the performance of shoulder joint and clinical functional evaluation, we need standard assessment tools with high validity and reliability, one of which is a questionnaire (1,2). Constant Score (CS) is one of the first and widely performed shoulder scoring systems which has been used by the European Society of Shoulder and Elbow Surgery (ESSE) and the magazine of shoulder and elbow surgery for research contexts and has been translated and adapted to different languages and cultures (3–5) However, the original transcript of this scale has been criticized due to the lack of standardization of methodology. Récourt and his team demonstrated that Constant Score has high validity but needs standardization which led to the republished in 2008 with terminology and methodology conversions (modified Constant Score) (4,6) In 2012, Blonna *et al* demonstrated that the modified questionnaire has high inter and intra-observer reliability (7) Due to its importance and wide use, this questionnaire has been adapted many times to different languages and cultures (8–10). The constant score questionnaire consists of a self-evaluation section of pain and function which is patient self-reported (4).

According to the nonexistence of a Persian version, this questionnaire with inaccurate translation is currently used in Iran without any specific and standard instructions. As a result, the purpose of this study is to provide a standard and easy-to-use test protocol translation of this questionnaire into Persian with the recommendation guideline translation and cross-cultural adaption.

Materials and Methods

Persian version of CS questionnaire is composed of two sections, one simple questionnaire for patients and detailed instructions as a questionnaire supplement for the examiner (physician).

Modified Constant Score (CS) questionnaire was translated and culturally assimilated according to the Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures which is composed of six stages (11).

Stage 1. The initial translation was done by two independent Persian translators who spoke Persian as their mother tongue. The first translator was an academically informed translator who had a thorough knowledge of the questioner's setting (functional disability or neck and shoulder disorders). The second translator, who was known as a naive translator, was a native translator who was not aware of the academic points of view.

Stage 2. Synthesis of translation: both interpretations and the original questionnaire were discussed and analyzed in a meeting by translators and the researcher. A clarified united translation was created by pointing out the variances and undersupplies of each translation.

Stage 3. Backward translation: the unified translation was translated backward into English by two independent native English translators without any background knowledge of the primitive English version (preferably without any medical background). This revealed whether the translated transcript served the same content as the initial one.

Stage 4. Expert committee: the creation of this advisory group is vital to the accomplishment of culturally diverse proportionality. A group consisting of researchers, methodologists, translators and orthopedic surgeons assessed all the records and interpretations (T1, T2, T12, BT1, BT2) and analyzed divergences. Subsequent to discussing the irregularities and making the social changes an assent closed form of the survey was supported. The expert committee made decisions in four areas:

Semantic Equivalence: Do the words mean exactly the same thing? Are there numerous implications for a given thing? Are there linguistic hardships in the interpretation?

Idiomatic Equivalence: Idioms are difficult to translate. The council might need to plan a comparable articulation in the objective rendition.

Experiential Equivalence: Things that are experienced in a day-to-day life; though, often in a different country, a task may simply not be experienced. The poll item would need to be supplanted by a comparative thing that is as a matter of fact experienced in the objective culture.

Conceptual Equivalence: words may have diverse conceptual meanings among cultures.

The interpreters ought to likewise ensure that the final

questionnaire would be implicated by a 12-year-old (roughly a Grade 6 level of reading).

Stage 5. Test of the Pre-Final Version: people filled in personal information and the questionnaire. They were interviewed to describe the meaning they acknowledged by each question and the answers.

Stage 6. Submission of documents to the developers: all forms and translations were submitted to keep a track of all the records.

Statistical methods

The statistical analysis was carried out with the assistance of SPSS 22 (IBM Corp., Armonk, New York, USA) for Windows. A p-value of less than 0.05 was deemed statistically significant.

Interclass correlation (ICC) and standard error of measurement (SEM) were used to evaluate the Persian CS scale's test-retest reliability. The ICC measurement ranges from 1 (completely reliable) to 0 (completely unreliable); in addition, alpha Cronbach's coefficient was used for measured internal consistency's scale including function and pain in CS questionnaire. This coefficient shows how the inquiries of the examiner are connected. The acceptable value for ICC and alpha Cronbach's were determined 0.7.

To obtain demographic characteristics (descriptive data), mean, standard deviation, frequency and percentage were used.

Results

The study revealed that there were no paramount contradictions in the translation and only some minor modifications were applied due to lingual and cultural diversities. In the modified instruction, we used a visual analog scale with a sliding command to evaluate the elements of pain and daily activities, but it has not been commercialized and is not available for clinical means. Instead, we chose a 15-item pictorial scale on paper for pain and activities which were self-administered to calculate the score. Content validity was used to determine the validity of this questionnaire. The content Validity Ratio (CVR) and Content Validity Index (CVI) were utilized to determine the clarity, simplicity and correlation of each question. All the questions of the questionnaire were approved by 10 orthopedic surgeons.

In the present study, 84 patients with shoulder disabilities were studied with an average age of 52.42±15.2, and their demographic characteristics are revealed in table 1.

Cronbach's alpha was used to measure the internal consistency of the data after corrections, this index for the entire questionnaire, which includes 10 questions, is 0.811 and shows the appropriate and acceptable consistency of the questions (Table 2). 30 patients with shoulder disability were observed after 24 *hr* of no treatments for test-retest. The Intraclass Correlations Coefficient for the questionnaire was 0.962. Statistical analysis showed acceptable reliability for the questionnaire (Table 3). ICC calculation for the questionnaire (n=84) and Cronbach's alpha coefficient was equal to 0.97 (Table 4).

Table 1. Demographic characteristics of the patients (n=84)

Age		Number (percent)	Mean 52.42±15.2
Sex	Men	41 (48.8)	
	Female	43 (51.2)	
Hand	Right	79 (94)	
	Left	5 (6)	
Diagnosis	Frozen shoulder	28 (33.3)	
	Rotator cuff tears	41 (48.8)	
	Bankart	15 (17.9)	
Severity	Left	23 (27.4)	
	Right	61 (72.6)	

Table 2. Cronbach's alpha value of the questionnaire (n=84)

Question	Std. deviation	Mean	Cronbach's Alpha
1	2.28	6.60	0.811
2	0.83	0.60	
3	0.63	2.61	
4	0.64	2.45	
5	2.16	6.57	
6	2.02	5.61	
7	1.82	5.92	
8	2.38	5.47	
9	2.03	5.21	
10	2.80	4.71	

Table 3. The Intraclass Correlations Coefficient for the questionnaire

Question	R	p
1	0.792	p<0.001
2	0.957	p<0.001
3	0.886	p<0.001
4	0.701	p<0.001
5	0.880	p<0.001
6	0.861	p<0.001
7	0.798	p<0.001
8	0.931	p<0.001
9	0.952	p<0.001
10	0.894	p<0.001
	0.962	p<0.001

Persian translation of the CS score with both cultural and lingual adaptations. This procedure only showed minor dissimilarities in phrasing and perception and the pre-test conveyed both patients' and specialists' approval of the content of the translation. However, cognitive revision patients were only a minimal group with shoulder disabilities which was not totally concordant with the target population which aimed at all sorts of shoulder problems. Some shortcomings of the standardized CS score were confirmed in the conclusion of the study. However, CS score has been broadly supported and ought to be utilized until a more solid and substantial examiner could be accessible, and at the moment, it is thought to be the best score for evaluating overall shoulder function. Due to the possibility that it is irrelevant or that

Table 4. ICC calculation for the questionnaire (n=84)

	Mean±SD	Cronbach's Alpha	Lower bound	Upper bound	ICC
TEST1	45.8107±11.6	0.979	0.954	0.981	0.970
TEST2	43.7440±10.6				

Discussion

The CS is a popular tool for determining the shoulder's functional status. The ESSSE suggested it as a way to compare shoulder function before and after treatment as an outcome measure. Such an index should be founded on well-designed reliability in order to be useful. There has been a lot of room for interpretation in the Constant score due to the vague language and poorly defined methods. Blonna *et al* demonstrated in 2012 that the Constant Score has high validity but requires standardization, which resulted in its republishing in 2008 with new terminology and methodology (modified Constant Score) demonstrating that the modified questionnaire was highly reliable both within and between observers (7). The current study is a standardized there are limitations in some instances, it is unclear whether CS applies to all shoulder disabilities. Before putting the standardized test protocol into widespread clinical use, it is advised to demonstrate its validity in all subgroups of shoulder disabilities.

Conclusion

The CS questionnaire was successfully adapted to Persian culture (Supplementary 1), with specific definitions for each term. It is proposed to involve our standardized Persian questionnaire for Iranian and Persian-speaking patients with shoulder disorders.
Also, a form for physicians was created, which can be used to check patients' forms more easily and quickly (Supplementary 2).

References

1. Anderson RT, Aaronson NK, Wilkin D. Critical review of the international assessments of health-related quality of life. Qual Life Res 1993 Dec;2(6):369-95.

2. Iannotti JP, Williams GR. Disorders of the shoulder: diagnosis & management. 1st ed. Lippincott Williams & Wilkins; 2007.

3. Constant CR, Murley AH. A clinical method of functional assessment of the shoulder. Clin Orthop Relat Res 1987 Jan;(214):160-4.

4. Constant CR, Gerber C, Emery RJ, Søjbjerg JO, Gohlke F, Boileau P. A review of the Constant score: modifications and guidelines for its use. J Shoulder Elbow Surg 2008 Mar-Apr;17(2):355-61.

5. Conboy VB, Morris RW, Kiss JE, Carr AJ. An evaluation of the Constant-Murley shoulder assessment. J Bone Joint Surg Br 1996 Mar;78(2):229-32.

6. Rocourt MH, Radlinger L, Kalberer F, Sanavi S, Schmid NS, Leunig M, *et al* Evaluation of intratester and intertester reliability of the Constant-Murley shoulder assessment. J Shoulder Elbow Surg 2008 Mar-Apr;17(2):364-9.

7. Blonna D, Scelsi M, Marini E, Bellato E, Tellini A, Rossi R, *et al* Can we improve the reliability of the Constant-Murley score? J Shoulder Elbow Surg 2012 Jan;21(1):4-12.

8. Carosi M, Galeoto G, Gennaro SD, Berardi A, Valente D, Servadio A. Transcultural reliability and validity of an Italian language version of the constant–Murley score. J Orthop Trauma Rehabil 2020 Dec;27(2):186-91.

9. Moeller AD, Thorsen RR, Torabi TP, Bjoerkman AS, Christensen EH, Maribo T, *et al* The Danish version of the modified Constant-Murley shoulder score: reliability, agreement, and construct validity. J Orthop Sports Phys Ther 2014 May;44(5):336-40.

10. Ntourantonis D, Panagopoulos A, Iliopoulos I, Tatani I, Tsoumpos P, Kouzelis A, *et al* Translation, cultural adaptation, validity and reliability of the Greek version of the modified Constant Score. JSES Open Access 2017 Apr 19;1(1):45-50.

11. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine (Phila Pa 1976) 2000 Dec 15;25(24):3186-91.