Original Article

Cultural Adaptation and Psychometric Properties of the Persian Version of Self-Efficacy in Chronic Disease Patients

AhmadAli Eslami[1], Seyde-Sharbanoo Daniali[2], Karim Mohammadi[3], Negar Reisi-Dehkordi[4], Firoozeh Mostafavi-Darani[1]

[1]Department of Health Education and Health Promotion, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran, [2]Department of Health Educationand Health Promotion, Student Research Committee, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran, [3]Department of Clinical Nutrition/Community Nutrition/Food Science and Technology, School of Nutrition and Food Science, Isfahan University of Medical Sciences, Isfahan, Iran, [4]Department of Psychology, Islamic Azad University, Khorasgan, Isfahan, Iran

Abstract

Introduction: Self-efficacy is an essential factor for effective self-management in chronic-disease patients. Therefore, the measurement of self-efficacy with a valid and reliable instrument is required. In this study, cultural adaptation and psychometric properties of the Persian version of "Self-Efficacy for Managing Chronic Disease" (SES6G) are illustrated in a sample of Iranian chronic-disease patients. **Materials and Methods:** This was a cross-sectional study in which translation and backward translation was performed by bilingual translators. The final version of the Persian scale was assessed to determine the content validity index (CVI) and the content validity ratio (CVR). A panel of experts reviewed items of the scale. Factor analysis was performed for the final version of the Persian scale to assess internal consistency and construct validity among chronic-disease patients attending government health care centers from March 2015 to June 2015 in Isfahan, Iran (n = 483). **Results:** CVI and CVR scores were 0.87 and 0.89, respectively. There were no eliminated items in the cross-cultural adaptation process. Internal consistency met the criterion for a reliable measure (Cronbach's alpha = 0.89). An initial factor analysis produced a one-dimensional scale (6 items) with Eigenvalues more than 1 that explained 69.49% of the extracted variance. **Conclusions:** The SES6G is a reliable and valid instrument to assess patients' self-efficacy for managing chronic diseases in Persian language. Because the self-efficacy score determines the educational strategies to have effective educational programs, the use of this simple and brief scale could be considered among Persian patients.

Keywords: *Iran, nurses, psychological adaptation, psychometric, self-efficacy*

Introduction

Mortality and morbidity of chronic-disease epidemic, in addition to major adverse social, economic, and health outcomes, require high-quality clinical care and effective self-management.[1] This skill develops the potential of changing the lifestyle and monitoring the long-term illness.[2] Efficient self-management requires the capacity to monitor the illness so as to develop and employ cognitive, behavioral, and emotional strategies to maintain a satisfactory quality.[2]

A central concept in self-management is self-efficacy, which empowers patients to control diseases. Self-efficacy is a person's belief and confidence in his or her capabilities to produce given attainments in a particular situation. The higher the self-efficacy of the positive physical activity and healthy eating, the better the control of blood pressure and blood sugar.[3] The reduction of hospitalization, improved quality of life, and other positive outcomes are also followed by better self-efficacy.[4] This skill tends to have the ability to change the lifestyle, resolve, or seek help for problems as well as to monitor the illness.[5]

The correct measurement of this construct is important. Moreover, the use of a valid instrument based on local culture is essential. This scale must be tailored to the specific domain.[6] A couple of instruments have been developed during recent years. Some of them are designed for special diseases such as diabetes, arthritis, physical activity, and nutrition.[7-9] Either it is time-consuming to fill out these questionnaires or they are limited to a specific disease or unique self-care behaviors. Furthermore, psychometric properties of self-efficacy scales in HIV-infected patient[10] and diabetic patients[11] were developed in our country. Because of little attention paid to a convenient general scale for use among

How to cite this article: Eslami A, Daniali SS, Mohammadi K, Reisi-Dehkordi N, Mostafavi-Darani F. Cultural adaptation and psychometric properties of the persian version of self-efficacy in chronic disease patients. Iranian J Nursing Midwifery Res 2017;22:57-61.

Received: October, 2015. **Accepted:** July, 2016.

Address for correspondence:
Dr. Firoozeh Mostafavi-Darani, Department of Health Education and Health Promotion, School of Health, Isfahan University of Medical Sciences, Isfahan, Iran. E-mail: f_mostafavi@yahoo.com

Access this article online

Website: www.ijnmrjournal.net

DOI: 10.4103/1735-9066.202065

Quick Response Code:

all kinds of chronic-disease patients, Self-Efficacy for Managing Chronic Disease (SES6G) is considered to be useful.

The Stanford Patient Education center defined it as a scale to study self-efficacy in arthritis patients for the first time.[12] The previous self-efficacy instrument comprised 10 items in different areas.[13] At present, a general valid and reliable scale named SES6G with 6 items with a 10-step Likert scale is used. This scale is one of the most practical and useful tools to frequently evaluate the self-efficacy in clinical practice.[14-16]

It evaluates the several domains that are common across lots of chronic diseases, such as the level of confidence in symptom control, role function, emotional functioning, and communication with physicians and patients with a chronic disease. The scale is interpreted by calculating the mean of at least 4 of the 6 items, thus allowing a maximum of 2 missing item responses. The internal consistency reliability of this questionnaire was 0.91, indicating that it had a high degree of internal consistency. The mean (standard deviation) in the original study was reported to be 5.17 (2.22). High score is an indicator of higher self-efficacy and vice versa.[17] The internal consistency reliability of this questionnaire was reported to be 0.93 in the Spanish language. By using this scale, the relationship between self-efficacy and self-care behaviors can be evaluated.[18]

The aim of this study was to evaluate and validate the Persian version of SES6G scale as a standard brief scale in order to accommodate it for Iranian chronic-disease patients attending the government health care centers in Isfahan, Iran.

Materials and Methods

This study was performed in two stages. In the first stage, the questionnaire was translated into the Persian language and culturally adapted to Iranian culture. In the second stage, it was tested during a cross-sectional study among chronic-disease patients attending the government health care centers from March 2015 to June 2015 in Isfahan, Iran.

First stage: Cross-cultural adaptation

The cross-cultural adaptation was performed on the basis of the guide for cross-cultural adaptation of self-administered questionnaires by Beaton *et al*. The following five-step process is recommended for the cross-cultural adaptation: translation, synthesis, back-translation, expert committee review, and pre-testing. The initial translation into Persian was performed by two Iranian bilingual translators to prevent human bias.[19] One of the translators was aware and the other translator was neither aware nor informed of the concepts of the stated questionnaire.

Then a pre-final Persian version of the SES6G scale was taken to the panel of experts. This panel, consisting of 9 experts (health educators, clinical psychologist, nurses, and physicians), assembled, and the content validity ratio (CVR) and content validity index (CVI) were determined.

The CVR was calculated on the basis of a Likert-type ordinal scale with 3 choices, namely, necessary, relatively necessary, and unnecessary. The values greater than 0.62 were considered to be necessary as one choice and retained for the subsequent analysis.[20] CVI amounts determined a total amount for each instrument (Scale-CVI) based on 1–4 Likert in terms of simplicity, relevance, and clarity. This index should not be less than 0.78.[21] The final stage was conducted to ensure that the target group could understand the adapted version properly in a pilot study.[19] All of the items were shortened by extracting the common part "How confident are you…"

Second stage: Determining the psychometric properties of the instrument

In this stage, the final questionnaire that was developed in the previous stage was examined in terms of features such as construct validity and internal consistency in the cross-sectional study.

Participants

The present study was a cross-sectional study. The statistical population of this study comprised chronic-disease patients who had attended government health care centers in Isfahan, Iran. The participants were randomly selected. These patients had a chronic disease, such as diabetes, according to their health record.

Procedures

This article is related to the psychometric of the self-management questionnaire. The number of samples for the study was estimated to be 470, with a 5% attrition. As a result, 494 patients participated in the study according to Bentler and Chou.[22] The participants were selected from 48 health care centers according to the two-phase systematic random method so that 10 health centers and from each health care center 15–25 patients were chosen. After obtaining the ethical approval, informed consent forms were filled out by the patients. The questionnaires were completed by interview with a trained person due to inadequate literacy or vision problems of the patients. Inclusion criteria were as follows: (1) having a chronic illness for at least 6 months and a previous history of medication consumption; (2) willingness to take part in the survey; and (3) having no physical or mental disability. The exclusion criterion was a distorted questionnaire. Only 11 questionnaires were leaved out due to distortion.

Measures

The contextual and demographic data were age, marital status, sex, education, weight and height, kind of disease, and duration of having the illness. Details on the sociodemographic information are illustrated in Table 1. The SES6G consists of 6 items with a 10-point Likert scale ranging from 1, meaning "not at all confident" to 10,

"totally confident." The scale is interpreted by calculating the mean of the 6 items. Thus, means range from 1 to 10, with higher values indicating higher self-efficacy.[14]

Data analysis

Factor analysis (FA), which reflects the interrelationships among variables, was conducted on the final Persian questionnaire with 6 items. Mean (standard deviation) is reported in Table 2. Reliability of the instrument was assessed in terms of internal consistency with Cronbach's α. The corrected item-total correlation (CITC) was also assessed. The CITC greater than 0.3 was regarded as the cut-off point for remaining items. Correlations often fall between 0.3 and more than 0.9, which is good. The number of factors was determined based on eigenvalue more than one. The varimax rotation was applied in order to determine the independent dimensions. The results of the functional pattern are described in accordance with factorial loads ≥0.5 and ≤−0.5. Kaiser–Mayer–Olkin (KMO) and Bartlett's tests were applied to evaluate the connection intensity between the variables and to confirm the factorial analysis.[23]

The factor structure was assessed by using two criteria, namely, (a) the analysis of eigenvalues greater than 1 and (b) item cut-off loading greater than or equal to 0 3.[24]

Table 1: The frequency of demographic and contextual characteristic among participants

Variable	Number (%)
Sex	
Female	433 (85.3)
Male	71 (14.7)
BMI group (kg/m^2)	
18.5-24.99	51 (10.6)
25-29.99	226 (46.8)
≥30	206 (42.6)
Education	
Illiterate	176 (36.4)
≤12 years	233 (48.2)
Graduate	58 (12.1)
Academic literacy	16 (3.3)
Marital status	
Single	2 (0.4)
Married	432 (89.4)
Divorced	2 (0.4)
Widow	47 (9.8)
Name of disease*	
Hypertension	359 (74.3)
Diabetes	283 (56.6)
Osteoporosis	144 (29.8)
Heart Disease	124 (25.7)
Renal Disease	73 (15.1)
Rheumatoid arthritis	36 (7.9)
Others (Asthma, hypothyroidism)	133 (25.9)

*Patients had 2 or more comorbidities

Ethical considerations

The authors obtained consent from Prof. Lorig to translate and validate the tool in the research . Study approval was obtained from the Ethics Committee of the Isfahan University of medical science. Informed consent was obtained from the participants. The questionnaire was completely anonymous.

Results

Cultural adaptation

In the translation and back-translation steps, there were no discrepancies between translations. None of the items had cultural inconsonance. All the items were retained for the experts' review and the calculation of content validity. The mean CVR and CVI values were 0.87 and 0.89, respectively. In the pre-testing stage, the questionnaire was piloted among 30 patients who were referred to health care centers. The respondents had no difficulty in understanding the questions. Before conducting the exploratory FA, the reliability of the questionnaire was explored by using the Cronbach's alpha test (α = 0.89). Reliability coefficient was done by using Guttmann's test (r = 0.89).

Table 2: Mean (standard deviation) and principal components factor analysis loadings for the items of the Self-Efficacy for Managing Chronic Disease 6-Item Scale (*n*=483)

Items	Mean (SD)	CITC	Kurtosis	Skewness	Factor loading
How confident are you that you can control					
1. Fatigue caused by your disease from interfering with things you want to do?	6.31 (3.51)	0.84	−0.94	−0.65	0.90
2. Physical discomfort or pain of your disease from interfering with the things you want to do?	6.07 (3.58)	0.88	−1.14	−0.52	0.92
3. Emotional distress caused by your disease from interfering with the things you want to do?	5.98 (3.54)	0.91	−1.15	−0.47	0.95
4. Other symptoms or health problems you have from interfering with the things you want to do?	6.53 (3.20)	0.83	−0.59	−0.76	0.89
5. The different tasks and activities needed to manage your health Condition so as to reduce you need to see a doctor?	8.10 (2.31)	0.48	1.88	−1.5	0.58
6. Other than just taking medication to reduce how much you illness affects your everyday life?	7.29 (2.66)	0.56	−0.19	−0.86	0.66

Descriptive analysis

Out of 494 participants, 483 in total completed the SES6G. Their age range was from 30 to 76, and the overall mean of the SES6G was 6.61 (2.64). Over half of them were 50 years old or above. The majority of the participants were females. The participants were suffering from 1 to 6 chronic illnesses for an average of 8 years. Two-thirds of the participants had more than one chronic disease. The overall mean of the SES6G was 5.75 (2.26) with values ranging between 1 and 10.

Based on the translators' views, the phrase "How confident are you that you can control" was shortened in the first part of the questionnaire so as not to repeat the phrase.

Exploratory factor analysis

Internal consistency of the instrument was assessed using Cronbach's α, which was calculated to be 0.90 for 6 items. Principle axis factoring (PAF) with varimax rotation was performed. The correlation matrix was considered to be factorable (KMO = 0.86; Bartlett's test of sphericity = 2690.28, $P < 0.05$). An initial FA produced 1 factor with Eigenvalues over 1 that explained 69.49% of the extracted variance. Details on factor loadings are given in Table 2.

Discussion

In this study, cultural adaptation and psychometric properties of the Persian translation of the SES6G scale were explored. Cronbach's alpha coefficient and the mean of the SES6G scale were similar to other studies conducted among German patients.[25] There were no eliminated items in the pre-testing process. The repeated phrase "How confident are you that you can control" was moved to the first part of the questionnaire. As noted, 6 items remained from the questionnaire in the early stage of the analysis due to a high correlation with the total score. The results of the study approved the high validity and reliability measure of the self-efficacy for managing chronic diseases in Persian. Reliability, and item-total correlations, of self-efficacy scale can be considered homogeneous and unidimensional. This finding is in line with the results of other studies.[18,25] Freund *et al*. conducted a study among 244 German patients with various chronic illnesses. They pointed to the one-dimensional structure and high internal consistency of this scale.[25] A similar result has been observed in German, English, and Spanish,[12,18,25] and our study may represent a universal concept that can be used in different cultures. Although in a study by Hu *et al*., the results of FA showed that all items split into two factors that could be related to different specific samples (hypertensive patients half of whom were 65 and above). In that study, the items 5 and 6 included one factor and other 4 items contained the second factor.[26] In this study, the last two items had less correlation with all of the questions, but were not recognized as a separate factor.

In the present study, the least mean score was related to the item "control of emotional distress caused by disease," whereas in the study by Freund *et al*., confidence to keep "physical discomfort or pain" had the least score. A higher percentage of painful diseases such as osteoarthritis in the study by Freund *et al*. can explain this difference while the majority of the participants in the current research were diabetic or hypertensive. Apparently, the nature of the prolonged and persistent process of treatment in these patients generates these results so that coping with psychological disorders is more difficult than physical symptoms. This is an awakening for health care practitioners in professional organizations to take psychological factors into more consideration.

The successful role of nurses in education[5] and selection of suitable strategies for concentrating on the level of self-efficacy for interventions was established.[27] It seems that wide Likert point and brevity of the questionnaire is remarkable for this purpose.

One of the limitations of the study was the selection of samples from urban government health care centers, and therefore, it is impossible to generalize the instrument to all patients.

Advantages of the study

The fact that patients with a variety of chronic illnesses were studied was one of the advantages of the present study. Another advantage was that the sampling covered several centers.

Conclusion

The SES6G is a useful and economical instrument to measure the self-efficacy in Iranian patients with any chronic illness. However, further research is recommended among Persians.

Acknowledgment

This article was derived from a PhD thesis of Seyde Shahrbanoo Daniali with project number 393790.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. WHO. 10 facts on noncommunicable diseases 2014 [5.11.2014]. Available from: http://www.who.int/features/factfiles/noncommunicable_diseases/en. Last updated on 2013 Mar; 2017 Apr 02].
2. Schulman-Green D, Jaser S, Martin F, Alonzo A, Grey M, McCorkle R, *et al*. Processes of Self-Management in Chronic Illness. J Nurs Scholarsh 2012;44:136-44.
3. Lloyd-Williams F. Self-management and Behavioural

Interventions. Newman S, Steed L, Mulligan K, editors. Book Review: Chronic Physical Illness. Vol. 5. Chronic Illness; 2009. p. 149.
4. Curtin RB, Walters BA, Schatell D, Pennell P, Wise M, Klicko K. Self-efficacy and self-management behaviors in patients with chronic kidney disease. Adv Chronic Kidney Dis 2008;15:191-205.
5. Grillo MdFF, Neumann CR, Scain SF, Rozeno RF, Gross JL, Leitão CB. Effect of different types of self-management education in patients with diabetes. Rev Assoc Med Bras 2013;59:400-5.
6. Chow SK, Wong FK. The reliability and validity of the Chinese version of the short-form chronic disease self-efficacy scales for older adults. J Clin Nurs 2014;23:1095-104.
7. Betz NE, Klein KL, Taylor KM. Evaluation of a short form of the career decision-making self-efficacy scale. J Career Assess 1996;4:47-57.
8. Horan ML, Kim KK, Gendler P, Froman RD, Patel MD. Development and evaluation of the osteoporosis self-efficacy scale. Res Nurs Health 1998;21:395-403.
9. Rimm H, Jerusalem M. Adaptation and validation of an Estonian version of the General Self-Efficacy Scale (ESES). Anxiety Stress Coping 1999;12:329-45.
10. Mahmoudi M, Shojaezadeh D, Dehdari T, Hajizadeh E, Taghdisi MH, Abbasian L, *et al*. Psychometric Properties of the Coping Self-Efficacy Scale Among HIV-Infected Iranian Patients. Iran Red Crescent Med J 2015;17:45-51.
11. Tol A, Mohebbi B, Hossaini M, Majlessi F. Developing a Valid and Reliable Coping Self-Efficacy Scale (CSES) among Patients with Type 2 Diabetes: Iranian Version. Open J Endocr Metab Dis 2014;4:45-51.
12. Lorig K, Chastain RL, Ung E, Shoor S, Holman HR. Development and evaluation of a scale to measure perceived self-efficacy in people with arthritis. Arthritis Rheum 1989;32:37-44.
13. Lorig K. Outcome measures for health education and other health care interventions. Thousand Oaks: SAGE; 1996.
14. Elzen H, Slaets JP, Snijders TA, Steverink N. Evaluation of the chronic disease self-management program (CDSMP) among chronically ill older people in the Netherlands. Soc Sci Med 2007;64:1832-41.
15. Lester K, Stepleman L, Hughes M. The association of illness severity, self-reported cognitive impairment, and perceived illness management with depression and anxiety in a multiple sclerosis clinic population. J Behav Med. 2007;30(2):177-86.
16. Pang MY, Eng JJ, Lin KH, Tang PF, Hung C, Wang YH. Association of depression and pain interference with disease-management self-efficacy in community-dwelling individuals with spinal cord injury. J Rehabil Med 2009;41:1068-73.
17. Lorig K, Sobel D, Ritter P, Hobbs M. Effect of a self-management program on patients with chronic disease. Eff Clin Pract 2001;4:256-62.
18. Ritter PL, Lorig K. The English and Spanish Self-Efficacy to Manage Chronic Disease Scale measures were validated using multiple studies. J Clin Epidemiol 2014;67:1265-73.
19. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine 2000;25:3186-91.
20. Lynn MR. Determination and quantification of content validity. Nurs Res 1986;35:382-6.
21. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health 2007;30:459-67.
22. Bentler PM, Chou CP. Practical issues in structural modeling. Sociol Methods Res 1987;16:78-117.
23. Kaiser H, Rice J, Little J, Mark I. Educational and Psychological Measurement. American Psychological Association 1974;34:111-7.
24. Willett WC, Koplan JP, Nugent R, Dusenbury C, Puska P, Gaziano TA. Prevention of chronic disease by means of diet and lifestyle changes. J Mod Appl Stat Methods 2005;5:8.
25. Freund T, Gensichen J, Goetz K, Szecsenyi J, Mahler C. Evaluating self-efficacy for managing chronic disease: Psychometric properties of the six-item Self-Efficacy Scale in Germany. J Eval Clin Pract 2013;19:39-43.
26. Hu H, Li G, Arao T. Validation of a Chinese version of the self-efficacy for managing chronic disease 6-item scale in patients with hypertension in primary care. ISRN Public Health. 2013;2013:6.
27. Park JE, Lee JE. Cardiovascular disease risk factors and depression in Korean women: Results from the fourth Korean National Health and Nutrition Examination Survey. Psychiatry Res 2011;190:232-9.