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Reliability and Validity of Urdu Version of the Self-efficacy for Managing Chronic Disease 6-item Scale for Patients with Hypertension in Quetta, Pakistan

Sohail Riaz[1*], Noman Ul Haq[2], Faria Ahmed[2], Aqeel Nasim[2], Maria Tahir[2], Muhammad Kamran Khan[1] and Nadia Noureen[2]

[1]Akson College of Pharmacy, Mirpur University of Science and Technology, AJ&K, Pakistan.
[2]Faculty of Pharmacy and Health Sciences, University of Balochistan, Pakistan.

Authors' contributions

This work was carried out in collaboration between all authors. Author NUH designed and supervised the study. Author SR wrote the protocol and wrote the first draft of the manuscript. Authors SR and AN performed the statistical analysis. Author FA collected and entered the data. Authors MT and MKK managed the analyses of the study. Author NN managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: Assessment and enhancement of self efficacy can improve the self management behavior of hypertensive patients. The aim of present study is to translate self-efficacy for managing chronic disease 6-item scale (SEM-CD6) into Urdu and check its validity and reliability.
Methodology: A questionnaire based, observational cross sectional study was designed and conducted from March to August 2017 in 5 different Hypertension clinics of Quetta, Pakistan. Instrument was first translated in to Urdu by Forward – Back translation method. Internal consistency (Cronbach's Alpha), Descriptive statistics and Principle component analysis were used to check its Psychometric properties. Linear regression models were used to interpret Beta values.

**Corresponding author: E-mail: sohailriaz361@gmail.com;*

Results: Questionnaire was successfully translated without removing any item. A total of 387 hypertensive patients agreed to participate in study. Among these, 205 (53%) participants were male. One hundred and twelve participants (28.9%), lie in the age groups ranging between 49 to 58 years. Regression model showed the factors significantly associated with self-efficacy were Age (β = -0.273, P< 0.01), Education (β = 0.143, P = 0.011), Occupation (β = -0.107, P<0.05) and Exercise (β = -0.147, P<0.01). Internal consistency was found to consistent with Cronbach's alpha value of 0.94. Principal Component analyses yielded one dimensional structure accounting for 78.55% of variance.

Conclusion: The Urdu version of SEM-CD6 is reliable and validated tool to assess self efficacy hypertensive patients of Pakistan level among Urdu Speaking.

Keywords: Self efficacy; hypertension; Urdu.

1. INTRODUCTION

Hypertension is one of the most prevalent non-communicable diseases effecting 40.8% people of world with control rate of 32.3%. Prevalence of hypertension is even worse in developing countries as compared to developed countries [1]. Among developing countries, People in Pakistan are also victim of this chronic disease. Where, according to two studies, 19.1% and 14% people are suffering from hypertension [2,3]. Poorly managed hypertension leads to cerebro-vascular, chronic kidney diseases and cardio-vascular complications which negatively affect the quality of life of patients [4].

These complications resulting from hypertension can be minimized by improving self care behavior and self efficacy to manage patient's disease condition [5-7]. Self efficacy is psycho-social concept that describes the patient's faith to carry out such activities that effect positively on patient's health condition [8]. Therefore it is very crucial to examine and enhance the self efficacy to self manage patient's hypertension. Measuring self efficacy and its results can help health care providers like; Physicians, health educators and community pharmacists to improve the self efficacy level of patients who need it the most through different interventions. For this purpose, there are number of questionnaires available to assess the self efficacy level among patients of different diseases [9-12]. Among these questionnaires, The Self-Efficacy for Managing Chronic Disease 6-Item Scale (SEM-CD6) is short, less burdensome for patients and can effectively used in research and clinical practices. It was developed by the Stanford Patient Education Resource Center [13]. This questionnaire comprises of 6 items. This tool has been translated into Chinese, German, French and Persian languages, where these translated versions demonstrated to be reliable and valid [14-17]. However, literature shows that no translation and validation of SEM-CD6 has been carried out in Urdu language.

The aim of present study is to evaluate the reliability and validity of Urdu translated version of SEM-CD6 questionnaire for the Hypertensive patients of Quetta, Pakistan.

2. METHODOLOGY

2.1 Study Design

A questionnaire based, observational cross sectional study was designed to evaluate to validity and reliability of Urdu version of SEM-CD6. The study was conducted in 5 different hypertension clinics of Quetta city of Pakistan from March to August 2017.

2.2 Study Instrument

The instrument to be translated and validated is The Self-Efficacy for Managing Chronic Disease 6-Item Scale. This instrument contains 06 items each having 10 points scale, ranging from 1-10. There are four domains; symptom control, role function, emotional functioning, and communicating with physicians. The original version of the SEM-CD6 is free to use without permission.

2.3 Population

This study was conducted among Hypertensive patients attending different clinics of Quetta City. All patients visiting clinics who were diagnosed with Hypertension were included in this study. Except for patients having age below 18, hypertension for less than 1 year, any co-morbid psychological disorder, those who could not read or understand Urdu and who did not sign the consent.

2.4 Sampling Procedure

Sampling would be done through convenient sampling method.

2.5 Translation Method

The English language version of DMSES was translated into Urdu by using forward and backward translation technique [18]. The forward translation, English to Urdu was undertaken by the First author of this paper. Translation was reviewed and discussed with the second author, Hypertension specialist and community pharmacist in meetings. A revised version was translated back in English by PhD candidate in Department of Pharmacy Practice of University of Balochistan. All were fluent in English and Urdu. Later, the original and the back-translated English versions were compared and inconsistencies in different meetings. The finalized Urdu version was accepted when every participant of meeting agreed for no further change.

2.6 Ethical Considerations

Ethical Standards of Human Experimentation of the National Bioethics Committee [19] were followed during the study & care was taken as not to violate any of the standard set forth by the committee. Participants were assured of their privacy. Their consent was taken in form of a signature at the consent form & they were assured of their privacy.

The Permission to conduct research was approved by the Ethics committee of Faculty of Pharmacy of University of Balochistan, Pakistan.

2.7 Statistical Analyses

All data was put in SPSS V 20.0. Descriptive statistics (frequency, percentages and means) were used when needed. A principal component analysis with Varimax rotation was performed to extract the factors. Factors having eigen value ≥1.0 were considered acceptable [20]. Questionnaire's reliability was determined by calculating Cronbach's alpha value. The item was considered reliable if its Cronbach's alpha coefficient is greater than 0.70 [21]. An explanatory analysis was performed to assess demographic and clinical variables were associated with self-efficacy according to the SEM-CD6. The factors explored were age, marital status, education level, smoking status, duration of disease, regular exercise the Linear regression models were used to interpret Beta values.

3. RESULTS

3.1 Demographic Characteristics

Table 1 illustrates the demographic characteristics of the patients who participated in this study. A total sample of 387 patients was enrolled into this study. All the participants were hypertensive patients. Among these, 205 (53%) participants were male. One hundred and twelve participants (28.9%), lie in the age groups ranging between 49 to 58 years. Majority of the participants, n = 377 (97.4%) were married. Two hundred and thirty seven (61.2%) participants did not have any education but could understand and write Urdu language.

Majority n = 226 (58.4%) of the participants were non-smokers. The duration of disease for majority of respondents, n = 219 (56.65%), was more than 4 years. Physical activity of the most of the participants, n = 352 (91.0%) was not more than 30 minutes. Most of the patients, n = 340 (87.9%) did not monitor their blood pressure every day.

3.2 Construct Structure

Two sample related tests to be significant before doing Factor analyses. The Bartlett's chi-square test of sphericity was found to be significant ($p<.001$). The Kaiser-Meyer-Olkin (KMO) value was found to be acceptable at .85. The results of these two tests confirmed that a factor analysis could be performed on this dataset.

Factor analyses showed there is only one factor accounting for 78.545% of variance. Details of factor loading are given in Table 2.

3.3 Reliability of Instrument

Internal consistency was assessed by running Cronbach's Alpha value. Over all Cronbach's Alpha value was 0.94 which showed very high internal consistency. The corrected item total correlations (CITC) were ranged between 0.73-0.89 as shown in Table 2.

Table 1. Demographic characteristics of participants (n= 387)

Demographics	Frequency	Percentage (%)
Gender		
Male	205	53
Female	182	47
Age groups		
19 -28	10	2.6
29 – 38	24	6.2
39 – 48	63	16.3
49 – 58	112	28.9
59 – 68	104	26.9
69 – 78	47	12.1
79 – 88	18	64.7
More than 89 years	9	2.3
Marital status		
Married	377	97.4
Unmarried	10	2.6
Education		
No education	237	61.2
Only religious education	11	2.8
Primary	38	9.8
Middle	30	7.8
Matriculation	26	6.7
FA/FSc	16	4.1
BA/BSc	19	4.9
Post graduate	10	2.6
Occupation		
Unemployed	22	5.7
Government servant	48	12.4
Private employee	47	12.1
Business	51	13.2
House wife	165	42.6
Student	4	1.0
Others	50	12.9
Monthly income (Pakistani Rupee)		
No income	22	5.7
Less than 5000	21	5.4
5000 to 10000	125	32.3
10001 to 15000	146	37.7
More than 15000	73	18.9
Smoking habits		
Yes	161	41.6
No	226	48.4
Duration of disease		
1 to 4 years	168	43.4
More than 4 years	219	56.6
Do you exercise for at least 30 minutes every day?		
Yes	35	9.0
No	352	91.0
Do you monitor your blood pressure every day?		
Yes	47	12.1
No	340	87.9

Table 2. Description, factor loading and corrected item-total correlation of items

Serial no	Items	Mean(SD)	Factor Loading	CITC	Cronbach's alpha if item deleted
1	How confident are you that you can keep the fatigue caused by your disease from interfering with the things you want to do?	3.49(2.46)	0.92	0.88	0.92
2	How confident are you that you can keep the physical discomfort or pain of your disease from interfering with the things you want to do?	3.49(2.46)	0.90	0.85	0.93
3	How confident are you that that you can keep the emotional distress caused by your disease from interfering with the things you want to do?	4.18(2.96)	0.91	0.86	0.93
4	How confident are you that you can keep other symptoms or health problems you have from interfering with the things you want to do?	3.57(2.53)	0.93	0.89	0.92
5	How confident are you that you can do different tasks and activities needed to manage your health condition so as to reduce you needed to see a doctor?	2.88(2.39)	0.81	0.73	0.94
6	How confident are you that you can do things other than just taking medication to reduce how much your illness effects your everyday life?	2.78(2.32)	0.82	0.75	0.94

Table 3 represents related factor analysis, for this regression analysis was done, a statistically significant increase in self-efficacy was observed. After controlling other independent factors of self-efficacy, the factors significantly associated with self-efficacy were Age (β = -0.273, P< 0.01), Education (β = 0.143, P = 0.011), Occupation (β = -0.107, P<0.05) and Exercise (β = -0.147, P<0.01).

4. DISCUSSION

The present research validates the Urdu version of SEM-CD6 for use in the hypertensive patients of Pakistan. The results of presents study showed that the validity of SEM-CD6 is acceptable with one-dimensional structure. Results also demonstrated that Urdu version of SEM-CD6 is reliable (Cronbach's alpha=0.94, 95% CI, CITC= 0.73–0.89). These findings were similar to German, French and Iranian version of SEM-CD6 which also yield one dimensional structure upon principal component analyses and had similar results of validity and reliability [14,15,17]. But Chinese version of SEM-CD6 showed two-dimensional structure with similar findings of reliability and validity [16].

All the previous translations have been carried out on patients having different chronic conditions, where participants might have more than one chronic condition [14,15,17]. Except for the Chinese version, where the population was only hypertensive patients [16]. The present study is on hypertensive patients which are not having any co morbidity. This shows clearer picture to examine the self efficacy among hypertensive patients only.

Self-efficacy is recognized as a major contributing factor to improve self-care behavior for chronic disease management such as hypertension, diabetes, arthritis and others. As self efficacy can change the self care behavior, Physicians, health care educators, community pharmacists and other health care providers can assess self efficacy level and improve but several interventions.

Table 3. Related factors of self-efficacy

Demographics	Frequency	Percentage (%)	Standardized coefficients (Beta)	*P* value
Gender				
Male	205	53	-0.074	0.132
Female	182	47		
Age groups				
19 -28	10	2.6		
29 – 38	24	6.2		
39 – 48	63	16.3		
49 – 58	112	28.9	-0.273	0.001
59 – 68	104	26.9		
69 – 78	47	12.1		
79 – 88	18	64.7		
More than 89 years	9	2.3		
Marital status				
Married	377	97.4	0.032	0.489
Unmarried	10	2.6		
Education				
No education	237	61.2		
Only religious education	11	2.8		
Primary	38	9.8		
Middle	30	7.8	0.143	0.011
Matriculation	26	6.7		
FA/FSc	16	4.1		
BA/BSc	19	4.9		
Post graduate	10	2.6		
Occupation				
Unemployed	22	5.7		
Government servant	48	12.4		
Private employee	47	12.1	-0.107	0.025
Business	51	13.2		
House wife	165	42.6		
Student	4	1.0		
Others	50	12.9		
Monthly income (Pakistani Rupee)				
No income	22	5.7		
Less than 5000	21	5.4		
5000 to 10000	125	32.3	0.081	0.078
10001 to 15000	146	37.7		
More than 15000	73	18.9		
Smoking habits				
Yes	161	41.6	0.040	0.386
No	226	48.4		
Duration of disease				
1 to 4 years	168	43.4	0.089	0.062
More than 4 years	219	56.6		
Do you exercise for at least 30 minutes every day?				
Yes	35	9.0	-0.147	0.001
No	352	91.0		

5. CONCLUSION

The Urdu version of SEM-CD6 is reliable and validated tool to assess self efficacy to level among Urdu Speaking hypertensive patients of Pakistan. This economic, short, easily understandable instrument can be used in future hypertension control program for Pakistani patients.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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