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A Psychometric Evalution Of The Turkish Version Of The Cardiovascular Limitations And Symptoms Profile

Kardiyovasküler Kısıtlılık ve Semptomlar Profili'nin (Clasp) Türkçe Versiyonunun Psikometrik

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ABSTRACT

Aim: To determine the validity and reliability of the Turkish version of "Cardiovascular Limitations and Symptoms Profile" in patients with Acute Coronary Syndrome. **Material and Methods:** The universe of this research consisted of patients with acute coronary syndrome who applied to the Cardiology Clinic of the State Hospital between April 2011 and September 2011 and who received treatment. Internal consistency and time invariance (test-retest correlation) methods were used in the analysis of reliability. The validity of the scale was assessed in terms of language, criterion-related validity and discriminant validity, and construct validity.

Results: In our study the Cronbach's alpha value was 0.92, and the item-total correlation of the statements in the scale was equal to or higher than the limit value of 0.20. At the end of the analysis of language, criterion and discriminant validity; it was determined that the scale was comprehensible for patients and valid for measuring physical, social and psychological health in patients with acute coronary syndrome. According to the assessment of construct validity, the items that questioned mobility and social life activities in the original scale were grouped under the same factor, while the four items that questioned domestic activities were grouped under two different factors.

Conclusions: The analyses have shown that the Turkish version of the Cardiovascular Limitations and Symptoms Profile is a reliable and valid scale and it is suitable for use in the Turkish society.

Key Words: Cardiovascular Limitations and Symptoms Profile, validity, reliability

ÖZET

Amaç: Akut Koroner Sendromlu hastalarda "Kardiyovasküler Kısıtlılık ve Semptomlar Profili"nin Türkçe versiyonunun geçerlik ve güvenirliğini yapmaktır.

Gereç ve Yöntem: Bu araştırmanın evrenini, Devlet Hastanesi Kardiyoloji kliniğine Nisan 2011-Eylül 2011 tarihleri arasında başvurarak tedavi gören tüm akut koroner sendrom geçirmiş hastalar oluşturdu. Güvenirlik incelemesinde iç tutarlılık ve zamana karşı değişmezlik (test-retest korelasyonu) yöntemlerini kullandık. Ölçeğin geçerliğini; dil, ölçüt ve ayırd edici geçerlik, yapı geçerliği ile inceledik.

Bulgular: Çalışmamızda, ölçeğin Cronbach alfa değeri 0.92, ölçekteki ifadelerin madde toplam korelasyonu, sınır değer olan 0.20 düzeyinde ya da daha yüksekti. Yapılan dil, ölçüt ve ayırd edici geçerlik çalışmaları sonucunda; ölçeğin hastalar tarafından anlaşılabilir, akut koroner sendromlu hastalarda fiziksel, sosyal ve ruhsal sağlık durumunu ölçmede geçerli bir ölçek olduğunu belirledik. Yapı geçerliği sonucunda, orijinal ölçekte mobilite ve sosyal yaşam etkinliklerini sorgulayan maddeler aynı faktör yapısı altında, ev içi faaliyetlerini sorgulayan dört madde farklı iki faktör altında toplandı.

Sonuç: Analizler, Kardiyovasküler Kısıtlılık ve Semptomlar Profili'nin Türkçe versiyonu geçerli ve güvenilir bir ölçektir ve Türk halkında kullanılmaya uygundur.

Anahtar Kelime: Kardiyovasküler Kısıtlılık ve Semptomlar Profili, geçerlilik, güvenirlik

INTRODUCTION

Acute coronary syndrome (ACS) affects all aspects of the physical, mental, social characteristics and the overall perceived wellbeing of an individual.Coronary heart disease (CHD) is the leading cause of death in Turkey and worldwide. ACSs are very common and life-threatening consequences of CHD.In Turkey "Turkish Adult Risk Factor Study" according to the study in 2009;CAD prevalence of 6% in the 45-54 age group, 7% in the 55-64 age group, 28% in the 65 years and over age group (1).

In patients with ACS, modern treatments focus on improving life expectancy, symptoms, functional skills and health-related quality of life. Health related quality of life scales are used to asses primary outcomes in the course of recovery and clinical decision and to follow up the benefits of treatment (2).

Healthcare professional are more interested in the improvement of objective physical measurements; whereas, patients tend to be more interested in the improvement of their symptoms, physical functions and social roles. Health related quality of life measurements have a great impact on the treatment outcomes of patients, as these measurements define and characterize patients' overall condition. Changes in health related quality of life may introduce a useful and important support for the physiological and biological measurement of patients' health condition (3, 4). The commonly used quality of life scales are less reliable compared to conventional clinical assessments or physiological measurements; however, like tools of measurement for both overall and health-related quality of life, they are useful in predetermining clinical variables especially in cardiac diseases (5).

As treatments and interventions on ACS's are constantly improved, measurement tools for quality of life fail to keep up with this advancement. Thus, a need to develop more sensitive health-specific tools for the assessment of quality of life in cardiac patients has emerged in recent years (6). In a study in which overall quality of life scales were used to determine quality of life in patients with CHD, the use of these scales was recommended for quality of life measurements, however overall quality of life scales were reported to be less sensitive in coronary diseases and it was suggested that more sensitive tools should be developed (7).

In order to facilitate inter-cultural research, nurse researchers must pay attention especially to details concerning translation methodology in the development of research instruments. Furthermore, in order to make inter-cultural research meaningful, it is also important to present the translation procedures used in the evaluation of versions in different languages, as well as the reports on statistical analyses (8).

The Cardiovascular Limitations and Symptoms Profile (CLASP) is unique in that it can be used across all these cardiac connitions. A major advantage of CLASP is that it can chart these changes across time. Without CLASP it would be necessary to assess these problems using seperate questionnaires for angina, myocardial infarction, and heart failure, all of which give scores that cannot be compared directly. CLASP is simple for patients to understand and quick for them to complete. When used in the clinic, the CLASP profile can help identify any areas of a patient's life causing particular concern so as to initiate discussion with physicians nurses (9).

In this study we assessed the validity and reliability of the Turkish version of the CLASP, which is one of the scales used specifically for cardiovascular disease, and determined its suitability for the Turkish society.

METHODS

Study design

This is a methodological research conducted to determine the validity-reliability of the "Cardiovascular Limitations and Symptoms Profile-CLASP" scale.

Setting and samples

The research population consisted of all patients with ACS who applied to the Cardiology clinic of the State Hospital between April 2011 and September 2011 and who received treatment. The Cardiovascular Limitations and Symptoms Profile scale included 37 items. In scale studies, the number of scale items is recommended to be 5-10 times greater while determining the sample size (10).

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Accordingly, in sample selection we used power analysis as a method to ensure the validity, reliability and sensibility of research results. Thus, considering that a total of 21000 patients applied to the Cardiology clinic between 2010-2011 and that about 20% of them were ACS patients, we determined our sample size by anticipating the results to be within 95% confidence interval, with sample error of d=0.05. At the end of the power analysis, sample size was determined as n=243. The research sample included 245 patients with coronary syndrome.

Data collection

Inclusion criteria were as follows:
1. Patients who had myocardial infarction at least one month prior to participation,
2. Patients who hadunstable angina pectorisat least one month prior to participation,
3. Patients who received percutaneous coronary intervention due to ACS at least one month prior to participation,
4. Patient aged 18 years and older,
5. Patients without communication problems and with capability to answer all questions,
6. Patients without active psychiatric disorder,
7. Patients who accepted to be interviewed and who spoke Turkish.

Ethical considerations

The research was conducted in compliance with scientific principles as well as with the ethical principles of the Declaration of Helsinki. Accordingly, informed consent, confidentiality, equity, *primum non nocere* principles were taken into account. In the adaptation of the Cardiovascular Limitations and Symptoms Profile-CLASP into Turkish, necessary permission was obtained from those who developed the original scale. Written permission for conducting the research was obtained from the relevant committee (Governorship of Kahramanmaraş, Directorate of Health, B104ISM4460001/314) and approval was received from the Ethics Committee (Marmara University, Institute of Medical Sciences, Clinical Research Committee for Pre-Assessment). The patients who would

participate in the research were informed about the aim, design and benefits of the study, and the patients who accepted to participate in the study were asked to sign the Informed Consent Form.

Measurements

Research data were collected by using the CardiovascularLimitations and Symptoms Profile-CLASP scale, SF-36 Quality of Life Scale, and Hospital Anxiety and Depression Scale.

Cardiovascular Limitations and Symptoms Profile - CLASP: The validity and reliability of the scale was established in 2002 by Lewin et al. in chronic stable angina; and it consists of thirty seven (37) items, with four main symptom areas including angina, shortness of breath, ankle swelling and tiredness, and five sub-domains on functional capacity (mobility, social life and leisure activities, activities within the home, concerns and worries, and gender). The likert-type scale can be assessed for both physical and functional domains. Each sub-domain, which includes 4-6 questions, is evaluated individually. The questions are evaluated as "normal", "mild", "moderate" and "severe" according to the level of functional disorder. The obtained scores vary for each sub-domain; angina: 5-15, shortness of breath: 5-14, ankle swelling: 3-10, tiredness: 3-9, mobility: 4-16, social life and leisure activities: 3-7, activities within the home: 4-12, concerns and worries: 3-12 gender (women and man): 3-12. The quality of life decreases as the scores increase. Clinicians in the United Kingdom have recommended the use of CLASP because, unlike other measures, it records symptoms such as ankle swelling, shortness of breath, angina, and tiredness. The profile of nine domains relevant to patients with heart disease provided by CLASP can identify where problems exist for a particular patient, the seriousness of these problems, and which rehabilitation interventions might be most relevant or helpful (9).

SF-36 Quality of Life Scale: Short Form 36, which is a generic scale and which offers a wide range measurement for quality of life, was developed in 1992 (11). The first reliability and validity study of SF-36 in our country was conducted in 1995 by Pinar. The Cronbach alpha value for physical and mental domains was found to be 0.91 and 0.90, respectively (12).

Hospital Anxiety and Depression Scale (HADS): The Hospital Anxiety and Depression Scale was developed by Zigmond and Snaith 1983 to screen the frequency of depression and anxiety symptomsin individuals with a physical disease (13). The validity and reliability study of this scale in our country was performed by Aydemir 1997, and the Cronbach alpha reliability coefficient was found to be 0.852 for the anxiety sub-scale and 0.778 for the depression sub-scale (14).

Data analysis

In order to ensure data reliability and minimize researcher bias, data were entered into the statistics database individually by the researcher and the persons independent from the research, and frequency reports of entered variables were prepared and error check for data entry was performed.

Internal consistency and time invariance (test-retest correlation) were used in reliability analysis. Internal consistency was assessed by cronbach's alpha and item-total correlation; where the cronbach's alpha value was taken as 0.70 (15) and item-total score correlation coefficient was taken as >0.20 (10). In the analysis of time invariance, the scale was applied to thirty patients twice with an interval of fifteen days.

The validity of the scale was assessed in terms of construct validity, criteria-related validity and discriminant validity. Confirmatory factor analysis (CFA) and explanatory factor analysis (EFA) techniques were used for construct validity. SF-36 was taken as the criterion in criteria-related validity, and the relationship was assessed by pearson's correlation test. The Hospital Anxiety Depression Scale was used in discriminant validity.

Afterwards, in order to establish the parametric quality of the Cardiovascular Limitations and Symptoms Profile scale, it was determined whether each factor had a normal distribution and whether data were homogeneous. The distribution of data was assessed by one-sample kolmogorov-smirnov test, and the homogeneity of data was assessed by the homogeneity of variance test.

The flow chart of the reliability-validity study of the Limitations and Symptoms Profile is presented below (Figure 1):

Figure 1. The flow chart of the reliability-validity study of the Limitations and Symptoms Profile

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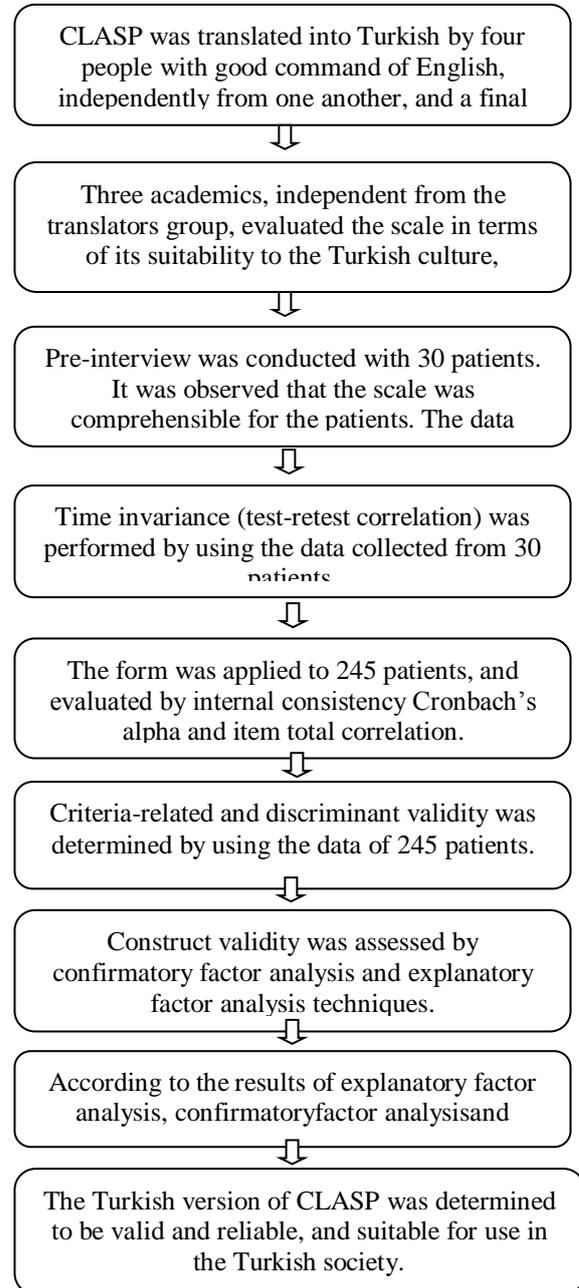
RESULTS

1. Results about the Socio-Demographic Variables of Patients

When the descriptive characteristics of the patients were examined, it was observed that age average of the patients was 60.58±11.81 years, 68.6% of them were male, 89.8% were married and 42.9% were elementary school graduates. In addition, 27.3% of the patients were house wives, 53.11% lived with their husband and children, 66.9% did not work.

2. Reliability Study
Time invariance

Test-retest technique is applied to determine the time invariance criterion of reliability. This technique is based on applying the same test to the same individuals at the same conditions but at different times. Pearson's product moment correlation coefficients found by test-retest method for each sub-domain of the scale are given in Table 1.

Table 1. Test-Retest Reliability Coefficients of the Cardiovascular Limitations and Symptoms Profile (n=30)

Sub-Domains	r	p
Angina	0.57	p<0.001
Shortness of breath	0.46	p<0.011
Ankle swelling	0.99	p<0.001
Tiredness	0.84	p<0.001
Mobility	0.54	p<0.005
Social Life Etkinlikleri	0.45	p<0.012
Activities within the home	0.82	p<0.001
Concerns and worries	0.94	p<0.001
Gender	0.82	p<0.001

Internal consistency

The internal consistency of the Cardiovascular Limitations and Symptoms Profile was evaluated by using Cronbach's alpha and item-total correlation.

Cronbach's alpha is the most frequently used among reliability coefficients. The internal consistency of likert-type scales are evaluated by Cronbach's alpha. As Cronbach's alpha coefficient is calculated considering all questions with statistical consistency, it is the coefficient which reflects the general reliability structure in the best way compared to other coefficients (16).

Cronbach's alpha values were found to be 0.92 for CLASP total, 0.81 for angina, 0.92 for shortness of breath, 0.97 for ankle swelling, 0.93 for tiredness, 0.88 for mobility, 0.85 for social life activities, 0.70 for activities within the home, 0.80 for concerns and worries, and 0.94 for gender.

Another method used for reliability analysis is the item-total score correlation. If the item-total score correlation of an item is found to be low, it means that this item measures a characteristic different from the other items in the scale (10). The item-total correlation of the expressions in the scale was determined to be equal to higher than the limit value of 0.20 (Table 2).

3.Validity Study

Language validity

The first step of the reliability-validity study was the translation of the English CLASP scale into Turkish by four translators with good command of English, independently from one another. The Turkish translations were compared by the researcher and the supervisor, and a single Turkish version was prepared. The Turkish version was then translated back to English by a person independent form the previous translators group. The back-translated version of the scale was compared with the original English version, and expert opinion was sought to determine the consistency between the two versions. The scale was finalized at the end of the evaluations of three different academics in the translators group in terms of the scale's suitability to the Turkish culture, comprehensibility and expediency. Later, pre-interviews were conducted with thirty patients who met the inclusion criteria. The scale was determined to be comprehensible for the patients, and the data collected from these patients were assessed for validity and reliability.

Table 2. Item-Total Score Correlation Analysis Results of the Cardiovascular Limitations and Symptoms Profile(n=245)

		SF-36 Quality of Life Scale							
		Physical Function	Physical Role	Emotional Role	Social Function	Mental Health	Vitality	Pain	Overall Health
CLASP	Angina	-0.44*	-0.47*	-0.45*	-0.41*	-0.37*	-0.45*	-0.62*	-0.49*
	Shortness of breath	-0.44*	-0.47*	-0.37*	-0.44*	-0.38*	-0.44*	-0.40*	-0.46*
	Ankle swelling	-0.48*	-0.28*	-0.29*	-0.41*	-0.26*	-0.260*	-0.38*	-0.43*
	Tiredness	-0.51*	-0.51*	-0.43*	-0.57*	-0.43*	-0.65*	-0.49*	-0.53*
	Mobility	-0.70*	-0.53*	-0.52*	-0.60*	-0.35*	-0.54*	-0.54*	-0.62*
	Social life activities	-0.58*	-0.51*	-0.51*	-0.66*	-0.40*	-0.60*	-0.47*	-0.55*
	Activities within the home	-0.44*	-0.42*	-0.42*	-0.41*	-0.34*	-0.43*	-0.45*	-0.41*
	Concerns and Worries	-0.53*	-0.50*	-0.52*	-.639*	-0.53*	-0.64*	-0.53	-0.65*
	Gender	0.20	0.11	0.06	0.27*	0.14	0.11	0.06	0.16
		P=0.020	P=0.102	P=0.318		P=0.028	P=0.087	P=0.329	P=0.012

A; angina, SB; shortness of breath, AS; ankle swelling, T; tiredness, M; mobility, SLA; social life activities, AWH; activities within the home, CW; concerns and worries, G; gender

Criteria-related and discriminant validity

SF-36 was used as the golden standard in determining criteria-related validity. Pearson's product moment correlation coefficients of CLASP sub-domains and SF-36 sub-domains were compared (Table 3). Regarding criteria-related validity, a significant relationship was found between the sub-domains of SF-36 and CLASP, except for the gender sub-group.

HADS was used in the assessment of discriminant validity. The scale includes anxiety and depression sub-scales. At the end of the study conducted in Turkey, cutoff score was found to be 10 for the anxiety sub-scale and 7 for the depression sub-scale. Accordingly, the areas with higher scores are evaluated as risk groups. The lowest and highest scores to be obtained from the two sub-scales were 0 and 21, respectively (14). In our study, patients with anxiety and depression symptoms were determined according to the threshold value, and then it was analyzed whether CLASP sub-domain scores differed according to anxiety and depression symptoms. Limitations and symptoms were observed to be greater in patients with anxiety and depression symptoms, except for the gender sub-domain (Table 4). In general, CLASP is capable of distinguishing patients with and without anxiety and depression symptoms.

Table 3. Criteria-Related Validity Results (n=245)
*p<0.000

	Item-Total score correlation	Cronbach's alpha when item is removed
A1	0.48	0.92
A2	0.52	0.92
A3	0.45	0.92
A4	0.53	0.92
A5	0.24	0.93
SB1	0.60	0.92
SB2	0.67	0.92
SB3	0.34	0.92
SB4	0.66	0.92
SB5	0.66	0.92
AS1	0.55	0.92
AS2	0.55	0.92
AS3	0.56	0.92
T1	0.62	0.92
T2	0.62	0.92
T3	0.61	0.92
M1	0.67	0.92
M2	0.72	0.92
M3	0.73	0.92
M4	0.53	0.92
SLA1	0.56	0.92
SLA2	0.57	0.92
SLA3	0.62	0.92
AWH1	0.20	0.92
AWH2	0.22	0.92
AWH3	0.42	0.92
AWH4	0.38	0.92
C-W1	0.51	0.92
C-W2	0.65	0.92
C-W3	0.41	0.92
G1	0.48	0.92
G2	0.53	0.92
G3	0.53	0.92

Construct Validity

Construct validity was assessed by CFA and EFA. Factor analysis is a method basically used to group interrelated variables. In other words, it helps to group a number of variables under different headings. In the factor analysis, the scale is expected to be in compliance with the original version. It is also expected that each factor falls within the scope of factor and is grouped under the relevant factor; each factor has an eigenvalue above one; and that each expression has a factor load of >40. Literature it is deemed a significant factor load is stated >40(17, 18). Factor analysis is defined as CFA or EFA according to the method and aim of application.

Before initiating the factor analysis, Kaiser-Meyer-Olkin (KMO) analysis andBarlett Sphericity tests were performed to determine the suitability of sample size for factor analysis. KMO value must 0.60, and the value closer to 1 is accepted to be more perfect (17). In our study, KMO sample fit coefficient was found to be 0.85 and the Barlett Sphericity Test χ^2/df value was found to be 8.133/528 (p=0.000). These results demonstrate the suitability of data for factor analysis.

Confirmatory factor analysis aims to generate an implicit variable from the observed variables, using a pre-established model (19) and it is frequently applied in construct validity studies by testing a hypothesis (20). Thus, CFA provides an important advantage.

Various fit indices are used to demonstrate the capability of the model tested in confirmatory factor analysis. For the CFA performed in this study; Chi-Square Goodness Test, Goodness of Fit Index-GFI, Adjusted Goodness of Fit Index-AGFI, Comparative Fit Index-CFI, Normed Fit Index-NFI, Relative Fit Index-RFI, Incremental Fit Index-IFI, and Root Mean Square Error of Approximation-RMSEA were examined. Chi-Square(χ^2) is an important test which evaluates the absolute suitability of the generated model to the database; however, the chi-square test is sensitive to sample size and it usually fails to give reliable results when sample size is over 200 (19). On the other hand, as chi-square test is a frequently used criterion, χ^2/df ratio below 2 provides an important criterion for the suitability of the model. For the GFI, CFI, NFI, RFI, IFI and AGFI indices, the acceptable fit value is 0.90 and the perfect fit value is 0.95; and for the RMSEA index, the acceptable fit value is 0.08 and the perfect fit value is 0.05 (19). Fit values of CLASP were shown in Table 5.

Table 4. Dicriminant Validity Results (n=245)
*Mann Whitney U test

		Anxiety Yes (n:128) No (n:117)	Mean Rank*	U (p)	Depression Yes (n:183) No (n:62)	Mean Rank*	U (p)
Angina	Yes		146.16	4524	Yes	132.11	4006
	No		97.67	p<0.001	No	96.12	p<0.001
Shortness of breath	Yes		150.06	4024	Yes	134.39	3588
	No		93.39	p<0.001	No	89.38	p<0.001
Ankle swelling	Yes		139.71	5349	Yes	127.30	
	No		104.72	p<0.001	No	110.31	4886 p<0.043
Tiredness	Yes		157.95	3015	Yes	134.55	3559
	No		84.77	p<0.001	No	88.90	p<0.001
Mobility	Yes		153.65	3565	Yes	138.32	2869
	No		89.47	p<0.001	No	77.78	p<0.001
Social Life Activities	Yes		157.20	3110	Yes	137.25	3066
	No		85.58	p<0.001	No	80.95	p<0.001
Activities within the home	Yes		144.41	4748	Yes	129.25	4530
	No		99.58	p<0.001	No	104.56	p<0.015
Concerns and worries	Yes		162.98	2.71	Yes	136.75	3157
	No		79.26	p<0.001	No	82.42	p<0.001
Gender	Yes		117.33	6.62	Yes	119.25	4986
	No		129.21	p<0.166	No	134.07	p<0.132

Table 5. Fit Index Values

Fit Index	Fit Value	
χ^2(df)	1035.06 (459)	p<0.01
χ^2 /sd	2.25	
GFI	0.80	
CFI	0.96	
AGFI	0.75	
RMSEA	0.07	
NFI	0.93	
IFI	0.96	
RFI	0.92	

(χ^2); Chi-Square Goodness Test, GFI; Goodness of Fit Index, AGFI; Adjusted Goodness of Fit Index, CFI; Comparative Fit Index, NFI; Normed Fit Index, RFI; Relative Fit Index, IFI; Incremental Fit Index, RMSEA; Root Mean Square Error of Approximation

According to these fit index values, it may be stated that the model is generally fit, but the fit values of the Goodness of Fit Index-GFI and Adjusted Goodness of Fit Index-AGFI are lower than the desired values.

Although the results of CFA were not at the desired level in all indices in the construct analysis study, it was determined according the EFA results that CLASP was fit for a 33-statement and 9-factor Turkish version, but the

According to CFA, load factors of the Cardiovascular Limitations and Symptoms Profile ranged from 0.13 to 0.99.Sub-group of activities within the home,factor loadings of the last two items 0.13 and 0.24 respectively,loads of all items other factor of 0.40 have exceed.

Confirmatory factor analysis results generally met the ideal criteria; however, EFA was performed with the same values, since all fit indices were not at the desired level.

Principal Components Method and Varimax conversion method were used in the EFA. At the end of the factor analysis, a 9-factor construct was obtained, with eigenvalue over 1 and equivalent to 81.317% of total variance (Table 6).

As the factor loads of all items in the scale were greater than 0.40, no item was required to be omitted from the scale. At the end of EFA analysis, the items that questioned mobility and social life activities in the original scale were grouped under the same factor structure. In addition, the four items that questioned activities within the home in the original scale were grouped under two different factors.

statements under each factor differed from the original statements. According to this result, in the new 9-factor construct, mobility and social life activities were placed under the same group and this new group was combined under

physical and social functions, and the activities within the home were group under two separate groups as women's and men's activities within the home. Afterwards CFA was performed again.

Table 6. Factor Structure of the Cardiovascular Limitations and Symptoms Profile (n=245)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
A1		0.82							
A2		0.85							
A3		0.85							
A4		0.88							
A5		0.58							
SB1	0.88								
SB2	0.85								
SB3	0.76								
SB4	0.91								
SB5	0.90								
AS1				0.93					
AS2				0.93					
AS3				0.91					
T1					0.83				
T2					0.85				
T3					0.83				
M1			0.60						
M2			0.60						
M3			0.56						
M4			0.42						
SLA1			0.76						
SLA2			0.78						
SLA3			0.70						
AWH1							0.95		
AWH2							0.96		
AWH3									0.83
AWH4									0.86
C-W1								0.67	
C-W2								0.52	
C-W3								0.72	
G1						0.88			
G2						0.88			
G3						0.90			
Eigenv	11.28	3.16	2.83	2.10	1.96	1.69	1.36	1.30	1.13
Varian	34.18	9.58	8.57	6.38	5.94	5.13	4.12	3.94	3.44

A; angina pectoris, SB; shortness of breath, AS; ankle swelling, T; tiredness, M; mobility, SLA; social lifeactivities, AWH; activities within the home, C-W; concerns and worries, C; gender

Confirmatory Factor Analysis According to the Results of Explanatory Factor Analysis

When CFA was performed according the results of EFA, no significant change was observed in fit indices (Table 7). All factor loads were greater than 0.40.

Table 7. Fit Index Values according to EFA Results(n=245)

Fit index indekleri	ACCORDING TO EFA RESULTS	
χ^2(df)	1036.07(459)	p<0.01
χ^2/sd	2.25	
GFI	0.80	
CFI	0.96	
AGFI	0.75	
RMSEA	0.07	
NFI	0.93	
IFI	0.96	
RFI	0.92	

(χ^2); Chi-Square Goodness Test, GFI; Goodness of Fit Index, AGFI; Adjusted Goodness of Fit Index, CFI; Comparative Fit Index, NFI; Normed Fit Index, RFI; Relative Fit Index, IFI; Incremental Fit Index, RMSEA; Root Mean Square Error of Approximation

The Cronbach's Alfa Values of the Cardiovascular Limitations and Symptoms Profile According to the Results of Explanatory Factor Analysis

Cronbach's alpha values were found to be be 0.92 for CLASP total, 0.81 for angina, 0.92 for shortness of breath, 0.97 for ankle swelling, 0.93 for tiredness, 0.89 for physical and social functions, 0.92 for women's activities within the home, 0.74 for men's activities within the home, 0.80 for concerns and worries, and 0.94 for gender.

The scoring of the sub-domains of physical and social functions, women's activities within the home and men's activities within the home were statistically calculated again according the EFA results of the Cardiovascular Limitations and Symptoms Profile. In line with the measurement results, the range between the highest and lowest values was determined and this value was divided to the number of groups.

As score intervals of normal-mild-moderate-severe were established in the scoring of sub-domains which include these items in the original scale, the same score intervals were used in the present study.

DISCUSSION

Reliability, which is one of the required properties of any scale, is characterized as the scale's ability to obtain the same results by following the same processes and using the same criteria, and as the consistency between the independent measurements of the same thing (21).

In our study, test-retest reliability coefficients were found to be lower in some groups (angina, shortness of breath, mobility, social life activities) compared to the original scale.This result was considered to have resulted from the difference between the patient responses in the first and second applications, depending on their improving overall health. In the study conducted by Lewin et al., reliability coefficients obtained by the test-retest technique were found to be 0.66 (angina), 0.59 (shortness of breath), 0.57 (ankle swelling), 0.50 (tiredness), 0.84 (mobility), 0.66 (social life and leisure activities), 0.76 (activities within the home), 0.74 (worries and concerns), 0.49 (gender)(9). The original scale was applied to the patients with stable angina. Since stable angina manifests a chronic course compared to ACS, the responses given to the questions are expected to differ less over time. Some limitations and symptoms will show differences after the acute phase in patients with ACS; therefore, the responses given to some questions may be expected to change over time. Besides, the reliability coefficients of other groups were found to be higher than those in the original scale.

The internal consistency of the CLASP was assessed by Cronbach's alpha and item-total correlation. Both the Cronbach's alpha values and item-total score correlation coefficients were above than the ideal level, demonstrating the reliability of the CLASP scale. In the study conducted by Lewin et al., the Cronbach's alpha value of the scale was found to be 0.80 (9), while this value was higher in our study (0.92).

Reliability is the capability of a measurement device to accurately measure the

intended dimension without confusing the results with those of another dimension (21). In order to translate a scale prepared for a certain culture into different cultures or languages, the psycholinguistic and psychometric characteristics of the scale should be analyzed (22). At the end of our language validity study, we determined that the scale was comprehensible for the patients included in the sample.

In our study, a significant relationship was detected between SF-36 sub-domains and CLASP sub-domains, except for the Gender sub-domain, in terms of criteria-related validity. Regarding discriminant validity, it was determined that CLASP could distinguish patients with and without anxiety and depression. These results support the validity of CLASP in measuring the physical, social and psychological health of ACS patients. In the study conducted by Lewin et al. 2002 to determine the validity and reliability of CLASP, a statistically significant correlation was found between CLASP and the relevant section of the disease effect profile, between the sleep problems scale and tiredness sub-domain of CLASP, and between anxiety and depression symptoms and the worries and concerns sub-domain of CLASP (9). In the study conducted by Lopez et al. 2008 (2), important correlations were found between CLASP and relevant sections of SF-36 and HADS.

Construct validity was analyzed by CFA and EFA. Confirmatory factor analysis results generally met the ideal criteria; however, EFA was performed with the same data, since all fit indices were not at the desired level. At the end of EFA analysis, the items that questioned mobility and social life activities in the original scale were grouped under the same factor structure. In addition, the four items that questioned activities within the home in the original scale were grouped under two different factors. These differences may have derived especially from the distribution of roles in the Turkish society and the differences in social life in Turkish culture. Traditionally, work and family responsibilities are shared by considering gender. Men's, while tasks such as garden maintenance repair; women'stasks such as cooking, washing dishes, cleaning the house(23).

CONCLUSION

The Turkish version of the Cardiovascular Limitations and Symptoms Profile is a valid and reliable scale, and it is suitable for use in Turkish society. The Turkish version of CLASP, whose reliability and validity has been established in our study, is a convenient scale to be used in the assessment of limitations and symptoms in ACS patients. We suggest that nurses should evaluate the limitations and symptoms of ACS patients at certain intervals; treatment and applications for improving quality of life should be planned after determining limitations and symptoms; patient care, education and treatments should planned by taking into account the socio-demographic and clinical characteristics that affect patients' limitations and symptoms; nurses should be informed about the limitations and symptoms of ACS patients and about the factors that affect these limitations and symptoms; and this knowledge should be reflected on clinical practice.

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