RELIABILITY AND VALIDITY OF THE TURKISH VERSION OF PERCEIVED STRESS SCALE*

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ABSTRACT

The purpose of this study was to adapt for Turkish population by tested validity and reliability of Perceived Stress. The population of the research studied as psychometric was adults who applied to Veyis Efendi Primary Health Care Centre between 1 Mach and 30 May 2004. The sample of this research was 138 persons who accepted participation to study and was selected with convenience sampling. The data of the research was collected by the researcher using Perceived Stress Scale and inquiry form including demographic characteristics. The scale developed by Cohen and his colleagues in 1983 consists of 10 items and it is easy understandable. The items of the scale are scored 1-5 points. The four items are scored as positive; the six items are scored as negative. Evaluation of the scale score is made by sum point. In statistical analysis of the data, factor, Cronbach's alpha, correlation analyses were used.

In the results of analyses, it was found that Pearson's product-moment correlation changed from 0.32 to 0.66, alpha was 0.70. Factor loading of the scale's items ranged from 0.41 to 0.70, and the scale resulted in one factor structure. Overall explained variance for this factor model was 58.1%, and test-retest correlation was 0.88. Light of the finding, it is said that Perceived Stress Scale is validity and reliability for Turkish population.

***Keywords**: Perceived stress, validity and reliability, nurse*

ÖZET

Algılanan Stres Ölçeğinin Türkçe Versiyonunun Güvenilirlik ve Geçerliği

Bu çalışmanın amacı Algılanan Stres Ölçeğinin geçerlilik ve güvenirliğini test ederek Türk toplumuna uyarlamaktır. Metodolojik olarak yapılan araştırmanın evrenini 1 Mart-30 Mayıs 2004 tarihleri arasında Veyis Efendi Sağlık Ocağına başvuran yetişkinler oluşturmuştur. Araştırmanın örneklemini olasılıksız rastlantısal örnekleme yöntemiyle seçilen ve araştırmaya katılmayı kabul eden 138 kişi oluşturmuştur. Araştırmanın verileri Algılanan Stres ölçeği ve demografik özellikleri içeren soru formu kullanılarak araştırmacı tarafından toplanmıştır. 1983 yılında Cohen ve arkadaşları tarafından geliştirilen ölçek kolay anlaşılır ve 10 maddeden oluşmaktadır. Ölçeğin maddeleri 1-5 arasında puan almaktadır. Dört maddesi pozitif, altı maddesi negatif olarak puanlanmaktadır. Ölçeğin değerlendirilmesi toplam puan üzerinden yapılmaktadır. Verilerin istatistiksel değerlendirilmesinde faktör analizi, alfa güvenirlik katsayısı ve korelasyon analizleri kullanılmıştır.

Analizler sonucunda madde-toplam puan korelasyonun 0.32-0.66 arasında değiştiği, ölçeğin alfa katsayısının da 0.70 olduğu bulunmuştur. Faktör analizi sonucunda ölçek maddelerinin faktör yüklerinin 0.41-0.70 arasında değiştiği ve tek faktörden oluştuğu saptanmıştır. Ölçeğin toplam varyansın %58.1'ni açıkladığı ve test re-test korelasyonun da 0.88 olduğu belirlenmiştir. Elde edilen bulguların ışığında, Algılanan Stres Ölçeği'nin Türk toplumuna uygulanması açısından geçerli ve güvenilir olduğu söylenebilir.

***Anahtar Kelimeler**: Algılanan stres, geçerlik ve güvenilirlik, hemşire*

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INTRODUCTION

Stressful events are assumed to increase risk of disease when they are appraised as threatening or otherwise demanding, and when coping resources are judged as insufficient to address that threat or demand. An important part of this view is that event-elicited disorders are not based solely on the intensity or any other inherent quality of an event, but are dependent on personal and contextual factors as well. It is believed that stress affects on health as harmful and prevents act of health behaviours in generally. So, there is a positive relationships between perceived stress and frequent of serious or unserious illness (Cohen and Williamson 1991, Cohen et al. 1997, Taylor 2003). Also, conducted studies determined that there was an association between perceived stress and health behaviours (Hughes et al. 2005, Kemeny 2003). It was found that a correlation was observed between perceived stress level and shorter periods of sleep, in frequent consumption of breakfast, increased quantity of alcohol consumption, usage of more licit drugs and lack of physical exercise (Cohen and Williamson 1988). Cohen and his colleagues stated that a scale assessing global perceptions of stress could serve a variety of valuable functions (Cohen et al. 1983). Perceived stress can be viewed as an outcome variable-measuring the experienced level of stress as a function of objective stressful events, coping processes, personality factors (Cohen and Williamson 1988). The primary purpose of the scale is to measurement level of stress. Additionally, the scale can provide information about the processes through which stressful events influence pathology. It can be used in conjunction with an objective scale in an effort to determine whether appraised stress mediates the relation between objective stress and illness. It can be similarly be used to assess whether a factor known to moderate stress-illness relations. Perceived stress scale can be used to investigate the pathogenic role of overall stress appraisal in situations in which the objective sources of stress diffuse or difficult to measure. The scale is used both perceived stress and evaluate effective of intervention that decrease stress (Cohen and Williamson 1988).

Various stress measure tools were developed concerning sources and types of stress. However stress measure tools measured stress respect only external stressors. So, it is required measure tool appraising global perception of potential stress. Generalised perception of stress should be evaluated by an ideal stress measure. Perceived stress scale is one of a few scales assessing generalised perception of stress (Chen et al. 2000). Thus, determination of stress level by nurses need to protection and promotion of health. Therefore, Perceived Stress Scale can be effective instrument for nurses on determine stress level.

The purpose of this study was to adapt for Turkish population by tested validity and reliability of Perceived Stress Scale.

METHODS

Design

This research was conducted as psychometric to adapt for Turkish population by tested validity and reliability of Perceived Stress.

Population and sample

The population of the research consisted of adults who applied to Veyis Efendi Primary Health Care Centre for any services. The sample of this research included 138 persons who accepted participation to study and was selected by means of convenience sampling. Literature stress that it is adequate take person 5-10 times of the scale items number in studies of validity and reliability (Akgül 2003, Davis and

Robinson 1995). For this reason, the sample size of the research is adequate.

Table 1. Disruption of the sample group consistent with their demographic characteristics

Demographic Characteristics	X ± SD	
Age (Year)	34.7 ± 11.1	
Monthly income of family (TL)	725.2 ± 466.2	
Gender	**N**	**%**
Female	98	71.0
Male	40	29.0
Education Level	**N**	**%**
Primary School	53	38.4
Secondary School	18	13.0
High School	40	29.0
University Degree	27	19.6
Marital Status	**N**	**%**
Married	121	87.7
Single	17	12.3
Total	**138**	**100.0**

Perceived Stress Scale (PSS) as 14 items was developed by Cohen and his colleagues in 1983. Then the items of the scale were reduced by Cohen and Williamson 10 items 1988. The scale items about feelings and thoughts during the last month. This 10 item formed PSS with one dimension in the result of the factor analysis. PSS10 provided more adequate measurement than PSS14 for perceived stress. Items of PSS10 have higher factor loadings and alpha level. Cohen and Williamson (1988) determined Cronbach's alpha of the scale as 0.78. Items of original scale were scored 0-4 point. But, items score of the scale was changed 1-5 point to provide understandable and reliability in this study. Thus, the items are scored 1-5 points, and these are never (1), almost never (2), sometime (3), fairly often (4), very often (5). The scale consists of 10 items and is easy understandable. The four items 4,5,7,8 are scored as positive; the six items 1,2,3,6,9,10 are scored as negative. Evaluation of the scale score is made by sum point, and its score interval is 10-100 point (Cohen and Williamson 1988).

Permission was obtained from Cohen for adaptation and use PSS10. Then, the author translated and adapted the scale to measure the participants' perceived stress. The investigator two bilingual translated the scale independently to the Turkish language and reached similar results. Subsequent to, the most favourable translation was appropriated by a professor who is specialist in this area and a profession who is specialist in Turkish language for the scale. Later, two authority people in two bilingual translated the scale back translated to English, and the scale was viewed by experts. The judges suggested minor changes in wording and the

translated scale was revised accordingly. Finally, comprehensible of the scale applied to ten people was tested and its language validity was provided.

Ethics

Permission to undertake this study was gained from the official associations. Also, verbal permissions were obtained from each participant, and they were informed, if they preferred not to participate, this would not paralyse the health care services given to them. After these explanations, data collection tool was applied to sample who accepted participate to the research.

Data Collection

The data of the research was collected by the researcher using Perceived Stress Scale and inquiry form including demographic characteristics between 1 Mach and 30 May 2004. The researcher visited the centre every workday, and interviewed the participants. The subjects read the questionnaires, and marked their answers on the sheets. This procedure took approximately 20 to 30 minutes for each subject. The questionnaire was given to the participants in a separate quiet room of each primary health care centre. Retest data was collected by invited the samples in the primary health care centre after three weeks than first data collection.

Data analysis

In statistical analysis of the data, factor, Cronbach's alpha, correlation analyses, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity for the simple size were used.

RESULTS and DISCUSSION

After language validity of the scale was provided, to determine its test-retest reliability and internal coefficient were examined. Stability of the scale was evaluated through test-retest measurements, and test-retest correlation was 0.88. A high correlation coefficient indicated that the scale is reliability (Erefe 2002). Alpha coefficient was tested for internal reliability and Cronbach's alpha was 0.70. Cohen and Willamson (1988) determined that its alpha coefficient was 0.78. It is stated in literature that a reliability of 0.80 is considered the lowest acceptable coefficient for a well-developed measurement tool. For a newly developed instrument, a reliability of 0.70 is considered acceptable (Burns and Grove 1993). It is expressed in literature that the reliability was 0.70 and more is adequate for using of measurement tool in researches (Erefe 2002, Özgüven 1998). It was determined that the scale explained % 58.1 of overall variance in this study. Cohen and Williamson (1988) found that the scale explained % 48.9 of total variance. Variance explained by the scale is higher in this research. This proves support to reliability of the scale. Correlation coefficients changed 0.32 from 0.66 was found in the result of Pearson's product-moment correlation conducted (Table 2). Cohen and Willamson (1988) was not evaluated Pearson's product-moment correlation of the items. However, it was determined that Pearson's product-moment correlation of the items of PSS 14 ranged 0.36 from 0.70 (Cohen et al. 1983). According to literature, a Pearson's product-moment correlation of 0.30 is considered the lowest acceptable (Özgüven 1999, Erefe 2002). In this study, the correlation coefficient is adequate level.

Before factor construction of the scale would observed, The Kaiser-Meyer-Olkin measure of sampling adequacy tests (KMO) and Bartlett's Test of Sphericity was established to determine the sample was whether adequate or inadequate. Analyses showed that KMO was 0.754 and Bartlett's was 310.61, it was found that the result of each two test was statistically significant in level of p= 0.000 and was satisfactory for factor analysis.

Table 2. Factor loading and product-moment correlation of items

The items of the scale	Factor loading	product-moment correlation
1. In the last month, how often have you been upset because of something that happened unexpectedly?	.704	.628**
2. In the last month, how often have you felt that you were unable to control the important things in your life?	.514	.578**
3. In the last month, how often have you felt nervous and "stressed"?	.671	.644**
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	.618	.375**
5. In the last month, how often have you felt that things were going your way?	.696	.322**
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	.255	.472**
7. In the last month, how often have you been able to control irritations in your life?	.655	.358**
8. In the last month, how often have you felt that you were on top of things?	.547	.603**
9. In the last month, how often have you been angered because of things that were outside of your control?	.626	.630**
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	.519	.661**

** P< 0.01

According to Principal Component factor analysis and varimax rotation conducted, it was determined that factor loading of the items of the scale changed 0.41 from 0.70 and the scale formed from one factor. The minimum cut-off point that is acceptable is 0.30 for factor loading (Burns and Grove 1993). In this study all items met this criteria and factor loading were high. Thus, construct validity of the scale was gained. Cohen and Williamson (1988) found that factor loading the scale items were 0.42 and more. The finding of this study is comparable with findings literature and original research.

CONCLUSION

In lighting of the finding, it is said that Perceived Stress Scale is validity and reliability for Turkish population. This scale can be used to determine stress level of individual as reliable. However, validity and reliability of the scale could be tested in groups with variety characteristics and separate area of Turkey.

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APPENDIX

Algılanan Stres Ölçeği

Ölçek maddeleri	Hiçbir zaman (1)	Hemen Hemen Hiç (2)	Bazen (3)	Sıklıkla (4)	Çok Sık (5)
1-Son bir ay içinde beklenmeyen bir şeyler olması nedeniyle ne sıklıkta altüst (hayal kırıklığına uğramak, sarsılmak, şoke olmak) oldunuz?					
2- Son bir ay içinde kendi yaşamınızdaki en önemli şeyleri kontrol edemediğinizi hangi sıklıkta hissettiniz?					
3- Son bir ay içinde kendinizi hangi sıklıkta sinirli ve stresli hissettiniz?					
4-Son bir ay içinde kişisel problemlerinizi çözebilecek gücünüze ne sıklıkta güvendiniz?					
5- Son bir ay içinde sizinle ilgili bir şeylerin yolunda gittiğini ne sıklıkta hissettiniz?					
6- Son bir ay içinde yapmanız gereken tüm şeylerle ilgili olarak üstesinden gelemeyeceğinize ne sıklıkta inandınız?					
7- Son bir ay içinde kendi yaşamınızla ilgili olarak öfkenizi hangi sıklıkta kontrol ettiniz?					
8- Son bir ay içinde bir çok sorunun üstesinden geldiğinizi (pek çok şeye yetebildiğinizi) ne sıklıkta düşündünüz?					
9- Son bir ay içinde kontrolünüzün dışında olan bir şeylerden dolayı hangi sıklıkta sinirlendiniz?					
10-Son bir ay içinde üstesinden gelemeyeceğiniz şeylere takılıp kalmanın zorluğunu ne sıklıkta hissettiniz?					