Original Research / Orijinal Araştırma

Validity and Reliability of Patient Perception of Patient Centeredness Scale in Turkish

Hastanın Hasta Merkezlilik Algısı Ölçeği Türkçe Geçerlik Güvenilirlik Çalışması

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Abstract
Background: Patient-centeredness is one of the components of high-quality care and accepted as one of the core competencies of family medicine. The positive effect of patient-centered care on health outcomes reveals itself mainly through the patient's perception of patient-centeredness, which can be measured by the Patient Perception of Patient-Centeredness (PPPC) scale. Aims: To evaluate Turkish validity and reliability of the 18-item 'patient perception of patient-centeredness' scale (PPPC-R) developed by Stewart et al. Study Design: Methodological study. Methods: The translation of the scale was performed by three researchers with the help of 10 family medicine academicians as well as the main developers of the original scale. The Turkish form of the scale, along with the Patient-Physician Relationship summary dimension of the Primary Care Assessment Scale (PCAS) and the Patient-Doctor Relationship Questionnaire (PDRQ), was applied to 339 primary care patients. Results: The original 3-factor model of the revised Patient Perception of Patient-Centeredness (PPPC-R) questionnaire was tested with a Confirmatory Factor Analysis (CFA) to determine if the factor structure of the PPPC-R cross-validates in a Turkish patient population. The fit indices regarding the three-dimensional structure of PPPC-R are within the good or acceptable limits. The standardized factor loadings of the PPPC-R scale items ranged from 0.52 to 0.81 and t values were significant. Cronbach alpha of the scale was 0.903. With respect to criterion, the validity scale showed a negative correlation with both PCAS and PDRQ as expected. Conclusion: The three-dimensional structure of the scale was confirmed with CFA. During this verification, one item did not work and the factor load was considered to be low and removed from the scale. Turkish version of PPPC-R is a scale that can be used to evaluate patients' perception of patient-centeredness.
Key words: Patient-Centeredness, Primary Care, Patient-Physician Relationship

Özet
Giriş: Nitelikli sağlık hizmetinin bileşenlerinden biri olan hasta merkezlilik aile hekimliğinin de temel yeterliliklerinden biri olarak kabul edilmektedir. Hasta merkezli hizmetin sağlık çıktıları üzerindeki olumlu etkisi hastanın kendisine verilen hizmeti ne ölçüde hasta merkezli olarak algıladığı ile ilişkilidir. Bu da Hastanın Hasta Merkezlilik Algısı Ölçeği ile ölçülebilir. Bu çalışmanın amacı Stewart ve ark. tarafından geliştirilen 18 maddelik Hastanın Hasta Merkezlilik Algısı Ölçeği'nin (PPPC-R) Türkçe geçerlik ve güvenilirliğini saptamaktır. Yöntem: Ölçek üç araştırmacı tarafından Türkçeye çevrilmiş, bu sürece 10 aile hekimliği akademisyeni ve orijinal ölçeğin geliştiricileri katkıda bulunmuştur. Oluşturulan Türkçe form birinci basamağa herhangi bir yakınma ile başvuran 339 hastaya Birinci Basamak Değerlendirme Ölçeği'nin (BBDÖ) Hasta - Hekim İlişkisi Özet Boyutu ve Hasta - Hekim İlişkisi Ölçeği (PDRQ) ile birlikte uygulanmıştır. Bulgular: PPPC-R'nin orijinal üç-boyutlu yapısının Türkçe versiyonu için de geçerli olup olmadığı Doğrulayıcı Faktör Analizi (DFA) ile sınanmıştır. Üç-boyutlu yapı için uyum indeksleri iyi ve kabul edilebilir sınırlarda bulunmuştur. Standardize faktör yükleri 0.52 ile 0.81 arasında olup t değerleri anlamlıdır. Ölçeğin Cronbach alfa değeri 0.903'tür. Ölçüt geçerliliği açısından ölçek puanları, beklendiği gibi, BBDÖ ve PDRQ ile negatif yönde bir korelasyon göstermiştir. Sonuç: Ölçeğin üç-boyutlu yapısı DFA ile doğrulanmıştır. Bu doğrulama sürecinde bir madde çalışmadığı gözlenen ve düşük faktör yükü saptanan bir madde ölçekten çıkartılmıştır. Hastanın Hasta Merkezlilik Algısı Ölçeği Türkçe dilinde kullanılabilir bir ölçektir.
Anahtar kelimeler: Hasta Merkezlilik, Birinci Basamak, Hasta - Hekim İlişkisi

Introduction

The biomedical paradigm offered a significant contribution to the development of modern medicine with its conceptual framework. This approach has led to the rapid increase of knowledge in medicine, the emergence of specialties, the development of medical technology, and the elimination of many health problems with specific etiology such as infectious diseases. However, over time, this paradigm suffered some difficulty to explain many phenomena, such as the problems in determining specific etiology, mind-body duality, and the placebo effect, which began to force the dominant perspective to change.[1]

In the late 1970s, George Engel, an internist, and psychiatrist criticized the biomedical model, which dominated modern medicine, for having a very narrow perspective and excluding clinically meaningful information and brought up the biopsychosocial model, which integrates biological, psychological, and social data. However, Engel described an approach and a way of thinking with this model. The implementation of this approach to clinical practice was not explicit. The patient-centered clinical method (PCCM) described by Moira Stewart et al. clearly defines how to apply the biopsychosocial approach into clinical practice.[2]

PCCM consists of 4 components: 1) exploring both the disease and the illness experience, 2) understanding the whole person, 3) finding common ground, and 4) enhancing the patient-physician relationship. These four tasks can only be accomplished if the physician gives up his authoritative determinative behavior and learns to share the power with the patient and overcome his/her detachment and learn to respect the illness experience of the patient.[2]

Patient-centeredness can be most easily and effectively carried out in the family medicine environment.[3] The European Academy of Teachers in Family Medicine (EURACT) also accepts patient-centeredness as one of the core competencies of family medicine.[4]

Patient-centered care is accepted as one of the components of high-quality care.[5] There is a considerable amount of international evidence on the positive effects of patient-centered care. Patient-centered medical practice increases patient and physician satisfaction and patient compliance. In addition to decreasing the anxiety of the patient about his/her health problems and resulting in better declaration of health by the patient, it has also been shown to improve some health outcomes. A patient-centered approach decreases poor medical practices, hospitalizations, and referrals. On the other hand, contrary to some claims, the patient-centered approach does not require more time in patient-physician consultations and leads to less diagnostic test use.[6]

The positive effect of patient-centered care on health outcomes shows itself by the way of patients' perception of patient-centeredness.[7] In other words, the main factor that makes the difference in health outcomes is not the measure of the physician's behavior in terms of patient-centeredness, but to what extent the patient perceives this consultation as patient-centered.[2] In addition, many patient groups have stated that it is important to receive patient-centered services.[8] In this context, it is important to measure how much the patient perceives a patient-physician consultation as patient-centered.

In a systematic review of the scales measuring the patient's perception of patient-centeredness, Stewart et al.'s scale is considered as one of the most comprehensive and accurate scales.[9]

Patient Perception of Patient-Centeredness (PPPC) scale was first developed in 1986 and revised in 1990. The revised version consisted of 14 items and is valid and reliable to measure the perception of the patients related with three dimensions of patient-centered clinical method: 'exploring the disease and illness experience', 'understanding the whole person' and 'finding common ground'.[10]

In 2014, PCCM was re-defined as four components as listed above. This created an opportunity to reconsider the scale. The authors added 11 more expressions to the original 14 statements to cover these four components and examined the factor structure on 381 patients. As a result of this study, the scale was finalized as 18 items evaluating three dimensions: health care process; context and relationships; and roles. The scale is structured in 4-point Likert type, and as the score increases, patient-centeredness decreases.[11]

This study aims to evaluate the Turkish validity and reliability of the 18-item 'patient-centered perception of patient' scale (PPPC-R) developed by Stewart et al.

Method
Turkish Translation
Following the receiving permission from its developers, the scale was translated into Turkish separately by three researchers who have proficiency in English. The researchers then came together and identified three alternative translations for each item. Original statements and three alternative translations of each statement were sent to 10 faculty members working in family medicine departments of various universities, and they were asked to choose the statement that they found most appropriate, or to write a statement they thought that was more appropriate. In line with the suggestions of these faculty members, three researchers rearranged the scale to have three alternative translations. Then, original English expressions were removed from the text and these three-alternative translations of each item were translated into English by a non-medical professor who spoke English at the native speaker level. This back-translated scale with three alternatives in English for each original item was sent to the developers of the original scale. They were asked to choose the most appropriate back-translated alternative for each original item according to the essence of the scale. The final Turkish version of the scale comprised of Turkish equivalents of the back-translated alternative of each item recommended by the developers of the original scale.

Participants
The Turkish form of the scale, along with the Patient-Physician Relationship summary dimension of the Primary Care Assessment Scale (PCAS) and the Patient-Doctor Relationship Questionnaire (PDRQ) were completed by 339 participants applied to the Education Family Health Centers of a Family Medicine Department of a Faculty of Medicine with a complaint and over 18 years of age.

Data was collected in August and September of 2018. Patients applied with a complaint were asked to participate in the study. Applications for bureaucratic or administrative purposes, periodic health examinations, prescription demands, and control visits were excluded. The rejection rate is very low and mostly due to the reasons, we did not expect to affect the results of the study, such as lack of time.

The mean age of the participants was 35.23±13.96. Most of them were female (70.5%), and 49.2% had higher education such as university or postgraduate master/doctorate.

Scales
In the research, along with the PPPC-R, two other scales valid and reliable in Turkish were applied for criterion validity. These two scales are briefly introduced below.

Primary Care Assessment Scale (PCAS)
PCAS was developed by Safran et al. in 1998.[12] Validity and reliability of the scale in Turkish was studied by Lağarlı et al.[13] The scale has two summary dimensions (structural summary dimension and patient-physician relationship summary dimension); 7 dimensions (accessibility, continuity, inclusion, coordination, service satisfaction, personal approach, and trust) and 11 sub-dimensions (financial availability, organizational accessibility, longitudinal continuity, physician-based continuity, patient's holistic knowledge, preventive services and consultancy under these dimensions, communication, physical examination, interpersonal treatment, and trust). Cronbach's alpha value in all dimensions was between 0.80 and 0.90.

Since the summary dimensions and dimensions of the scale can be used separately, the 'patient-physician relationship summary dimension' consisting of 21 questions was used in this study.

Patient-Doctor Relationship Questionnaire (PDRQ)
PDRQ was developed by Van der Feltz-Cornelis et al. to evaluate the patient-physician relationship in primary care, and the Turkish validity and reliability of the scale was studied by Mergen et al in 2012.[14,15] The scale consists of 9 questions in a five-point Likert style and Cronbach's alpha value was determined to be 0.91.

Data analysis
Confirmatory factor analysis (CFA) was applied to confirm the factor structure of the scale. Cronbach alpha was used for internal consistency, and patient-physician relationship summary-dimension of PCAS and PDRQ scale were used for criterion validity. For CFA, Lisrel 8.71, SPSS 22.0 package programs were used to calculate Cronbach's alpha and for correlation for criterion validity.

Results

Confirmatory Factor Analysis (CFA): The original 3-factor model of the revised Patient Perception of Patient-Centeredness (PPPC-R) questionnaire was tested with a CFA to determine the factor structure of the PPPC-R cross-validates in a Turkish PC patient population. For this, the covariance matrix was used and the maximum likelihood method was used as a method for estimating the fit indexes.

The criteria presented in Table 1 were taken into consideration to evaluate the fit indices of the three-dimensional model.[16]

Table 1. Fit Indices Criteria (Schermelleh-Engel & Moosbrugger, 2003)

Fit indices	Good fit	Acceptable fit
x^2 / df p value	$0 \leq x^2 / df \leq 2$ $0.05 \leq p \leq 1.00$	$2 \leq x^2 / df \leq 3$ $0.01 \leq p \leq 0.05$
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.10$
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.10$
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$
NNFI	$0.97 \leq NNFI \leq 1.00$	$0.95 \leq NNFI \leq 0.97$
CFI	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$

x^2 / df: Chi-Square/degree of freedom; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Square Residual; NFI: Normed Fit Index; NNFI: Non-Normed Fit Index; CFI: Comparative Fit Index; GFI: Goodness of Fit Index; AGFI: Adjusted Goodness of Fit Index

The fit index values calculated for PPPC-R as a result of the confirmatory factor analysis are shown in Table 2, the standardized item factor loadings are shown in Table 3 and the path diagram is shown in Figure 1.

Table 2. Fit indices of the three-dimensional model

Model	X^2/Df	RMSEA	GFI	AGFI	CFI	NFI	NNFI	SRMR
Three-dimensional model	262,79/116 2.27	.062	.92	.89	.98	.97	.98	.04

Structural equality modeling, fit indices

Table 3. Standardized item factor loadings and t values of PPPC-R

Item No	Item	Factor-1*	t-value**	Factor-2*	t-value**	Factor-3*	t-value**
1	To what extent was your main problem(s) discussed today?	.53	9.92				
2	How well do you think your provider understood you today?	.63	12.45				
3	How satisfied were you with the discussion of your problem?	.67	13.25				
4	To what extent did your provider explain this problem to you?	.70	14.15				
5	To what extent did you agree with your provider's opinion about the problem?	.69	13.87				
6	To what extent did your provider ask about your goals for treatment?	.73	15.01				
7	To what extent did your provider explain treatment?	.65	12.84				
8	To what extent did your provider explored how manageable this treatment would be for you?	.67	13.47				

9	To what extent did you and your provider discuss your respective roles?			.78	15.29		
10	To what extent did your provider encourage you to take the role you wanted in your own care?			.81	16.21		
11	How much would you say that this provider cares about you as a person?					.55	10.32
13	How comfortable are you discussing personal problems related to your health with your provider?					.58	10.99
14	To what extent does your provider respect your beliefs, values and customs?					.66	12.97
15	To what extent does your provider consider your thoughts and feelings?					.78	16.44
16	To what extent does your provider show you compassion?					.72	14.78
17	To what extent does your provider really listen to you?					.76	15.90
18	To what extent do you trust your provider?					.73	14.87

* Standardized item factor loadings (λ, item-latent variable correlation)

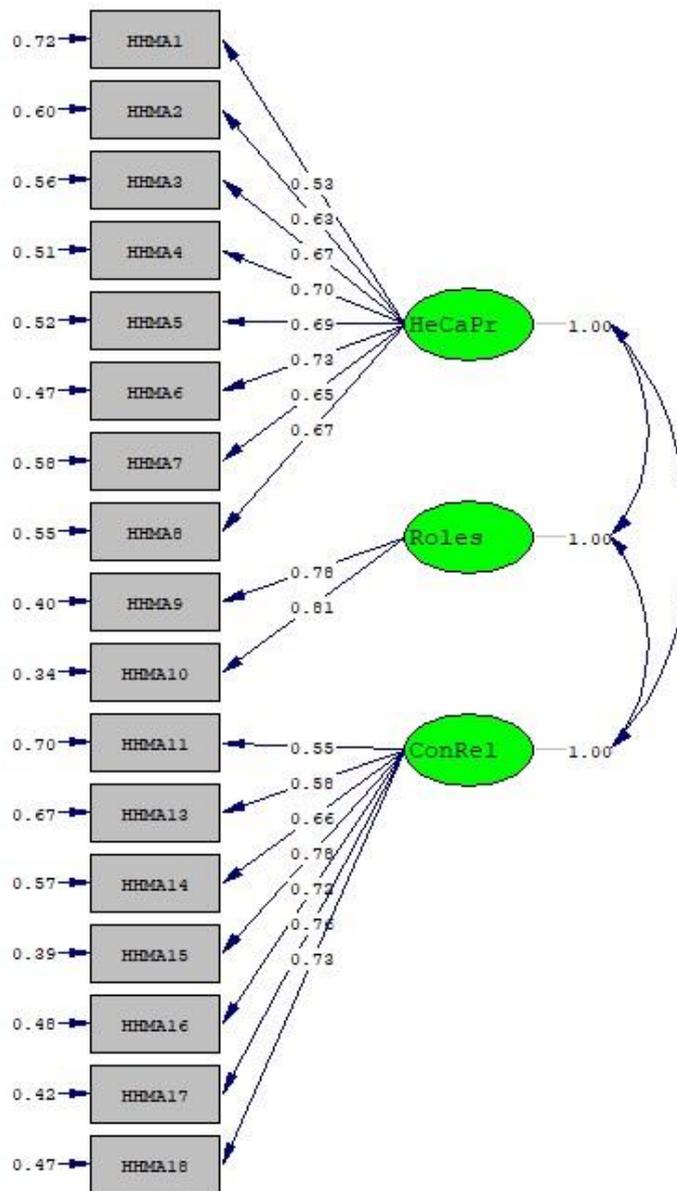** Significance value of the item factor loadings

Figure 1. Path diagram and standardized item loadings of the three-dimensional structure of PPPC-R
HHMA: Hastanın Hasta Merkezlilik Algısı (Turkish name for PPPC)

The fit indices estimated according to the CFA results performed to test the three-dimensional original structure of PPPC-R are as follows: GFI = 0.92, AGFI = 0.89, CFI = 0.98, NFI = .96, NNFI = .98, SRMR = .045, RMSEA = .062 , and, $\chi 2 / df = 2.27$ (p = .000). When the fit indices criteria in Table 1 are taken into consideration, it is seen that the fit indices regarding the three-dimensional structure of PPPC-R are within the good or acceptable limits. According to these results, it can be concluded that the original three-dimensional structure of the scale is preserved in the Turkish version.

According to the results in Table 3 and Figure 1, the standardized factor loadings of the PPPC-R scale items ranged from 0.52 to 0.81, and t values were significant. It can be concluded that the related items serve to measure the three-dimensional structure of PPPC-R.

Criterion Validity: The Turkish form of the scale, along with the Patient-Physician Relationship summary dimension of the Primary Care Assessment Scale (PCAS) and the Patient-Doctor Relationship Questionnaire (PDRQ) were used to test the criterion validity. Since PCAS is a scale used in the evaluation of primary health care services, and the relevant summary dimension includes assessment of the physician by the patient (with physical examination, communication, interpersonal treatment, and trust sub-dimensions) and PDRQ is a scale that evaluates doctor-patient communication, scores of each scale expected to be negatively correlated with the PPPC-R scores.

Correlations between PPPC-R and its dimensions with these two scales are shown in Table 4.

Table 4. Correlations between PPPC-R, its subscales, and other scales

	PCAS Physical Examination Score	PCAS Communication score	PCAS Interpersonal treatment score	PCAS Trust score	PDRQ score
PPPC-R	-,411[**]	-,670[**]	-,595[**]	-,581[**]	-,622[**]
Health care process	-,374[**]	-,652[**]	-,555[**]	-,515[**]	-,602[**]
Roles	-,303[**]	-,503[**]	-,426[**]	-,375[**]	-,446[**]
Context and relationships	-,407[**]	-,580[**]	-,544[**]	-,548[**]	-,560[**]

Pearson product-moment correlation, $**p < .01$, $*p < .05$

As seen in Table 4, PPPC-R is negatively correlated with PCAS and PDQR scores. This is due to patient-centeredness is decreasing as PPPC-R scores increasing.

Reliability Analysis: Cronbach alpha internal consistency coefficients were calculated and interpreted for the reliability of PPPC-R.[17] Cronbach's alpha values of the Turkish version of PPPC-R and its sub-dimensions are shown in Table 5. Total, health care process and context and relationship scores are highly reliable whereas roles scores are moderately reliable.

Table 5. Cronbach alpha values of the three-dimensional structure

Dimensions	Cronbach alpha*
PPPC-R Total (17 items)	0.903
Health care process (8 items)	0.854
Roles (2 items)	0.769
Context and relationships (7 items)	0.804

*(α) internal consistency

Discussion

This study aimed to adapt PPPC-R to Turkish. Factor structure was tested with CFA, criterion validity was tested with PCAS and PDRQ, and reliability analyzes were made with Cronbach's alpha internal consistency coefficients. According to the findings, the three-dimensional structure of the scale was confirmed with CFA.

During this verification, one item about the knowledge of the physician about the family life of the patient ('To what extent does your provider know about your family life?') did not work, and the factor load was low and removed from the scale. It was thought that this item was perceived quite differently by the participants due to its general structure. Some characteristics of the participants may contribute to this divergence. Our participants are younger and more educated than the participants of other studies examining the factor structure of the scale.[11,18] Due to their age, our population probably was considerably different with respect to health problem profile and consequent primary care use, especially from the study examined French version in which the item had the highest factor load. For young and educated people who have few health problems and probably use primary care seldomly, the physicians' knowledge of their family life may be meaningless in the context of receiving health care.

Health Care Process, Roles and Context, and Relationship sub-scores and PPPC-R total score showed a significant but inverse correlation with PCAS subscales and DPRQ total score. It was concluded that PPPC-R made similar measurements with the other two scales tested because the scales were in opposite directions. Finally, the reliability of the entire scale and its subscales were found to be sufficient by testing Cronbach's alpha.

As a result, it has been concluded that the Turkish version of PPPC-R is a scale that can be used to evaluate patients' perception of patient-centeredness. Using this measurement, strategies can be developed for the evaluation

and improvement of patient-centered skills of physicians within the scope of family medicine specialty training and continuing medical education. It can also be used for research in this area.

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