JBACHS
Journal of Basic and Clinical Health Sciences

J Basic Clin Health Sci 2023; 7: 705-712
https://doi.org/10.30621/jbachs.1178880
RESEARCH ARTICLE

VALIDITY AND RELIABILITY OF THE TURKISH VERSION OF THE PELVIC PAIN IMPACT QUESTIONNAIRE

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Received: 22.09.2022; **Accepted:** 06.03.2023; **Available Online Date:** 31.05.2023

Cite this article as: Kurt TK, Taspinar B, Taspinar F. Validity and Reliability of the Turkish Version of the Pelvic Pain Impact Questionnaire. J Basic Clin Health Sci 2023; 7: 705-712.

ABSTRACT

Purpose: The objective of this study was to assess the validity and reliability of the Pelvic Pain Impact Questionnaire's Turkish translation (PPIQ-T).
Material and Methods: This study was conducted with 110 female patients (mean age: 43.67±11.71 years), who were being treated as inpatients or outpatients in the Obstetrics and Gynecology Department. Necessary permission for PPIQ was obtained and translation procedures were applied in terms of cultural adaptation. Test-retest and internal consistency were used for reliability. The correlation between the McGill Pain Questionnaire (MPQ) and the Short Form-36(SF-36) was analyzed to determine the construct validity of the questionnaire. Additionally, exploratory factor analysis and confirmatory factor analysis were used to test the factorial validity of the PPIQ-T.
Results: Intraclass correlation coefficient (ICC) was 0.95, while the Cronbach alpha value was 0.92. A significant correlation was determined between PPIQ-T and SF-36 questionnaires (r= 0.62-0.78, p<0.001), and MPQ (r=0.85, p<0.001). The Kaiser-Meyer-Olkin coefficient was 0.87, according to exploratory factor analysis (EFA). Confirmatory Factor Analysis values were found Chi-Square as 31.142, df as 18, RMSEA as 0.08, and p<0.05.
Conclusion: The study's results indicated that the PPIQ-T can be utilized to evaluate patients with chronic pelvic pain in a variety of contexts and for treatment planning.

Keywords: Validity and reliability, pelvic pain, quality of life, women's health, pain, pelvis

INTRODUCTION

The European Association of Urology defines chronic pelvic pain (CPP) as long-lasting or persistent pain felt in parts of the male or female pelvis (1). CPP, which is seen at the rate of 5.7%-26.6% of women worldwide (2), includes the suprapubic region, inguinal, urethral, penile clitoral, perineal, rectal, and back region, hips, and thigh regions (3). The causes of CPP include gynecological reasons such as pelvic inflammatory diseases, pelvic adhesions, endometriosis, ovarian remnants, ovarian retention syndrome, pelvic congestion syndrome, and non-gynecological reasons such as irritable bowel syndrome, myofascial pain syndrome, and psychosocial factors (4). World Health Organization (WHO) reported that 14% of females experience CPP at least once during their lifetime (2).

Associated with the multiple etiological factors, many symptoms are seen in CPP (5). The most frequently seen psychological problems in women with CPP are depression, anxiety, multi-psychological disorders, and somatic disorders (6). In addition, quality of life

(QOL), emotional state, work, and family life are affected (7-10). Quality of life includes values, perspectives, satisfaction, living conditions, accomplishments, functionality, cultural contexts, and spirituality. At the same time, QOL is very important in health research, and QOL research involves a variety of patient groups and different research plans (11,12). Therefore, evaluation of women with CPP and raising awareness of this subject is of great importance in respect of taking the necessary precautions in the early stage and creating treatment programs.

With the literature in mind, Jane Chalmers et al. created the Pelvic Pain Impact Questionnaire (PPIQ) to close the knowledge gap and address evolutional flaws, divergent expert opinions, and challenges with pelvic pain diagnosis (13). There has been no research done on the Turkish validity, reliability, or cultural adaptability of this questionnaire. This study was conducted to assess the validity and reliability of the Turkish version of the PPIQ, which will be a fundamental component in the assessment of CPP and the planning of treatment.

MATERIAL AND METHODS

Participants

This study was conducted with 110 female patients, who were being treated as inpatients or outpatients in the Obstetrics and Gynecology Department of Adnan Menderes University Training and Research Hospital between April 2019 and October 2019.

The Izmir Demokrasi University's Scientific Research and Publication Ethics Committee approved this study (decision no:2019/05-01, dated:10.04.2019). The number of subjects was defined concerning literature stating that the sample size should be tenfold the number of items in a questionnaire (14). Therefore 110 individuals were recruited into the study. The inclusion criteria were determined as female gender, age of ≥18 years, being literate, and being diagnosed with a CPP problem. The exclusion criteria were determined as the inability to communicate verbally or having any cognitive or mental function disorder. The study was explained to the individuals who satisfied the requirements for

Table 1. The physical and clinical data of the patients

Variables (n=110)	Min-Max	Mean±SD
Age (years)	18-65	43.67±11.71
Height (cm)	150-172	160.20±4.71
Body Weight (kg)	45-110	71.52±13.29
BMI (kg/cm^2)	16.53-45.79	28.00±5.80
PPIQ-T	2-32	14.76±7.99
MPQ	24-88	47.70±17,34
SF-36		
Physical functioning	0-100	67.22±27.66
Role limitation	0-100	51.85±41.19
Role emotional	0-100	57.27±44.50
Vitality	0-75	45.40±18.17
Mental health	8-80	56.10±18.46
Social functioning	0-100	62.61±28.57
Bodily pain	10-100	53.56±24.18
General health	0-90	46.75±24.01

Min: Minimum, Max: Maximum, SD: Standard Deviation, BMI: Body Mass Index. SF-36: Short Form 36, MPQ: McGill-Melzack Pain Questionnaire. PPIQ-T: Turkish Pelvic Pain Impact Questionnaire

Table 2. Item mean scores, item-total correlations, and Cronbach's α coefficient if an item deleted from The PPIQ-T

The Pelvic Pain Impact Questionnaire	Mean (SD)	Item-total correlation	Cronbach's α if item deleted
In the past month, how much has your pelvic pain affected your:			
Energy Levels	2.61 (1.01)	0,768	0.90
Mood	2.51 (1.17)	0,766	0.91
Sleep	1.60(1.59)	0,746	0.90
Stomach and intestinal function	1.93 (1.19)	0,770	0.92
Ability to sit for longer than 20 minutes	1.62 (1.40)	0,758	0.91
Ability to perform and function normality at home/work/school/university	2.01 (1.13)	0,761	0.90
Ability to take part in physical activity (e.g. jogging, yoga, bicycling)	1.87 (1.21)	0,761	0.91
Ability to wear certain clothes (e.g. underwear, tight fitting clothes)	0.54 (1.12)	0,769	0.91

PPIQ-T: Turkish Pelvic Pain Impact Questionnaire

inclusion, and those who decided to participate obtained from whom an informed consent form. A record was made for each subject of demographic and descriptive data including age (years), height (cm), body weight (kg), and body mass index (BMI) (kg/m^2).

Translation Process and Procedure

The translation process and procedure were conducted according to Beaton et al. (15). Firstly, K. Jane Chalmers gave her consent for the requisite validity and reliability studies of the PPIQ to be conducted in Turkish. First, the Turkish cultural adaptation of the questionnaire was performed. The questionnaire was first translated from Turkish to English by 3 physiotherapists, each with a good level of English, independently of each other. The first Turkish questionnaire was prepared from these translations and was then examined by a committee of physiotherapists with a good knowledge of English to determine whether or not it matched the English original. A physiotherapist with a high level of English translated the questionnaire into a text that was mutually agreed upon, then the two versions were compared. The appropriateness of the Turkish was evaluated by a language specialist. The Turkish translation that was found to be consistent with the original was applied to a group of 10 patients for evaluation of the suitability of the Turkish language and compatibility with Turkish culture and society. Patients were asked for recommendations when questions that produced comprehension issues were observed. According to the results obtained, there was no requirement for any corrections such as additions, removals, or changes to the questionnaire, and so the final form was created, named the Pelvic Pain Impact Questionnaire- Turkish (PPIQ-T).

Reliability

The most popular method for determining reliability is to use Cronbach's coefficient. Reliability refers to the consistency and stability of the measurement tool. The internal consistency of the PPIQ-T was evaluated using Cronbach's α coefficient. It is commonly accepted that a Cronbach's rating >0.8 denotes high internal consistency (16). In this study, dependability was rated as acceptable for Cronbach's alpha values of 0.7, good for Cronbach's alpha values of 0.8, and outstanding for Cronbach's alpha values of 0.9. The most popular approach for assessing a scale's stability is test-retest reliability, and a correlation coefficient of >0.7 is typically assumed to mean that a scale is stable (17). The test-retest reliability was used in this study to assess the questionnaire's reliability. This evaluation is applied to subjects in the

Table 3. Correlation coefficient (r) between PPIQ-T and SF-36, McGill

Pelvic Pain Impact Questionnaire		
		Totally Point r (p)
SF-36		
Physical health	Physical functioning	-0.77 (<0.001)
	Role-physical	-0.62 (<0.001)
	Bodily pain	-0.78 (<0.001)
	General health	-0.73 (<0.001)
Mental health	Vitality	-0.72 (<0.001)
	Social functioning	-0.72 (<0.001)
	Role-emotional	-0.63 (<0.001)
	Mental health	-0.73 (<0.001)
MPQ		0.85 (<0.001)

r: Correlation Coefficient, SF-36: Short Form 36, MPQ: McGill-Melzack Pain Questionnaire, PPIQ-T: Turkish Pelvic Pain Impact Questionnaire

same situation at different times. Therefore, in this study, the questionnaire was applied twice at an

interval of one week. The second measurements were included in the study for patients who stated that their condition had not changed.

Validity

The McGill Pain Questionnaire (MPQ), which measures pain, and the Short Form-36 (SF-36), which measures the quality of life, were both utilized to test the construct validity of the questionnaire. The MPQ and SF-36 were chosen because the PPIQ-T contains items that examine pain and quality of life. Additionally, exploratory factor analysis and confirmatory factor analysis were used to assess the factorial validity of the PPIQ-T (18).

Instruments

Pelvic Pain Impact Questionnaire

The PPIQ, which evaluates chronic pelvic pain, is formed of 10 items, the first 8 of which are scored from 0-4 with Likert-type responses. These questions are about energy level, mood, sleep, stomach, and intestinal function, sitting duration, functionality, physical activity, and wearing clothes. Additionally, there are two supplementary questionnaires except for scoring. While question 9 is about tampon usage, question 10 is about sexual relationships. This questionnaire can be used for individuals or groups. The total points are obtained as the total of the points of each item, and the final two items are not included in the calculation. High points indicate high impact (13).

McGill Pain Questionnaire

The Turkish translation of the McGill Pain Questionnaire was used in this study to measure pain. The MPQ was developed by Melzack and Torgerson in 1971 and has been used in many studies since 1975 (19,20). It has been translated into more than ten languages and the Turkish version validity and reliability studies were conducted by Yazıcı, Eti-Aslan, and Olgun (21). The MPQ is formed of four sections, the first of which includes name, surname, age, medical diagnosis-problem, type and dose of analgesia if used, and the perceptions of the patient in respect of localization of the pain, characteristics, time associations, and severity (20).

Short Form 36

The SF-36 was used in this study to evaluate the quality of life. Koçyiğit et al. conducted the validity and reliability of the SF-36 Turkish version (22). One of the most used measures for gauging quality of life is the SF-36. The SF-36 comprises 36 items in 8 dimensions of physical function, role restrictions (related to physical and emotional problems), social function, mental health, vitality, and general perceptions of pain and health. This is a self-reported form that can be completed by the patient in a very

Table 4. Factor solution by principal axis factoring of items from the PPIQ-T

Items	Initial Eigenvalues			Extraction sums of squared loadings		
	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %
Energy Levels	5.224	65.300	65.300	4.851	60.632	60.632
Mood	0.842	10.531	75.830			
Sleep	0.612	7.654	83.484			
Stomach and intestinal function	0.457	5.710	89.194			
Ability to sit for longer than 20 minutes	0.324	4.055	93.250			
Ability to perform and function normality at home/work/school/university	0.257	3.217	96.467			
Ability to take part in physical activity (e.g., jogging, yoga, bicycling)	0.155	1.940	98.407			
Ability to wear certain clothes (e.g., underwear, tight fitting clothes)	0.127	1.593	100.000			

PPIQ-T: Turkish Pelvic Pain Impact Questionnaire

short time (23). The advantages of the SF-36 are that it can be completed in a short time, it is sensitive, and the health status can be evaluated in both positive and negative aspects (24). Rather than providing a single total score, total points are given for each subscale separately, ranging from 0-100. A score of 100 points indicates good health, and a score of 0 indicates poor health status.

Statistical Analysis

The data obtained in the study were analyzed statistically using IBM SPSS vn. 24.0 software. The results were stated as number (n) percentage (%), mean ± standard deviation (SD), and minimum and maximum values. Cronbach α coefficient and ICC values were used for reliability. For the construct validity of the questionnaire, the correlation of the McGill Pain Questionnaire (MPQ) and the Short Form-36 (SF-36) was examined. The pearson correlation coefficient was used to evaluate the correlation. Also, the factorial validity of PPIQ-T was examined with exploratory factor analysis and confirmatory factor analysis. A value of $p<0.05$ was accepted as statistically significant.

RESULTS

The study included a total of 110 patients with pelvic pain. First, the data were recorded the age, height, weight, and BMI values of the patients. The physical and clinical data of the patients are shown in Table 1. The PPIQ-T total score was found to be 14.76 ± 7.99, the MPQ total score was 47.70 ± 17.34, the SF-36 subgroups were 67.22 ± 27.66 (physical functioning), 51.85 ± 41.19 (role-physical), 53.56 ± 24.18 (bodily pain), 46.75 ± 24.01 (general health), 45.40 ± 18.17 (vitality), 62.61 ± 28.57 (social functioning), 57.27 ± 44.50 (role-emotional) and 56.10 ± 18.46 (mental health).

Reliability

Cronbach α coefficient of the questionnaire was calculated as 0.92 for overall (8 items). The range of corrected item-total correlations, which show that the items were largely homogeneous, is 0.62-0.83. These

values are shown in Table 2. Also, the questionnaire was applied twice to the same subjects at an interval of one week, and the test-retest correlations were examined. ICC for test-retest reliability was 0.95 (95% confidence interval: 0.93-0.97). These values demonstrated good reliability. The questionnaire also includes two open-ended questions which are not included in the calculation. Some patients in Turkey may not wish to answer these questions. In this study, 78 subjects answered the first question and, 81 the second. Therefore, as in the original version of the questionnaire, these two questions were not included in the scoring or statistical analyses.

Validity

The SF-36 and MPQ, which are currently widely used, were used to evaluate the construct validity of the PPIQ-T. By examining the relationship between these questionnaires, the construct validity of the PPIQ-T for use in Turkey was investigated. A strong relationship was determined in all items of the questionnaire, and these were statistically significant in all the items ($r = 0.62$-0.85, $p < 0.001$). These data are shown in Table 3.

According to factorial validity results, EFA found that the KMO coefficient was 0.87, and Bartlett's test result was $X2 = 635.904$, $p < 0.001$. The factor with 5.22 eigenvalues was discovered using the factor analysis solution. The total variance of the questionnaire was obtained as 65.30%. The items' factor loads ranged from 0.636 to 0.874. Table 4 displays the results of an exploratory factor analysis of the PPIQ-T. Results of the CFA of PPIQ-T are shown in Fig. 1. CFA values were found Chi-Square as 31.142, df as 18, RMSEA as 0.08, and $p<0.05$.

DISCUSSION

This study's objective was to assess the validity and reliability of the Pelvic Pain Impact Questionnaire's Turkish translation, which was originally developed by Jane Chalmers et al. The study's results showed that the PPIQ-T is valid and reliable and can be utilized in the assessment of patients with CPP and in the formulation of treatment plans. Also, to our knowledge, this study is the first translation of the PPIQ to another language. Therefore, we think that it is so important in this field.

It is necessary to have a good understanding of CPP clinically and the reasons and the solutions required should be found from the starting point of the reasons. However, the diagnosis of CPP shows differences among clinicians. Clinical tests are generally focused on physiological problems and the association between an individual's health and functional level is ignored. Therefore, validity and reliability studies were made of the PPIQ, which was developed by Chalmers et al. (13), as the questionnaire is considered to have an important place in literature and clinically in respect of questioning the patient in all aspects. The PPIQ has the advantages of being able to be easily understood and completed by the patient and scoring can be easily applied (13).

For patients with CPP, pain is a significant part of life. Daily activities and the quality of life of women are affected, and there are negative effects on mental health, physical health, and sexual functions (25-29). Although chronic pain cannot always be improved, patients can continue functions at a normal or close to a normal level, and a better quality of life can be provided (30,31). In a community-based study in England by Zondervan et al. (29), it was reported that approximately 70% of women experienced moderate or severe pain, activities were restricted by the pain in 58%, and 33% could not go to work for at least one day because of pain in the previous 12 months. As seen in these studies, CPP has a negative effect on the life of the individual in different respects, and therefore, the necessary evaluations should be made, and treatments should be planned as early as possible.

The SF-36 and MPQ, which are currently widely used and are valid and reliable in Turkish, were used to evaluate the validity of the PPIQ-T in this study. The relationship between these questionnaires was examined. A high level of correlation was determined in all the subgroups of the questionnaires used in the study and the PPIQ-T, and these were statistically significant in all the sub-parameters. These results showed that the PPIQ-T was valid.

To determine the reliability of the questionnaire, it was applied twice after a one-week interval to the same participants who showed no change in symptoms. Subjects who showed abnormal symptom changes were excluded. The correlations between the items were determined to be at a good level and the general Cronbach alpha value was calculated as 0.92. In 3 separate cohort studies of a total of 1203 females diagnosed with CPP, Jane Chalmers et al (13) created a 10-item form by selecting appropriate questions and applied this to the participants. By applying the same questionnaire to the same participants after 7-10 days, the test-retest reliability

of the questionnaire was proven. The ICC for test-retest reliability was 0.95. Thus, the questionnaire was evaluated as having good reliability (13). The values obtained in this study of the PPIQ-T were similar to those results. The questionnaire also includes two open-ended questions which are not included in the calculation. Some patients in Turkey may not wish to answer these questions. In this study, 78 subjects answered the first question, and 81 the second. Therefore, as in the original version of the questionnaire, these two questions were not included in the scoring or statistical analyses.

CPP is seen as a common problem that severely affects the quality of life. Previous studies have shown that the normal daily living activities of women are affected by the tension created by the pain and their quality of life is significantly reduced (10). Therefore, a quality-of-life questionnaire was selected for this study. The PPIQ-T was compared with the SF-36 and there was determined to be a strong inverse correlation between the physical health and mental health subdimensions of the SF-36 and the PPIQ-T. In a study of 1160 women by Grace and Zondervan (10), it was reported that CPP had a negative effect on the general health status of the women. It has also been shown that patients with CPP experience sleep problems, daily activities are affected by pain in almost half, and activities (walking and moving) are restricted (14.3%) or cannot be undertaken (12.2%) without resting or taking analgesics (10).

The difficulties in diagnosis and the complex anatomy of the pelvic region were the limitations of this study. In addition, patients had trouble in expressing the complaints and symptoms experienced, they have prejudiced that they would be harmed by participation in the study or were unwilling to participate created difficulties in conducting the study. However, the increasing prevalence of CPP makes it a problem requiring early precautions to be taken. Therefore, it can be considered that this questionnaire will be widely used to determine individuals with this problem and form recommendations for solutions.

CONCLUSION

In conclusion, the Turkish version of the Pelvic Pain Impact Questionnaire was determined to be valid and reliable for the evaluation of patients with chronic pelvic pain in Turkey. It can be preferred for use in clinics as a short, comprehensible, and effective evaluation method, which allows the evaluation of chronic pelvic pain in many aspects.

Acknowledgement: None.

Author contribution: Conception, Design, Literature Review, Writing: TKK, BT, FT; Data Collection and/or processing: TKK; Analysis-Interpretation: FT, BT, Critical Review: BT, FT.

Conflict of interests: The authors declare no conflict of interest.

Ethical approval: Approval for the study was granted by the Scientific Research and Publication Ethics Committee of Izmir Demokrasi University (decision no:2019/05-01, dated:10.04.2019).

Funding The authors declared that this study has received no financial support.

Peer-review: Externally peer-reviewed.

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