

## TURKISH ADAPTATION AND PSYCHOMETRIC EVALUATION OF THE PATIENT-CENTREDNESS QUESTIONNAIRE FOR INFERTILITY (PCQ-INFERTILITY): A CROSS-CULTURAL PERSPECTIVE

İNFERTİLİTEYE YÖNELİK HASTA ODAKLI BAKIM ANKETİNİN TÜRKÇE UYARLAMASI VE PSİKOMETRİK DEĞERLENDİRMESİ: KÜLTÜRLERARASI BİR ÇALIŞMA

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### ABSTRACT

**Objective:** This study aimed to validate the Turkish version of the Patient-Centredness Questionnaire for Infertility (PCQ-Infertility) and compare its psychometric properties with international versions.

**Methods:** A total of 235 infertile couples receiving treatment at the Dokuz Eylül University IVF Center between December 2019 and March 2021 were enrolled. Participants completed the PCQ-Infertility and a Demographic and Treatment Profile Form. Psychometric evaluation involved content validity, exploratory and confirmatory factor analyses, internal consistency (Cronbach's alpha), item-total correlations, split-half reliability, and test-retest reliability.

**Results:** The validated Turkish version comprised 24 items across seven subscales. The overall Cronbach's alpha was 0.92, indicating excellent reliability; subscale alphas ranged from 0.62 to 0.84. The model explained 54.5% of the total variance. Confirmatory factor analysis showed acceptable model fit, with indices approaching 0.90 and RMSEA < 0.08.

**Conclusions:** The Turkish PCQ-Infertility is a valid and reliable instrument for evaluating patient-centred infertility care. It provides a standardized tool for assessing care quality from the patient perspective and can support the development of targeted interventions to improve clinical practice. Its alignment with international versions also enables meaningful cross-cultural comparisons, contributing to the advancement of patient-centred fertility care globally.

**Keywords:** Infertility, Patient-Centred Care, Psychometrics, Questionnaire Validation, Reproductive Health, Holistic Nursing

### ÖZET

**Amaç:** Bu çalışma, İnfertiliteye Yönelik Hasta Odaklı Bakım Anketi'nin Türkçe versiyonunun geçerliliğini ve güvenilirliğini değerlendirmeyi ve psikometrik özelliklerini uluslararası versiyonlarla karşılaştırmayı amaçlamıştır.

**Yöntem:** Aralık 2019 – Mart 2021 tarihleri arasında Dokuz Eylül Üniversitesi Tüp Bebek Merkezi'nde tedavi gören toplam 235 infertil çift çalışmaya dahil edilmiştir. Katılımcılar HMA-İnfertilite ölçeğini ve Demografik ve Tedavi Profili Formu'nu doldurmuştur. Psikometrik değerlendirme; kapsam geçerliliği, açıklayıcı ve doğrulayıcı faktör analizleri, iç tutarlılık (Cronbach alfa), madde-toplam puan korelasyonları, iki yarım güvenilirlik ve test-tekrar test güvenilirliğini içermiştir.

**Bulgular:** Doğrulan Türkçe versiyon yedi alt ölçekten oluşan 24 madde içermiştir. Ölçeğin genel Cronbach alfa değeri 0.92 olup mükemmel düzeyde güvenilirlik göstermiştir; alt ölçek alfa değerleri 0.62 ile 0.84 arasında değişmiştir. Model toplam varyansın %54.5'ini açıklamıştır. Doğrulayıcı faktör analizi, 0.90'a yaklaşan uyum indeksleri ve RMSEA < 0.08 ile kabul edilebilir düzeyde model uyumu göstermiştir.

**Sonuç:** İnfertiliteye Yönelik Hasta Odaklı Bakım Anketi, infertilite bakımında hasta odaklı yaklaşımı değerlendirmek için geçerli ve güvenilir bir ölçektir. Ölçek, hasta perspektifinden bakım kalitesinin değerlendirilmesine olanak sağlayarak klinik uygulamaların geliştirilmesine katkı sunabilir. Uluslararası versiyonlarla uyumlu yapısı sayesinde kültürlerarası karşılaştırmalara imkân tanıyarak hasta odaklı infertilite bakımının geliştirilmesine katkıda bulunmaktadır.

**Anahtar Kelimeler:** İnfertilite, Hasta Merkezli Bakım, Psikometri, Ölçek Geçerliliği, Üreme Sağlığı, Bütüncül Hemşirelik

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## INTRODUCTION

Globally, fertility problems have surged as more couples postpone parenthood, with 48 million people affected (Saraç & Koç, 2018; The Lancet Global Health, 2022; WHO, 2022). Infertility treatment often leads to psychological, physical, and economic burdens (Arani et al., 2023; Dağ, Kavlak & Sirin, 2018; Yücesoy et al., 2021). Patients face long wait times, inconsistent provider contact, and culturally insensitive care with limited emotional support and information (Dağ et al., 2018; Dancet et al., 2010; Vaughan et al., 2020). However, holistic care and patient-centered infertility care are critical for the fertility treatment outcome (Allan, Mounce, Culley, van den Akker, Hudson, 2021; Armah, Van Der Wath, Yazbek, Naab, 2021).

Patient-centred care (PCC) emphasizes respecting individual preferences, values, and needs in clinical decision-making (Mourad et al., 2019; Kuipers et al., 2019). Dancet et al. (2010) identified eight dimensions of patient-centred infertility care: accessibility, respect for patient values, team collaboration, provision of information, physical comfort, emotional support, partner involvement, and continuity of care. These dimensions informed the development of the Patient-Centredness Questionnaire for Infertility (PCQ-I) by Van Empel et al. (2010).

Research using PCQ-I has shown that higher patient-centredness correlates with lower anxiety and depression levels, and greater satisfaction among infertile couples (Andersson et al., 2022; Borghi et al., 2019; Shandley et al., 2020).

Despite the growing emphasis on patient-centred care in reproductive health, there is still a limited number of standardized and validated instruments to assess patient experiences in infertility settings, particularly in different cultural contexts. The Patient-Centredness Questionnaire for Infertility (PCQ-I) has been widely used in several countries and has demonstrated its value in identifying strengths and gaps in fertility care delivery. Its use has been associated with improved patient satisfaction, better communication between patients and healthcare providers, and enhanced quality of care. Therefore, adapting and validating this instrument in different cultural settings is essential not only for research comparability but also for improving clinical practice and patient outcomes.

This study aimed to adapt and validate the Turkish version of the PCQ-I and to examine its cross-cultural comparability. By providing a reliable and culturally appropriate measurement tool, the study also seeks to contribute to the evaluation and improvement of patient-centred infertility care in clinical practice.

## MATERIALS AND METHODS

### Setting and Participants

This methodological study was performed between December 2019 and March 2021 at the Dokuz Eylül University Hospital In Vitro Fertilization Center. All couples who applied to the centers, who had been receiving fertility treatment for at least 2 months, and who were willing to participate in the study were included. This methodological study was conducted between December 2019 and March 2021 at the Dokuz Eylül University Hospital In Vitro Fertilization Center. Couples who had been receiving infertility treatment for at least two months and agreed to participate were included in the study.

The exclusion criteria were defined in detail to ensure sample homogeneity. Couples were excluded if either partner had a diagnosed psychiatric disorder that could affect their ability to respond reliably. In addition, couples who were at the very early stage of diagnosis (e.g., first consultation without a confirmed infertility diagnosis), those who had not yet initiated any treatment procedure, and those with incomplete treatment records were excluded. Participants who were unable to complete the questionnaire due to language barriers or cognitive difficulties were also not included in the study.

The number of participants in the validation trials should be 5 to 10 times more than the number of items in the questionnaire (DeVellis & Thorpe, 2021). Because the questionnaire consisted of 47 items, the data were collected from 235 infertile couples via face-to-face discussion while waiting in line to be examined. If the spouses were not with them, the data were collected by telephone interviews.

### Data Collection Tools

#### *Demographic and Treatment Form:*

The form with two sections was created by researchers after referring to the corresponding literature including their socio-demographic characteristics and infertility features (Borghi et al., 2019; Shandley et al., 2020; Van Empel et al., 2010).

**Infertility Patient Centeredness Questionnaire-PCQ Infertility:**

The PCQ Infertility (PCQ-I) was developed by Van Empel et al. (2010) by applying it to 888 infertile couples at a Fertility Center in the Netherlands. It is used for assessing PCC (Van Empel et al., 2010). The questionnaire consists of 46 items and 8 sub-dimensions (Cronbach's PCQ-I: .92, sub-dimensions: .83–.64). The sub-dimensions are accessibility, respect for patient values, team and collaboration, information and explanation, physical comfort, emotional support, peer involvement, continuity, and transition. As stated by Van Empel et al. (2010), negatively worded items are reverse-scored. For the average total score of the questionnaire, all items are summed and divided by the number of items answered by the participants. Sub-dimension scores are calculated by summing the items under each sub-dimension and dividing by the number of questions answered by the participants. Each item is scored between 0 and 3. A high score on the questionnaire indicated a high level of patient-centeredness.

**Translation, Content Validity, and Pilot Study**

The translation-reverse translation (English–Turkish) was applied by two English Linguists and two Turkish language specialists to clarify the questionnaire items and their suitability to the Turkish language. Next, the questionnaire was presented to 10 expert academicians to examine the content validity index (CVI) for each item of the PCQ-I. According to the Davis approach, a CVI of more than .80 indicates that the item has sufficient content validity (Şimşek, 2020). The CVI score of item-42 about the frequency of whether the logistics were smooth at the fertility department was found to be .71. Although the content validity index (CVI) value of item 42 was below the recommended threshold, it was retained based on both theoretical relevance and supporting evidence from the literature. Previous validation studies have emphasized that decisions regarding item retention should not rely solely on statistical criteria but also consider conceptual relevance and the contribution of the item to the construct being measured (DeVellis & Thorpe, 2021; Hair et al., 2019). Given that this item reflects an important aspect of care organization and patient experience, it was preserved to maintain the conceptual integrity of the scale. Item retention and exclusion decisions were based on a combination of statistical criteria (e.g., factor loadings, item-total correlations, and content validity indices) and theoretical considerations to ensure both psychometric robustness and conceptual coherence. The CVI values of the remaining items ranged from .80 to 1.00, indicating adequate content validity

Following the content validity analysis, a pilot study was conducted with five couples with five couples to evaluate the linguistic clarity, face validity, and comprehensibility of the questionnaire items. This sample size is consistent with methodological recommendations for cognitive pre-testing, which aim to identify potential misunderstandings in wording rather than performing statistical validation. These participants were excluded from the main study analysis. Based on the feedback from the pilot group, the PCQ-I was finalized to ensure all items were clearly understood by the target population.

**Data Collection**

Data collection was primarily conducted face-to-face; however, If the spouses were not present together at the center, the data were collected through telephone interviews. To maintain the requirement that couples provide a joint response for each item, the researcher ensured that both partners were available during the call to discuss and reach a consensus. In cases of disagreement, couples were encouraged to take additional time to deliberate before reporting their final joint decision. This hybrid approach was essential due to clinic attendance restrictions during the COVID-19 pandemic. As noted in the limitations, while this ensured a representative sample, the nature of telephone communication during the pandemic may have influenced the participants' level of concentration compared to in-person interactions.

**Statistical Analysis**

Demographic and treatment characteristics are described using percentages and numbers. The data were regularly distributed according to the Shapiro–Wilk test. For the reliability study, Cronbach's alpha, corrected item-total score analysis, and split-half analysis were used. Hotelling T2 analysis was performed to determine the response bias in the questionnaire (Şimşek, 2020). The validity of the questionnaire and sub-dimensions employed for the validity analysis were determined using the exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and the floor/ceiling effect. A threshold of 0.05 was considered significant.

## Ethical Considerations

This research was approved by the Dokuz Eylul University Ethics Committee for Non-Interventional Research (approval number: 2020/03–29) on 03/02/2020. Permission was obtained from the Dokuz Eylul University IVF Center to conduct the study, and informed consent was obtained from infertile couples.

## RESULTS

### Socio-Demographic Characteristics and Features of Infertility

The mean age of women and men included in the study was  $33.87 \pm 5.90$  and  $36.61 \pm 7.15$ , respectively. Although 29.8% of the couples had male and 29.4% had female infertility problems, 27.2% of them were diagnosed with unexplained infertility. The clinical profile of the participants showed that 41.3% had been diagnosed with infertility for at least 2 years, while the remaining 58.7% had a diagnosis duration of less than 2 years. When examining the duration of treatment, 54.9% of the couples had been receiving treatment for less than 2 years, whereas 45.1% had been in treatment for 2 years or longer. All participants were actively undergoing assisted reproductive procedures at the university IVF center during the study period.

### Content Validity Index

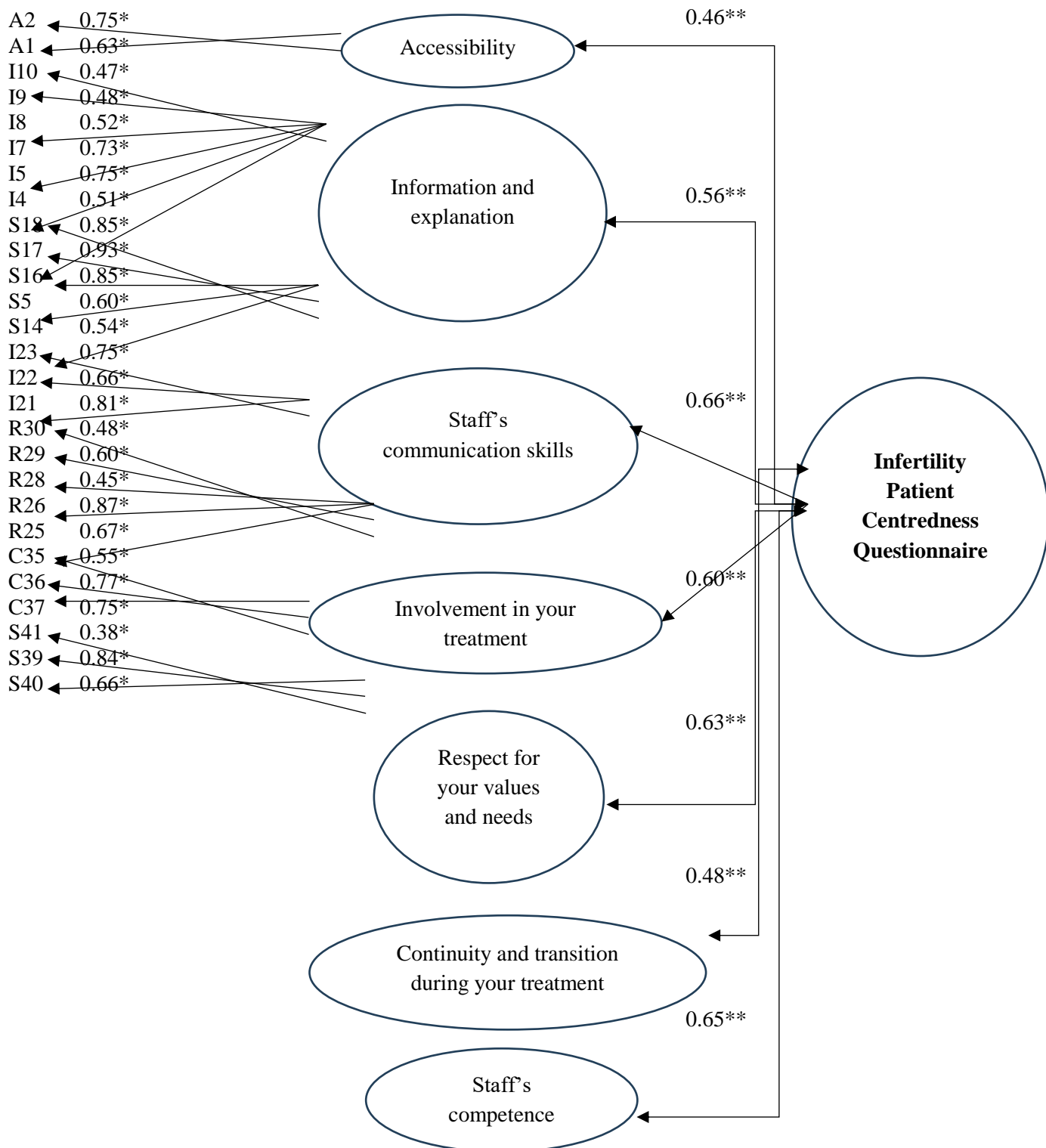
Following the correlation of all items using sub-dimensions, some items were displaced, and the final PCQ-I occurred. The original questionnaire's items numbered 3, 6, 11, 12, 13 in information; 19, 20 in communication; 24, 27 in patients' values; 31, 32, 33, 34 in continuity and transition; 38, 42, 43 in competence; and all items (44, 45, 46) in care organization sub-dimensions were excluded because they did not contribute to the reliability of the questionnaire.

### Exploratory Factor Analysis

The exploratory factor analysis revealed that the Kaiser–Meyer Olkin (KMO) coefficient was 0.910, the Bartlett  $X^2$  was 3221.264, and  $p < .01$ . Based on seven sub-dimensions as in the original PCQ-I, seven sub-dimensions explained 54.5% of the total variance. Factor loads varied between 0.36 and 0.87 (Figure 1). In this study, while most factor loadings were high, certain items exhibited loadings slightly below the conventional .40 threshold, ranging down to .36 in the EFA and .38 in the CFA. Despite these lower values, these items were retained in the final Turkish version of the PCQ-I due to their theoretical significance and essential contribution to the conceptual framework of patient-centered infertility care. Literature suggests that item retention decisions should balance statistical indicators with the qualitative importance of the item's content. Furthermore, keeping these items ensures alignment with the original scale and other international versions, where similar decisions were made to preserve the instrument's integrity and allow for cross-cultural comparability.

### Confirmatory Factor Analysis

The CFA revealed that the factor loads of sub-dimensions were between .63 and .75, .47 and .75, .54 and .93, .66 and .81, .45 and .87, .55 and .77, .38 and .84, respectively. The CFA demonstrated that the fit indices were  $X^2 = 674.449$ ,  $df = 301$ ,  $X^2/df = 2.241$ , root mean square error of approximation (RMSEA) = .073, GFI = .82, CFI = .88, TLI = .86, NFI = .80, IFI = .88, and RFI = .77. Cronbach's alpha coefficients, Spearman–Brown coefficient and Hotelling T2 test result was given in Table 1.



**Figure 1. The PCQ-I PATH analysis**

\*Factor loadings. \*\*Factor correlation: Relationship between subscales and the scale.

**Table 1.** The Reliability Analysis of the PCQ-I and Its Subscales (N = 235)

Questionnaires and Sub-dimensions	Cronbach $\alpha$	Split-Half Analysis		Spearman-Brown	Guttman split-half	Correlation between the two halves	Corrected item-total correlation	Corrected item-Sub-dimensions total correlation	Floor Effect %	Ceiling Effect %	Mean Dimension Score	95% Confidence Interval
		First half of Cronbach $\alpha$	Second half of Cronbach $\alpha$									
Questionnaire total	0.92	0.87	0.86	0.88	0.87	0.79	0.37-0.78	-	-	0.9	2.11	
Accessibility	0.62							0.68-0.68	5.5	-	2.20	2.08-2.33
Information and explanation	0.76							0.39-0.62	1.3	17.4	2.00	1.90-2.09
Staff's communication skills	0.84							0.47-0.79	1.7	19.6	2.02	1.92-2.13
Involvement in your treatment	0.78							0.61-0.65	4.3	29.4	2.05	1.94-2.17
Respect for your values and needs	0.76							0.41-0.66	1.7	6.4	1.72	1.61-1.82
Continuity and transition during your treatment	0.71							0.47-0.62	2.1	34.9	2.44	2.35-2.52

**Table 2.** International Comparison of Case Mix Adjusted Mean Dimension Scores (MDS: range 0–3) of the PCQ-I

Domain	Turkey (AUTHORS, this study) N= MDS (Rank)	New Zeland (Mourad et al. 2019) N= MDS (Rank)	Netherlands (Van Empel 2010) N= MDS (Rank)	Netherlands (Aarts 2012) N= MDS (Rank)	Netherlands (Huppelsschoten 2015) N= MDS (Rank)	Slovakia (Karajicic 2014) N= MDS (Rank)	Portugal (Gameiro 2013) N= MDS (Rank)	Iran (Vosough TD 2016) N= MDS (Rank)	Slovenia (Vlaisavljevic 2016) N= MDS (Rank)
Communication	2.02 (5)	2.58 (1)	2.53 (1)	2.50 (1-2)	2.49 (1)	2.36 (1)	2.20 (1)	1.49 (1)	1.99 (5)
Competence	2.35 (2)	2.57 (2)	2.45 (2)	2.50 (1-2)	2.41 (2)	2.68 (2)	2.17 (3)	1.48 (2)	2.33 (1)
Information and explanation	2.00 (6)	2.53 (3)	2.03 (5)	2.00 (6-7)	2.10 (5)	2.44 (5)	1.87 (6)	1.19 (4)	2.05 (2)
Involvement in treatment	2.05 (4)	2.38 (4)	2.38 (3)	2.40 (3)	2.28 (4)	2.67 (3)	2.10 (5)	1.32 (3)	2.00 (4)
Respect for values	1.72 (7)	2.24 (5)	1.98 (6)	2.10 (4-5)	1.85 (6)	2.42 (6)	1.83 (7)	1.15 (5)	2.03 (3)
Accessibility	2.20 (3)	2.01 (6)	2.13 (4)	2.10 (4-5)	2.38 (3)	2.73 (1)	2.14 (4)	1.06 (6)	1.96 (6)
Continuity and Transition	2.44 (1)	1.81 (7)	1.95 (7)	2.00 (6-7)	1.74 (7)	2.51 (4)	2.31 (1)	1.02 (7)	1.76 (7)
Total PCQ-I*	2.11	2.29	2.19	2.20	2.15	2.54	2.09	1.24	2.01

The internal consistency of the Turkish PCQ-I and its sub-dimensions was evaluated using Cronbach's alpha coefficients. The overall questionnaire demonstrated excellent reliability with an alpha of .92. The specific alpha coefficients for the sub-scales were found to be .62 for Accessibility, .76 for Information and Explanation, .84 for Staff's Communication Skills, .78 for Involvement in Treatment, .76 for Respect for Values and Needs, and .71 for Continuity and Transition. Additionally, the analysis of the relationship between the 28th item and the scale scores showed correlation  $r$  values ranging from .46 to .76 across sub-dimensions.

International comparison, including seven sub-scales of case mix-adjusted mean scale scores (MDS: range 0–3) of the PCQ-I, is shown in Table 2.

Finally, the comprehensive structural layout of the validated Turkish version of the PCQ-Infertility, detailing all seven sub-scales and the final 27 items, is presented in Table 3.

**Table 3. Final Version of the “İnfertiliteye Yönelik Hasta Odaklı Bakım Anketi”**

Accessibility	
1	How often have you been able to speak to someone immediately when you called the Fertility Department?
2	Was it a problem for you to contact staff (by telephone or e-mail) if you had any questions?
Information and explanation	
4	Did you also receive written information apart from verbal information?
5	Was the information about the investigations you would undergo comprehensive?
7	Was the information about the treatment you would receive comprehensive?
8	Did you receive an overview of your treatment plan with a time schedule?
9	Were you informed of any possible sideeffects of the medication prescribed to you?
10	Were the instructions on how to inject your hormones comprehensive?
Staff's communication skills	
14	Were caregivers honest and clear about what to expect from the fertility care service?
15	Were the results of the investigations discussed with you?
16	How often did the physician listen to you carefully?
17	How often did the physician take you seriously?
18	How often did the physician take the time for you?
Involvement in your treatment	
21	How often was your physician open to your opinion and ideas about treatment?
22	How often were you given the opportunity to ask your physician questions?
23	Was decision-making shared with you, if you preferred?
Respect for your values and needs	
25	How often did your physician show an interest in your personal situation?
26	How often did your physician have empathy for your emotions and your current situation?
28	Did staff also involve your partner?
29	How often did you receive any personal attention and support from nurses during your treatment?
30	Did staff pay attention to any possible emotional impact of fertility problems?
Continuity and transition during your treatment	
35*	How often did you have to repeat the same story to different physicians?
36*	How often did you get contradictory information or advice?
37*	Did caregivers contradict each other in policy (one says one thing, the other says something else)?
Staff's competence	
39	How often did staff use difficult words without explaining them to you?
40	Did the physician(s) seem competent to you?
41*	How often did staff work disorderly?
In conclusion	
47	What mark do you give the total fertility care at your hospital ?

\* reversed items

## DISCUSSION

The psychometric evaluation of the Turkish PCQ-Infertility demonstrates that the instrument is a valid and reliable tool for assessing patient-centered infertility care within the Turkish cultural context. However, the adaptation process revealed significant cultural and structural differences in how care is delivered and perceived compared to other nations. Specifically, the "Care Organization" sub-scale and several specific items (3, 6, 11, 12, 13, 19, 20, 24, 27, 31, 32, 33, 34, 38, 42, 43, 44, 45, and 46) were excluded from the final Turkish version because they did not contribute to the reliability or validity of the scale in this study. The low reliability of these items is likely ascribed to the fact that certain patient-centered practices are not yet standardized in local clinical settings, where treatment decisions are predominantly made by physicians, and infertility treatment protocols vary significantly.

### **In-Depth International Comparison of Dimension Rankings**

A detailed comparison of Mean Dimension Scores (MDS) highlights how cultural characteristics and health system functioning influence patient priorities. As shown in Table 2, the "Continuity and Transition" sub-dimension was ranked first in Turkey (MDS: 2.44) and Portugal, whereas it consistently placed at the bottom of the rankings in the Netherlands, New Zealand, Iran, and Slovenia. This suggests that Turkish couples place an exceptionally high premium on the seamless flow of care and the stability of their relationship with the healthcare team throughout the treatment process.

In contrast, the "Communication" sub-dimension, which is typically the top priority in most international versions including New Zealand, the Netherlands, and Iran, was ranked fifth in both the Turkish (MDS: 2.02) and Slovakian versions. This lower relative ranking might indicate a cultural environment where clinical outcomes are prioritized over interactive communication, or where patients have lower expectations regarding shared decision-making. Furthermore, "Accessibility" was ranked third in our questionnaire (MDS: 2.20), a notably higher relative position than in New Zealand (6th) or the Netherlands (4th-5th), suggesting that Turkish patients may perceive their clinics as more reachable or responsive. However, the "Respect for Values and Needs" sub-dimension (MDS: 1.72) ranked last in Turkey, which mirrors findings from New Zealand and Portugal. This consistent low ranking across multiple cultures points to a global challenge in fully integrating personal patient preferences into highly technical reproductive health environments.

### **Methodological and Psychometric Integrity**

The statistical robustness of the Turkish PCQ-I is supported by several indicators. The Kaiser-Meyer-Olkin (KMO) value of .910 and the significant Bartlett Sphericity test ( $p < .01$ ) confirmed that the sample size ( $N=235$ ) was sufficient and the correlation matrix was highly suitable for factor analysis. The seven sub-dimensions accounted for 54.5% of the total variance, meeting the recommended threshold for social science instruments.

While factor loadings above 0.50 are generally recommended to ensure strong indicator reliability, this study purposefully retained items with loadings ranging from .36 and .87. These specific items were preserved because they capture conceptually indispensable facets of the multi-dimensional patient-centeredness construct, such as information provision, accessibility, and respect for patient values, which are foundational to the PCQ-Infertility framework. Methodological literature suggests that item retention decisions should not rely solely on rigid statistical thresholds but should prioritize theoretical coherence and content validity, especially in cross-cultural adaptations. Furthermore, keeping these items ensures structural alignment with the original Dutch version and other international validations, such as the New Zealand study (Mourad et al., 2019), thereby facilitating meaningful global comparisons and maintaining the instrument's integrity in assessing holistic fertility care. The internal consistency was further validated by a total Cronbach's alpha of .92, with subscale alphas ranging from .62 to .84, which aligns with international standards for reliability.

Factor loads of seven sub-dimensions were found using the CFA to range from .38 to .93. Although the factor loads of sub-dimensions in this study were less than .50, they were left in because of their importance. The GFI, NFI, CFI, and IFI fit indices of the questionnaire and the RMSEA were determined to be more than .80 (Figure 1). The chi-square value was less than 5 when divided by the degrees of freedom. The questionnaire and its sub-dimensions were strongly and significantly correlated (Figure 1). Model fit indicators  $> .90$ ,  $X^2/DF$  quotient  $< 5$ , and  $RMSEA < .08$  have been considered to be strong fit indicators in the literature (Hair, Gabriel, Silva, Braga, 2019).

We could assess similar characteristics using PCQ-I questions and Cronbach's alpha coefficient, which was above 0.80 for the total questionnaire and above .60 for its sub-dimensions, as recommended by the literature (Hair, Gabriel, Silva, Braga, 2019).

### Limitations

This study was limited to the IVF centers of state and university hospitals. This institutional focus may have influenced the response patterns for specific scale items, particularly those related to organizational logistics and staff continuity, which are often structured differently in private settings. To enhance the generalizability of the Turkish PCQ-I, future research should repeat validation trials in more diverse samples, including private clinics and specialized fertility centers, to assess the instrument's performance across varying healthcare delivery models.

In addition, the spouses may have had trouble concentrating while providing the answers to the several questionnaire items because of data collection via phone calls during the pandemic.

### CONCLUSIONS

The Turkish version of the PCQ-I is a valid and reliable instrument for evaluating patient-centeredness fertility care. It could be used for both collecting patient input and assessing to what extent an organization is patient-centered. New care practices could be developed based on the findings to increase patient satisfaction and clinic throughput.

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### Conflict of Interest

The authors declare no conflict of interest.

### Author Contributions

**Plan, design:** HY, SÖ, MAT, NB, HO; **Material, methods, and data collection:** HY, SÖ; **Data analysis and comments:** HY, SÖ, MAT; **Writing and corrections:** HY, SÖ, MAT, NB, HO.

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