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The Persian version of the fear of pain questionnaire mong Iranian post-surgery patients: a translation and psychometrics

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Abstract

Introduction The Fear of Pain Questionnaire (FOPQ) is a self-report tool designed to measure an individual's fear of pain (FOP). While the Persian version of the FOPQ (FOPQ-P) has been developed, its validity and reliability have not yet been assessed in the Iranian context. This study aims to evaluate the psychometric properties of the FOPQ-P among Iranian patients after surgery.

Methods A methodological study was conducted in 2023 involving 400 post-surgery patients selected with a convenience sampling. The FOPQ was translated into Persian, and its psychometric properties were analyzed using network analysis, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), as well as assessments of convergent and discriminant validity. Internal consistency was measured using Cronbach's alpha, McDonald's Omega, average inter-item correlation coefficient, Composite Reliability, and Maximal Reliability.

Results The EFA results with Promax and Kaiser Normalization rotation identified two factors that explained 54.32% of the variance, comprising seven items. The CFA confirmed the model's validity. Both convergent and discriminant validity were established. The reliability analyses showed that Cronbach's alpha, McDonald's omega, composite reliability, and MaxR for all constructs were above 0.7. Additionally, the average inter-item correlation coefficient was greater than 0.5, indicating strong internal consistency and construct reliability.

Conclusion The findings suggest that the FOPQ-P possesses a valid structure and was acceptable reliability in patients cultural context of Iran post-surgery, making it a suitable instrument for measuring fear of pain in this population.

Keywords Fear of pain, Validity, Reliability, Psychometrics, Persian, Iran

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Introduction

Fear of Pain (FOP), also known as algophobia, is a condition characterized by abnormal, intense, persistent, and exaggerated physiological and psychobehavioral responses against potentially painful circumstances [1]. Individuals with FOP may exhibit avoidance behaviors toward activities or situations that could potentially cause pain, such as non-cooperative attitudes and impaired compliance or adherence toward medical care and treatment [2]. Moreover, this fear can be associated with disability, psychological distress, and impaired Quality of Life (QOL) [3]. Undergoing surgery can be an overwhelming experience for both patients and their loved ones, as it brings about physical and psychological stress. The fear of the unknown, the sense of losing control, and the potential risks involved all contribute to the anxiety in this situation [4]. Post-surgery-related FOP is a common concern among numerous individuals undergoing surgical procedures [5]. Even though post-surgery-related FOP can increase the patients' levels of anxiety and stress [6], it may lead to an avoidant attitude towards the necessary medical and post-operative interventions or care instructions [2]. This can ultimately decelerate the recovery process [7] or even lead to life-threatening consequences such as an increased chance of developing Deep Venous Thrombosis (DVT) or Pulmonary Embolism (PE) [8]. Considering the early physical activities following the surgery is recommended as one of the most fundamental preventive instructions for both DVT and PE [9], which can be neglected and ignored by the patients' FOP (Fig. 1).

The FOP is a complex, multifaceted, and subjective concept that can be influenced by a combination of physical, psychological, social, environmental, genetic, and cultural factors [10]. In this regard, the cultural dimension assumes a significantly important relevance, particularly in light of the inherent nature of "diversity". Culture includes a wide range of elements that are involved in conceptualizing the identity and shared experiences of a community, embracing the "values", "norms", "symbols",

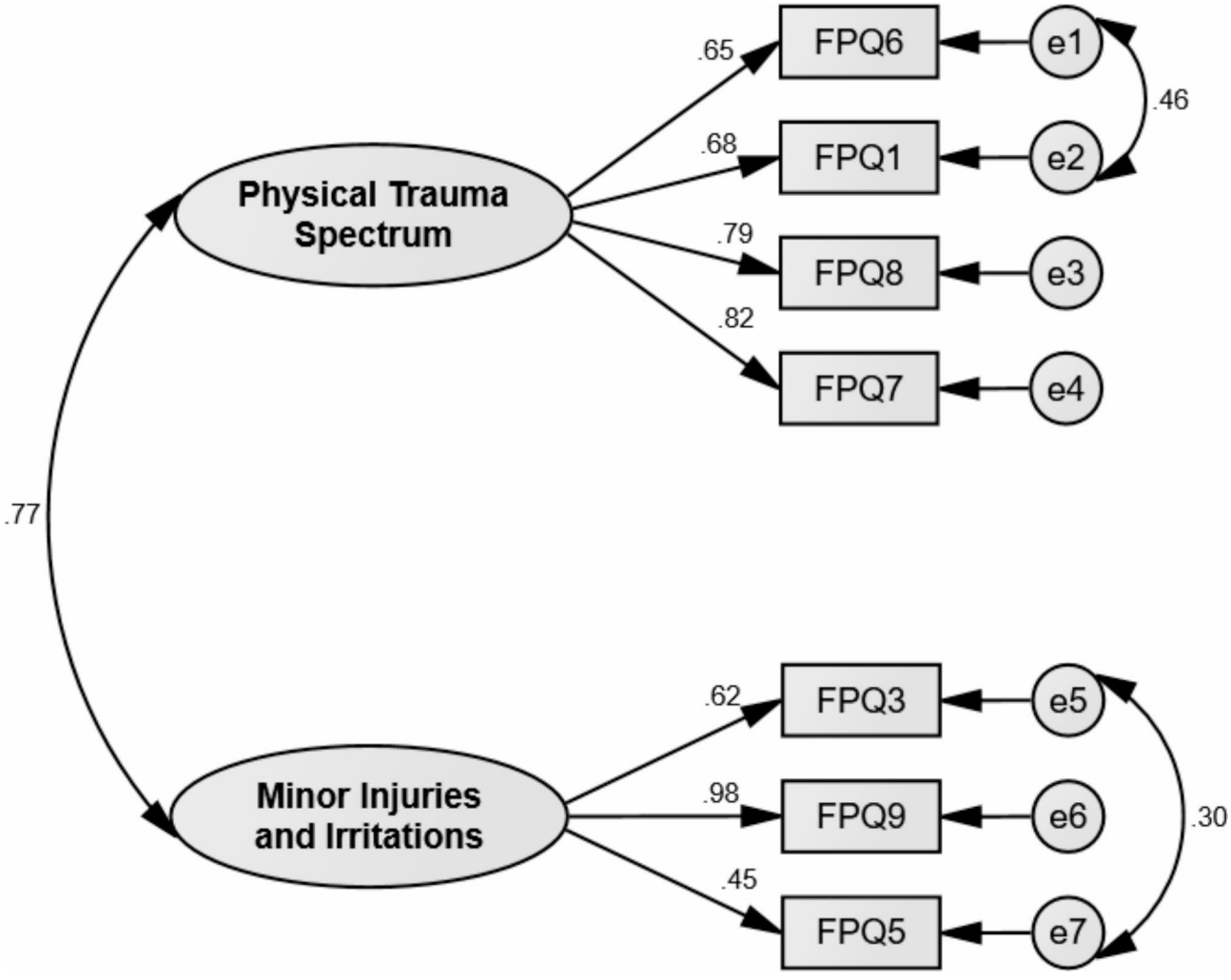

Fig. 1 The results of the CFA and factor loadings

"language", "beliefs", "ethics" and "religions" [11]. Consequently, in conjunction with the previously discussed dimensions, culture plays a substantial role in shaping individuals' perceptions and experiences of FOP. Additionally cultural beliefsand religions, can influence how FOP is understood, expressed, and managed by an individual. Endurance of pain may be a value based on some cultures, while others may prioritize seeking relief [12].

Since Iran is a diverse cultural, racial, ethnic, and religious country, FOP among Iranians is not limited to a homogenous and monotonous concept. However, most Iranians are Persian and Muslim [13]. In Islam, the concept of pain is often interpreted as a spiritual test of faith and patience. A significant number of Muslims adhere to the perspective that enduring suffering with patience, along with seeking solace through worship practices, fosters spiritual development and yields divine rewards. Nevertheless, within Islamic teachings, the preservation of one's health is paramount, which may necessitate the use of medical interventions and treatments. This duality reflects the balance between faith and self-care [14]. Thus, it can be asserted that, irrespective of interpersonal dissimilarity, religious beliefs and norms play a significant role in conceptualizing the framework of FOP in Iranian patients following surgical interventions.

There are three widely used tools for evaluating FOP or algophobia, including the "Fear of Pain Questionnaire (FOPQ)", which assesses different aspects of fear of pain [15], the "Pain Anxiety Symptoms Scale (PASS)", which measures pain-related anxiety [16] and the "Pain Catastrophizing Scale (PCS)", which assesses exaggerated pain-related negative thinking [17]. FOPQ is a self-report measure designed by McNeil et al. in 1998 to assess an individual's pain-related fear, thoughts, and feelings within various situations. FOPQ consists of three subscales, including "Severe Pain" (intense or persistent discomfort with significant impacts on function and QOL), "Minor Pain" (mild and tolerable discomfort without significant disturbances in function and QOL), and "Medical/Dental Pain" (experienced following a medical/dental condition, procedure, injury, or disease) [15]. The widespread use of FPQ, along with its consideration of various types of pain, particularly pain due to a medical problems, has made it a valuable tool for measuring FOP among post-surgery patients. Besides, considering the various situations and emphasizing the psychological aspect of pain perception by assessing the individual's pain-related insights, thoughts, and feelings, and to consolidate the superiority of FOPQ over other similar tools [18]. The FOPQ has been translated and psychometrically tested in various languages, populations, and cultures, including Italian [19], Dutch [20], Spanish [21], German [22], Japanese [23], and Turkish [24].

As stated earlier, the concept of FOP is profoundly inspired and determined by sociocultural heterogeneities, a fact that is also verifiable in the Iranian context. Accordingly, the translation and psychometrics of FOPQ based on Iranian culture can be beneficial in the process of identifying the FOP among Iranian patients post-surgery and subsequently allowing for the implementation of risk-reduction measures. Furthermore, thus far, the validity and reliability of the Persian version of FOPQ (FOPQ-P) have not been evaluated. The existing deficiencies have significantly heightened the necessity for undertaking this research. Therefore, the present study aims to address this gap by thoroughly assessing the psychometric properties of the FOPQ-P among Iranian patients post-operatively. Through careful translation and rigorous psychometric analyses, this research seeks to contribute valuable insights into the cultural dimensions of pain perception and management, ultimately enhancing patient care within this population.

Methods

This methodological cross-sectional study was carried out between October to December 2023. Patients from Amol (Mazandaran, Iran) were recruited for this study.

Inclusion and exclusion criteria

The inclusion criteria for participants in the study were: being at least 18 years old, being able to communicate in Farsi and being literate, volunteering to participate, and being hospitalized. Exclusion criteria included cognitive disorders, presence of mental illness, reduced level of consciousness, heart diseases such as uncontrolled unstable angina and uncontrolled severe arrhythmia, limited activity due to severe physical disability, cerebrovascular diseases, pregnancy, cancer and malignancies, other neurological diseases, rheumatoid arthritis, drug addiction, drug dependencies, and being free of mental illnesses such as schizophrenia or anxiety disorder.

MacCallum et al. (1999) recommended a sample size of at least 200 cases for psychometric studies [25]. So, we decided to extend an invitation to 400 people due to the necessity of two different samples for construct validity. These 400 people were obtained by a convenience sampling method. Following a thorough explanation of the study's objectives, the participants were given questionnaires to fill out.

The original version of the questionnaire

The original version of FOPQ was designed by McNeil et al. in 1998 to assess the pain-related fear, thoughts, and feelings among clinical and nonclinical individuals within various situations. The FOPQ had 30 items, responses constisted of a 5-point Likert scale (not at all =1 to extreme=5). Moreover, it contained three subscales,

including "Severe Pain", "Minor Pain" and "Medical/Dental Pain" [15]. For faster assessment, a shortened version of the questionnaire, in the form of a 9-item FOPQ (FOPQ-9) was introduced by McNeil et al. in 2018, with the same Likert scoring scale and subscales as the original version of FOPQ. Accordingly, the total score of FOPQ-9 ranged from 9 to 45, meaning that a higher total score indicates a more severe FOP [26]. Two phases were used to assess the psychometric qualities and usefulness of the "Persian version of the Fear of Pain Questionnaire (FOPQ -P)".

Phase I

Translation

To implement the present study, written permission from the developer of FOPQ-9 was obtained. Then, the questionnaire was translated from English to FArsi-based on the translation protocol of Gudmundsson [41]. The FOPQ-9 was translated into Farsi by two proficient English-Farsi translators independently. An expert board consisting of authors and translators of the current article reviewed these two translations carefullyto create the FOPQ-9. Subsequently, the FOPQ-P was translated back into English by one of the Farsi-English translators. Eventually, the aforementioned expert board reviewed and approved the final version of FOPQ-P.

Phase II

Normal distribution, outliers, and missing data

Skewness (±3) and kurtosis (±7) were utilized to examine the individual univariate distribution of the data. Additionally, the multivariate normality distribution was evaluated through the Mardia coefficient of multivariate kurtosis (<8). Mahalanobis d-squared ($p<0.001$) was employed to identify potential multivariate outliers [27]. The missing data were assessed using multiple imputations, and and exploratory factor analysis used the pairwise deletion method to handle missing data.

Construct validity

To assess construct validity, the original dataset consisting of 400 cases that was randomly split into two datasets, each with 200 cases. The first dataset underwent Maximum Likelihood Exploratory Factor Analysis (MLEFA) with Promax rotation using Kaiser normalization to identify the factor structure. The Kaiser–Meyer–Olkin (KMO) measure>0.8 and the significance of Bartlett's test of sphericity ($p<0.05$) were checked to ensure the suitability of the data for factor analysis [27]. Parallel analysis is a statistical method used to decide how many factors to keep in a factor analysis. It compares the Eigenvalues from the actual data to those from a random dataset, and factors are kept if their Eigenvalues are higher in the actual data [28]. Eigenvalues greater than 1, communalities greater than 0.2, and factor loadings greater than 0.3, along with scree plots, were taken into consideration to determine the factorability of the data [29]. The percentage of total variance explained by each factor was calculated by dividing the Eigenvalue by the total number of items [30]. The MLEFA was performed using SPSS version 27.

Subsequently, the factor structure obtained from MLEFA was validated through Confirmatory Factor Analysis (CFA) on the second random dataset ($n=200$) using AMOS 27. The model fit was assessed using various indices: Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), Relative Fit Index (RFI), and Incremental Fit Index (IFI)>0.9, Root Mean Square Error of Approximation (RMSEA)<0.08, and CMIN/DF<3 for good fit [28].

Convergent and discriminant validity

For convergent validity, composite reliability (CR)>0.7 and Average Variance Extracted (AVE)>0.5 for each construct were required. Fornell and Larcker [31] suggested that if AVE is <0.5 but CR>0.7, convergent validity can still be considered acceptable. The combination of CR and AVE offers a robust assessment of measurement quality. While CR assesses the consistency of the items, AVE evaluates the amount of variance captured by the construct relative to the total variance. This dual approach ensures that the scale not only demonstrates reliability but also captures a significant proportion of the variance associated with the latent variable, thereby enhancing the credibility of the measurement tool [32].

Discriminant validity was assessed using the heterotrait-monotrait ratio (HTMT) ratio criterion, where the HTMT ratio between all constructs should be <0.85 [33]. The HTMT ratio is more sensitive than classical methods, such as the Fornell-Larcker criterion and cross-loadings, in detecting discriminant validity violations. These traditional methods often fail to identify issues when constructs are closely related, while HTMT effectively highlights when constructs are not sufficiently distinct from one another [34].

Reliability

Cronbach's alpha, McDonald's omega (Ω), average interitem correlation coefficient (AIC), Composite Reliability (CR), and Maximal Reliability (MaxR) were computed to assess the internal consistency and construct reliability. Internal consistency was considered acceptable if α, Ω, CR, and MaxR exceeded 0.7, and AIC values fell within the range of 0.2 to 0.4 [35]. McDonald's Omega is a superior measure of reliability compared to Cronbach's alpha, especially when dealing with multidimensional constructs. It takes into consideration the factor structure of the data, resulting in more precise reliability estimates

Table 1 The result of MLEFA on the two factors Persian version of the fear of pain ($n=200$)

Factor	Items	Factor loading	h^2	λ	% Variance
Physical Trauma Spectrum	Q_6. Having someone slam a heavy car door on your hand	0.950	0.699	2.260	32.29%
	Q_1. Breaking your arm	0.866	0.663		
	Q_8. Receiving an injection in your hip/buttocks	0.559	0.550		
	Q_7. Gulping a hot drink before it has cooled	0.544	0.584		
Minor Injuries and Irritations	Q_3. Getting a papercut on your finger	0.806	0.571	1.542	22.03%
	Q_9. Falling down a flight of concrete stairs	0.682	0.734		
	Q_5. Getting strong soap in both your eyes while bathing or showering	0.654	0.332		

Abbreviations: h^2: Communalities, λ: Eigenvalues

[36]. The AIC is a valuable tool for measuring the correlation between items within a scale. It helps to pinpoint any issues with specific items or the overall structure of the scale [37]. CR is particularly beneficial in structural equation modeling as it provides a more accurate representation of reliability when compared to alpha. MaxR offers an upper limit estimate of reliability, showcasing the potential reliability of a scale under optimal conditions. By comparing MaxR with other reliability coefficients, areas for scale enhancement can be identified [38].

Fear of pain score

Descriptive statistics were utilized to determine the average Fear of Pain score. Furthermore, an independent samples t-test was performed to assess the disparities in Fear of Pain between men and women groups.

Results

Demographic characters

The participants had a mean age of 44.38 (SD=13.49) years. Out of the 400 participants, 178 (53.9%) were men and 152 (46.1%) were women.

Results of MLEFA

In the MLEFA with Promax and Kaiser Normalization rotation using the first random dataset ($n=200$), two factors were extracted, explaining 54.32% of the variance and comprising of seven items. Item 2 and item 4 were eliminated from the original version due to communalities below 0.2 and factor loadings under 0.5. The KMO value was 0.842, and Bartlett's test of sphericity ($p<0.001$, $X^2=1039.607$, df=21) indicated that the sample was suitable for factor analysis. Detailed MLEFA results are presented in Table 1.

Results of CFA

A CFA was conducted on the second random dataset ($n=200$) to validate the factor structure from MLEFA. The initial results indicated acceptable model fit ($\chi2$ [11]=11.695, $p=0.387$, $\chi2/df=1.063$, CFI=0.999, IFI=0.999, TLI=0.999, RFI=0.979, NFI=0.989, and RMSEA: 0.014).

Convergent and divergent validity and reliability

Table 2 displays the CFA results. The AVE for the factors of Physical Trauma Spectrum and Minor Injuries and Irritations exceeded 0.5, indicating good convergent validity. With CR above 0.7 for the factors and good convergent validity, it was concluded that all constructs had established convergent validity. Regarding discriminant validity, the HTMT ratio showed a correlation of 0.671 between Physical Trauma Spectrum and Minor Injuries and Irritations, below 0.85, demonstrating good discriminant validity. For construct reliability, Cronbach's alpha, McDonald's omega, CR, and MaxR values were all above 0.7, and AIC values of 0.2 to 0.4 indicated acceptable internal consistency.

Fear of pain score

In the overall population, the mean score for the FOP measure was 21.10 (SD=8.60, 95% CI: 20.16, 22.03). Additionally, no significant differences ($p=0.465$) were found in FOP scores between men 21.42 (SD=8.44) and women 20.72 (SD=8.80).

Discussion

The main purpose of this study was to translate the FOPQ into Persian, and evaluate its reliability and validity through psychometrics among Iranian patients post-surgery. Accordingly, following the evaluation of the mentioned methods, the obtained values of factor

Table 2 The results of the convergent validity and construct reliability (n = 200)

Factors	α	Ω	CR	MaxR	AVE	AIC
Physical Trauma Spectrum	0.849	0.848	0.981	0.990	0.898	0.585
Minor Injuries and Irritations	0.730	0.731	0.979	0.984	0.921	0.514

Abbreviations α: Cronbach's alpha, Ω: McDonald's omega

structure, validity, and reliability for FOPQ-P were satisfactory. In the current study, the structural validity of the FOPQ-P was evaluated, which was 32.29% and 22.03% of the total variance for the first (4 items) and second (3 items) factors, respectively. Moreover, the combined variance obtained from these two factors was 54.32%. Based on these statistical values, the FOPQ-P has confirmed validity as an appropriate tool to evaluate the FOP among Iranian patients after-surgery. The FOPQ, has undergone translation and rigorous psychometric testing across multiple languages. Notably, various research methodologies employed in these assessments have consistently yielded satisfactory validity coefficients, affirming the robustness of the instrument in diverse cultural contexts. Statistical analyses indicate reliability scores exceeding 0.80 across studies, supporting the FOPQ's effectiveness as a measurement tool in cross-cultural food perception research [19–24].

The FOP among the Iranian post-surgery population has been conceptualized as the terms or factors of "Physical Trauma Spectrum (PTS)" and "Minor Injuries and Irritations (MII)". Factors that, regardless of their body-oriented characteristics, their correlated psychological responses can be associated with FOP among Iranian patients post-surgery patients. It is important to acknowledge that the aforementioned terms conceptualized from this study exhibit notable variations when compared to other similar research conducted in different countries. These discrepancies may stem from the unique aspects of each country's educational system, suggesting that cultural differences can significantly influence the results obtained in academic investigations across diverse settings [19–24]. Nevertheless, the first factor was PTS. The term PTS encompasses a diverse array of physical injuries, psychological harm, or various forms of harassment that individuals may endure as a consequence of external factors or events. These may include accidents, injuries sustained during assaults, or other manifestations of physical violence, which can significantly impact an individual's wellbeing [39, 40]. It is worth noting that PTS may be as mild as a minor injury, or as severe as a devastating trauma. Furthermore, the impact of such conditions may be transient; however, they can also result in enduring and potentially lifelong implications for an individual's physical health and overall well-being [41, 42]. In the present study, PTS is derived from concepts such as "slamming", "breaking", "injecting" and "burning" (based on the questionnaire), which all indicate physical pain. In addition, a significant correlation has been proposed between the concepts of slamming and breaking, which can be related to their identical nature in the form of "pain caused by injury to limbs". The correlation between PTS and FOP can be described as a complex interplay of psychological responses that individuals exhibit following physical injuries or traumatic experiences [43, 44]. The aforementioned phenomenon can be conceptualized as FOP, which often arises in individuals with a history of physical trauma. This fear may manifest through various psychological responses, particularly in the form of heightened anxiety, the implementation of avoidance behaviors, or an increase in hypervigilance concerning potential pain triggers [45, 46]. In this regards, Iranian post-surgery patients have been afraid of pain due to their awareness of PTS. The second factor, which was the term MII, refers to relatively mild physical discomfort, tenderness, or soreness that usually does not require extensive medical considerations [47–49]. The MII pain can be considered to some extent as dysesthesia, an abnormal or unpleasant sensation experienced by an individual [50]. Unpleasant sensations related to superficial minor cuts, burns, or bruises, along with mild itching, sprains, redness, or swelling are considered the most common MII [51, 52]. In the current study, MII is derived from concepts of "cutting", "falling" and "burning sensation" (according to the questionnaire), which all indicate "irritation". Moreover, a considerable correlation has been reported between the concepts of "cutting (from paper)" and "burning sensation (from soap)", which may be associated with similar characteristic in the form of "irritating and discomfortable feelings". This particular sensation has the potential to be significantly distracting and disruptive, ultimately resulting in discomfort and frustration for the individual. Such experiences may catalyze compulsive behaviors, which can adversely affect overall well-being and QOL [53, 54]. Moreover, individuals encountering this MII may exhibit increased sensitivity to FOP. This heightened sensitivity can subsequently result in pronounced psychological reactions, which in turn may adversely affect their willingness to cooperate with and comply with postoperative recommendations and care protocols [55, 56].

The findings obtained from the confirmatory factor analysis indicate that the proposed model of the current investigation demonstrates a strong fit with the empirical data collected. This outcome provides substantial empirical support for the two-factor structure posited in this study. Furthermore, both identified factors exhibit a significant correlation with the overall score of the FOPQ.

Furthermore, in the current study, the internal consistency of the factors of PTS and MII was the Cronbach's alpha values of 0.84 and 0.73, respectively. Indicating that the items of the FOPQ-P are evaluating a homogeneous concept, along with their desirable accuracy, reliability, and repeatability features. The psychometric evaluations demonstrated that the Cronbach's alpha coefficients consistently surpassed the threshold of 0.70, thereby signifying robust internal consistency. Such findings reaffirm the applicability and reliability of the FOPQ across

diverse multicultural contexts, ultimately enhancing its usefulness in empirical research [19–24].

The results of the current study indicated that Iranian patients post-surgery demonstrated a moderate level of FOP following the surgery, without any significant difference between men and women. It is considered that the experience of FOP was not affected by gender diversity among men and women in Iran. The findings of this study exhibited notable divergence when compared to similar research conducted within different linguistic contexts. The observed inconsistencies in the severity of FOP and the demographic disparities may be attributed to variations in methodological approaches, as well as the distinct sociocultural backgrounds and contextual factors influencing the population [19–24]. When considering the correlation between the results in te context of the Iranian cultural and religion, it is indispensable to recognize the influence of cultural beliefs and religious practices on individuals' perception of FOP. As mentioned earlier, Iranian cultural norms and religious doctrines often play an important role in the formation of attitudes toward pain and suffering [13, 57]. Furthermore, cultural values such as the importance of tolerance and maintaining composure in the face of adversities, along with Iranian social expectations regarding the expression and management of pain may affect the perception of FOP among Iranian individuals [14, 57, 58].

Overall, the results of the present investigation underscores the intricate interplay between cultural, religious, individual, and social determinants in shaping the FOP experienced by Iranian patients following surgical procedures. These complexities highlight the challenges inherent in comprehending FOP within the Iranian context.Multiple factors may influence individual experiences and perceptions of pain. A nuanced understanding of these dynamics is crucial, as it can empower healthcare practitioners to more effectively address patients' fears. By doing so, providers can foster greater patient engagement in care aftersurgery, thereby mitigating the potential adverse effects associated with unmanaged pain-related anxiety.

Limitations and strengths

One potential limitation of the present research was that generalizability needs to be considered cautiously given th elack of a random sample. Its restricted results generalizability to a broader populationHowever, our investigation has several strengths. Regardless of its innovation, utilizing the exploratory graph analysis to identify FOP-related factors is another considerable strength. Eventually, the calculation of the Omega-McDonald's coefficient along with Cronbach's alpha can be considered as another strength.

Implications

The translationand conducting of psychometric testing on the FOPQ in Farsi in Iranian patients post-surgery can acknowledge the association between cultural differences and the concept of FOP. Moreover, following the adaptation of the questionnaire to the Farsi language and Iranian cultural context, Iranian healthcare providers can assess and comprehend the concept of FOP experienced by patients post-surgery in terms of cognitive and psychosocial aspects. Subsequently, premiere diagnostic, care, and therapeutic services can be provided to the mentioned clients. Besides, the detrimental complications and outcomes associated with their FOP-related impaired post-surgical cooperation with healthcare providers can be prevented. Additionally, the psychometric testing of the translated questionnaire can facilitate ensuring its reliability and validity among the Iranian multicultural population, along with enhancing its utility within their clinical settings.

Conclusion

Based on our current understanding, the present study has been a pioneer in evaluating the validity and reliability of FOP among Iranian post-surgery patients, considering FOP-related factors such as PTS and MII. Based on the results of the present study, the Persian version of FOPQ has a valid structure as well as an acceptable reliability due to the cultural and social context of Iranians. The FOPQ-P can assist healthcare providers in comprehending and administering the fear and avoidance behaviors among Iranian patients, as well as encouraging them to participate in post-surgical collaborative interventions, which can lead to a significant reduction in FOP-related complications.

Abbreviations

FOPQ	The Fear of Pain Questionnaire
FOPQ-P	The Persian version of FOPQ
QOL	Quality of Life
DVT	Deep Venous Thrombosis
PASS	Pain Anxiety Symptoms Scale
PCS	Pain Catastrophizing Scale
MLEFA	Maximum Likelihood Exploratory Factor Analysis
KMO	The Kaiser–Meyer–Olkin
CFA	Confirmatory Factor Analysis
NFI	Normed Fit Index
TLI	Tucker-Lewis Index
RFI	Relative Fit Index
IFI	Incremental Fit Index
RMSEA	Root Mean Square Error of Approximation
CR	Composite reliability
AVE	Average Variance Extracted
HTMT	Hetero-Trait-Monotrait Ratio
AIC	Average Inter-Item Correlation Coefficient
MaxR	Maximal Reliability

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Author contributions
Performance of data gathering: PN; Planning and supervision of the work: HSH; Performance of the analysis: HSH; Manuscript draft: RF, BM, ASH; and comment on the final manuscript: ESF, and All authors.

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Data availability
The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations
The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethics approval and consent to participate
The Ethics Committee of Mazandaran University of Medical Sciences (Sari, Iran) gave its approval to this study (Ethics code: IR.MAZUMS.REC.1402.602). The participants were given a thorough explanation of the study's goals and methods, as well as assurances that their participation was entirely voluntary. Written Informed consent was obtained from all subjects and/or their legal guardian(s). Permissions to use the data collection instruments were obtained from their developers. All procedures adhered to the appropriate guidelines and regulations.

Consent for publication
The authors and participants have given their consent for the publication of the study.

Competing interests
The authors declare no competing interests.

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