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Research Article

Psychometric Properties of the Persian Version of Fear of Hospitalization Scale in Patients Undergoing Emergency Surgery

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Purpose. This study was designed to characterize the psychometric properties of the Persian version of Fear of Hospitalization Scale (P-FHS). *Design and Methods*. In order to evaluate the validity and reliability of the translated scale, a cross-sectional design was employed. Ten experts evaluated the content validity of Fear of Hospitalization Scale (FHS) after it had been back-translated into Persian. With 612 patients having emergency surgery, construct validity was assessed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The STROBE checklist for cross-sectional studies was followed. *Findings*. The results of EFA ($n = 306$) showed that fear of hospitalization had three factors. These three factors accounted for 45.28% of the total variance. Also, these factors were confirmed by CFA ($n = 306$) (root-mean-square error of approximation = (90% confidence interval) = 0.050 (0.041, 0.058), goodness-of-fit index = 0.945, comparative fit index = 0.968, non-normal fit index = 0.948, incremental fit index = 0.968, Tucker–Lewis index = 0.959). The coefficients of Cronbach's alpha, McDonald's omega, composite reliability, and maximum reliability for all three factors were greater than 0.7, demonstrating satisfied internal consistency. *Practice Implication*. According to the published results, the P-FHS is effective at measuring hospitalization anxiety in patients undergoing emergency surgery. It is advised that nurses in Iranian culture use a legitimate and trustworthy technique to pinpoint the causes of hospitalization anxiety in patients undergoing emergency surgery to give optimal care.

1. Introduction

Isolation and fear are brought on by hospitalization in stressful inpatient settings [1]. While at the hospital, the patient has anxiety and worry due to poor communication with staff, waiting for surgery, fear of dying, fear of the unknown, and some unmet needs [1–3]. Other factors contributing to fear of hospitalization include the effects of the disease, being away from family, and a lack of confidence in medical professionals [2, 4]. Evidence has also revealed that awareness of self-care behaviors, nurse behavior, level of health literacy, depth of knowledge, kind of illness, education, occupation, sex, and age are all linked to fear of hospitalization [5, 6]. Since fear of hospitalization is one of the emotional responses to hospitalization that can be linked to poor patient outcomes, prevention, early diagnosis, and treatment are encouraged [7]. It is possible to control fear and provide better nursing care by identifying the patient's sources of worry and fear [8–10].

When hospitalization and surgery are combined, patients' concerns and anxieties increase [11, 12] Surgery is stressful and may have an adverse effect on a person's physical and mental health [13, 14]. Emergency surgery candidates frequently display tension and anxiety. Hospital anxiety among surgical patients is exacerbated by fear of anesthesia and concern over surgical mishaps [11]. Fear impairs patients' capacity to adapt, intensifies postoperative discomfort, lengthens hospital stays, and reduces quality of life [15, 16].

The first step in treating patients' unfounded anxiety and dread is to find out what they are scared of. A valid and trustworthy scale is required to determine patients' worries [17]. Questionnaires such as State-Trait Anxiety Inventory (STAI) [18], Hospital Fears Rating Scale (HFRS) [19, 20], Visual Analog Scale (VAS) [21], Beck Anxiety Inventory (BAI) [22], Hamilton Anxiety Rating Scale (HAM-A) [23], Zung Self-Rating Anxiety Scale (SAS) [24], and Depression Anxiety Stress Scales (DASS) [25] were developed to assess the psychological issues associated with hospitalization. The Surgical Fear Questionnaire (SFQ) has been developed to evaluate the level of fear of surgical interventions. The SFQ consists of eight items ranging from zero (not afraid at all) to ten (very afraid). This instrument has two dimensions: fear of immediate surgical results and fear of long-term surgical complications [26]. SFQ psychometric indicators have been approved in different countries [27–29]. Other sources of fear are not examined by this technique. There are several reasons for the fear of hospitals. Almost all sources of anxiety were examined by Jankovic et al., who created Fear of Hospitalization Scale (FHS) [4]. This 17-item scale, which is based on a 5-point Likert scale, measures fear of hospitalization. It is not just focused on the surgical position but also includes situations like the fear of privacy invasion and the worry of the patient losing control of the situation [4]. The psychometric properties of this instrument have not been investigated in other populations or cultures.

Emergency hospitalization is associated with fear and anxiety, but invasive and surgical interventions increase this anxiety and fear [11, 12]. As a result, patients undergoing emergency surgery were chosen for this study. Assessing fear of hospitalization, especially in emergency surgery, requires a reliable and valid scale. According to the literature review, there is no scale in Iranian culture that measures all aspects of fear of hospitalization in an emergency situation. Therefore, this study was designed with the aim of determining the psychometric properties of the Persian version of Fear of Hospitalization Scale (P-FHS) in patients undergoing emergency surgery.

2. Methods

2.1. Study Design. In order to ascertain the psychometric characteristics of the P-FHS among Iranian patients undergoing emergency surgery, this methodological study used a cross-sectional approach. This study's reporting adheres to the guidance in Strengthening the Reporting of Observational Studies in Epidemiology [30].

2.2. Participants. The inclusion criteria of the participants in this study were as follows: being a candidate for emergency surgery, being over 18 years, having full consciousness, and willingness to participate in the study. Patients who required psychiatric counseling due to extreme anxiety were not included in the study. Patients were selected by a convenient sampling method. From May 29 to October 4, 2020, a scale was administered at the Ayatollah Mousavi Hospital, which is connected to the Zanjan University of Medical Sciences. In total, 612 participated in this study. Patients filled out the questionnaire once their clinical situation had stabilized.

2.3. Measures. The scale had two sections. Participants' demographics, including gender, age, marital status, education level, work status, triage level, diagnosis, and preoperative pain intensity, were questioned in the first portion of the study. In the second section, the 17-item Fear of Hospitalization Scale was used to measure the fear of patients undergoing emergency surgery. Participants were asked to respond to each statement using a five-point range Likert scale from 1 (strongly agree) to 4 (strongly disagree). Items 2, 9, 10, and 11 were scored in reverse.

2.4. Procedure. Initially, written permission for the use of the P-FHS was obtained from the developer of the scale, Professor Dr. Slobodan Janković, through e-mail communication. Subsequently, we followed the forward-backward translation technique and invited two English-Persian translators to translate FHS to Persian. Independent translations from English into Persian were done by the two translators. In order to create a single P-FHS, a panel of experts—including some of the authors of this article—reviewed and commented on these two Persian translations of FHS. Last but not the least, a Persian-English translator back translated the single P-FHS into English, and the translation's accuracy was verified by a committee of experts [31].

2.5. Construct Validity and Reliability. This study conducted both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to confirm the factorial structure as well as the construct validity and reliability of the P-FHS. We randomly split the dataset ($n = 612$) into two groups for data analysis. The first dataset ($n = 306$) was used to conduct EFA using SPSS version 28, and the second dataset ($n = 306$) was used to conduct CFA using AMOS version 27. This study employed maximum likelihood EFA with Promax rotation, the Kaiser–Meyer–Olkin (KMO) >0.8 and significant Bartlett's test of sphericity ($p < 0.05$) were used to assess the relevance and appropriateness of the data for conducting the factor analysis.

The factorial structure of the P-FHS was following the parallel analysis and commonalities >0.2. Moreover, the factor loading for each item in the extracted factors should be greater than 0.3 [32]. Then, we conducted maximum likelihood CFA to validate the factorial structure extracted from EFA. The model fit was assessed through several fit indices, such as the chi-square (χ^2) test, chi-square (χ^2)/degree of freedom (df) ratio < 4, goodness-of-fit index (GFI) > 0.9, comparative fit index (CFI) > 0.9, normal fit index (NFI) > 0.9, relative fit index (RFI) > 0.9, incremental fit index (IFI) > 0.9, and Tucker–Lewis' index (TLI) > 0.9, standardized root means square residual (SRMR) < 0.09, and root mean square error of approximation (RMSEA) < 0.08. The P-FHS was evaluated for its convergent validity and

discriminant validity [33]. For convergent validity, composite reliability (CR) should be higher than 0.7, and average variance extracted (AVE) should be greater than 0.5 [34]. This study also assessed the construct reliability over its internal consistency (comprising Cronbach's alpha and McDonald's omega), [35] composite reliability (CR), and maximum reliability (MaxR). To achieve acceptable construct reliability, Cronbach's alpha, McDonald's omega, CR, and MaxR should be greater than 0.7 [36].

2.6. Multivariate Normality and Outliers. Both univariate and multivariate normality of the data were evaluated in this study. The univariate distributions were tested for outliers, skewness, and kurtosis. The normality of the multivariate was assessed using Mardia's coefficient of multivariate kurtosis, and the Mardia's coefficient. Mardia's coefficient >7.98 can be considered indicative of a departure from multivariate normality. The multivariate outliers were detected using Mahalanobis distance ($p < 0.001$).

2.7. Ethical Considerations. The Helsinki Declaration on the Use of Human Subjects and the Charter of Patient Rights served as the study's ethical guidelines. The National Committee for Ethics in Biomedical Research of Iran gave its clearance to this study (approval code: IR.ZUMS.REC.1400.464). All patients gave their written consent. When the patient's clinical condition had stabilized, questionnaires were finished.

3. Results

3.1. Participants' Profiles. In total, 612 Iranian patients undergoing emergency surgery participated in this study, including 256 females and 356 males, with a mean age of 39.63 years (SD = 13.67) (Table 1).

3.2. Validity and Reliability. Table 2 shows the results of the EFA with Promax rotation ($n = 306$) on the Persian version of fear of hospitalization. The results showed that the KMO was 0.855, and the Bartlett's Test of Sphericity was significant ($p < 0.001$, 3922.255, and d$f = 105$), indicating the relevance and appropriateness of the data for conducting the factor analysis. Three factors were extracted, consisting of 15 items and explaining 45.28% of the total variance. Two items were removed due to the commonality of less than 0.3, and factor loading of less than 0.3.

Then, maximum likelihood CFA ($n = 306$) was conducted to validate the factorial structure obtained from EFA. As shown in Figure 1, to improve the model, five pairs of measurement errors were allowed to freely covary (e_3 to e_4, e_5 to e_6, e_7 to e_8, e_{10} to e_{11}, and e_{11} to e_{12}). The factor loadings for all items ranged from 0.43 to 0.91 and were significant. After reviewing the modification indices, the final three-factor model fits the data well (χ^2 (82) = 206.504, $p < 0.001$, $\chi^2/df = 2.518$, GFI = 0.945, CFI = 0.968, NFI = 0.948, IFI = 0.968, TLI = 0.959, and RMSEA (90% C.I.) = 0.050 (0.041 and 0.058)).

Table 1: Personal characteristics of the study participants ($N = 612$).

Variable	N	(%)
Gender		
Female	256	41.8
Male	356	58.2
Marital status		
Single	168	27.5
Married	444	72.5
Educational level		
Illiterate	147	24
Middle school	244	39.9
High school	114	18.6
University graduate	107	17.5
Employment status		
Unemployed	62	10.1
Retired	53	8.7
Employed	301	49.2
Henwife	143	23.4
Student	53	8.7
Triage level		
Level 2	282	46.1
Level 3	330	53.9
Diagnosis		
Head trauma	76	24.8
General surgery	121	39.5
Orthopedic surgery	74	24.2
Others	12	4.2
Variable	Mean	SD
Age	39.63	13.67
Preoperative pain	6.65	1.92

Coefficients of Cronbach's alpha, McDonald's omega, CR, and MaxR for all the factors were greater than 0.7, demonstrating satisfactory internal consistency and construct reliability. The AVE for one factor was less than the required threshold of 0.5, but AVE was greater than MSV, and CR more than 0.7 can be used to assess convergent validity in psychological studies. Therefore, convergent validity was achieved in this study as CR for all three factors was above 0.7, which indicates that items constantly measure the same structure (Table 3).

4. Discussion

The results of EFA showed that the P-FHS had three factors. Construct validity revealed three factors: fear of being injured, fear of losing privacy or autonomy, and trust in medical staff. These three factors accounted for 45.28% of the total variance. Cronbach's alpha, McDonald's omega, composite reliability, and maximum reliability for all three factors were greater than 0.7, demonstrating satisfactory internal consistency.

The first factor included six items, and it was named according to the original version as "fear of being injured." Patients receiving emergency surgery in the current study were particularly concerned with anesthesia and surgical-related injuries. In the study of Theunissen et al., who developed the SFQ, two factors, including fear of short-term and long-term consequences of surgery, were extracted [26].

Table 2: The result of EFA and internal consistency on the four factors of the Persian version of fear of hospitalization ($N = 306$).

Factor	Items	Factor loading	h^2	λ	% variance	Internal consistency
Fear of being injured	Q_7. I am anxious when I think on a patients' room	0.957	0.829	2.992	19.94	$\alpha = 0.854$
	Q_8. I am anxious when I think on an operation theatre	0.901	0.765			
	Q_6. Operation theatre is a place where I would never want to be	0.733	0.588			$\Omega = 0.862$
	Q_5. If a physician suggested admission to a hospital, my heart would beat stronger	0.628	0.475			
	Q_3. I am afraid of general anesthesia	0.458	0.241			AIC = 0.497
	Q_1. I would be anxious and having fear if a physician suggests hospitalization	0.351	0.230			
Fear of losing privacy or autonomy	Q_{16}. I feel uncomfortable to share the same room with other sick people	0.858	0.686	2.202	14.68	$\alpha = 0.841$
	Q_{17}. I am afraid that I will not be able to leave the hospital when I feel a need to do so	0.773	0.595			
	Q_{15}. I am afraid that I will lose privacy if I am admitted to a hospital	0.735	0.504			$\Omega = 0.843$
	Q_{14}. If I had surgery, my recovery would be questionable	0.574	0.385			
	Q_{13}. If I was admitted to a hospital, I would have hard time being away from my family	0.506	0.420			AIC = 0.469
	Q_{12}. Each stay in a hospital is associated with painful procedures	0.481	0.298			
Trust in medical staff	Q_{10}. I believe that physicians in a hospital are competent	0.843	0.708	1.620	10.66	$\alpha = 0.769$
	Q_{11}. I believe that nurses (technicians) would take good care of me when I stay in a hospital	0.717	0.514			$\Omega = 0.777$
	Q_9. Medical staff is making me feel secure	0.629	0.398			AIC = 0.529

Abbreviation: h^2: communalities; λ: eigenvalues; α: Cronbach's alpha; Ω: McDonald's omega; AIC: average interitem correlation.

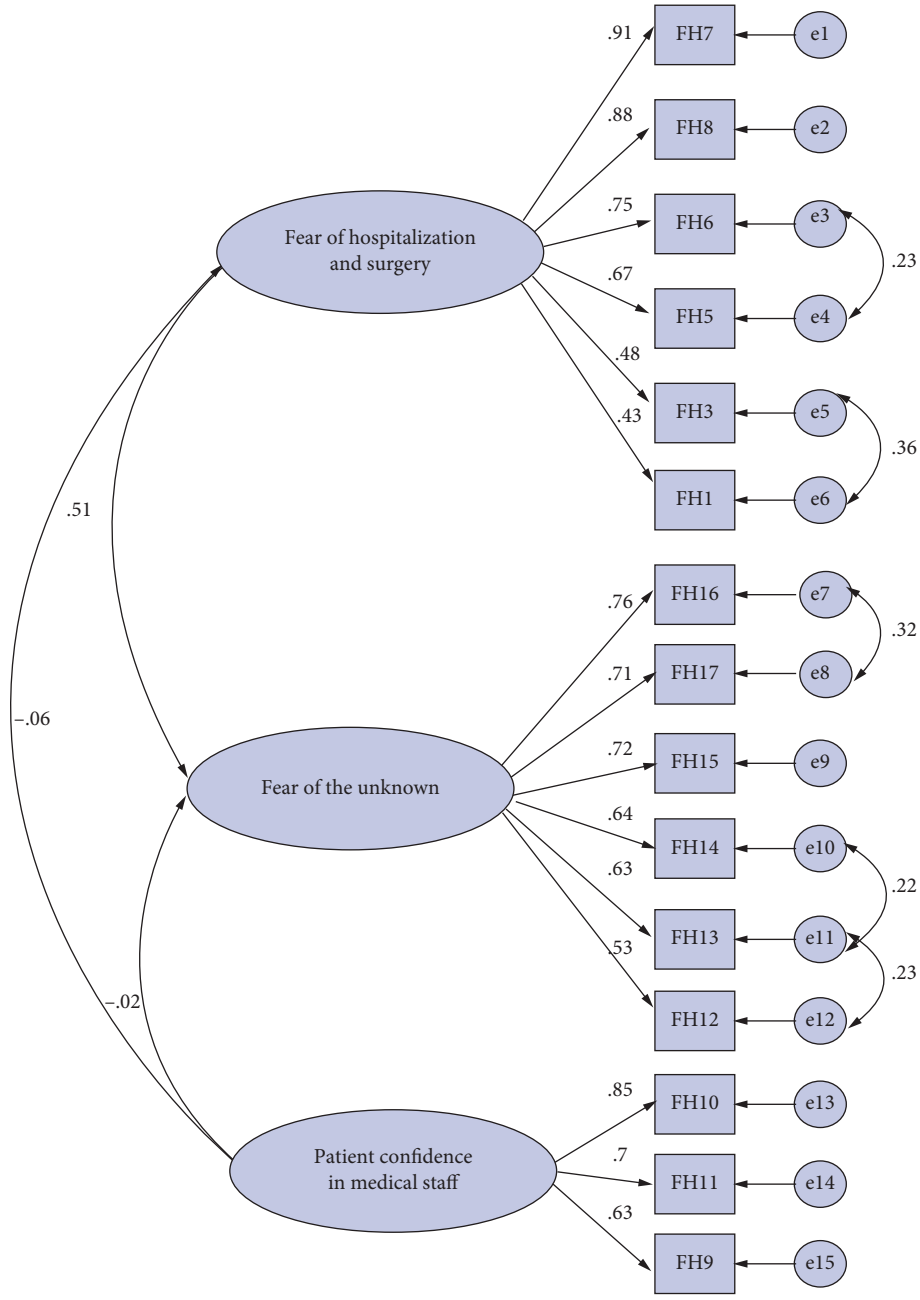

Figure 1: Factorial structure of the Persian version of fear of hospitalization with correlations among the three factors, standardized factor loadings, and error terms.

Table 3: The indices of the convergent, discriminant validity in the CFA model ($n = 306$).

Factors	CR	AVE	MSV	MaxR (H)
Fear of hospitalization and surgery	0.851	0.504	0.260	0.914
Fear of the unknown	0.828	0.449	0.260	0.840
Patient confidence in medical staff	0.777	0.542	0.004	0.812

Hospitalization is always associated with fear and anxiety; when it is associated with surgery, the patient's fear and anxiety are magnified [10, 37]. Fear of surgery and anesthesia is common among patients who are about to be hospitalized [38]. The patient's fear of the unknown; lack of knowledge, particularly regarding the procedure; and uncertainty increase when everything occurs as an emergency [39, 40].

Another six elements made up the second component, which was titled "fear of losing autonomy or privacy" in the original form. Items relating to the fear of losing autonomy,

privacy, and situational control are included in this dimension. One aspect of hospitalization that could cause stress and worry for a patient is the invasion of their privacy [41]. The evidence has demonstrated that patients' perceptions of privacy respect were lower than those of staff members [42, 43]. As a result, the medical staff could disregard patients' worries about privacy while they are in the hospital [44]. However, one of the main ethical responsibilities is to respect the patient's autonomy [45]. Fear may arise from the perception that the patient's autonomy is being lost.

The third factor has three items related to the patient's trust in medical staff. In this study, these three items were scored inversely. Patients may experience anxiety as a result of being placed in an unfamiliar setting during hospitalization [46]. Such setting causes patients to lose confidence in both themselves and their healthcare providers [47]. By identifying the sources of patients' lack of trust in treatment staff, interventions can be designed to reduce the patients' fear [48].

4.1. Implications for Psychiatric Nursing Practice. It is advised that medical professionals in Iranian culture understand the causes of their patients' fear while they are in the hospital in order to manage it and give them better care.

4.2. Strengths and Limitations. This study provides a scale to assess the level and sources of fear of patients undergoing emergency surgery. Since the participants in this study only include the patients undergoing emergency surgery, the generalizability of the P-FHS to other situation of healthcare is limited. Also, the use of self-reporting method can be a source of bias in the response. Another limitation of this study was the nonhomogeneous type of surgery of the patients. It is suggested that the patients be homogenous in terms of the type of surgery in future studies. Because there was no valid similar instrument in Persian language, it was not possible to compare the P-FHS with another instrument. Therefore, it is recommended that the psychometric characteristics of other instruments, for example, SFQ, should be evaluated in Iranian culture, so that in future studies, a comparison can be made between the P-FHS and other instruments.

5. Conclusions

The P-FHS measures the level of fear of hospitalization in patients undergoing emergency surgery with three factors. Evaluating the psychometric properties of this scale on 612 patients undergoing emergency surgery in Iranian culture showed that the scale has acceptable construct validity, content validity, and internal consistency.

Data Availability

The primary data to support the results of this study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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