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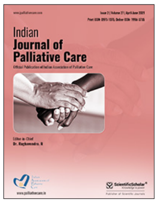

Original Article

Psychometric Properties of the 'Patients' Perspective of the Quality of Palliative Care Scale'

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ABSTRACT

Objectives: Palliative care is a basic human right for all patients suffering from progressive and excruciating pain, limitations in daily activities as well as requiring constant care. The development of palliative care is always associated with the physical, psychological, social and spiritual care quality level and requires continuous evaluation by the care-receiving patients. This study aimed to determine the psychometric properties of the patients' perspective of the quality of palliative care scale.

Materials and Methods: This methodological study was conducted on 500 patients with chronic diseases admitted to the hospitals affiliated in Golestan University of Medical Sciences, between 2019 and 2020. Participants were selected through stratified sampling through proportional allocation as well as considering the bed occupancy rate in the two referral hospitals of the university. According to Wild approach, we translated the original version of the scale the patients' perspectives of the quality of the palliative care scale with 35 items and eight subscales. Using exploratory and confirmatory factor analysis, the psychometric properties of the scale (i.e., initial reliability and face, content, convergent and construct validities) were assessed. The reliability of the scale was calculated by applying Cronbach's alpha coefficient, McDonald's omega coefficient and the Intraclass correlation coefficient (ICC). SPSS-16 and AMOS-24 software programs were used to analyse the data.

Results: Three items were omitted after assessing the initial reliability of the translated version of the perspectives of the quality of the palliative care scale using adjusted Cronbach's alpha. The qualitative face validity and impact score of the remaining items of the scale were confirmed by the target group. Meanwhile, a panel of experts confirmed the content validity ratio and content validity index. Convergent validity was approved by calculating the average variance extracted >0.5. Performing EFA led to the extraction of 7 subscales with 32 items. CFA and goodness of fit indices such as GFI = 0.98, CFI = 0.91, RMSEA = 0.048 and GFI = 0.97 confirmed the construct model by omitting three items. Hence, the Persian version of the patient's perspective of the quality of palliative care scale was finalised, including seven subscales with 29 items. ICC of >0.7 represented good reliability. Moreover, Cronbach's alpha and McDonald's omega coefficient confirmed the internal consistency of the scale.

Conclusion: Based on the findings of this study, the Persian version of the patients' perspective of the quality of palliative care scale is introduced as a valid and reliable scale. It can accurately indicate and predict the meticulous quality of such care in hospitalised patients and can be used in the cure and care assessments in the health system.

Keywords: Psychometrics, Patients' perspective, Quality, Palliative care

INTRODUCTION

Caregiving is one of the fundamental components of health system services[1] and providing good quality care, which is constantly evolving, is a priority in every health system.[2] Palliative care is one of the care types in the clinical setting.[3] It is a basic human right for all patients, especially those requiring constant care due to chronic, progressive and excruciating pains caused by chronic malignant and non-malignant diseases.[4] Palliative care is comprehensive and holistic care provided to patients by an interdisciplinary team of physicians, health-care providers, nurses, psychologists and social workers during hospitalisation and even after discharge.[5] Palliative care is aimed to provide physical, psychological, social and spiritual support to patients with chronic diseases and those in the end stages of life as well as their families through the prevention of

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suffering.[6] Such care is always required by patients with chronic progressive diseases, limitation in daily activities, uncertain course of the disease, instability in symptoms and disruptions in the process of life.[7]

Reports reveal that about 40 million chronic patients in the world with cardiovascular disease (38.5%), chronic lung disease (10.3%), AIDS (5.7%), diabetes (4.6%) and cancer (37%) annually receive palliative care.[8] Providing palliative care has positive consequences such as an increase in the patient's energy, pain relief, dealing with the disease taboo, changing the lifestyle[9] and promoting the patient knowledge and awareness.[10] However, it can be impaired by challenging factors, including inefficient performance, poor or non-quality care or care that does not meet the standards,[11] progression of the destructive power of disease,[12] progressive dysfunction of daily function,[13] heterogeneous coverage and improper level of services[14] and inadequate access to care services.[15]

Meier (2011) showed that chronic patients hospitalised in different wards do not receive optimal-quality palliative care services. This is manifested by untreated symptoms and unmet social, psychological and physical needs, gradually resulting in increased caregiver burden and decreased patient satisfaction.[16] The results of the qualitative research conducted by Ansari *et al.* also revealed that the quality of palliative care has some challenges in Iran and needs to be constantly evaluated.[17]

According to the National Institute of Health Care Quality, evaluation and monitoring strategies should be considered to achieve high-quality care in the community.[18] Evaluating the quality level of care programs regarding the opinions of stakeholders and care receivers is an efficient strategy.[19] Furthermore, research shows that developing palliative care always depends on understanding the patients' needs and their perspectives on the physical, psychological, social, spiritual and cultural quality of care and continuous evaluation of the process.[20] In other words, an adequate insight and clear picture of palliative care quality will be achieved through getting the patients' opinions and their real experiences.[21]

Various palliative care quality assessment instruments have been developed throughout the world to gather the patients' perspectives on the quality level of palliative care. For instance, Yun *et al.* developed a questionnaire to assess the quality of palliative care in cancer patients in Korea,[22] and Guirimand *et al.* devised and validated a questionnaire on the patients' perspectives of the quality of palliative care in France.[20] Moreover, Buzgova *et al.* designed an instrument to assess the patients' needs in palliative care and levels of care.[23] By the same token, Lyons *et al.* validated the Functional Assessment of Chronic Illness Therapy-Palliative care scale to appropriately assess the quality of existing care.[24]

However, there is no instrument in Iran to assess the quality of palliative care provided to patients. Thus, considering the progressive trend of providing palliative care, local and specialised instruments is required for assessing its quality. Such instruments must follow the cultural factors, facilities and conditions of care provider organisations, treatment and care team skills in this field. Using such instruments provides the opportunity to accurately evaluate various dimensions of the quality of palliative care in patients while addressing its shortcomings and challenges. Hence, the present study was developed and conducted to determine the psychometric properties of the patients' perspectives of the quality of the palliative care scale.

MATERIALS AND METHODS

Ethical considerations

This study is based on the first part of the Ph.D. dissertation with the ethics code of (IR.GOUMS.REC.1398.374), approved by Research Ethic Committee, Golestan University of Medical Sciences. First, the research objectives were explained to the participants and informed consent to participate in the study was obtained. The participants were assured that the information would remain confidential and that they had the right to withdraw from the study whenever they wanted.

This cross-sectional methodological study was conducted during 2019–2020 in the hospitals affiliated to Golestan University of Medical Sciences. The evaluation process of the psychometric properties included translating the patients' perspectives of the quality of the palliative care scale, calculating the initial reliability, evaluating the face, content, convergent and construct validities and the reliability of the scale. The original 'patients' perspectives of the palliative care quality scale' was developed by Guirimand *et al.* in France.[20] This scale has eight subscales with 35 items, including the availability of caregivers to satisfy patient's needs (9 items), serenity (4 items), quality of information (four items), pain management (three items), caregivers' listening skills (five items), psychosocial and spiritual aspects (four items), the possibility to refuse (care or volunteers) (two items) and respect for the patient (four items). These subscales were scored in the Likert scale as 'no, not at all,' 'not really,' 'almost,' 'yes exactly' and 'does not apply to me.'

Translation of the scale

After corresponding with the scale developer, prof. Guirimand and receiving written permission, the translation and psychometric steps were initiated. The approach presented by Wild *et al.* was used for translating the scale in this study.[25]

First, the original version of the patients' perspectives of the quality of the palliative care scale was translated from French to Persian by two translators fluent in French (one of the translators was familiar with the field of study). Then, the translations were reviewed in terms of semantic clarity by the research team and the differences and conflicts between the translation texts were resolved. Ultimately, by integrating the original translations and the final version, the translation of the patients' perspectives of the quality of the palliative care scale was confirmed. In the review and synchronisation stage, the translated sentences and the corresponding Persian translations were compared. The final Persian version was then translated into French by another translator not participating in the previous stage. The original version and the version translated into French were sent to the scale developer. This version was examined and approved by the scale developer in terms of conceptual and linguistic comprehension. During a meeting, the research team approved and applied the changes he proposed. Then, the Persian translated version, named Qualitative-Palliative-Patient (Quali-Palli-P), entered the phase of assessing psychometric properties.

Psychometrics of the scale

Initial reliability assessment

The initial reliability was calculated through internal consistency; that is, Quali-Palli-P was completed by 30 hospitalised chronic patients and Cronbach's alpha was calculated after entering the data into SPSS-16.[26] The Cronbach's alpha of >0.70 is an acceptable value for the scale.

Face validity assessment

The face validity of Quali-Palli-P was evaluated both quantitatively and qualitatively. In the qualitative face validity, the researchers had a face-to-face interview with 12 chronic patients (six females and six males) hospitalised in university-affiliated hospitals. They were asked to evaluate the items in the scale in terms of any ambiguity, comprehension difficulty, wording and understanding of the concepts.

To quantitatively evaluate the face validity, they were asked to score the Quali-Palli-P in a 5-item Likert-scale ranging from very important (five points), somewhat important (four points), relatively important (three points), slightly important (two points) and to not important (one point). The impact factor of the items was calculated using this formula: Impact Score = Frequency% × Importance. If the impact factor score was higher than 1.5, the item was recognised as eligible and was retained for subsequent analysis.[27]

Content validity assessment

Content validity assessment of Quali-Palli-P was performed both qualitatively and quantitatively. In the qualitative phase, ten people from the experts' panel on palliative care were asked to comment on the grammar, use of appropriate words, appropriate placement of items and scoring the scale. These experts included experienced specialists and researchers (seven people), clinical nurses working in chronic patients' wards (two people) and one psychologist.

Quantitative content validity was evaluated by calculating content validity ratio (CVR) based on the Lawshe model. The experts were asked to express their ideas about the necessity of the items in the three-item Likert scale (not necessary = 1, useful but not necessary = 2 and necessary = 3). The minimum acceptable value for CVR with ten specialists was 0.62 in the Lawshe table.[28]

To calculate the content validity index (CVI), after analysing the CVR results, the panel of experts was asked to evaluate each item based on the Waltz and Bausell criterion in terms of relevancy on a four-item Likert scale ranging from not related = 1, slightly related = 2, needs to be revised = 3 and to completely related = 4.

Kappa measure (K^*) or modified statistic was also calculated. K^* scores higher than 0.74 are excellent, between 0.6 and 0.74 are considered good and the scores between 0.4 and 0.59 are relatively good.[29]

Construct validity assessment

Exploratory factor analysis (EFA)

Confirmatory factor analysis (CFA)

To evaluate the construct validity of the Quali-Palli-P, EFA was used to extract the existing construct model among the studied variables. Then, the model was confirmed in the Golestan University of Medical Sciences research community using the CFA. Construct validity examines the efficiency of the scale in terms of measuring the existing constructs and factor analysis is one of the important steps in the design and psychometrics of new instruments.[30] As a rule of thumb, there should be 10–20 samples per item in EFA.[31] Thus, a maximum of 500 samples (32 × 15) was estimated for 32 items.

Sampling was performed through the stratified method by proportional allocation of chronic malignant and non-malignant patients considering the bed occupancy rate in the two referral hospitals. The sample size was estimated to be 115 malignant chronic patients and 385 non-malignant chronic patients who entered the study based on the inclusion criteria after obtaining written informed consent.

The inclusion criteria were the age ≤18 years and willingness to participate in the study. Moreover, the patients had been hospitalised for 48 h before the study while receiving palliative care.

After data collection, Kaiser–Meyer-Olkin (KMO) was employed to determine the adequacy of the sample size and Bartlett's Test of Sphericity was used to determine the correlation in the data matrix. EFA was performed in SPSS-16 after determining the appropriate factor loading, Eigenvalue and the maximum likelihood with varimax rotation.

After extracting the main components of the construct model in EFA, the CFA method in AMOS 24 was utilised to confirm the model. In CFA, the researchers look for fitting the existing data into the model. To achieve this, several fit indices were employed. That is, out of three groups of absolute, parsimonious and comparative fit indices, the most common fit indices of the model were used, including goodness-of-fit index (GFI), adjusted goodness-of-fit index, root mean squared error of approximation, comparative fit index, normed fit index and incremental fit index.[32]

Convergent validity assessment

The convergent validity of Quali-Palli-P was assessed through average variance extracted (AVE) and composite reliability (CR). An instrument enjoys convergent validity if it explains the degree to which the constructs strongly correlate with each other. AVE values must be >0.5 and CR values must be higher than AVE.[33]

Reliability assessment

In the present study, relative stability was measured by the test-retest method. For this purpose, the participants were asked to complete the Quali-Palli-P scale twice with a 20-day interval. Intraclass coefficient (ICC) was calculated using a two-way mixed effect model. Furthermore, Cronbach's alpha, McDonald's omega and average inter-item correlation were measured for internal consistency.

RESULTS

From 500 patients participating in the study, the majority of the participants in the study were men (263, 52.5%), married (405, 81%) and illiterate (286, 57.2%) with a mean age of 55.38 ± 15.51. Totally, among the chronically hospitalised patients, 376 (75.2%) suffered from non-malignant and 124 (24.8%) were affected by malignant diseases.

In the initial reliability assessment, the results of the adjusted Cronbach's alpha revealed that items 7, 11. And 26 should be deleted. By omitting these three items, there was an increase in the total Cronbach's alpha value of the scale and subscales [Table 1].

In qualitative face validity assessment, ambiguities posed by the target group in understanding 12 items (i.e., 13, 5, 14, 15, 16, 17, 9, 20, 21, 31, 34 and 35) were resolved by the explanations of the researcher. Ultimately, the qualitative face validity was confirmed. Calculating the impact factor score, all items obtained an impact factor of 1.5 and so remained in the scale.

In evaluating the qualitative content validity, five items (1, 9, 13, 22 and 28) were revised. Moreover, the Likert scale was altered to 'Does not apply to me' (0), 'Never' (1), 'Hardly ever' (2), 'Sometimes' (3) and 'Always' (4) based on the nature of the questions. The values of the items were confirmed using the Lawshe table (>0.62). Scale-CVI/Ave value was 0.94 and the indices of all items were reported within 0.67–1.

For the construct validity, participants who were literate completed the questionnaire independently and without the need for assistance. Participants without literacy answered the questions with the help of the researcher. Out of 500 samples collected through simple random sampling, 200 samples were allotted to EFA and 300 samples to CFA. In the EFA group, exploratory factor analysis was conducted considering the KMO index and Bartlett test. The KMO index value of 0.863 (i.e., > 0.6) indicated that the number of samples was adequate for factor analysis. The statistical significance of the Bartlett test (i.e., 0.00) revealed that factor analysis was appropriate to identify the structure of the factor model.

Then, accepting a factor load of ≤0.3 and Eigenvalue>1, the EFA was performed on eight subscales with 32 items [Table 2].

Based on the EFA results in [Table 2], after rotating the factor loadings, 32 items were placed in seven subscales. Besides, the subscale of 'possibility to refuse (care or volunteer)' was removed and its items were moved to other subscales.

Quali-Palli-P explained 63.94 of the total variance. The highest variance was allocated to the factor of 'availability

Table 1: The initial reliability of the Quali-Palli-P scale.

Subscale	Cronbach's alpha	Adjusted Cronbach's alpha	Candidate items for removal
Availability of caregivers to meet the needs of the patient	0.529	0.86	7
Serenity	0.597	0.78	11
Quality of information given to the patient and the patient's involvement in decisions	0.824	0.90	-
Pain management	0.726	0.90	-
Willingness of caregivers to listen	0.717	0.86	-
Psychosocial and spiritual dimensions	0.542	0.70	26
Possibility to refuse (care or volunteer)	0.747	0.86	-
Respect for the patient	0.716	0.83	-
Total	0.576	0.78	32

Quali-Palli-P: Qualitative-Palliative-Patient

Table 2: Factor loadings after varimax rotation.

	Item	Sub-scale						
		Factor 1: Availability of caregivers	**Factor 2: Serenity**	**Factor 3: Providing cure and care information and the patient's involvement in decisions**	**Factor 4: Pain Management**	**Factor 5: Caregiver's listening skills**	**Factor 6: Psychosocial and spiritual dimensions**	**Factor 7: Respect for the patient**
1	I see caregivers whenever I need.	0.699						
2	Caregivers respond quickly when I need.	0.707						
3	When I am stressed, worried and sad, caregivers do their best.	0.625						
4	Caregivers help me with daily chores as much as they can.	0.725						
5	Caregivers are available.	0.701						
6	Caregivers pay attention to me whenever they enter the room.	0.58						
7	The nurses do their best to be available to me.					0.621		
8	The provided services are desirable.					0.379		
9	The caregivers are gentle when providing care.						0.582	
10	I can rest as much as I want.		0.530					
11	The caregivers care about my rest time.		0.768					
12	They provide me with complete information concerning improvements in my health condition.		0.69					
13	I am provided with complete information concerning therapeutic objectives (medication and surgery).			0.802				
14	I am provided with complete information about the possible side effects of the treatments.			0.866				

(Contd...)

Table 2: *(Continued)*.

	Item	Sub-scale						
		Factor 1: Availability of caregivers	Factor 2: Serenity	Factor 3: Providing cure and care information and the patient's involvement in decisions	Factor 4: Pain Management	Factor 5: Caregiver's listening skills	Factor 6: Psychosocial and spiritual dimensions	Factor 7: Respect for the patient
15	I am involved in decisions concerning my care.			0.857				
16	I am regularly asked about my pain.			0.58				
17	As soon as I report pain, I quickly receive care.				0.815			
18	Nurses take my pain into account before any nursing care.				0.839			
19	I easily get the needed information from the nursing staff.				0.855			
20	I can easily express my needs with the treatment team.					0.759		
21	The doctors answer my questions about the disease.					0.764		
22	The doctors ask for my permission before informing my relatives about my health.							0.779
23	My relatives receive clear and understandable information about my health conditions					0.778		
24	I can talk to a psychologist if needed.						0.903	
25	I can talk to a social worker if needed.						0.922	
26	I can talk to a religious or spiritual counsellor if I wish.						0.877	
27	I can refuse certain treatments.							0.427
28	I can refuse the presence of non-professionals in my bedside.							0.569

(Contd...)

Table 2: *(Continued)*.

	Item	Sub-scale						
		Factor 1: Availability of caregivers	**Factor 2: Serenity**	**Factor 3: Providing cure and care information and the patient's involvement in decisions**	**Factor 4: Pain Management**	**Factor 5: Caregiver's listening skills**	**Factor 6: Psychosocial and spiritual dimensions**	**Factor 7: Respect for the patient**
29	Doctors and nurses listen to me and pay attention to what I say.							0.755
30	Part of the treatment and care is done without my permission.							0.833
31	I know the doctors who take care of me.					0.75		
32	Caregivers ignore me when talking to each other.							0.584

Table 3: The percentage of variance explained by Quali-Palli-P for each factor.

Subscale	Eigenvalue	Percentage of variance explanation	Cumulative variance percentage
1. Availability of caregivers	4.93	13.33	50.41
2. Serenity	3.9	10.56	49.89
3. Providing cure and care information and the patient's involvement in decisions	3.39	9.43	48.32
4. Pain management	2.79	7.55	60.18
5. Caregiver's listening skills	2.62	7.08	51.96
6. Psychosocial and spiritual dimensions	2.19	5.92	53.88
7. Respect for the patients	1.92	5.2	63.84

Quali-Palli-P: Qualitative-Palliative-Patient

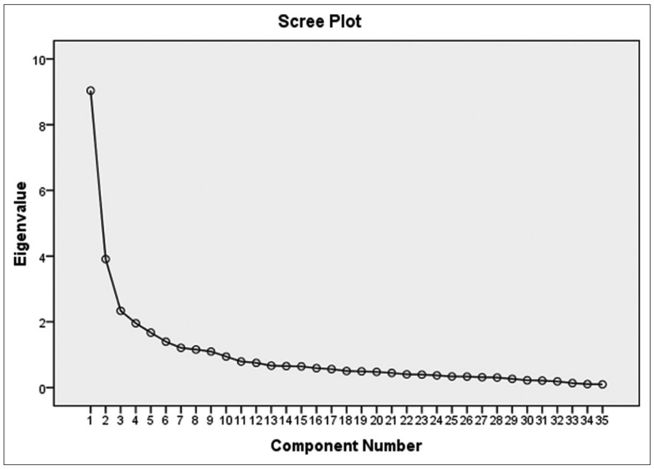

Figure 1: Scree plot in exploratory factor analysis.

of the caregivers' and the lowest variance was related to the factor of 'respect for the patients' [Table 3 and Figure 1].

Considering the structure of the Quali-Palli-P model, CFA results with AMOS 24 software indicated that items 10, 32 and 24 were also removed from the scale. The fit indices of the obtained model properly confirmed the omission of three factors. Therefore, the number of items was reduced to 29. Fitness indices revealed there was a good fitness between the model in the data of this study and the obtained factor structure. Hence, Quali-Palli-P with 29 items and seven subscales were finally approved [Figure 2 and Table 4].

Among the 35 items in the original scale, six items were omitted and Quali-Palli-P factor structure was confirmed with 29 items and seven subscales including 'availability of the caregiver' (six items), 'serenity' (three items), 'providing

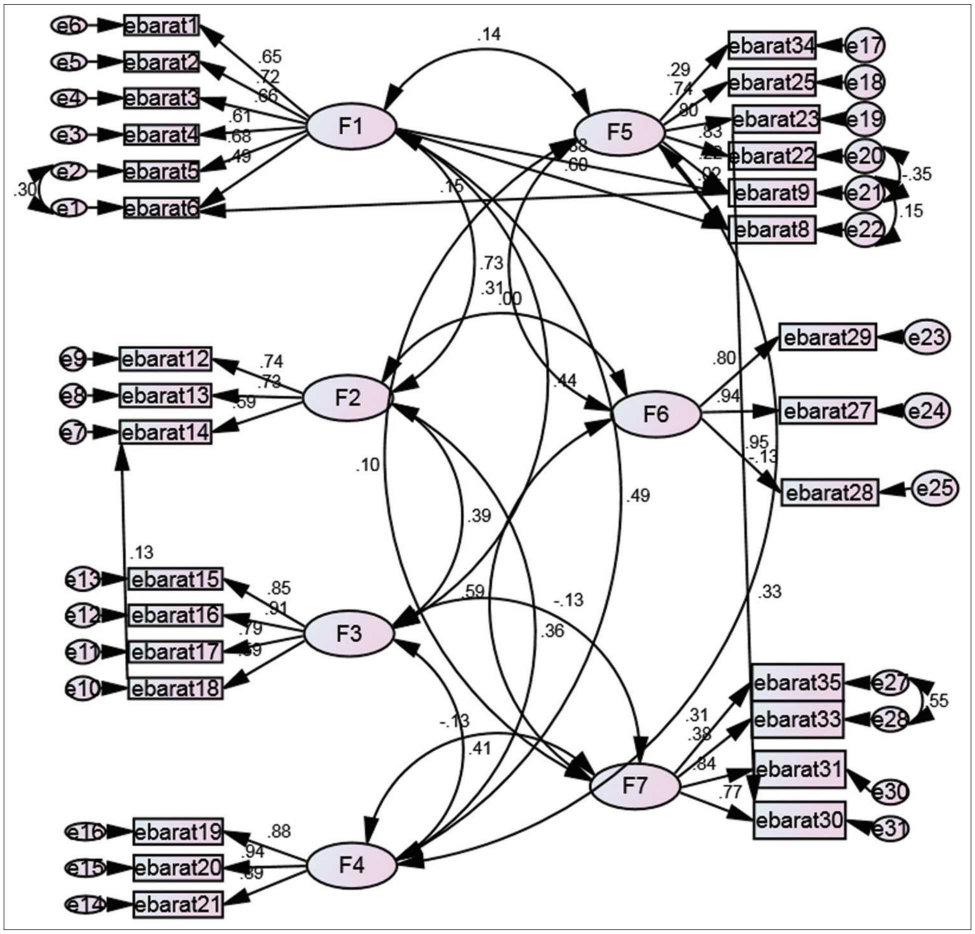

Figure 2: The measurement model for the interpretation of data obtained from integration based on standard factor loadings F1: Availability of caregivers, F2: Serenity, F3: Providing cure and care information and the patient's involvement in decisions, F4: Pain management, F5: Caregiver's listening skills, F6: Psychosocial and spiritual dimensions, F7= Respect for the patients.

Table 4: The results of the Quali-Palli-P fit indices model.

	χ^2	df	*P*-value	CMIN.DF	RMSEA	GFI	AGFI	NFI	IFI	CFI
Indices	1010	354	0.079	2.85	0.048	0.981	0.954	0.977	0.916	0.916

GFI: Goodness-of-fit index, AGFI: Adjusted goodness-of-fit index, RMSEA: Root mean squared error of approximation, CFI: Comparative fit index, NFI: Normed fit index, IFI: Incremental fit index, Quali-Palli-P: Qualitative-Palliative-Patient

cure and care information and the patient's involvement in decisions' (four items), 'pain management' (three items), 'caregiver's listening skills' (six items), 'psychosocial and spiritual dimensions' (three items) and 'respect for the patients' (four items).

The results of convergent validity of Quali-Palli-P showed that the AVE of all factors (0.521-0.610) was >0.5 with the CR of each factor being higher than its AVE [Table 5].

Furthermore, the reliability results revealed that Cronbach's alpha and McDonald's omega coefficient of the scale were confirmed. The internal consistency of the total scale was 0.88 and it ranged from 0.71 to 0.93 for the subscales. The ICC of the scale was approved through test-retest (95% confidence interval, r=0.89, significance level of 0.00). It was 0.89 for all items and 0.85-0.88 for the subscales [Table 5].

DISCUSSION

Palliative care is performed not only to improve the quality of life but also to prevent or relieve the suffering of patients and their families.[34] According to the results of the present study, Quali-Palli-P was introduced as a valid and reliable scale in the Iranian Palliative care context.

In the psychometric process, first, the scale was translated based on the approach posed by Wild *et al.*[25] Translating the instrument is one of the most common methods for cultural adaptation or localisation. Therefore, paying attention to

Table 5: The indices of convergent validity, internal consistency and stability of Quali-Palli-P.

Subscale	AVE	CR	Alpha (CI 95%)	AIC	Omega
Availability of caregivers	0.536	0.735	0.81 (0.80–0.843)	0.321	0.761
Serenity	0.521	0.740	0.71 (0.70–0.75)	0.354	0.772
Providing cure and care information and the patient's involvement in decisions	0.549	0.788	0.85 (0.84–0.89)	0.287	0.863
Pain management	0.603	0.864	0.93 (0.90–0.98)	0.282	0.890
Caregiver's listening skills	0.571	0.714	0.71 (0.70–0.76)	0.310	0.715
Psychosocial and spiritual dimensions	0.610	0.820	0.92 (0.90–0.97)	0.269	0.820
Respect for the patients	0.536	0.753	0.81 (0.80–0.843)	0.321	0.761

Quali-Palli-P: Qualitative-Palliative-Patient, AVE: Average variance extracted, CR: Composite reliability

the proper translation process and cultural adaptation of meanings leads to validity the reliability of the instrument. Researchers believe that there is no specific guideline for translating the instruments and the stepwise process of translating and cultural adapting based on a specific pattern brings about high-quality results.[35]

Some researchers believe that meeting four standards, including content validity, construct validity and two types of reliabilities are necessary for validating the instruments and making them applicable in the research context.[36] In the present study, the stages of initial reliability, face, content, convergent and construct validities were precisely performed. Accurately performing the initial reliability and studying its results facilitates a psychometric path.[37] Moreover, face validity was confirmed by obtaining the comments of the target groups, making minor changes on some items and calculating the impact score. Polit have stated that face validity assessment supports the ability of the target group to comprehend the items of an instrument.[38]

The qualitative content validity of the scale was also confirmed by revising several items in a panel of experts using a Likert scale. Moreover, the CVR and CVI of all items were verified and the items were preserved. Experts believe that in content validity assessment. The more knowledgeable the selected experts in the field, the more accurate the content validation process will be.[38]

The initial results in EFA indicated the desirability of KMO tests (0.86). Being significant, Bartlett's test of sphericity revealed the correlation between the studied variables and the correct application of factor analysis. The sample size adequacy in EFA requires values >0.6 in the KMO test.[39] The items also explained 63.84% of the total variance. In this regard, Zikmund *et al.* reported that it is appropriate to explain about 60% of the total variance in the domains.[40] Factor analysis is one of the reliable techniques for validating the instrument; hence, the instrument can be modified by construct validity.[41]

The EFA results led to the removal of the subscale of 'possibility to refuse (care or volunteer)' and moving its items to other subscales. In this regard, Guirimand *et al.* claimed that the 'right to refuse some treatments' was the only dimension that was not correlated with the satisfaction of the quality of care and did not affect it directly.[20] In the present study, the highest variance was attributed 'availability of caregiver' and the lowest belonged to 'respect for the patients.' The 'availability of caregivers' remained in the scale with high variance, suggesting that patients consider this factor effective and important in the quality of the provided care, whereas the role of 'respect for the patients' was poor in care quality assessment. Moreover, Van Soest-Poortvliet *et al.*, Teno *et al.*, Aspinal *et al.* and Stewart *et al.* emphasised the higher possibility of removing or moving the items under subscales with a poor contribution in explaining the variance.[42-45]

Subsequently, a structural model consisting of 32 items in seven subscales was extracted through the EFA and CFA. These subscales included 'availability of caregivers,' 'serenity,' 'providing cure and care information and the patient's involvement in decisions,' 'pain management,' 'caregiver's listening skills,' 'psychosocial and spiritual dimensions' and 'respect for the patients.' The result has shown that it is essential to calculate EFA before CFA; these two stages of factor analysis are complementary. Following up EFA through CFA is one of the common approaches to validate construct equations.[30] However, in a similar study conducted by Sandsdalen *et al.* on patient's preferences in palliative care, only EFA was performed.[46]

By removing three factors, the CFA and GFI outputs led to a scale with 29 items in seven subscales. Similar to the results of Dy *et al.*, Guirimand *et al.* and Vedel *et al.*, 'availability of the caregivers' and 'serenity' were two important subscales of Quali-Palli-P and the essential components of palliative care quality.[47-49] Another subscale was 'providing cure and care information and the patient's involvement in decisions,' which was emphasised in the studies conducted by Ansari *et al.*, Khoshnazar *et al.* and Jabbari *et al.*[17,50,51] Moreover, Teno *et al.* indicated that patient's participation in care-related decision-making caused a higher quality of care.[43] Pain management, as well as proper prescribing and applying treatment and care techniques, is other important dimensions of palliative care.[52] Chronic pain of patients is one of the most important issues requiring palliative care in all physical, psychological, emotional and spiritual dimensions that can affect the quality of palliative care and the life of patients.[53]

The subscales of 'caregiver's listening skills' along with 'respect for the patient' are the cornerstones of standard palliative care through communicating and paying attention to the patient in the process of care. Shahvaroughi Farahani *et al*. highlighted listening skills of the treatment team and paying attention to the patient and respect for the patients' desires in palliative care.[54] The subscale of 'psychosocial and spiritual dimensions' should be noted since researchers believe that the nature and long process of chronic diseases require a palliative care system in psychological, emotional, spiritual and social dimensions and can help patients to live an active life and improve their quality of life.[55] By the same token, Rego *et al*. expressed the importance of the psychosocial and spiritual dimensions in relieving patients and more effective therapeutic performance.[56] In the present study, the convergent validity of the scale showed the correlation of the items. The convergence of the instruments is not confirmed when the hidden factors are not well explained by the extracted items and the items are not sufficiently correlated with each other.[57]

Cronbach's alpha, McDonald's omega, AIC, ICC and CR values confirmed the reliability of the scale. The reliability of the instrument is related to its homogeneity and when the instrument passes through the design and psychometric steps correctly and stepwise, good reliability is normally reported.[58] According to Plichta *et al*., when the factors of a model are evaluated in a research population, the model enjoys a high internal consistency.[59]

One of the advantages of the present study was developing the Persian version of the palliative care quality based on the perspective of the patients, which was obtained consistent with the research community, facilities and the clinical setting of the country. Another positive point was using the comments of both the stakeholders and the care receivers on the clinical accreditation indices and the patient's right charter. On the other hand, one of the limitations of present study is building the different structural equation models using the same data, which can lead to different interpretations.

CONCLUSION

Quali-Palli-P as a specific scale with 29 items and seven subscales can accurately indicate and predict the quality of palliative care from the perspective of chronically hospitalised patients. This scale can be used in assessing the therapeutic issues and quality of palliative care provided to patients in the health system. Furthermore, the patients' perspective of the quality of palliative care scale, made for the 1st time in Iran, can be used by all researchers and instructors of medical universities and clinical research centres.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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