

Original Article

Palliative Care Difficulties and Psychometric Properties of the Turkish Version of the Self-Esteem Based Palliative Care Practice Scale

Asli Akdeniz Kudubes, RN, PhD

Lecturer, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Murat Bektas, RN, PhD

Associate Professor, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Dijle Ayar, RN, PhD

Assistant Professor, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Ilknur Bektas, RN, PhD

Lecturer, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Yasemin Selekoglu Ok, RN, MSc

Research Assistant, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Sema Sal Altan, RN, MSc

Research Assistant, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Isa Celik, RN, MSc

Research Assistant, Department of Pediatric Nursing, Dokuz Eylul University Faculty of Nursing, Izmir, Turkey

Ayşe Arıcıoğlu, RN, MSc

Research Assistant, Department of Pediatric Nursing, Ordu University Faculty of Health Sciences, Ordu, Turkey

Correspondence: Asli Akdeniz Kudubes, RN, PhD, Dokuz Eylul University, Faculty of Nursing, Inciralti, 35340, Izmir, Turkey e-mail: asliakdeniz@hotmail.com

Abstract

Background: Barriers to palliative care can also be seen during the nursing education period. Assessment is needed to determine whether the training program for palliative care in nursing education is effective.

Objectives: This study was conducted to determine validity and reliability of The Palliative Care Self-Reported Practices Scale (PCPS) and The Palliative Care Difficulties Scale (PCDS) in Turkey.

Methodology: This study comparative study included a correlational method to evaluate the validity and reliability of the Turkish version of PCDS and PCPS. The sample group of the study was composed of 346 nurses and nursing students. The data were obtained by using the Nurse/Nursing Student Information Form, PCDS and PCPS.

Results: The total Cronbach α of the PCDS was .81, the total factor loading was 0.64–0.92 and the total variance was 68.8%. The total Cronbach α of the PCPS was 0.91, the total factor loading was 0.58–0.87, and the total variance explained was 76.5%. As a result of the PCDS factor analysis, we determined the Kaiser-Meyer-Olkin coefficient as 0.74, the Barlett test χ^2 as 1903.117 and as a result of the adolescent form factor analysis, we determined the KMO as 0.89, and the Barlett test χ^2 as 3711.049.

Conclusion: This study suggests that PCDS and PCPS are valid and reliable instruments for measuring palliative care difficulties and self-reported palliative care practices. These are instruments suitable to be utilized by professionals working in the field of palliative care.

Key Words: Palliative care, difficulties of palliative care, palliative care practices.

Introduction

Palliative care includes the care of the patients who have chronic diseases (Currow et al., 2009). Palliative care begins when the illness is diagnosed and continues regardless of whether the individual has received treatment (Grant et al., 2009). The World Health Organization (WHO) defines palliative care as "an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual." WHO emphasizes the importance of starting palliative care in the early stages of a disease (WHO, 2010).

Elimination of the problems patients and families experience at every stage of the chronic illness, and the care is focused on improving the quality of life that can be achieved by palliative care (Lanken and Paul, 2011). The most effective way in which patients and health professionals cope with multiple symptoms during the care or treatment can be achieved by palliative care support aimed at symptom control (Uysal et al., 2015). It has been reported that severity of symptoms such as pain, dyspnea, insomnia, and anxiety decreased, and the survival period and psychological wellbeing increased in patients receiving palliative care (Modonesi et al., 2005; Temel et al., 2010). Palliative care is best applied through predicting and focusing on common symptoms by health personnel in the palliative care team, e.g., doctors, nurses, psychologists, social workers, and dietitians, as well as planning patient care and directing health care needs. Identification of the symptoms associated with chronic diseases and treatment of the symptoms experienced with appropriate interventions will also yield beneficial results in planning health staff training for symptom control. To provide the most appropriate palliative care, it is necessary for the health personnel to be aware of the level of their knowledge, skills, and experience, to develop self-esteem, and to receive appropriate education to eliminate the existing deficiencies (Uysal et al., 2015).

Palliative care is an important part of nursing care. However, lack of knowledge and skills in palliative care among health professionals is one of the most common obstacles to quality care. Other obstacles to palliative care include

unnecessary stays of palliative care patients in intensive care units, lack of continuation of palliative care in the home environment, having the patient difficulty in being accepted in the family the family incidence of acute problems, and legal disruptions in (Lynch et al., 2010). For this reason, when creating programs for palliative care in nursing education, topics related to these areas should be added (Wiener et al., 2015).

Barriers to palliative care can also be seen during the nursing education period. Assessment is needed to determine whether the training program for palliative care in nursing education is effective. Such assessments are important for identifying, re-organizing, and preparing for a career in nursing education (Wiener et al., 2015). Thus, a valid and reliable instrument is needed to measure their self-esteem and the challenges of the palliative care for health care personnel. In addition, there is a need for more valid and reliable instruments to increase the number of these studies in Turkey. This study aims to test the validity and reliability of the Palliative Care Self-Reported Practices Scale (PCPS) and the Palliative Care Difficulties Scale (PCDS), developed by Nakazawa et al. in 2010, in Turkey.

Aims: This study comparative study included a correlational method to evaluate the validity and reliability of the Turkish version of PCDS and PCPS.

Methodology

Population and sample

To conduct the validity and reliability study of PCDS (15 items) and PCPS (18 items), 10 nurses and or nursing students were included per item and 150 nurses and or nursing students for PCDS and 180 for PCPS were calculated. A total of 200 nurses or nursing students were planned to be included in the study to determine the stability of the scale. There is also another method which was suggested for the sample size and it included three rules as 5s, 10s and 100s rule. It was emphasized that the researcher should include at least five individuals for each item in order to perform the factor analysis. There should also be 10 individuals for each item unless there is a problem about connecting with people (Sencan, 2005).

The study was conducted between April 15 and July 15, 2016 with a total of 346 participants, including 41 clinical nurses working in a

university hospital, internal surgery, oncology and pediatrics clinics, and 305 nursing students studying at a university nursing faculty.

The inclusion criteria for participation were to be over 18 years of age and to participate in the study voluntarily.

Data Collection Instruments

The Nursing/Nursing Student Information Form, PCDS, and PCPS were used for the collection of research data.

Nurse/Nursing Student Information Form:

This form consists of 4 descriptive questions asking socio-demographic characteristics: age and gender (for all the participants); the clinics where they work employment periods; education and receiving palliative care education status (for the nurses); the classes and receiving palliative care education status (for the nursing students)

Palliative Care Difficulties Scale (PCDS): This scale, a special scale developed to conceptualize the difficulties of palliative care, was developed by Nakazawa et al. (2010). It consists of 15 items defining palliative care difficulties. The subscale consists of 5 items: communication among the teams (items 1–3), communication with patient and family (items 4–6), expert support (items 7–9), reduction of symptoms (items 10–12), and communication coordination (items 13–15). The factor loadings in the subdimension range, with Cronbach alpha coefficients in parentheses, is 0.80–0.95 (0.93) for communication among the teams; 0.74–0.94 (0.91) for communication with patient and family; 0.63–0.99 (0.92) for expert support; 0.67–0.95 (0.87) for symptom reduction; and 0.70–0.85 (0.85) for communication coordination. Test-retest values of the scale ranged between 0.61 and 0.69. In the scale prepared in the form of five-point Likert system, the questions are answered "1 = never, 5 = very much". A minimum of 15 and maximum of 75 points are scored in the scale. A minimum of 3 and maximum of 15 points are scored in each subscale items. The increase in the score indicates that the difficulties experienced by palliative caregivers increase.

Palliative Care Self-Reported Practices Scale (PCPS): This scale, developed by Nakazawa et al. (2010), is a self-report scale that assesses the situations in which how the nurses' palliative care recommendations are applied in the clinic. The scale consists of 18 items and 6 sub-dimensions, including dying-phase care (items 1–3), patient and family centered care (items 4–

6), pain (items 7–9), delirium (items 10–12), dyspnea (items 13–15), and communication (items 16–18). The factor loadings in the subscales range, with Cronbach alpha coefficients in parentheses, is 0.63–0.92, (0.90) for dying-phase care, 0.60–0.92 (0.90) for patient and family centered care, 0.56–0.93 (0.91) for pain, 0.48–0.82, (0.85) for delirium, 0.53–0.79 (0.89) for dyspnea and 0.43–0.68 (0.80) for communication. Test-retest values of the scale range from 0.64 to 0.74. In the scale in a five-point Likert system, the questions are answered "1 = Never, 5 = Always". A minimum of 18 and maximum of 90 points are scored in the scale. A minimum of 3 and a maximum of 15 points are scored in each subscale item. The increase in the score has resulted from the increased palliative care practices.

Stages of the Study

The stages to be followed in PDCS and PCPS development and the validity and reliability analyses are explained as follows;

Language Validity of the Scale: The most appropriate sentence structure in the target language, the use of idiomatic expressions, and the elements that are completely foreign to culture should be considered when interpreting the scale (Sencan, 2005). For this purpose, written permission was obtained from Nakazawa by e-mail for adaptation and use of the scales in Turkish.

The scales were translated From English to Turkish by three linguists separately. After the scales were translated into Turkish, the researchers' group work and the Turkish form of the scales were rearranged and edited by an expert in Turkish. Both Turkish and English versions of the scales were edited once more by another linguist, expert in Turkish and English.

Stage of Expert Opinion: It is recommended that at least three experts be consulted to determine the equivalence of the items on the form being translated (Akgul, 2003; Sencan, 2005). Eight experts were consulted for the scale as translated into Turkish. Opinions of eight specialists were received about the scales (five academic members from the Department of Pediatric Health and Diseases Nursing, two academic members from the Department of Oncology Nursing and one academic member from the Department of Psychiatric Nursing). The scale form was given to the specialists and

they were asked to grade them between 1-4 in order to assess the convenience of scale items (1= Requires a great change, 4= Very convenient). The Item Coverage Validity Index (I-CVI) and the Scale Coverage Validity Index (S-CVI) were calculated for each item in the scale. The compliance ratio between I-CVI and S-CVI is 0.78 and higher, thus indicating the agreement among the experts (Terwee et al., 2007).

Stage of Forming the Preliminary Test: As a result of opinions of specialists, the scale was applied to 10-20 individuals who had similar features, but were not involved in the sample (Akgul, 2003; Sencan, 2005). The outline, which was created by receiving the opinions of the specialists, was applied to 20 individuals. Since there was no negative feedback, it was decided to apply to larger groups.

Data Analysis

Validity of scale: Content Validity Index (CVI), explanatory factor analysis (EFA), confirmatory factor analysis (CFA), contrasted group comparison tests were used for validity analysis. Exploratory factor analysis was conducted using principal component analysis. Item-level content validity index (I-CVI) was used to determine the content validity of specialist. The ICVI value should be higher than 0.78 to have the harmony between the specialists. Varimax rotation was applied in order to obtain factors for the approximation of the simple structure. The adequacy of the data for factor analysis was evaluated by using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity. Eigen values greater than 1 were used to determine the factors. The value of .40 or higher on factor loadings was chosen as the significant criteria for assigning items to factor. Validity was examined through concordance validity, construct validity and contrasted group comparison. Concordance validity was evaluated with the help of the item level-content validity index. Construct validity was examined through explanatory factor analysis (EFA) and confirmatory factor analysis (CFA). Contrast group comparisons were used for validity analysis. The model verification of CFI was conducted on the basis of the chi-square test, degree of freedom, root-mean-square error of approximation (RMSEA, normal value: <.05; Acceptable values: <.08), goodness of fit index (GFI, normal value: >.95; Acceptable values:

>.90), comparative fit index (CFI, normal value: >.95; Acceptable values: >.90), and normal fit index (NFI, normal value: >.95; Acceptable values: >.90) (Akgul, 2003; Sencan, 2005). The groups were compared between each other by using Student-t test.

Reliability Analysis: Pearson's correlation analysis was used for the total-item score analysis of scales and sub dimensions; Cronbach's Alpha coefficient was used for the internal consistency of scales and sub dimensions were used for reliability analysis (Akgul, 2003; Sencan, 2005). In all types of analyses, 5 % significance level was used.

Data Collection

Upon obtaining the signed consents, nurses and nursing students filled the Nurse/Nursing Student Information Form PDCS and PCPS. The data collection process took approximately 10 minutes.

In this study, the data were collected by the researchers. During the data collection, each researcher interviewed with the individuals. The written and oral consents of volunteer nurses and nursing students were obtained. Only one nurse refused to participate in the study since she works very hard during the data collection. The participation rate of the study was 99.5% and the scale filling rate was 100%.

Ethical Considerations

This study was approved by the Institutional Review Board of the University (IRB approval number: 2551-GOA-2016/12-36). Institutional permissions were obtained in order to carry out the study. Besides, the written and verbal consents of nurses and nursing students were obtained by meeting them and informing them about the aim of the study.

Results

The nurse students and nursing who participated in the study had an age average of 23.32 ± 4.21 ; 87.9 % were female, their length of employment period was 2.58 ± 1.43 years, 35.1% were university graduates, 46.3% were employed in pediatrics clinics, and 68.3% never were educated in palliative care.

Validity Analysis

Validity of Content: The scores of the eight experts were evaluated by content validity

analysis; the proportion was 0.92, indicating that the expert scores were consistent.

Construct validity

Construct Validity of PCDS: The construct validity of scales is tested by several different methods. One of these methods is factor analysis. From the factor analysis, the Kaiser-Meyer-Olkin coefficient (KMO) was 0.744 and the Barlett test result was $X^2 = 1903.117$, $p = 0.000$. Factor loadings of the subscales were: communication 0.78–0.86; communication with patient and family 0.64–0.92; expert support, 0.65–0.85; symptom reduction, 0.71–0.89; and communication coordination, 0.72–0.79. Communication, communication with the patient and family, expert support, symptom reduction, and communication coordination explain the total variant at rates of 27.6%, 12.8%, 11.3%, 9.5%, and 7.6 %, respectively. The total variance was 68.8% (Table 1).

Construct Validity of PCPS: From the factor analysis, the Kaiser-Meyer-Olkin coefficient (KMO) was 0.892 and the Barlett test result was $X^2 = 3711.049$, $p=0.000$. Factor loadings of the dying-phase care, patient- and family-centered care, pain, delirium, dyspnea, and communication were 0.75–0.87, 0.79–0.87, 0.58–0.77, 0.75–0.85, 0.24–0.83 and 0.61–0.81, respectively. Dying-phase care, patient- and family-centered care, pain, delirium, dyspnea, and communication explain the total variant at the rates of 43.3%, 9.9%, 7.0%, 6.0%, 5.7%, and 4.6%, respectively. The total variance was 76.5% (Table 1).

Table 1. Exploratory Factor Analysis of the Palliative Care Difficulties Scale and Palliative Care Self-Reported Practices Scale

Confirmatory Factor Analysis

Confirmatory Factor Analysis of PDCS: As illustrated in Figure 1, the factor coefficients of items of communication in multidisciplinary teams sub-scale ranged from 0.67 to 0.81, items of Communication with patient and family sub-scale ranged from 0.43 to 0.99, items of expert support sub-scale ranged from 0.64 to 0.68, items of alleviating symptoms sub-scale ranged from

0.59 to 0.89 and items of community coordination sub-scale ranged from 0.54 to 0.81. The model concordance indicators were found to be RMSEA= 0.045, GFI= 0.95, CFI= 0.97, NFI= 0.94, NNFI= 0.96 and IFI= 0.97 (Figure I, Table 2).

Figure I. Confirmatory Factor Analysis of Palliative Care Difficulties Scale (end of paper)

Confirmatory Factor Analysis of PCPS: As shown in Figure 2, the factor coefficients of items of dying-phase care sub-scale ranged from 0.80 to 0.87, items of patient and family-centered care sub-scale ranged from 0.83 to 0.93, items of pain sub-scale ranged from 0.56 to 0.77, items of delirium sub-scale ranged from 0.82 to 0.90, items of dyspnea sub-scale ranged from 0.57 to 0.84 and items of communication sub-scale ranged from 0.63 to 0.86. The model concordance indicators were found to be RMSEA= 0.078, GFI= 0.89, CFI= 0.97, NFI= 0.96, NNFI= 0.96 and IFI= 0.97 (Figure II, Table 2).

Figure II. Confirmatory Factor Analysis of Palliative Care Self-Reported Practices Scale(end of paper)

Table 2. Confirmatory Factor Analysis of the The Palliative Care Difficulties Scale and The Palliative Care Self-Reported Practices Scale

Reliability Analyses

Reliability coefficients of PCDS subscales were communication among the teams $\alpha = 0.80$, communication with patient and family $\alpha = 0.81$, expert support $\alpha = 0.69$, reduction of symptoms $\alpha = 0.78$, and communication coordination $\alpha = 0.70$; total $\alpha = 0.81$ (Table 3).

Reliability coefficient of PCPS dying-phase care was $\alpha = 0.85$, patient- and family-centered care $\alpha = 0.91$, pain $\alpha = 0.72$, delirium $\alpha = 0.89$, dyspnea $\alpha = 0.71$, and communication $\alpha = 0.78$; total $\alpha = 0.91$ (Table 3).

Table 3. Cronbach Alpha Coefficient and Reliability Analysis of The Palliative Care Self-Reported Practices Scale and The Palliative Care Difficulties Scale

Table 1. Exploratory Factor Analysis of the Palliative Care Difficulties Scale and Palliative Care Self-Reported Practices Scale

PALLIATIVE CARE DIFFICULTIES SCALE			PALLIATIVE CARE SELF-REPORTED PRACTICES SCALE		
Scale Items	Factor Loading	Explained Variance %	Scale Items	Factor Loading	Explained Variance %
Communication in multidisciplinary teams			Dying-phase care		
1. The method of evaluating symptoms is not consistent in multiprofessional teams.	0.78	27.6	1. I routinely inquire about the family's concerns in the dying phase.	0.84	43.3
2. It is difficult to have a common goal toward alleviating symptoms in multiprofessional teams.	0.86		2. I evaluate physical discomfort regularly in the dying phase.	0.87	
3. It is difficult to communicate about alleviating symptoms in multiprofessional teams.	0.81		3. I evaluate the appropriateness of care given in the dying phase (e.g., positioning, suctioning, physical restriction, blood tests, measurement of urine, infusions).	0.75	
Communication with patient and family			Patient and family-centered care		
4. When a patient expresses anxiety, it is difficult to respond.	0.92	12.8	4. I try to find out what is important to the patient and family.	0.87	9.9
5. When a family expresses anxiety, it is difficult to respond.	0.92		5. I try to understand the wishes of the patient and family.	0.84	
6. After a patient is informed of bad news, it is difficult to talk	0.64		6. I try to understand the suffering of the patient and family.	0.79	
Expert support			Pain		
7. It is difficult to get support from experts about alleviating symptoms.	0.73	11.3	7. I evaluate the effectiveness of rescue doses.	0.58	7.0
8. There is no expert whom I can consult with about alleviating symptoms.	0.85		8. I understand the situation of the patient experiencing pain.	0.63	
9. There are no facilities that can be consulted for alleviating the symptoms of home-care patients.	0.65		9. To evaluate pain, I ask the patient directly regarding pain intensity or use the pain intensity scale when the patient cannot reply.	0.77	
Alleviating symptoms			Delirium		
10. There is a lack of knowledge about alleviating cancer pain.	0.85	9.5	10. I help patient's orientation with clock and calendar to prevent and improve delirium.	0.83	6.0
11. There is a lack of knowledge about alleviating dyspnea and digestive symptoms.	0.89		11. I evaluate discomfort from deteriorating delirium (e.g., urination, defecation, pain, anxiety).	0.85	
12. Necessary training is not received about palliative care.	0.71		12. I inquire about the family's concerns about delirium.	0.75	
Community coordination			Dyspnea		
13. There is no meeting between facilities when the cancer patient moves from hospital to home care.	0.74	7.6	13. To evaluate dyspnea, I ask the patient directly about dyspnea intensity or use the dyspnea scale when the patient cannot reply.	0.24	5.7
14. It is difficult to get information about home care for cancer patients.	0.72		14. I understand the situation of the patient experiencing dyspnea.	0.83	
15. It is difficult to share information between hospital and facilities that provide home care.	0.79		15. I help the patient become comfortable to alleviate dyspnea.	0.67	
			Communication		
			16. I confirm understanding of conditions by eliciting questions from the patient and family.	0.61	4.6
			17. I talk with the patient and family in a quiet and private place.	0.81	
			18. I use open-ended questions for the patient and family.	0.75	
Total variance		68.8	Total variance		76.5

Table 2. Confirmatory Factor Analysis of the Palliative Care Difficulties Scale and Palliative Care Self-Reported Practices Scale

	X²	df	x²/df	GFI	CFI	NFI	NNFI (TLI)	IFI	RMSEA
The Palliative Care Difficulties Scale	135.95	80	1.699	0.95	0.97	0.94	0.96	0.97	0.045
The Palliative Care Self-Reported Practices Scale	374.82	120	3.123	0.89	0.97	0.96	0.96	0.97	0.078

Table 3. Cronbach Alpha Coefficient and Reliability Analysis of the Palliative Care Self-Reported Practices Scale and Palliative Care Difficulties Scale

	Cronbach Alpha (α)	Mean	SD
The Palliative Care Difficulties Scale	0.81	45.60	7.13
1. Communication in multidisciplinary teams sub-scale	0.80	8.59	2.40
2. Communication with patient and family sub-scale	0.81	9.85	2.46
3. Expert support sub-scale	0.69	7.51	2.05
4. Alleviating symptoms sub-scale	0.78	10.65	2.26
5. Community coordination sub-scale	0.70	9.00	2.02
The Palliative Care Self-Reported Practices Scale	0.91	75.42	8.99
1. Dying-phase care sub-scale	0.85	11.33	2.65
2. Patient- and family-centered care sub-scale	0.91	13.21	1.56
3. Pain sub-scale	0.72	12.88	1.70
4. Delirium sub-scale	0.89	12.41	2.29
5. Dyspnea sub-scale	0.71	12.69	1.90
6. Communication sub-scale	0.78	12.87	3.01

Table 4. Item-Total Score and Item of the Test-Retest Analysis of the Palliative Care Difficulties Scale and Palliative Care Self-Reported Practices Scale

Sub-Scale	Items	The Palliative Care Difficulties Scale				Sub-Scale	Items	The Palliative Care Self-Reported Practices Scale			
		Item-Total Score		Test-Re test Correlations				Item-Total Score		Test-Re test Correlations	
		(n=346)		(n=46)				(n=346)		(n=46)	
		r	p	r	p			r	p	r	p
Factor 1	1	0.55	0.000	0.98	0.000	Factor 1	1	0.57	0.000	1.00	0.000
	2	0.56	0.000	1.00	0.000		2	0.61	0.000	1.00	0.000
	3	0.63	0.000	1.00	0.000		3	0.70	0.000	1.00	0.000
Factor 2	4	0.49	0.000	1.00	0.000	Factor 2	4	0.64	0.000	1.00	0.000
	5	0.56	0.000	1.00	0.000		5	0.70	0.000	1.00	0.000
	6	0.46	0.000	0.84	0.000		6	0.67	0.000	1.00	0.000
Factor 3	7	0.55	0.000	0.82	0.000	Factor 3	7	0.69	0.000	1.00	0.000
	8	0.50	0.000	0.98	0.000		8	0.64	0.000	1.00	0.000
	9	0.54	0.000	0.99	0.000		9	0.54	0.000	1.00	0.000
Factor 4	10	0.45	0.000	0.93	0.000	Factor 4	10	0.70	0.000	1.00	0.000
	11	0.47	0.000	0.98	0.000		11	0.73	0.000	1.00	0.000
	12	0.50	0.000	1.00	0.000		12	0.76	0.000	0.99	0.000
Factor 5	13	0.45	0.000	1.00	0.000	Factor 5	13	0.63	0.000	0.99	0.000
	14	0.54	0.000	1.00	0.000		14	0.63	0.000	1.00	0.000
	15	0.59	0.000	1.00	0.000		15	0.71	0.000	0.98	0.000
							16	0.68	0.000	0.98	0.000
						Factor 6	17	0.56	0.000	0.98	0.000
							18	0.58	0.000	0.97	0.000

Table 5. Test-Retest Score Averages Obtained from the Palliative Care Self-Reported Practices Scale and Palliative Care Difficulties Scale and Their Comparison (n=46)

Scales	Scale Score Mean		Analysis Results			
	First Implementation X±SS	Second Implementation X±SS	r	p	t	p
The Palliative Care Difficulties Scale	44.69 ± 6.47	44.50 ± 5.76	0.92	<0.001	0.51	0.614
The Palliative Care Self-Reported Practices Scale	73.71 ± 10.85	73.34 ± 10.73	0.99	<0.001	1.95	0.058

Item Total Score Correlations of PCDS and PCPS and Test-Re-Test Correlations of the Items:

For PCDS, the item-total score correlations of the 15-item scale for the reliability study were statistically significant between 0.45 and 0.63 ($p = 0.000$).

In addition, the test-retest reliability coefficients of the items were statistically significant ($r = 0.82-1.00$; $p = 0.000$) in the correlation between the first and second application scores of each item.

For PCPS, the item-total score correlations were statistically significant between 0.54 and 0.76 ($p = 0.000$) in the 18-item scale.

In addition, the test-retest reliability coefficients of the items were statistically significant ($r = 0.97-1.00$; $p = 0.000$) in the correlation between the first and second application scores of each item.

Test-Retest Reliability of PCDS and PCPS (Stability)

After PCDS was applied twice at three-week intervals, its invariance, that is, the test-retest reliability coefficient, was assessed using the Pearson Moments Multiplication Correlation. A statistically significant positive correlation was found between the test-retest scores of the scale ($r = 0.92$; $p = 0.000$) (Table 5).

After PCPS was applied twice at three-week intervals, its invariance, that is, the test-retest reliability coefficient was assessed using the Pearson Moments Multiplication Correlation. A statistically significant positive correlation was found between the test-retest scores of the scale ($r = 0.99$, $p = 0.000$) (Table 5).

In addition, a Student's *t* test was performed in dependent groups to determine whether there was a difference between the mean scores of the two measurement results obtained at three-week intervals from the sub-dimensions. There was no statistically significant difference between the mean scores ($p > 0.05$) (Table 5).

Discussion

If an instrument will be used in a different language it is necessary to show that it has the same validity and reliability as the instrument's original format (Gozum and Aksayan, 2003; Sencan, 2005). Therefore, it was necessary to evaluate the validity and reliability of the PCDS and PCPS, which will be used in a Turkish sample.

Validity Analysis

Content Validity of the Scale

The scale prepared to determine the validity of its content is reviewed by experts and reviewed once more in line with criticism (Sencan, 2005). A form that allows experts to assess the appropriateness of the materials through rating

can be used. When most of the experts agree, this is considered an indicator of the validity of the content (Gozum and Aksayan, 2003; Sencan, 2005). In the present study, five experts were consulted to evaluate the appropriateness of the PCDS and PCPS items in terms of language and culture. In the analysis of the scope validity, the minimum values for the number of experts also provide the statistical significance of the item. The minimum value at a $p=0.05$ significance level was 0.78 for the eight experts (Yurdugul, 2005). The scores of the eight experts were evaluated by content validity analysis; the proportion was 0.92. Expert scores were consistent. Considering these results, the items of PCDS and PCPS were suitable for Turkish culture; they reflected the field to be measured and that its content was valid.

Construct validity

Factor and Factor Analysis

One of the main objectives of factor analysis is to assess some new structures by taking advantage of the relationships between variables. In other words, it is aimed to form common factors by grouping variables in factor analysis (Gozum and Aksayan, 2003; Sencan, 2005). In this study, the factor analysis found the Kaiser-Meyer-Olkin coefficient (KMO) of PCDS was 0.744 and the Barlett test result was $X^2 = 1903.117$ ($p = 0.000$). These values show that the number of samples is suitable for factor analysis. The factor loadings of the scale were between 0.64 and 0.92. The total variance was 68.8% (Table 1).

In this study, Kaiser-Meyer-Olkin coefficient (KMO) of PCPS was 0.892 and the Barlett test result was $X^2 = 3711.049$ ($p = 0.000$) through the factor analysis. These values show that the number of samples is suitable for factor analysis. The factor loadings of the scale were between 0.24 and 0.87. The total variance was 76.5% (Table 1).

The higher the variance rate, the stronger the factor structure of the scale. Variance ratios between 40% and 60% are accepted as adequate in the studies (Tavsanel, 2002; Sencan, 2005). In the present study, 60% variance in both scales was obtained, which is a sufficient level. Through this analysis, the construct validity of PCDS and PCPS was found to be appropriate (Table 1).

Analysis of Reliability

Internal Consistency Analysis of the Scale

Cronbach's alpha coefficient is calculated as a measure of homogeneity in Likert-type attitude scales where responses given to the items are graded. This test, indicating internal consistency, shows whether the items measure the same quality and whether the items are related to the subject to be measured. To be considered sufficient in a measurement, the reliability coefficient should be as close to 1 as possible (Tavsanel, 2002, Gozum and Aksayan, 2003, Sencan, 2005). The reliability coefficient of PCDS was $\alpha = 0.81$, and that of PCPS was $\alpha = 0.91$. The internal consistency of scales and subscales was at a high level of reliability (Table 4). That the Cronbach alpha coefficient of both the scale and its subscales is higher than 0.70 indicates that the reliability of the scale is good (Gozum and Aksayan, 2003).

Item-Total Score Analysis of the Scale

There are different ways to select items in scale development studies. One of these ways is to evaluate the item total score correlations of the scales and to remove the low correlation items from the scale. It has been suggested that the value that can be used in selecting the substance is 0.20 to 0.25 and higher. A high correlation coefficient is a sign that the item is appropriate for the theoretical structure being measured (Erkus, 2003, Gozum and Aksayan, 2003).

For PCDS, in examining the item-total score correlations of the 15-item scale for the reliability study, these scores were statistically significant between 0.45 and 0.63 ($p = 0.000$). For PCPS, in examining the item-total score correlations of the 18-item scale for the reliability study, these scores were statistically significant between 0.54 and 0.76 ($p = 0.000$). The items in the scale are therefore compatible with the theoretical structure of the scale and provide sufficient correlation. The item-total score analysis is considered to be valid as well as reliable (internally consistent) and reflects the validity of the scale as well (Erkus, 2003).

Correlation Analysis between Test-Repeat Test Score Averages of the Scale and the Correlation Analysis t Test

Test-retest measurements are the most commonly used reliability analyses for evaluating the invariant quality of the instrument. This is

usually evaluated by Pearson Moments Multiplication correlation analysis (Gozum and Aksayan, 2003; Sencan, 2005). It is assumed that the closer the correlation coefficient calculated to determine that a measurement instrument is immutable (stable) against time is to +1, the higher is its reliability. It is recommended that the correlation coefficient between the test-retest scores of the instruments be 0.70 at minimum (Gozum and Aksayan, 2003; Sencan, 2005). In this study, the invariance coefficient of two applications of PCDS, which was conducted at three-week intervals, was 0.92 ($p = 0.000$) (Table 5). In addition, the invariance coefficient of the two applications of PCPS, performed at three-week intervals in this study, was 0.99 ($p = 0.000$) (Table 5). Both scales had a high degree of reliability; the results in the first measurements and those in repeated measurements were similar.

Even when the test-retest correlation coefficient is sufficient, it is recommended that the mean of the two measurement results and the standard deviations be investigated, and that both measurement results be similar (Gozum and Aksayan, 2003; Sencan, 2005). Looking at whether there was a difference between the results in the application when conducted with three-week intervals, the "t test in dependent groups", there was no statistically significant difference between the mean scores ($p > 0.05$) (Table 5). Because the responses of the individuals to the items of the measurement instruments are similar and consistent when the same instrument is applied to individuals at different times, this shows the invariance of the measurement instrument (Tavsanel, 2002; Gozum and Aksayan, 2003; Sencan, 2005); it was found that the reliability of both scales is high.

There may not be a significant difference between the total scores of the individuals, but they can answer each item differently. Therefore, it is necessary to look at the consistency between the materials in both applications (Gozum and Aksayan, 2003; Sencan, 2005). The test-retest reliability coefficients of the items of PCDS ($r = 0.82-1.00$) were statistically significant ($p = 0.000$) in examining the correlation between the first and second application scores of each item. In addition, the test-retest reliability coefficients of the items of PCPS ($r = 0.97-1.00$) were found to be statistically significant ($p = 0.000$). That the

items in both scales give a similar result in both measurements indicated that the expressions were understandable and consistent.

Conclusion

For palliative care to be best applied to an illness, the difficulties experienced in palliative care and self-reporting-based practices should be known. Therefore, reliable and valid instruments specific to this field are needed. This study suggests that PCDS and PCPS are valid and reliable instruments for measuring palliative care difficulties and self-reported palliative care practices. These are instruments suitable to be utilized by professionals working in the field of palliative care. Professionals can develop initiatives specific to palliative care patients regarding the results they obtain from this scale.

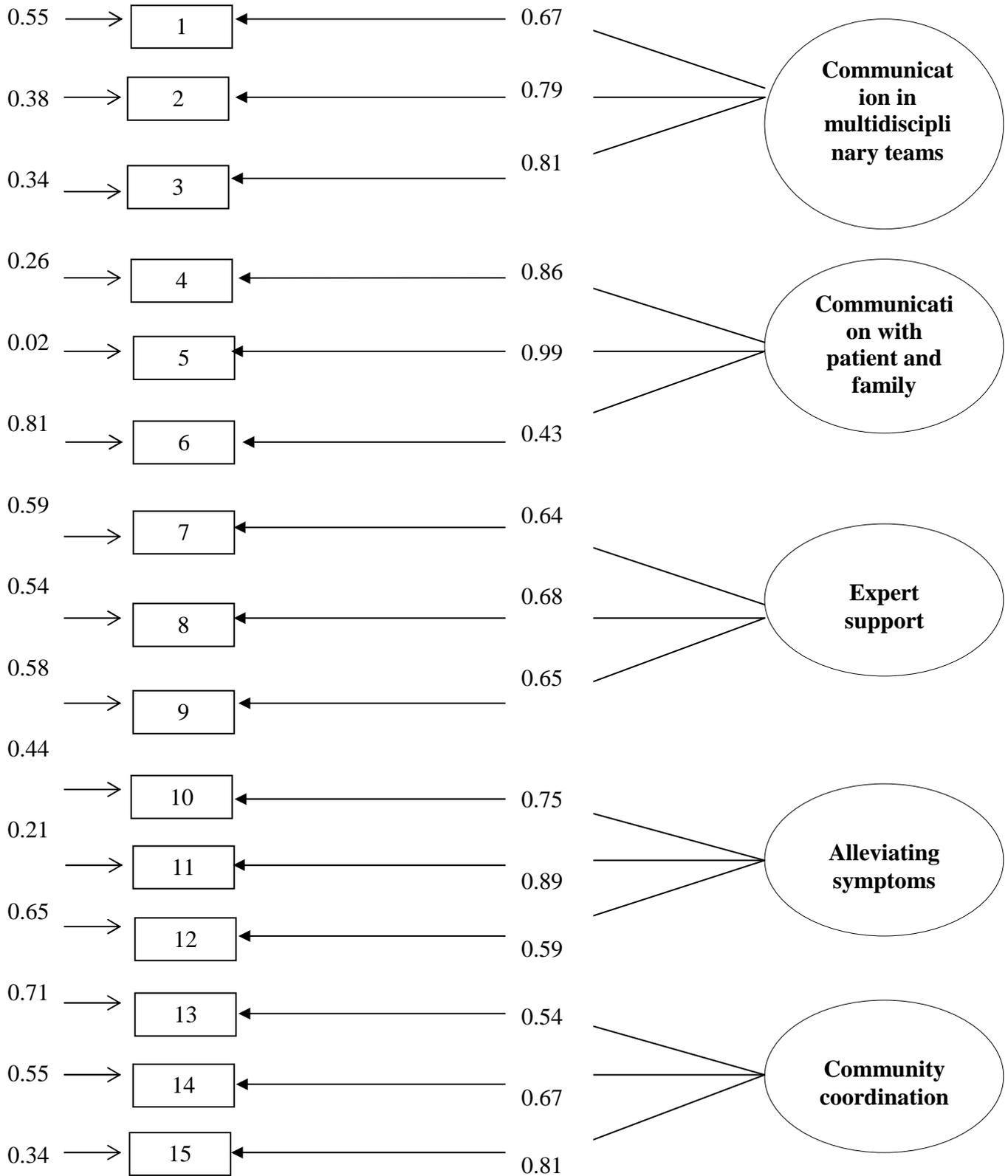
Limitations

Although one-half of the participants to be included in the sampling of the study were planned to be nurses, some of them either did not want to participate in the study or failed in filling the scales out completely.

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Chi-Square=135.95, df=80, P-value=0.001, RMSEA=0.045

Figure 1. Confirmatory Factor Analysis of Palliative Care Difficulties Scale

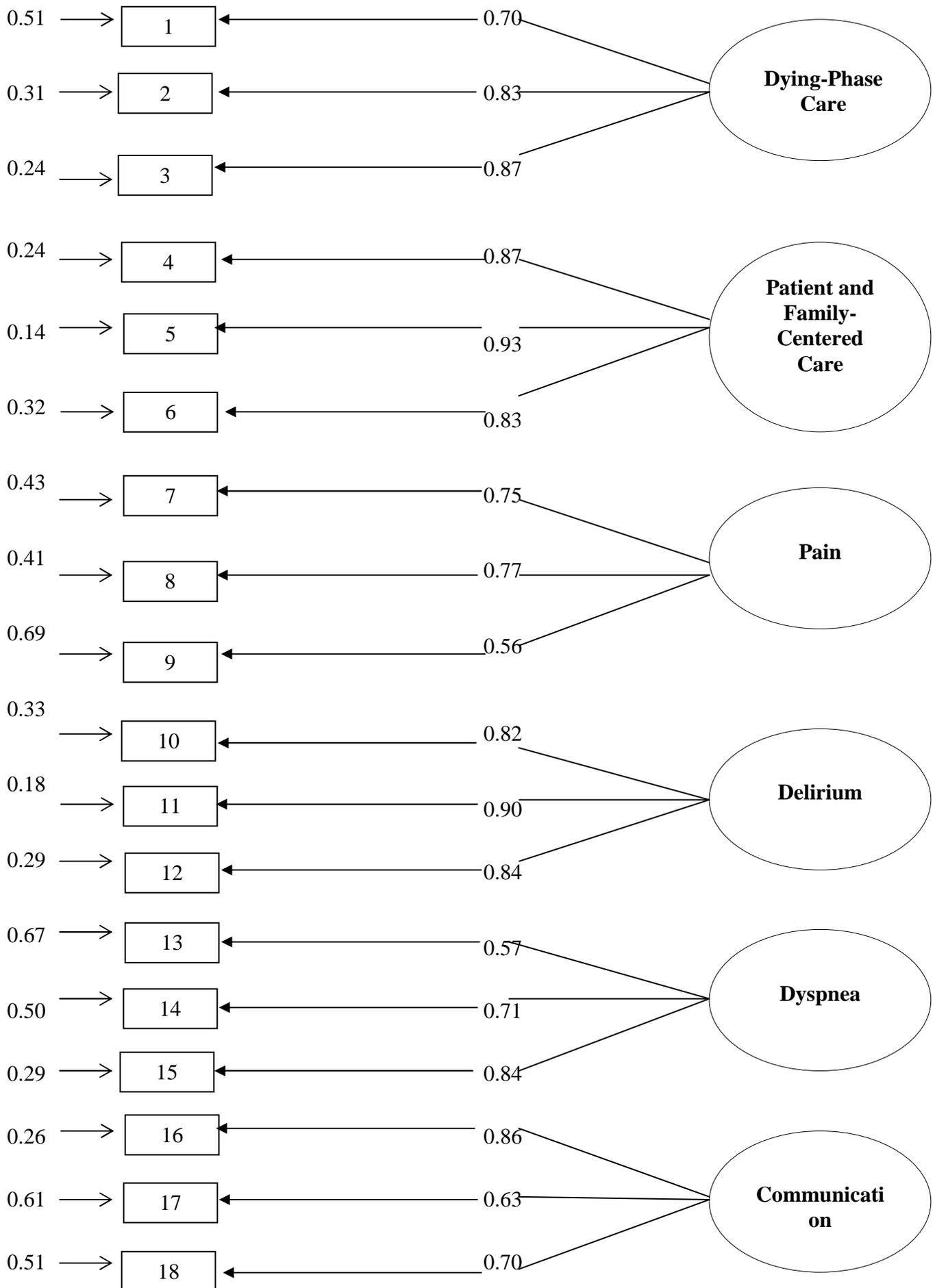


Figure II. Confirmatory Factor Analysis of Palliative Care Self-Reported Practices Scale