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Psychometric Properties of the Turkish Version of the Palliative Care Attitude Scale (T-PCAS-9) in Cancer Patients

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Abstract

Background: A reliable, validated Turkish measurement tool will allow researchers to measure the impact of attitudes towards palliative care on other health outcomes in individuals with chronic and critical illness. This study aimed to examine the Turkish psychometric properties of the Palliative Care Attitude Scale (PCAS-9) for individuals with cancer.

Methods: The Turkish adaptation of the PCAS-9 (T-PCAS-9) included 505 cancer patients, who were aged >18 years, had a diagnosis of cancer, and no mental problems. The factor structure of the T-PCAS-9 was examined using exploratory factor analysis, confirmatory factor analysis, convergent-divergent validity, and measurement invariance analysis.

Results: The three-factor structure with factor loadings >0.5 was found to have convergent-divergent validity and measurement invariance. The internal consistency coefficients of the T-PCAS-9 were >0.7.

Conclusions: The T-PCAS-9 was found to be a valid and reliable measurement tool for assessing palliative care attitudes in the Turkish population.

Keywords: attitude, palliative care, patients, reliability, validity

INTRODUCTION

Technological developments in the field of healthcare and increasingly ageing populations have prolonged the lifespan with chronic diseases. In developed countries, chronic diseases requiring palliative care are among the current main causes of death.¹ It has been reported that one-third of individuals with life-threatening illnesses worldwide do not have access to palliative care.² In the field of healthcare, palliative care is a concept defined as the elimination or alleviation of disease-related symptoms without providing treatment.³ This care approach, which aims to improve the quality of life of patients who face life-threatening health problems and their families, includes a rapid diagnosis, meticulous evaluation, and treatment of pain and physical, psychosocial, and spiritual problems to alleviate the pain.⁴⁻⁶ Although many healthcare professionals and individuals think that palliative care is only for dying patients, palliative care starts at the earliest stage of the disease and is personalised. Palliative care is not only for people who have certain diseases and who are at the end of their lives

but is an approach that starts from the moment of diagnosis, continues until death with curative treatment, and supports the family and relatives during the mourning process after death.^{1,7}

Prolonged cancer treatments and chronic diseases can negatively affect vital functions and increase the tendency for a low quality of health.⁸ Cancer patients account for one-third of palliative care admissions due to malnutrition, pain, and respiratory problems.⁷ The aim of palliative care is not only to treat the disease and prevent its side-effects and symptoms, but also to support the resolution of patients' psychological, social, and spiritual problems. However, measures to assess patients' attitudes towards palliative care are inadequate, and this hinders research that could increase understanding of patient-level factors underlying palliative care use. The evaluation of palliative care attitudes is critical for healthcare providers and society to be able to adopt and implement this important approach.

Although there are studies on palliative care in the literature, there are insufficient studies evaluating the attitudes of individuals with cancer or individuals with a severe chronic disease towards palliative care services. Most of the existing scales focus on patients' attitudes about hospices and end-of-life care or healthcare professionals' attitudes about Palliative Care. According to 2020 data, there were 233,000 cancer cases in Turkey

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each year, and 126,000 deaths from cancer. Based on the most recent data, there were 240,000 new cases and 129,000 deaths from cancer in 2022.^{10,11} Considering the prevalence of both cancer and life-threatening chronic diseases in Turkey, as throughout the world, there is a need for appropriate and effective measurement tools to assess the palliative care attitude of individuals struggling with these diseases. A reliable, validated Turkish measurement tool will allow researchers to measure the impact of attitudes towards palliative care on other health outcomes in individuals with chronic and critical illness. In this respect, it is thought that this study will be of great importance in overcoming this deficiency in the clinical field and will shed light on many different palliative care studies in the field.

Although various scales have been developed to assess attitudes toward palliative care, the vast majority of these scales are either too comprehensive and time-consuming or focus only on specific subdimensions and therefore fail to adequately reflect general attitudes. In this context, the Palliative Care Attitudes Scale-9 (PCAS-9) scale was considered an appropriate tool for use in this study due to its structural economy and high psychometric properties. In the original study of the scale, validity and reliability analyses were found to be high; in particular, the fact that the item-total correlations were above 0.40 and the Cronbach's alpha coefficient was reported to be above 0.80 indicates that the scale has strong internal consistency.¹² Knowledge-based tools, such as the Palliative Care Quiz for Nursing, measure knowledge levels rather than attitudes. This creates limitations in terms of evaluating participants' subjective perceptions and attitudes toward palliative care (Ross *et al.*, 1996). Although there are similar scales that measure end-of-life care outcomes from the perspectives of patients, caregivers, and staff, these scales are not "attitude"-focused, but evaluate care outcomes and needs analysis.¹³ Another similar scale, the Neonatal Palliative Care Attitude Scale (NiPCAS), is not suitable for assessing general palliative care attitudes because it focuses on neonatal palliative care.¹⁴ The PCAS-9 scale enables the practical and reliable assessment of attitudes toward palliative care due to its theoretical foundation and psychometric qualities. This study aimed to examine the Turkish psychometric properties of the Palliative Care Attitudes Scale for individuals with cancer and severe non-cancer diseases.

METHODS

Ethics committee approval was obtained from Trabzon University before the research (decision no: 2024-5/2.17). Permission was obtained from the institution where the data were collected before the study. The principles of the Declaration of Helsinki were complied with at all stages of the study. This methodological study was conducted with cancer patients who presented at the

Oncology Clinic of Adana City Training and Research Hospital. Good practice guidelines for scale development/adaptation were followed in reporting the study.^{16,17} When determining the number of participants in scale development/adaptation studies, it is recommended that the number of subjects should be 5–10 times the number of items.¹¹ This study of the Turkish adaptation of PCAS-9 included 505 cancer patients. The convenience sampling method was used to determine the research sample. The study included cancer patients aged >18 years who did not have any mental health problems. Those who were illiterate and did not wish to participate voluntarily were excluded. The STROBE guidelines were followed in reporting this study.¹⁸

Data were collected using a Personal Information Form and the Palliative Care Attitude Scale. The personal information form includes questions about age, gender, marital status, income level, place of residence, cancer type, and palliative care status of the participants. Palliative Care Attitude Scale (PCAS-9) was developed by Perry *et al.* to measure patients' attitudes towards palliative care. The PCAS-9 consists of nine items and three sub-dimensions of emotional, cognitive, and behavioral. No items are reverse scored, so it is accepted that higher scores indicate a more positive attitude towards palliative care.¹²

In the translation and cultural adaptation process of the scale, the guideline by Cruchinho *et al.* was followed.¹⁹ The translation process of the scale was applied in four stages. In the first stage, two different forward translations of the original scale form were made by four independent translators. Two translators were informed about the structure of the scale, while the other two were not informed about the scale's structure. The subsequent stage was initiated after two different forward translations. In the second stage, a team meeting was held under the coordination of a third independent translator to synthesize the two different forward translated scales into a single version. In this meeting, conducted under the guidance of the third independent translator, the four translators involved in the forward translation and the coordinating translator reached a consensus on the most appropriate translation of the scale items. The committee approach technique identifies language and culture-specific features of the scale.^{12,19} As a result of this meeting, the five translators agreed on the translation of the scale, and it was converted into a single version.

The third stage of the back-translation process was then initiated, aiming to prevent discrepancies or errors in meaning that might arise due to cultural or linguistic differences between the source text and the target audience. The back-translation process was conducted by four translators with native speaker levels of both languages involved, ensuring linguistic expertise and cultural sensitivity.

The translators involved in the back-translation process were not informed about the original scale, and the back-translation process was conducted in accordance with the blinding principles to prevent any potential influence or bias. It has been asserted that a back-translation process conducted in accordance with the blinding principles also ensures conceptual equivalence.²⁰ In the fourth stage, the researchers adopted a team-based approach, in which a multiprofessional committee was formed and a harmonization meeting was organized. The researchers, all the translators involved in the translation processes (forward translation, forward translation synthesis, and back-translation), and one professional member from the target population (familiar with the questionnaire and measurement tools) participated in the harmonization meeting. In this stage, the original scale form, the form obtained in the forward translation process, and the form obtained in the back-translation process were compared by all the translators with respect to ambiguity/inconsistency, and a decision was made on the best translation.

The scale form was finalized before the pilot study application. The pilot study was conducted in two complementary stages. The first stage involved the participation of 30 individuals who met the inclusion criteria of the main study. A cognitive evaluation was conducted to assess item comprehensibility, using a binary rating system: "1" for incomprehensible and "2" for comprehensible. No negative feedback was reported. To prevent potential bias, these participants were excluded from the main study. In the second stage, a panel of seven doctoral-level experts, comprising three in public health nursing, two in internal medicine nursing, and two in oncology, critically reviewed the items. Each item was rated on a 4-point scale, where 1 indicated "not appropriate" and 4 indicated "very appropriate." The Content Validity Index (CVI) for each item was then calculated based on these ratings." A minimum CVI of 0.78 was established as the accepted threshold for each item within the CVI evaluation.²¹ The CVI calculated after expert opinion for each item of the T-PCAS-9 was determined to be >0.80. These findings confirm the linguistic and content validity of the scale. Psychometric validation of the scale was then performed.

Data obtained in the study were analyzed statistically using SPSS 27 and AMOS 22 software. The data was found to meet the assumptions of multivariate normality, as follows: $[(k*k+2)>\text{multivariate kurtosis and } cr > 7]$. For T-PCAS-9, $(9*11 = 99) > 32.01$ and $cr (25.56) > 7$. Descriptive statistical analyses of the data were presented as mean values, numbers, and percentages. Exploratory factor analysis (EFA) was used to determine the factor structure of T-PCAS-9. The suitability of the data for factor analysis was evaluated using the KMO and Bartlett's sphericity test. Since the data showed multivariate normality, maximum likelihood (ML) was used as the factor

extraction method. Factors with an eigenvalue of >1 were accepted as sub-dimensions. Confirmatory factor analysis (CFA) was conducted to verify the model that emerged as a result of EFA. In CFA, ML was used as the estimation method and thus cross-validation was provided between EFA and CFA.¹⁵ C-min/degree of freedom (χ^2/df), goodness of fit index (GFI), comparative fit index (CFI), Tucker Lewis index (TLI), incremental fit index (IFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR) were used to evaluate the goodness of fit of the model in CFA.²² Multiple groups CFA (MSCFA) was used to analyze the measurement invariance of T-PCAS-9 between genders. Configural, metric, scalar, and strict nested invariance models were tested progressively between the genders.²³ The convergent validity of the T-PCAS-9 was tested using composite reliability (CR) and the average variance extracted (AVE), and discriminant validity was tested using the hetero trait-mono trait ratio (HTMT). For the reliability of the scale, Cronbach's alpha and McDonald's ω values, and the intraclass correlation coefficient (ICC) value obtained by using the test-retest method were used. The data were analyzed with a 95% confidence interval and at $p < 0.05$ statistical significance level.

RESULTS

The distribution of the personal characteristics of the study participants is shown in Table 1. The patients comprised 50.3% females and 49.7% males with a mean age of 57.54 ± 12.38 years, 79% were married, 67.4% had an education level of primary school, 61.4% lived in a town, and 51.1% were retired. A diagnosis of lung cancer was present in 26.3% of the patients, and 33.9% had been diagnosed 24 – 48 months previously (Table 1).

The EFA results of the T-PCAS-9 are shown in Table 2. The KMO value of the T-PCAS-9 was calculated to be 0.735, and Bartlett's test of sphericity was $\chi^2(df) = 3837,50(36)$ ($p < 0.001$). These values indicated that the data were suitable for factor analysis. The T-PCAS-9 was found to have a three-factor structure of cognitive, behavioral, and emotional, and factor loadings were between 0.69 and 0.84. The factor loadings of the items belonging to the cognitive sub-dimensions ranged from 0.74 to 0.78, the items in the behavioral sub-dimension from 0.69 to 0.76, and the items in the emotional sub-dimension from 0.76 to 0.84. The variances explained by the subdimensions were determined to be 42.81% for cognitive, 27.68% for behavioral, and 13.04% for emotional. The three-factor structure explained 83.54% of the total variance (Table 2). CFA was conducted to test the three-factor structure that emerged after EFA. Standardized factor loadings of the three-factor model of the T-PCAS-9 were found to be between 0.55 and 1.01, and the goodness of fit index values were as follows: $\chi^2/df = 4.142$, CFI = 0.971, GFI = 0.942, TLI = 0.956, IFI = 0.967, RMSEA = 0.074, and SRMR = 0.055 (Table 3).

TABLE 1. Descriptive characteristics of the participants

Characteristics	N	%
Gender		
Female	254	50.3
Male	251	49.7
Marital status		
Married	399	79.0
Single	106	21.0
Educational status		
Literate	24	4.8
Primary education	341	67.4
High school	116	23.0
University	24	4.8
Place of residence		
Province	167	33.1
District	310	61.4
Village	28	5.5
Occupation		
Retired	258	51.1
Not working	247	48.9
Cancer diagnosis		
Prostatate	15	3.0
Breast	118	23.4
Lung	133	26.3
Colon/rectum	92	18.2
Skin	14	2.8
Pancreas	12	2.4
Liver	12	2.4
Other (stomach, mouth, laryngeal, testicular and others)	109	21.6
Duration of diagnosis		
6 months	48	9.5
6–12 months	94	18.6
12–18 months	83	16.4
18–24 months	109	21.6
24–48 months	171	33.9

Table 4 shows the results of the CGFRS conducted to evaluate the measurement invariance of the T-PCAS-9 between genders. In the first step, configural invariance (M1) was tested to evaluate whether the factor structure was the same between the groups (males and females). The fit index values for this invariance are as follows: RMSEA = 0.071, 90% CI[0.059–0.083], CFI = 0.930, and SRMR = 0.054.

In the second step, the metric invariance model (M2) was tested to assess whether the factor loadings between the groups were equal. The model fit indices of metric invariance are as follows: RMSEA = 0.067, 90% CI[0.057–0.079], CFI = 0.927, and SRMR = 0.057. The differences between (M2-M1) for the comparison of the fit indices of the metric model and the configural model are as follows: Δ RMSEA = -0.004, Δ CFI = -0.003, and Δ SRMR = 0.003. In the third step, the scalar invariance model (M3) was tested to assess whether the factor intercept values were equal between the groups. The fit index values of scalar invariance are as follows: RMSEA = 0.064 90% CI[0.054–0.075], CFI = 0.925, and SRMR = 0.061. The differences

between the fit indices for the comparison of the scalar model and the metric model (M3-M2) are as follows: Δ RMSEA = -0.003, Δ CFI = -0.002 and Δ SRMR = 0.004. Finally, strict invariance model (M4) was implemented to test whether the error variances were equal between the groups. The fit index values for strict invariance are as follows: RMSEA = 0.063 90% CI[0.053–0.073], CFI = 0.916 and SRMR = 0.061. The differences between the fit indices for the comparison of the strict model and the scalar model (M4-M3) are as follows: Δ RMSEA = -0.001, Δ CFI = -0.009 and Δ SRMR = 0.000 (Table 4). The results demonstrated configural invariance across gender, indicating that the factor structure of the scale is conceptually equivalent for both male and female respondents. The findings further support the hypothesis of metric invariance, thereby suggesting that the strength of the relationship between items and their respective factors remains consistent across the genders. This finding is significant as it allows for meaningful comparisons of correlations and regressions. Furthermore, scalar invariance was established, thereby confirming that the intercepts of the items are equivalent across the genders. Consequently, any observed disparities in latent means between male and female participants can be interpreted as true differences in the underlying construct, rather than measurement bias. When considered as a whole, these findings provide substantial evidence that the scale measures the construct equivalently for both genders. This enables valid and unbiased gender-based comparisons in future research and practical applications.

The CR and AVE values were calculated to determine the convergent validity of the T-PCAS-9. The results showed that the CR and AVE values for the cognitive sub-dimension were 0.80 and 0.57, respectively; the values for the behavioral sub-dimension were 0.76 and 0.52, respectively; and the values for the emotional sub-dimension were 0.84 and 0.64, respectively. The HTMT value was calculated for the discriminant validity of the T-PCAS-9, and was found to be 0.62 for the cognitive sub-dimension-behavioral sub-dimension, 0.11 for the cognitive sub-dimension-emotional sub-dimension, and 0.19 for the behavioral sub-dimension-emotional sub-dimension (Table 5).

To determine the reliability of the T-PCAS-9, the ICC value was calculated using Cronbach's alpha (α) internal consistency coefficient, McDonald's omega (ω) internal consistency coefficient, and the test-retest method. As a result of these analyses, the Cronbach's alpha internal consistency coefficients of the cognitive sub-dimension, behavioral sub-dimension, and emotional sub-dimension were found to be 0.82, 0.90, and 0.95, respectively, and McDonald's ω internal consistency coefficients were found to be 0.86, 0.91, and 0.95, respectively. The α and ω values of the T-PCAS-9 were 0.82 and 0.85, respectively. After the test-retest method, the ICC value of T-PCAS-9 was found to be 0.84.

TABLE 2. Factor loadings and explained variance results of T-PCAS-9

Items	Factor loading		
	Cognitive	Behavioral	Emotional
1.Do you think Palliative Care Consultation will help with physical quality of life?	0.74		
2.Do you think Palliative Care Consultation will help with feelings of sadness and depression?	0.78		
3.Do you think Palliative Care Consultation will help to prolong life?	0.75		
4.Would you like to receive a palliative care service?		0.69	
5.Would you try to schedule it as soon as possible?		0.72	
6.Would you be willing to attend monthly for several months if requested?		0.76	
7.How stressful would you find this in general?			0.76
8.How stressful would you find it to discuss severe physical symptoms or side effects (e.g. painful bone tumor, severe nausea, problems swallowing food)?			0.81
9.How stressful would you find it to discuss emotions such as feeling sad, scared or angry?			0.84
Explained of variance (%)	42.81	27.68	13.04

KMO = 0.735; Bartlett of sphericity test = $\chi^2(df)$ 3837,50(36); Total explained of variance (%) = 83.54

TABLE 3. Goodness-of-fit index values of the model of T-PCAS-9 after Confirmatory Factor Analysis

Fit status	χ^2/df	CFI	GFI	TLI	IFI	RMSEA	SRMR
Excellent fit	< 2	>0.95	>0.95	>0.95	>0.95	<0.05	<0.05
Acceptable fit	< 5	>0.90	>0.90	>0.90	>0.90	<0.08	<0.08
Model fit of T-PCAS-9	4.142	0.971	0.942	0.956	0.967	0.074	0.05

CFI: comparative fit index; GFI: goodness of fit index; TLI: Tucker Lewis index; IFI: incremental fit index; RMSEA: root mean square error of approximation; SRMR: standardized root mean squared residual

TABLE 4. Cross-gender measurement invariance of the T-PCAS-9

Model fit indices					Model difference			
Model*	RMSEA	RMSEA (90% CI)	CFI	SRMR	Δ Model	Δ RMSEA	Δ CFI	Δ SRMR
M1	0.071	(0.059 – 0.083)	0.930	0.054	–	–	–	–
M2	0.067	(0.057 – 0.079)	0.927	0.057	M2–M1	–0.004	–0.003	0.003
M3	0.064	(0.054 – 0.075)	0.925	0.061	M3–M2	–0.003	–0.002	0.004
M4	0.063	(0.053 – 0.073)	0.916	0.061	M4–M3	–0.001	–0.009	0.000

*M1: Configural model; M2: Metric model; M3: Scalar model; M4: Strict model; RMSEA: root mean square error of approximation; CFI: comparative fit index; SRMR: standardized root mean squared residual

TABLE 5. Convergent and divergent validity results of T-PCAS-9

Alt boyut	CR	AVE	HTMT
Cognitive	0.80	0.57	0.62 ⁽¹⁻²⁾
Behavioral	0.76	0.52	0.19 ⁽²⁻³⁾
Emotional	0.84	0.64	0.11 ⁽¹⁻³⁾

CR: Composite reliability, AVE: Average variance of extracted, HTMT: Hetero trait-mono trait; 1: Cognitive; 2: Behavioral; 3: Emotional

DISCUSSION

This study aimed to examine the reliability and validity of the Turkish version of a scale developed to assess the attitudes of cancer patients towards palliative care. Cancer, as a major health problem worldwide, has a major impact on life expectancy and quality of life.

Palliative care is a treatment approach that aims to improve the quality of life of these patients and to meet their physical, psychological and social needs. The attitudes of cancer patients towards palliative care are an important determinant of the effectiveness of the services

they receive during the treatment process. In this context, the development of the Turkish version of the scale has been a critical step towards a better understanding of cancer patients' attitudes towards palliative care.

Language validation of the T-PCAS-9 was performed by translators fluent in both languages, following the language validation guideline of Cruchinho *et al.*¹⁹ In determining the content validity of the scale, it was submitted to the opinion of an expert committee consisting of seven people. CVI was calculated after the expert opinion, and it was found that each item had a CVI of >0.78. This result shows that the items in the T-PCAS-9

have content validity.²¹ The CVI value was not reported in the original and Persian versions of the scale.^{12,24} It has been reported that the CVI values of NIPCAS, which was culturally adapted to determine nurses' attitudes toward neonatal palliative care in Turkey, ranged between 0.8 and 1.¹⁴ The KMO value of the T-PCAS-9 was found to be 0.735, and the Bartlett's sphericity test showed $p < 0.05$. The KMO value can be accepted between 0 and 1, and KMO > 0.7 is deemed to be at an acceptable level. It has been stated that the Bartlett's sphericity test should be $p < 0.05$.

In the EFA conducted for the T-PCAS-9, factor loadings were found to be between 0.69 and 0.84. In the original form of the scale, factor loadings were reported to be between 0.46 and 0.92.¹² In the Persian version of the scale, since EFA was not conducted, no results on factor loadings could be reported.²⁴ It has been stated that factor loadings of > 0.6 are considered an acceptable level. In adaptation studies, cultural and linguistic differences caused by translation may change the original structure and meaning of the scale, so EFA is recommended in order to prevent this.²⁵ It was reported that in the Persian version, five items were revised by experts for content validity, taking into account the relevance, terminological dimension, and diction of the items. However, EFA was not subsequently conducted is considered a limitation. In the current study of the Turkish adaptation, EFA was performed to prevent this problem and to reveal the factorial structure in a strong way.

The results of the present study showed that the standardized factor loadings of T-PCAS-9 varied between 0.55 and 1.01 as a result of CFA. In the original form of the scale, the standardized factor loadings were between 0.46 and 0.92, and they were > 0.3 in the Persian version. The factor loadings of NIPCAS have been reported to be between 0.42 and 0.8.^{12,14,24} Standardized factor loadings of > 0.4 indicate an acceptable level, and > 0.5 indicates that the factors are well represented. In the present study, since the standardized factor loadings were > 0.5 , it can be seen that the items represented the factors at a good level. In the CFA conducted to confirm the three-factor model of the T-PCAS-9 after EFA, the CFI, TLI, IFI and SRMR were found to be at excellent levels, while χ^2/df , GFI and RMSEA were at acceptable levels.^{22,26} It was reported that the CFI, non-normed fit index (NNFI), RMSEA, and SRMR of the original form of the scale showed excellent fit.¹² In the Persian version, the model goodness-of-fit indices were reported to be within acceptable limits.²⁴

The model goodness-of-fit indices in the present study showed that the three-factor model of the T-PCAS-9 was validated. In the MGCFA conducted to determine the measurement invariance of T-PCAS-9 between genders, each invariance model was evaluated within itself, and then the differences between nested models were evaluated. The CFI, RMSEA, and SRMR fit indices in all the invariance models were found to have acceptable/excellent

fit.²² The differences between the invariance models, $\Delta CFI \leq 0.01$, $\Delta RMSEA \leq 0.015$, and $\Delta SRMR \leq 0.03$, were found to be consistent with the literature.²⁷ The CFI and RMSEA indices were examined in the original form of the scale, and both indices were reported to be at an excellent level, and the differences between the models were within the limit values.¹² In the Persian version, no measurement invariance was conducted.²⁴ It has been stated that the prerequisite for comparing the mean scores of different groups is to ensure measurement invariance between these groups.²³ Measurement invariance also provides strong evidence for the construct validity of the scale. Therefore, the fact that measurement invariance was performed in the present study and the results were within acceptable limit values can be considered to have contributed significantly to the construct validity of the scale. Fornell-Larcker criteria were used to evaluate the convergent validity of the scale. According to this criterion, the requirements are $CR > AVE$, $CR > 0.7$ and $AVE > 0.5$. It can be seen that the sub-dimensions of T-PCAS-9 fulfil these criteria.^{28,29} The HTMT value calculated for discriminant validity was < 0.80 , indicating that the discriminant validity of T-PCAS-9 is confirmed and is consistent with the literature.²⁸ Convergent and discriminant validity were not reported in the original and Persian versions of the scale.^{12,24}

While convergent validity measures the representativeness of the items in the same factor, discriminant validity measures the distance of an item to a different factor. This approach provides important evidence for the construct validity of measurement tools.²⁸ The internal consistency coefficients of T-PCAS-9 and its sub-dimensions were found to be above acceptable values ($\alpha > 0.7$ and $\omega > 0.7$). This result was found to be consistent with the literature.^{30,31} These values were $\alpha = 0.84$ for the original form and $\alpha = 0.77$ for the Persian version.^{12,24} The ICC calculated after the test-retest method of T-PCAS-9 was found to be 0.84. While the ICC value was not reported in the original form, it was 0.89 in the Persian version. An ICC value between 0.75 and 0.9 indicates a good reliability level for measurement tools.³² In the present study, the ω value was calculated in addition to α . It has been stated in the literature that the ω value is more determinative than α in determining internal consistency.³⁰

Although the findings obtained in this study are primarily based on the analysis of scale scores, it is crucial to consider the sociocultural context of Turkey when interpreting the results. The perception of palliative care in Turkey is influenced by a number of cultural factors, such as family-centred decision-making processes, traditional values related to death and end-of-life care, religious beliefs, and the general understanding of health in society. Especially in Turkey, where family structure and collectivist culture prevail, health-related decisions are commonly made with the family and community rather than based on individual autonomy. This has a direct

impact on the acceptance and implementation of palliative care. In addition, taboos surrounding the concept of death, the meaning of suffering, and spiritual beliefs are important factors shaping patients' and families' approach to palliative care services. The healthcare system infrastructure, healthcare professionals' knowledge and experience in palliative care, and the community's access to these services also differ in Turkey compared to other countries. These differences can be considered to be the underlying reasons for the variations observed in the scale results.³³⁻³⁶

The validity and reliability analyses of the scale demonstrate that it is suitable for use with cancer patients in Turkish society. The findings provide important insights into the integration of palliative care into clinical practice in Turkey. First, when looking at policy-level implications, although significant steps have been taken in recent years to expand palliative care services in Turkey, there are still shortcomings in integrating these services into cancer treatment at an early stage.³⁷ The scale adapted in this study can serve as an important data source for policymakers by enabling the systematic assessment of attitudes towards palliative care. In particular, the development of palliative care screening protocols within the National Cancer Control Programme can play a critical role in improving the quality of life of patients during their treatment.³⁸ In addition, the inclusion of this scale in routine clinical practice will be able to raise awareness that palliative care is a process that should be addressed not only in the terminal phase but from the moment of diagnosis.³⁹

Secondly, it generates implications for clinical practice and education. Cancer patients' attitudes toward palliative care are often negatively affected by the perception that it is 'the end of treatment.'⁴⁰ This situation is particularly evident in societies with strong cultural and religious beliefs. The scale developed in this study can help clinicians identify patients' prejudices toward palliative care at an early stage and develop communication strategies to address them. For example, emphasizing that palliative care is a 'supportive treatment that improves quality of life' may reduce patients' resistance to these services.⁴¹ The third important finding of this study is that the scale can be used in future research and applications. The adapted scale should be tested in different patient groups and in multicenter studies, and longitudinal studies could be conducted to assess how the use of the scale in clinical settings affects palliative care referral rates. Furthermore, developing a similar scale to measure caregivers' attitudes toward palliative care could contribute to strengthening family-centered care models.

The main limitation of this study is that it only included patients diagnosed with cancer in a single center in one region of Turkey, thereby limiting the generalizability of the results. Based on the findings of this study conducted

on patients undergoing cancer treatment, it can be recommended that the T-PCAS-9 be used in other regions of Turkey.

CONCLUSIONS

The psychometric properties of the Turkish version of the Palliative Care Attitude Scale were extensively evaluated in this study, conducted on individuals undergoing cancer treatment, and the results showed the T-PCAS-9 to be a valid and reliable measurement tool in the Turkish population. It is therefore believed that its use will be of benefit in assessing the attitudes toward palliative care of Turkish patients with cancer or other chronic diseases that require palliative care.

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CONFLICT OF INTERESTS

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