Brief Methodological Report

Reliability and Validity of the Turkish Version of the FACIT-PAL Quality of Life Instrument

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Abstract

Context. The accurate measurement of quality of life (QoL) among people with chronic and incurable illnesses is essential for evaluating service delivery, understanding the impact of illness and treatment effects, and testing intervention effectiveness. Palliative care interventions are relatively new in Turkey; therefore, it is important that reliable and valid QoL instruments are available to evaluate palliative care effectiveness in Turkish speakers.

Objectives. The purpose of this study was to translate, linguistically validate, and determine the psychometric properties of the newly translated Functional Assessment of Chronic Illness Therapy—Palliative Care (FACIT-Pal) scale (FACIT-Pal-TR) for Turkish-speaking cancer patients.

Methods. We used standard multilingual translation and validation methods for the initial translation of the FACIT-Pal-TR and then assessed the psychometric properties of reliability and validity of the translated scale. We used the Karnofsky Performance Scale and Edmonton Symptom Assessment Scale to assess concurrent and construct validity.

Results. A convenience sample of 232 cancer patients participated in this study. The Cronbach's alpha coefficient of FACIT-Pal-TR was 0.932 (between 0.732 and 0.860 for subscales). There was a statistically significant relationship between test and retest scores ($r = 0.877$, $P < 0.001$). The factor loadings of FACIT-Pal-TR were between 0.205 and 0.815. FACIT-Pal-TR construct validity was acceptable with 45 items and five subscales. There were statistically significant relationships between FACIT-Pal-TR scores and Edmonton Symptom Assessment Scale ($P < 0.001$) and Karnofsky Performance Scale ($r = 0.656$; $P < 0.001$) scores.

Conclusions. The FACIT-Pal-TR demonstrates strong reliability and validity for evaluating palliative care—specific QoL in Turkish cancer patients. J Pain Symptom Manage 2019;58:297—305. © *2019 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.*

Key Words
Palliative care, quality of life, FACIT-Pal, cancer, Turkey

Introduction

The goal of palliative care (PC) is to support the best possible quality of life (QoL) for patients with life-limiting illnesses and their families, regardless of the stage of the disease or the need for other therapies.[1,2] A current systematic review suggests that physical abilities, personal autonomy, emotional state, socialization, spirituality, cognition, health care provision, and preparation for death are all important aspects of QoL from palliative care patients' perspectives.[3] Recent reports and national guidelines recommend that concurrent palliative care can improve QoL[4,5] and palliative care is growing in Turkey.[6] Therefore, it is important that accurate QoL measurement of Turkish-speaking people with chronic

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and incurable illnesses is available to evaluate how these services impact care and to aid in the understanding of the impact of illness and the effects of treatments on the patient, testing the effectiveness of interventions.[7–9] In a systematic review of QoL measurements for palliative care, Albers et al. identified 29 questionnaires that assess the QoL of palliative care patients, of which seven were revised versions of the original instruments.[1]

The Functional Assessment of Chronic Illness Therapy (FACIT)-Palliative Care (FACIT-Pal), one of many QoL instruments within the FACIT measurement system,[10] is a widely used palliative care specific QoL measure.[9] The FACIT was originally developed from the Functional Assessment of Cancer Therapy-General (FACT-G), a 27-item QoL measure for people with cancer.[10] The FACT-G has since been modified for multiple types of cancers and treatments, multiple sclerosis, and HIV/AIDS by adding additional concerns subscale/items tailored to each condition.[9] The FACT-G captures four QoL domains: physical, social, emotional, and functional well-being. The FACIT-Pal includes the FACT-G four domains and a 19-item subscale with items that pertain to persons with life-limiting illness. The FACIT-Pal psychometrics have been examined in a sample of 256 U.S. advanced cancer patients,[11] in three African countries with patients have HIV and/or cancer diagnosis,[8] and in a German sample.[12] Others[13,14] have evaluated the psychometric properties of FACIT-Pal shortened version.

The FACT-G was translated and linguistically validated into Turkish[15]; however, the full FACIT-Pal subscale has not resulted in a gap of palliative care–specific QoL instruments for Turkish-speaking patients with serious illness. The purpose of this study was to translate and linguistically validate the FACIT-Pal scale and then to analyze Turkish version's (FACIT-Pal-TR) psychometric properties in Turkish-speaking cancer patients.

Methods

Study Design

We used the standard multilingual translation and validation methodology for the FACIT Measurement System[13,16] (see Appendix I).

Participants and Setting

A convenience sample of 232 cancer patients were recruited from inpatients and outpatients from two Turkish training and research hospitals between July 2016 and March 2018. The inclusion criteria were as follows: 1) diagnosed with cancer, 2) willing to participate, 3) aged 18 years and older, and 4) able to communicate in Turkish.

Instruments

The Patients Characteristic Form consists of patient-reported sociodemographic (e.g., birth date, gender, education status, marital status, income, employment status) and medical characteristics (e.g., diagnosis, date of diagnosis, treatments, other chronic disease). The FACIT-Pal consists of 46 items rated using a five-point Likert-type (0–4) scale (0 = not at all, 1 = a little bit, 2 = somewhat, 3 = quite a bit, 4 = very much).[11]

Karnofsky Performance Scale (KPS) is an ordinal forced-choice clinician-rated scale used to rate impairment in daily activities. Scores range from 100% (normal, no complaints) to 0% (dead). Higher scores reflect better function.[17]

Edmonton Symptom Assessment System (ESAS) assesses nine common symptoms with an option of adding a 10th symptom; each symptom is rated on an 11-point (0–10) numerical rating scale; 0 (no symptom) to 10 (worst possible).[18]

Data Collection

Data collection was carried out in the patient's room for hospitalized patients and in the infusion or waiting room for outpatients. Patients were asked to fill out paper versions of the questionnaires after being provided with instructions. However, some data collection was completed by face-to-face interview by a trained staff member if the patient preferred. Instrument completion took approximately 15–20 minutes.

Translation and Harmonization of FACIT-Pal Into Turkish

Fifteen of the 19 palliative subscale items were translated into Turkish. Because the B1, C2, O2, and L1 items had previously undergone the translation and cognitive debriefing process in the context of the Turkish FACT-B (breast), C (colorectal), O (ovarian), and L (lung),[14] those items were maintained but further tested within this study to confirm their applicability to palliative care patients.

We followed a standard multilingual translation and validation methodology for the FACIT Measurement System to create the FACIT-Pal-TR[14,18] (see Appendix I). This method includes two forward translations, one reconciliation of the two forward translations, a back translation into English, a review by a Turkish-speaking health care expert, and a field test on a small patient population. After the translation process was complete, debriefing interviews were conducted with 13 cancer patients to assess if they experienced any difficulty understanding translated items. Patients were interviewed using the FACIT organization's standard debriefing guidelines.

Table 1
Sociodemographic Characteristics of Participants

Characteristics ($N = 232$)	n (%)
Age group	
20–39	50 (21.6)
40–59	101 (43.5)
60–79	76 (32.8)
80 ve üzeri	5 (2.2)
Mean ± standard deviation = 51.94 ± 15.30; median = 54; interquartile range = 20; min–max = 20–85	
Gender	
Female	120 (51.7)
Male	112 (48.3)
Marital status	
Never married	34 (14.7)
Married or living with partner	171 (73.7)
Divorced	9 (3.9)
Widow	18 (7.8)
Education status	
Illiterate	10 (4.3)
Literate	14 (6.0)
Primary/middle School	102 (44.0)
High school	53 (22.8)
University	47 (20.3)
Postgraduate degree	6 (2.6)
Employment status	
Employed	39 (16.8)
Never employed	75 (32.3)
Being off sick	41 (17.7)
Retired	77 (33.2)
Income	
Income < expenses	72 (31.0)
Income = expenses	139 (59.9)
Income > expenses	21 (9.1)
Admission	
Inpatient	98 (42.2)
Outpatient	134 (57.8)
Diagnosis (n=214)[a]	
Breast cancer	50 (21.6)
Genitourinary cancer[b]	44 (19.0)
Gastrointestinal cancer[c]	42 (18.1)
Lung cancer	31 (13.4)
Hematological malignancies[d]	25 (10.8)
Other[e]	22 (9.5)
Stage of cancer	
Stage 1	18 (7.8)
Stage 2	14 (6.0)
Stage 3	29 (12.5)
Stage 4	24 (10.3)
Unspecified	147 (63.4)
Duration of disease (month)	
0–6	91 (39.2)
7–12	30 (12.9)
13–18	14 (6.0)
19–24	15 (6.5)
25 and above	54 (23.3)
Unknown	28 (12.1)
Median ± standard deviation = 26.4 ± 46.5; median = 9.5; interquartile range = 23.7; min–max = 0–286	
Metastasis	
Yes	82 (35.3)
No	150 (66.8)
Comorbidity	
Yes	77 (33.2)
No	155 (66.8)

[a]118 missing data.
[b]Ovary, cervix, testicular, kidney, prostate, bladder cancers.
[c]Stomach, rectum, colon, liver, gall bladder, esophagus cancers.
[d]Leukemia, lymphoma.
[e]Sarcoma, pancreas, brain tumor, nasopharyngeal cancers.

Psychometric Testing of FACIT-Pal-TR

Following translation, the FACIT Pal-TR was evaluated for reliability using a test of internal consistency (Cronbach's alpha) and item analysis. Test-retest reliability was conducted with 60 patients within seven or 14 days after the first interview. We then evaluated the FACIT Pal-TR for concurrent and construct validity by comparing results with the KPS and ESAS.

Data Analyses

IBM SPSS version 21.0 (IBM Corporation, Armonk, NY), FACTOR (Universitat Rovira I Virgili, Tarragona, Spain), and AMOS 21.0 (IBM Corporation) statistical pace programs were used for data analyses. Descriptive statistics were shown as n, %, mean ± standard deviation, median, interquartile ranges. We evaluated reliability by calculating Cronbach's alpha values for internal consistency. The intraclass correlation was performed to investigate test-retest reliability. In addition, corrected item-total correlations were performed for reliability. To determine validity, we used several procedures. Exploratory factor analysis (EFA) using principal components analysis with oblimin rotation and confirmatory factor analysis were performed to investigate construct validity. Weighted least squares method was used for confirmatory factor analysis (CFA). We used CFA to confirm the original structure of FACIT-Pal. Because the statistical program will not produce results if there are missing data for CFA, we removed Item GS7 (I am satisfied with my sex life) because 70.25% of patients did not answer this question. Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test were used to assess the suitability of the variables in the factor analysis and to test the sample size; 0.60 and greater KMO value and statistically significant Bartlett test ($P < 0.05$) were accepted as an indicator for sampling adequacy for factor analysis. The fit indices in confirmatory factor analysis were calculated to examine the model fit. The Pearson correlation was performed to investigate concurrent validity among FACIT-Pal-TR total/subscale scores, KPS, and each of the ESAS symptom scores. Statistical significance was defined as a P-value < 0.05.

Results

Participant Characteristics

The mean age was 51.94 ± 15.30 years. Slightly more than half of the participants (51.7%) were female, 73.7% were married or lived with a partner. Of the participants, 57% were outpatient, 21.6% diagnosed with breast cancer, and 22.5% had Stage 3 or 4 cancer. Participants' sociodemographics and medical characteristics are shown in Table 1.

Table 2
The Distribution of Responses for FACIT-Pal-TR Items and Subscale Cronbach's Alpha

Items ($n = 232$)	Not at All n (%)	A Little Bit n (%)	Somewhat n (%)	Quite a Bit n (%)	Very Much n (%)	Cronbach's Alpha
Physical well-being						
GP1	39 (16.8)	52 (22.4)	67 (28.9)	43 (18.5)	31 (13.4)	
GP2	12 (5.2)	23 (9.9)	35 (15.1)	36 (15.5)	126 (54.3)	0.816
GP3	29 (12.5)	38 (16.4)	43 (18.5)	41 (17.7)	81 (34.9)	
GP4	20 (8.6)	32 (13.8)	43 (18.5)	40 (17.2)	97 (41.8)	
GP5	41 (17.7)	47 (20.3)	56 (24.1)	37 (15.9)	51 (22.0)	
GP6	22 (9.5)	38 (16.4)	66 (28.4)	38 (16.4)	68 (29.3)	
GP7	25 (10.8)	35 (15.1)	31 (13.4)	58 (25.0)	83 (35.8)	
Social/family well-being						
GS1	25 (10.8)	29 (12.5)	34 (14.7)	76 (32.8)	68 (29.3)	
GS2	5 (2.2)	5 (2.2)	4 (1.7)	65 (28.0)	153 (65.9)	
GS3	23 (9.9)	16 (6.9)	33 (14.2)	82 (35.3)	78 (33.6)	0.732[a]
GS4	9 (3.9)	3 (1.3)	15 (6.5)	74 (31.9)	131 (56.5)	0.594[b]
GS5	5 (2.2)	7 (3.0)	20 (8.6)	71 (30.6)	129 (55.6)	
GS6	16 (6.9)	5 (2.2)	16 (6.9)	67 (28.9)	128 (55.2)	
GS7[c]	27 (11.6)	9 (3.9)	14 (6.0)	15 (6.5)	4 (1.7)	
Emotional well-being						
GE1	13 (5.6)	43 (18.5)	62 (26.7)	31 (13.4)	83 (35.8)	
GE2	13 (5.6)	25 (10.8)	57 (24.8)	81 (34.9)	56 (24.1)	
GE3	13 (5.6)	24 (10.3)	31 (13.4)	49 (21.1)	115 (49.6)	0.761
GE4	32 (13.8)	33 (14.2)	48 (20.7)	48 (20.7)	71 (30.6)	
GE5	11 (4.7)	23 (9.9)	34 (14.7)	26 (11.2)	137 (59.1)	
GE6	25 (10.8)	46 (19.8)	52 (22.4)	25 (10.8)	84 (36.2)	
Functional well-being						
GF1	76 (32.8)	35 (15.1)	39 (16.8)	56 (24.1)	26 (11.2)	
GF2	60 (25.2)	41 (17.7)	51 (22.0)	52 (22.4)	28 (12.1)	
GF3	22 (9.5)	36 (15.5)	62 (26.7)	58 (25.0)	54 (23.3)	
GF4	10 (4.3)	11 (4.7)	34 (14.7)	76 (32.8)	101 (43.5)	0.809
GF5	25 (10.8)	30 (12.9)	57 (24.6)	47 (20.3)	73 (31.5)	
GF6	28 (12.1)	34 (14.7)	49 (21.1)	59 (25.4)	62 (26.7)	
GF7	22 (9.5)	40 (17.2)	66 (28.4)	58 (25.0)	46 (19.8)	
Additional concerns/palliative care						
Pal1	17 (7.3)	35 (15.1)	48 (20.7)	80 (34.5)	52 (22.4)	
Pal2	9 (3.9)	5 (2.2)	22 (9.5)	77 (33.2)	119 (51.3)	
Pal3	5 (2.2)	1 (0.4)	2 (0.9)	58 (25.0)	166 (71.6)	
Pal4	21 (9.1)	32 (13.8)	61 (26.3)	34 (14.7)	84 (36.2)	
B1	18 (7.8)	16 (6.9)	35 (15.1)	41 (17.7)	122 (52.9)	
Pal5	17 (7.3)	30 (12.9)	40 (17.2)	28 (21.1)	117 (50.4)	0.860
C2	21 (9.1)	32 (13.8)	48 (20.7)	26 (11.2)	105 (45.3)	
O2	17 (7.3)	33 (14.2)	41 (17.7)	34 (14.7)	107 (46.1)	
Pal6	12 (5.2)	19 (8.2)	37 (15.9)	24 (10.3)	140 (60.3)	
Pal7	33 (14.2)	45 (19.4)	64 (27.6)	24 (10.3)	66 (28.4)	
Br7	21 (9.1)	24 (10.3)	43 (18.5)	90 (38.8)	54 (23.3)	
Pal8	22 (9.5)	30 (12.9)	59 (25.4)	64 (27.6)	57 (24.6)	
Pal9	21 (9.1)	37 (15.9)	64 (27.6)	54 (23.3)	56 (24.1)	
Pal10	16 (6.9)	12 (5.2)	36 (15.5)	66 (28.4)	102 (44.0)	
Spr21	11 (4.7)	16 (6.9)	32 (13.8)	82 (35.3)	91 (39.2)	
Pal12	5 (2.2)	16 (6.9)	22 (9.5)	66 (28.4)	123 (53.0)	
L1	2 (0.9)	2 (0.9)	21 (9.1)	58 (25.0)	149 (64.2)	
Pal13	66 (28.4)	35 (15.1)	24 (10.3)	53 (22.8)	54 (23.3)	
Pal14	9 (3.9)	32 (13.8)	30 (12.9)	62 (26.7)	99 (42.7)	

FACIT-Pal-TR = translated Functional Assessment of Chronic Illness Therapy—Palliative Care.
[a]The Cronbach's alpha value with GF7.
[b]The Cronbach's alpha value without GF7.
[c]163 patients did not answer this item.

Translation and Harmonization of FACIT-Pal Into Turkish

Overall, patients commented that the FACIT-Pal-TR was easy to complete and the items were relevant. The translation and harmonization went smoothly in general and resulted in only a few minor changes. For example, debriefing interviews showed that patients did not understand the Pal 13 translated item ("I have been able to reconcile (make peace) with other people"). Four patients commented that this item was confusing. Although in the harmonization step FACIT organization commented that back translation of the Item Pal-13 (I can conciliate between other people) was acceptable, the debriefing revealed that the

Table 3
Item-Total Score Corrected Correlation Analysis

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Physical well-being				
GP1	119.71	766.321	0.341	0.932
GP2	118.56	763.416	0.390	0.932
GP3	119.14	756.267	0.429	0.931
GP4	118.90	753.259	0.493	0.931
GP5	119.56	755.183	0.453	0.931
GP6	119.20	749.946	0.559	0.930
GP7	119.00	744.900	0.597	0.930
Social/family well-being[a]				
GS1	119.03	753.463	0.508	0.931
GS2	118.06	777.273	0.305	0.932
GS3	118.84	767.000	0.333	0.932
GS4	118.24	783.283	0.145	**0.933**
GS5	118.25	772.944	0.355	0.932
GS6	118.37	775.073	0.247	**0.933**
Emotional well-being				
GE1	119.05	745.353	0.635	0.930
GE2	118.99	761.164	0.473	0.931
GE3	118.61	751.520	0.568	0.930
GE4	119.20	757.865	0.415	0.932
GE5	118.50	757.948	0.472	0.931
GE6	119.18	749.119	0.524	0.931
Functional well-being				
GF1	119.94	755.131	0.442	0.931
GF2	119.83	753.364	0.488	0.931
GF3	119.23	742.619	0.695	0.929
GF4	118.53	768.025	0.381	0.932
GF5	119.11	756.247	0.460	0.931
GF6	119.20	738.004	0.715	0.929
GF7	119.31	745.134	0.672	0.929
Additional concerns/palliative care				
Pal1	119.10	753.833	0.555	0.930
Pal2	118.34	769.931	0.382	0.932
Pal3	117.97	779.947	0.279	0.932
Pal4	119.05	761.145	0.392	0.932
B1	118.59	756.294	0.480	0.931
Pal5	118.75	759.957	0.403	0.932
C2	118.90	756.185	0.441	0.931
O2	118.82	764.235	0.346	0.932
Pal6	118.47	770.077	0.294	0.932
Pal7	119.41	759.835	0.389	0.932
Br7	119.03	746.783	0.660	0.929
Pal8	119.15	742.882	0.694	0.929
Pal9	119.22	740.244	0.731	0.929
Pal10	118.62	744.538	0.705	0.929
Spr21	118.62	747.240	0.714	0.929
Pal12	118.37	757.904	0.586	0.930
L1	118.09	770.213	0.496	0.931
Pal13	119.62	773.084	0.188	**0.934**
Pal14	118.69	767.980	0.336	0.932

FACIT-Pal-TR = translated Functional Assessment of Chronic Illness Therapy—Palliative Care.
n= 232; number of items = 45; Cronbach's alpha= 0.932; X ± standard deviation = 121.5 ± 28.1.
[a]GS7 was excluded from FACIT-PAL-TR. The items that increased Cronbach's alpha when deleted are shown in bold.

word "between" instead of "with" caused patients to misinterpret the item as being about matchmaking. Upon FACIT's review, we changed the translation of this item to "I have been able to conciliate with other people." We then did cognitive debriefing interviews with an additional 10 patients, which revealed that patients now understood this item (see Appendix II for the harmonization process of back-translated FACIT-Pal items in Turkish).

Psychometrics Properties of FACIT-Pal-TR

Reliability. The FACIT-Pal-TR items' distribution of responses and Cronbach's alpha subscale values are shown in Table 2. Participants were able to answer all items except 70.2% did not answer Item GS7 (I am satisfied with my sex life). The Cronbach's alpha coefficient of FACIT-Pal-TR was 0.932. The Cronbach's alpha values by subscale were between 0.732 and 0.860 (Table 2). The mean test and retest scores were

Table 4
Fit Values and Fit Index Values Obtained From CFA

Fit Indices Examined	Excellent Fit	Acceptable Fit	Fit Indices Obtained from CFA for FACIT-PAL-TR (37 Items)	Fit Indices Obtained From CFA for FACIT-PAL-TR (45 Items)
χ^2			2007.684	3388.509
df (*P*)			615 ($P < 0.001$)	933 ($P < 0.001$)
χ^2/df	≤3	≤5	3.260	3.630
NFI	0.95 ≤ NFI ≤1	0.90 ≤ NFI ≤ 0.95	0.930	0.921
GFI	0.95 ≤ GFI ≤1	0.90 ≤ GFI ≤ 0.95	0.949	0.939
AGFI	0.90 ≤ AGFI ≤1	0.85 ≤ AGFI ≤ 0.90	0.942	0.933

CFA = confirmatory factor analysis; FACIT-Pal-TR = translated Functional Assessment of Chronic Illness Therapy—Palliative Care; NFI = normed fit index; GFI = goodness of fit index; AGFI = adjusted goodness of fit index.

118.01 ± 27.26 and 111.88 ± 24.92, respectively. There was a statistically significant relationship between test and retest scores ($r = 0.877$, $P < 0.001$). The item-total correlation coefficient and Cronbach's alpha values if item deleted for FACIT-Pal-TR are shown in Table 3. The item-total correlation coefficient values were between 0.188 and 0.731, and there were three items (GS4, GS6, and Pal 13) that slightly increased the Cronbach's alpha when they were deleted. These results showed that the FACIT-Pal-TR was highly reliable.

Validity

Construct Validity. The KMO value was calculated as 0.892 with statistically significant Bartlett test ($\chi^2 = 5103.4$; SD = 990; $P < 0.001$). These results showed that the sample size was sufficient for factor analysis. The results of EFA showed that 12 items loaded in more than one factor and the differences between factor loadings were less than 0.10 (see Appendix III). The second EFA was performed with 37 items; with 12 items loading on more than one factor. Items in which the differences between factor loadings were less than 0.10 were excluded (see Appendix IV). This structure differed from the original structure of FACIT-Pal in terms of the factors that items were loaded in.

After EFA to verify structure of FACIT-Pal-TR, we performed CFAs for the factor structure of FACIT-Pal-TR that extracted from EFA (with 37 items) and the original factor structure of FACIT-Pal (with 45 items and five factors). Then the result of these CFAs interpreted in term of fit indexes to make decision on factor structure of FACIT-Pal-TR. The model fit indices extracted in CFA and standard fit indices values are shown in Table 4. Fit indices for both structures were acceptable but the structure that extracted with 37 items very different from original scale and there was no such way to explain this structure with cultural properties. Therefore, to keep original structure of FACIT-Pal, we accepted the structure with five factors and 45 items of FACIT-Pal-TR.

The factor structure model of the FACIT-Pal-TR (45 items) with the five subscales extracted based on CFA is shown in Fig. 1. The standard and nonstandard factor loadings for the five subscale structure (45 items) of FACIT-Pal-TR are shown in Appendix V. The factor loadings were between 0.205 and 0.815. These results showed support for an acceptable level of construct validity of the FACIT-Pal-TR comprising 45 items and five subscales.

Concurrent Validity. There were statistically significant relationships between FACIT-Pal-TR scores and ESAS ($P < 0.001$) and KPS ($r = 0.656$; $P < 0.001$) scores (Table 5). There was a positive relationship between FACIT-Pal-TR total and subscale scores and KPS score and a negative correlation between FACIT-Pal-TR total and subscale scores and symptom severity scores. These results support concurrent validity of the translated scale.

Discussion

This study aimed to translate, culturally adapt, and linguistically validate the FACIT-Pal for Turkish-speaking cancer patients. We used a rigorous translation and adaptation process, also described as cultural equivalence testing or cross-cultural validation, to ensure that the FACIT-pal-TR was equivalent across cultures.[19] We then had Turkish-speaking cancer patients complete the tool and applied rigorous psychometric procedures that demonstrated strong reliability and validity for evaluating palliative care—specific QoL in a large sample of Turkish cancer patients. These are important steps in moving forward palliative care in Turkey.

Following cultural adaptation, the concurrent validity of the FACIT-Pal-TR was tested by performing correlation analysis between the FACIT-Pal-TR and the KPS and ESAS scales. Similar to previous studies of the psychometric properties of the FACIT-Pal in different cultures,[8,11,12] we found that patients who had better performance status and lower symptom severity had better QoL, thus verifying concurrent validity of FACIT-Pal-TR.

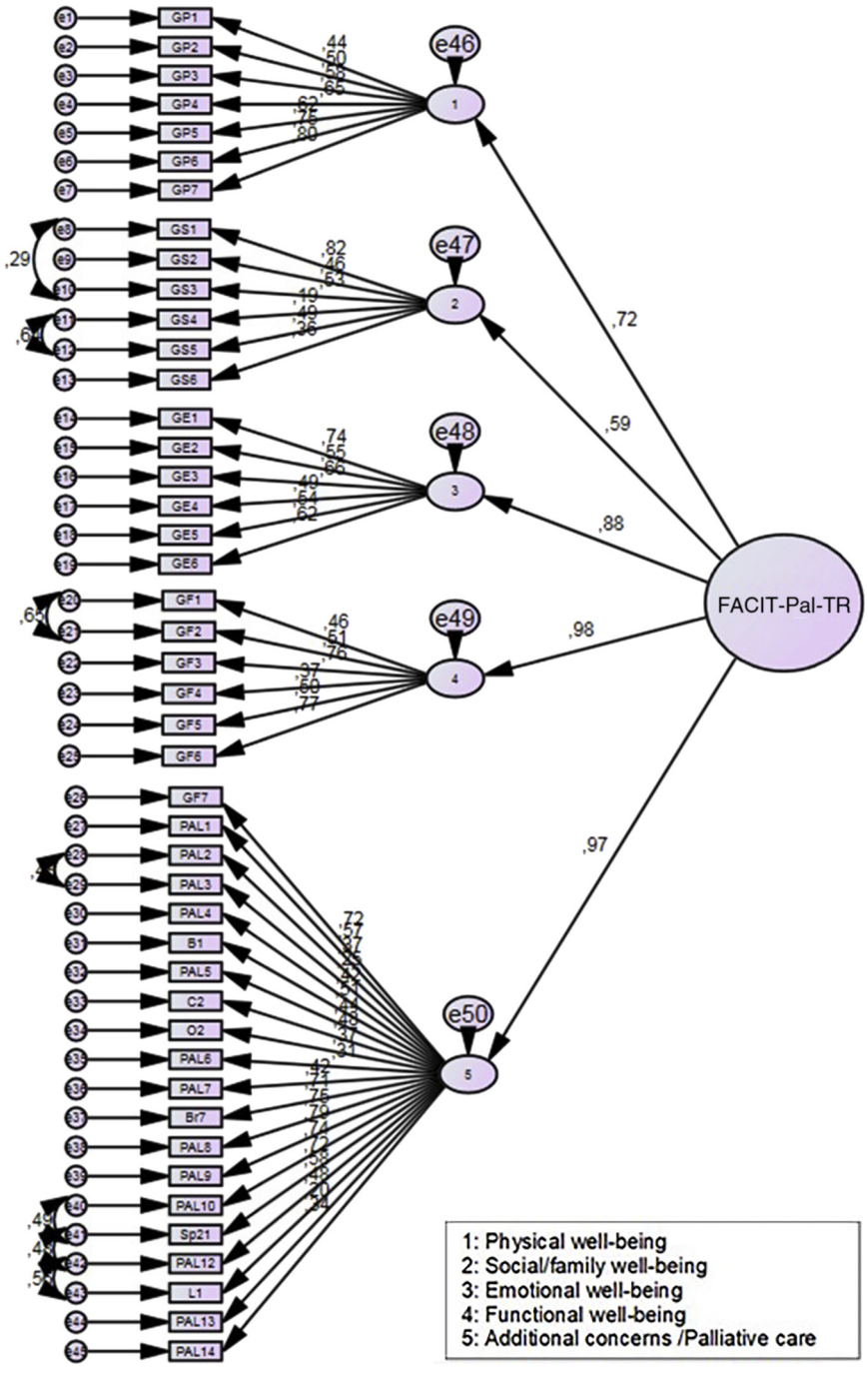

Fig. 1. Factor structure model of the FACIT-Pal-TR. FACIT-Pal-TR = translated Functional Assessment of Chronic Illness Therapy—Palliative Care.

For the construct validity of FACIT-Pal-TR, EFA and CFA were performed. Before the factor analyses, the KMO and Bartlett's test results showed that sample size sufficient for factor analyses. Based on item-total scores, corrected correlation identified a slightly increased Cronbach's alpha when three items were deleted: GS4 (My family has accepted my illness), GS6 (I feel close to my partner (or the person who is my main support)) and Pal 13 (I have been able to reconcile (make peace) with other people). However, to maintain the scale to be as close as possible to the original scale, we decided to maintain these items. In the first study conducted by Lyons et al., analysis of the first psychometrics properties of FACIT-Pal total score corrected correlation has not been performed.[11] Siegert et al. did not report any item that increases Cronbach's alpha when deleted.[8]

Of interest, the factor structure identified from the EFA procedure was different from original FACIT-Pal structure in that items were supposed to be loaded

Table 5
The Correlation Between FACIT-Pal-TR, FACIT-Pal-TR Subscales, ESAS, and KPS Scores

Symptoms	Median (1–3 quartile)	FACIT-Pal Score 125 (57–175)[a]	Physical Well-being	Social/Family Well-being	Emotional Well-being	Functional Well-being	Additional Concerns/ Palliative Care
Pain	2 (0–5)	$r^b = -0.382$; $P < 0.001$	$r = -0.506$; $P < 0.001$	$r = -0.142$; $P = 0.030$	$r = -0.237$; $P < 0.001$	$r = -0.288$; $P < 0.001$	$r = -0.350$; $P < 0.001$
Tiredness	5 (1–7)	$r = -0.582$; $P < 0.001$	$r = -0.622$; $P < 0.001$	$r = -0.153$; $P = 0.020$	$r = -0.486$; $P < 0.001$	$r = -0.443$; $P < 0.001$	$r = -0.522$; $P < 0.001$
Nausea	1 (0–5)	$r = -0.408$; $P < 0.001$	$r = -0.577$; $P < 0.001$	$r = -0.109$; $P = 0.097$	$r = -0.334$; $P < 0.001$	$r = -0.410$; $P < 0.001$	$r = -0.385$; $P < 0.001$
Sadness	2 (0–5)	$r = -0.509$; $P < 0.001$	$r = -0.495$; $P < 0.001$	$r = -0.204$; $P = 0.092$	$r = -0.514$; $P < 0.001$	$r = -0.413$; $P < 0.001$	$r = -0.414$; $P < 0.001$
Worry	2 (0–5)	$r = -0.540$; $P < 0.001$	$r = -0.419$; $P < 0.001$	$r = -0.272$; $P < 0.001$	$r = -0.591$; $P < 0.001$	$r = -0.398$; $P < 0.001$	$r = -0.457$; $P < 0.001$
Lack of sleep	2 (0–6)	$r = -0.544$; $P < 0.001$	$r = -0.468$; $P < 0.001$	$r = -0.155$; $P = 0.018$	$r = -0.431$; $P < 0.001$	$r = -0.525$; $P < 0.001$	$r = -0.484$; $P < 0.001$
Lack of appetite	3 (0.0–6.75)	$r = -0.448$; $P < 0.001$	$r = -0.506$; $P < 0.001$	$r = -0.164$; $P = 0.013$	$r = -0.313$; $P < 0.001$	$r = -0.362$; $P < 0.001$	$r = -0.394$; $P < 0.001$
Wellbeing	4 (1–5)	$r = -0.493$; $P < 0.001$	$r = -0.526$; $P < 0.001$	$r = -0.142$; $P = 0.030$	$r = -0.403$; $P < 0.001$	$r = -0.380$; $P < 0.001$	$r = -0.462$; $P < 0.001$
Shortness of breath	0 (0–4)	$r = -0.418$; $P < 0.001$	$r = -0.385$; $P < 0.001$	$r = -0.188$; $P = 0.004$	$r = -0.309$; $P < 0.001$	$r = -0.293$; $P < 0.001$	$r = -0.438$; $P < 0.001$
Skin and nail changes	0 (0–4)	$r = -0.335$; $P < 0.001$	$r = -0.224$; $P < 0.001$	$r = -0.215$; $P = 0.001$	$r = -0.278$; $P < 0.001$	$r = -0.302$; $P < 0.001$	$r = -0.311$; $P < 0.001$
Mucositis	0 (0–3)	$r = -0.370$; $P < 0.001$	$r = -0.423$; $P < 0.001$	$r = -0.209$; $P = 0.001$	$r = -0.241$; $P < 0.001$	$r = -0.303$; $P < 0.001$	$r = -0.313$; $P < 0.001$
Numbness	0 (0–4)	$r = -0.356$; $P < 0.001$	$r = -0.407$; $P < 0.001$	$r = -0.181$; $P = 0.006$	$r = -0.285$; $P < 0.001$	$r = -0.261$; $P < 0.001$	$r = -0.299$; $P < 0.001$
KPS	7 (60–80)	$r = 0.656$; $P < 0.001$	$r = 0.603$; $P < 0.001$	$r = 0.232$; $P < 0.001$	$r = 0.449$; $P < 0.001$	$r = 0.637$; $P < 0.001$	$r = 0.593$; $P < 0.001$

FACIT-Pal-TR = translated Functional Assessment of Chronic Illness Therapy–Palliative Care; ESAS = Edmonton Symptom Assessment System; KPS = Karnofsky Performance Scale.
[a]Median (1–3 quartile).
[b]Spearman correlation coefficient.

under the "emotional well-being" and "additional concerns/palliative care" subscales. It is not clear whether this different factor structure was a result of the cultural adaptation or of existing cultural differences. CFA was used to verify structure of FACIT-Pal-TR, especially because the results of confirmatory factor analysis[20] identified that with the exception of Item GS7 (I am satisfied with my sex life), which was excluded because most patients (70.25%) did not wish to answer, FACIT-Pal-TR had the same five-scale structure as the original FACIT-Pal. Hence, the CFA identified that the translated tool had acceptable construct validity.

This study has some limitations. First, because we evaluated the tool only in cancer patients, these results cannot be generalized to other patients in need of palliative care. Therefore, we suggest future evaluation of the psychometric properties in more diverse populations diagnosed with other life-threatening illnesses in Turkey. Second, these patients were identified as ones who would be eligible for palliative care based on disease stage rather than in those who were actually receiving palliative care. We were unable to identify disease stage in a little over half of patients because these data were missing from the record or was self-reported and most patients did not know their disease stage. Despite these limitations, this study makes an important contribution toward moving the palliative care field forward and lays an important foundation for future studies that can further examine the FACIT-Pal-TR total and subscale scores by patients' sociodemographic and medical characteristics.

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The authors declare that they have no conflicts of interest. The authors wish to thank the patients who participated in this study.

Ethical approval: This study was approved by the Gulhane Military Medical Academy institutional review board (IRB) (IRB # 63305009-771.08/179). Informed consent was obtained from patients. Written permission was obtained from hospitals where this study was conducted. FACIT.org granted permission to translate the FACIT-Pal and test psychometric properties in this study.

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Appendix

Appendix I
FACIT Multilingual Translation Process

Steps	Purpose/Requirements	Personnel	Process
1. Preparation	Obtain permission to use the FACIT instrument	The principal investigator (PI) and FACIT organization personnel	Contacting the FACIT organization via e-mail.
2. Forward translation	Obtain two forward translations of the instrument. Use simple language and capture meaning.	Two independent Turkish native speakers who are fluent in English	Informing the translators about the purpose and conceptual basis of the measure. Using the English source. Producing two forward translations of each item.
3. Reconciliation	Decide which forward translation is the most appropriate. Alter any forward translation to make items more suitable and offer new forward translation if necessary.	At least one native speaker familiar with multiple dialects	Comparing the two forward translations to resolve discrepancies
4. Back translation	Obtain one back translation of the instrument. Use of simple language is required.	One native English speaker fluent in the target language.	The back translation is done literally, that is, translation of what an item says and not an interpretation of what the translator thought an item was supposed to say. The translator was blind to the concepts explored and to the original English items.
5. Back translation review	Revise the back translations and compare to the original English instrument to identify any discrepancies.	One to two bilingual experts and coordinating team	Revising back translations and finalizing draft translations.
6. Harmonization	Compare the back-translated versions of each item across languages to identify discrepancies in conceptual equivalence.	FACIT organization language coordinator and bilingual expert	The translation team finalizes and subsequently harmonizes the translations across all countries and/or languages within the scope of the project.
7. Cognitive debriefing	Assess comprehension and acceptability.	Researchers and native speaking patients (at least 10) with relevant diagnosis	The translated questionnaire is field-tested with cancer patients from the target population to determine if further revisions are necessary
8. Cognitive debriefing review	The final instrument is considered conceptually equivalent to its English source and is ready for use in clinical or research settings	Researchers and interviews	Cognitive debriefing results were reviewed by researchers and nurses who interviewed patients. Conceptual or linguistic problems were categorized.
9. Final report	Final Turkish version of instrument is complete	Researchers and interviews with FACIT organization language coordinator	Send cognitive debriefing interviews to FACIT organization to confirm all native speakers understood all the items properly or identify potential issues.

FACIT = Functional Assessment of Chronic Illness Therapy.

Appendix II

The Harmonization Process of Back-Translated FACIT-Pal Items (in Turkish)

Madde No	Maddenin orijinali	Madeenin ilk çevirisi	Maddenin tekrar çevirisi	FACIT Kuruluşu yorumu	Son karar
Pal 1	I maintain contact with my friends	Arkadaşlarimla görüşmeyi sürdürüyorum	I am still in touch with my friends.	İyi görünüyor	Değişmedi
Pal 2	I have family members who will take on my responsibilities	Ailemde sorumluluklarımı üstlenecek kişiler var	There are some people who assume my responsibility in my family.	İyi görünüyor	Değişmedi
Pal 3	I feel that my family appreciates me	Ailem bana değer verir	My family appreciates me.	İyi görünüyor	Değişmedi
Pal 4	I feel like a burden to my family	Aileme yük olduğumu hissediyorum	I feel like I am a burden to my family.	İyi görünüyor	Değişmedi
Pal 5	I am constipated	Kabizim	I am constipated	İyi görünüyor	Değişmedi
Pal 6	I have swelling in parts of my body	Vücudumun bazı yerlerinde şişlikler var	I have swelling in some places of my body	İyi görünüyor	Değişmedi
Pal 7	My mouth and throat are dry	Ağzım ve boğazım kuruyor	I feel my mouth and throat are dry	Bu çeviriden "I feel" ifadesini çıkartın ve sadece "my mouth and throat are dry" olarak kullanın'	My mouth and throat are dry (Ağzım ve boğazım kuruyor)
Br 7	I feel independent	Başkasına bağımlı değilim	I am not dependent on someone else	Bunu sadece "independent" kelimesini kullanarak söylemin bir yolu var mı? İngilizcede biz cevap seçeneklerinden "hiç" seçeneği ile çift olumsuz anlam oluşturduğu için "not dependent" kullanılamaz. Eğer aynı kelime Türkçe'de mevcut değil ise 'self-reliant' or 'self-dependent' kelimeleri muhtemel alternatifler olabilir.	I can take care of myself (Kendi kendime bakabiliyorum)
Pal 8	I feel useful	İşe yaradığımı hissediyorum	I feel useful	İyi görünüyor	Değişmedi
Pal 9	I make each day count	Her günü iyi degerlendiririm	I make use of every single day	İyi görünüyor	Değişmedi
Pal 10	I have peace of mind	Huzurluyum	I feel peaceful	Biz bu çevirinin daha once dil geçerliliği gösterilmiş olan Sp1 "kendimi huzurlu hissediyorum" maddesinden farklı olduğundan emin olmak istedik. Bu farklı mı?	Bu madde için yapılan geri çeviri "kendimi huzurlu hissediyorum" anlamından farklı olmadığı için Pal 10 maddesinin çevirisi "I am at peace with myself (Kendimle barışığım)" olarak değiştirildi.
Sp21	I feel hopeful	Umutlu hissediyorum/ Umutluyum	I am hopeful	Eğer "Umutlu hissediyorum" ifadesi "am" yerine "feel" kullanıldığında aynı anlama geliyor ise biz "I am hopeful" yerine "I feel hopful" ifadesini kullanmayı tercih ederiz.	I feel hopeful (Umutlu hissediyorum)

(*Continued*)

Appendix II
Continued

Madde No	Maddenin orijinali	Madeenin ilk çevirisi	Maddenin tekrar çevirisi	FACIT Kuruluşu yorumu	Son karar
Pal 12	I am able to make decisions	Karar verebiliyorum	I can decide	İyi görünüyor	Değişmedi
Pal 13	I have been able to reconcile (make peace) with other people	Başka insanlar ile uzlaşma (barış) sağlayabiliyorum	I can conciliate between other people	İyi görünüyor	Hastaların ön uygulmada bu maddeyi anlamadığı analşıldı ve "Daha önceden problem yaşadığım insanlar ile uzlaştığım (barıştığım) oldu" şeklinde değiştirildi
Pal 14	I am able to openly discuss my concerns with the people closest to me	Bana en yakin olan kişilerle endişelerim hakkında açikca konuşabiliyorum	I can talk about my concerns frankly to people who are close to me	İyi görünüyor	Değişmedi
B1		Daha önce Tükçe uyarlaması yapılan maddeler			
C2					
O2					
L1					

FACIT-Pal = Functional Assessment of Chronic Illness Therapy—Palliative Care.

Appendix III
Result of Exploratory Factor Analysis With Five Factors (45 Items)

	Factors				
Items	1	2	3	4	5
GP1	−0.045	*0.521*	0.028	0.030	0.049
GP2	−0.046	*0.712*	0.036	−0.301	0.241
GP3	−0.014	*0.655*	0.029	0.115	−0.046
GP4	0.072	*0.625*	0.001	0.079	0.010
GP5	−0.013	*0.776*	−0.133	−0.039	−0.056
GP6	0.006	*0.723*	0.048	0.238	0.025
GP7	0.190	*0.696*	0.019	0.109	−0.070
GS1	0.280	0.047	0.032	**0.361**	***0.367***
GS2	−0.011	0.022	0.015	0.285	*0.782*
GS3	0.038	0.035	−0.024	0.522	*0.436*
GS4	−0.075	−0.015	0.015	−0.152	*0.841*
GS5	−0.042	0.128	0.145	−0.007	*0.826*
GS6	0.151	−0.116	0.065	−0.142	*0.748*
GE1	0.262	**0.409**	***−0.437***	0.255	−0.077
GE2	*0.496*	0.227	0.070	−0.004	0.033
GE3	***0.390***	0.144	−0.214	**0.386**	0.090
GE4	0.109	***0.347***	0.255	**0.322**	0.162
GE5	**0.338**	0.265	***−0.405***	0.160	0.069
GE6	0.215	0.174	0.181	*0.529*	−0.011
GF1	*0.375*	0.168	*0.474*	−0.174	0.016
GF2	*0.567*	0.217	0.116	−0.099	−0.219
GF3	*0.605*	0.207	−0.121	0.186	−0.072
GF4	*0.639*	−0.094	−0.214	−0.227	0.309
GF5	***0.401***	−0.026	**0.435**	0.026	0.168
GF6	*0.630*	0.228	0.112	0.061	−0.045
GF7	*0.637*	0.172	0.168	0.009	0.051
PAL1	*0.554*	0.059	0.024	0.133	0.123
PAL2	0.194	0.101	−0.332	0.094	*0.570*
PAL3	0.272	0.059	−0.275	0.097	*0.537*
PAL4	0.179	0.098	*0.513*	0.234	0.063
B1	0.009	*0.496*	−0.044	−0.050	0.186
PAL5	0.190	*0.475*	0.090	−0.023	−0.002
C2	*0.644*	0.126	−0.005	−0.156	−0.149
O2	0.163	*0.545*	−0.013	−0.292	0.010
PAL6	0.061	*0.446*	−0.006	−0.248	0.068
PAL7	0.035	**0.457**	***0.480***	−0.160	0.065
Br7	*0.696*	0.191	−0.001	−0.363	−0.053
PAL8	*0.755*	0.100	0.213	0.044	−0.106
PAL9	*0.703*	0.118	0.176	0.187	0.015
PAL10	*0.717*	0.112	−0.135	0.165	0.060
Sp21	*0.702*	−0.004	0.061	0.277	0.135
PAL12	*0.805*	−0.098	−0.029	0.065	0.192
L1	*0.769*	−0.185	−0.081	−0.049	0.253
PAL13	0.192	−0.155	*0.576*	0.332	0.088
PAL14	***0.463***	−0.088	**−0.406**	−0.085	0.140

Method: principal components analysis; rotation method: Döndürme yöntemi: oblimin rotation.
The items that loaded under related factors were shown in italic. The items that loaded in more than one factor were shown in bold.

Appendix IV

Result of Exploratory Factor Analysis With Five Factors (37 Items)

	Factors				
Items	1	2	3	4	5
GP1	0.098	**0.488**	0.049	−0.037	−0.060
GP2	0.014	0.422	**0.543**	0.147	−0.083
GP3	−0.107	**0.671**	−0.113	−0.001	0.229
GP4	0.172	**0.623**	0.117	−0.035	−0.062
GP5	−0.070	**0.705**	0.272	−0.033	0.057
GP6	0.050	**0.744**	−0.008	0.080	0.065
GP7	0.066	**0.640**	0.088	0.006	0.284
GS2	0.049	0.098	−0.143	**0.837**	−0.044
GS3	0.186	0.248	−0.398	**0.471**	−0.098
GS4	−0.121	−0.066	0.141	**0.829**	−0.056
GS5	0.062	0.099	0.102	**0.779**	−0.102
GS6	−0.054	−0.170	−0.001	**0.773**	0.260
GE2	**0.755**	−0.069	0.202	−0.130	0.020
GE6	0.309	**0.425**	−0.058	0.075	−0.168
GF1	−0.095	0.058	0.002	0.044	**0.926**
GF2	0.080	0.034	−0.017	−0.004	**0.821**
GF3	**0.573**	0.212	−0.009	0.005	0.215
GF4	**0.567**	−0.338	0.359	0.270	0.035
GF6	**0.537**	0.177	0.094	0.090	0.239
GF7	**0.522**	0.161	0.114	0.020	0.272
PAL1	**0.408**	0.130	−0.253	0.291	0.141
PAL2	0.183	0.062	−0.035	**0.589**	0.065
PAL3	0.128	−0.018	−0.030	**0.751**	0.029
PAL4	0.246	**0.363**	0.060	0.035	−0.061
B1	0.267	**0.501**	−0.116	−0.031	0.030
PAL5	0.203	**0.345**	0.231	−0.151	0.153
C2	0.216	−0.044	0.418	0.020	**0.459**
O2	0.083	0.315	**0.709**	−0.029	0.015
PAL6	−0.016	**0.376**	−0.130	0.073	0.186
Br7	**0.401**	0.091	0.072	−0.006	0.557
PAL8	**0.534**	0.135	−0.102	0.026	0.408
PAL9	**0.630**	0.149	−0.085	0.006	0.289
PAL10	**0.844**	0.075	−0.052	0.014	0.053
Sp21	**0.815**	0.139	0.011	0.107	−0.078
PAL12	**0.873**	−0.057	−0.046	0.099	−0.066
L1	**0.720**	−0.113	0.020	0.259	−0.037
PAL13	**0.458**	0.076	−0.341	−0.126	−0.113

Method: principal components analysis; rotation method: Döndürme yöntemi: oblimin rotation.
The items that loaded under related factors were shown in bold.

Appendix V

CFA Parameter Estimation Results

	45-Item CFA	
Items	Nonstandard Factor Loadings	Standard Factor Loadings
GP1	1	0.444
GP2	1.117	0.504
GP3	1.478	0.585
GP4	1.558	0.646
GP5	1.536	0.619
GP6	1.743	0.747
GP7	1.968	0.802
GS1	1	0.815
GS2	0.355	0.464
GS3	0.618	0.525
GS4	0.166	0.188
GS5	0.419	0.49
GS6	0.384	0.364
GE1	1	0.745
GE2	0.641	0.547
GE3	0.849	0.657
GE4	0.707	0.485
GE5	0.703	0.544
GE6	0.909	0.617
GF1	1	0.457
GF2	1.076	0.513
GF3	1.465	0.761
GF4	0.617	0.374
GF5	1.023	0.499
GF6	1.585	0.772
GF7	1	0.725
PAL1	0.761	0.566
PAL2	0.41	0.370
PAL3	0.201	0.245
PAL4	0.63	0.42
B1	0.735	0.510
PAL5	0.661	0.436
C2	0.750	0.481
O2	0.566	0.375
PAL6	0.436	0.313
PAL7	0.653	0.415
Br7	0.958	0.707
PAL8	1.054	0.751
PAL9	1.114	0.791
PAL10	0.984	0.736
Sp21	0.901	0.724
PAL12	0.668	0.584
L1	0.412	0.480
PAL13	0.359	0.205
PAL14	0.461	0.342

CFA = confirmatory factor analysis.