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# Psychometric validation of the Turkish version of the Supportive Care Needs Survey for Partners and Caregivers (SCNS-P&C-T) of cancer patients

Mevlûde Ergen<sup>1</sup> | Fatma Arikan PhD<sup>2</sup> 

<sup>1</sup>Department of Medical Oncology, Memorial Hospital, Antalya, Turkey

<sup>2</sup>Faculty of Nursing, Akdeniz University, Antalya, Turkey

**Correspondence**

Fatma Arikan, Faculty of Nursing, Akdeniz University, Antalya, Turkey.  
Email: farikan@akdeniz.edu.tr

**Abstract**

**Objective:** To evaluate the validity and reliability study of the Supportive Care Needs Survey for partners and caregivers of cancer patients in Turkish society (SCNS-P&C-T).

**Methods:** This cross-sectional survey followed by a test-retest reliability and psychometric validation study was conducted with 270 participants. The research data were collected using a patient and caregiver demographic survey, the SCNS-P&C-T, the Caregiver Strain Index, and the Hospital Anxiety and Depression Scale.

**Results:** Ten expert opinions were found to be consistent for content validity of the scale (I-CVI = 0.993, S-CVI = 0.956). The confirmatory factor analysis could not confirm the factor structure of the original scale. Therefore, an exploratory factor analysis was performed and the scale factor structure was determined. These factor structures are (a) psychological and emotional needs, (b) health care and information, (c) work and social needs, (d) communication and family needs.

**Conclusion:** The SCNS-P&C-T is a valid and reliable tool which can be used to identify unmet needs among caregivers in Turkish populations.

**KEYWORDS**

cancer, Caregiver, nursing, supportive care, validity and reliability

## 1 | INTRODUCTION

Cancer is a severe and life-threatening disease that affects all aspects of patients' lives. It is considered a family disease because of its significant effects not only on the patient but also on the caregivers, family members and close friends (Hodgkinson, Butow, Hobbs, & Wain, 2007; Loughery & Woodgate, 2015; Schofield, Carey, Bonevski, & Sanson-Fisher, 2006; Sklenarova et al., 2015). In Turkish society, care of a sick individual is generally given by the family, and this is regarded as a domestic responsibility (Orak & Sezgin, 2015). A cancer diagnosis is usually unexpected, and the treatment process involves both the individual and the family's participation (Given, Given, & Sherwood, 2012). Therefore, being the caregiver is a situation that cannot be chosen or planned. The caregiving process

is dynamic and varies according to the patient's prognosis (Girgis, Lambert, & Lecathelinais, 2011; Oberoi et al., 2016). The aim of patient care is to manage symptoms of the disease, reduce physical pain and relieve emotional distress. Patients' family members should be included in the care process to meet the patients' physical, social and psychological needs (Kim & Schulz, 2008; Schofield et al., 2006; Yıldırım, Kaçmaz, & Özkan, 2013). The task of giving and receiving care turns into a one-sided, binding, intensive and long-lasting obligation that can cause distress for the caregiver, who may experience adaptation problems in his/her roles in family relationships, work, relaxation, and social life and his/her role as a caregiver (Erdoğan & Yavuz, 2014; Girgis & Lambert, 2009; Silver & Wellman, 2002). Moreover, carers may suffer from higher rates of psychological, behavioural and physical morbidity and early death compared with the general population (Bevans & Sternberg, 2012; Oberoi et al., 2016).

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Supportive care can be defined as the effective fulfilment of patient care needs using a patient-centred approach (Maguire et al., 2013). Studies report that cancer patients and their caregivers often have unmet supportive care needs such as maintaining activities of daily living, anxiety over cancer recurrence, body image, sexual life, financial status, medications and treatment (Girgis et al., 2011; Heckel et al., 2015; Jansen, Van Uden-Kraan, Van Zwieten, Witte, & Verdonck-de Leeuw, 2015). Most oncology studies have focused on the actions of caregivers in the acute or palliative phase of patient care (Arora, Finney Rutten, Gustafson, Moser, & Hawkins, 2007; Given et al., 2012; Northouse, Katapodi, Schafenacker, & Weiss, 2012). In recent studies, unmet supportive needs of the caregivers are also analysed (Girgis et al., 2011; Lund, Ross, Petersen, & Groenvold, 2015; Sklenarova et al., 2015). The concept of “unmet needs” helps identify where support is needed and how to readily meet those needs. Defining supportive care needs of caregivers may contribute to improving the quality of life for patients, as well (Balfe et al., 2016; Sklenarova et al., 2015).

Healthcare professionals should understand the unmet needs of caregivers to facilitate interventions and evaluate the outcomes of further interventions. The studies conducted on the Turkish population mostly focus on the workload of the caregivers, the stress that caregiving creates, and the life quality standards of the caregivers (Kahriman & Zaybak, 2014; Karabuğa Yakar & Pinar, 2013; Taşdelen & Ateş, 2012). None of the available tools can measure the supportive care needs of the cancer patient caregivers in Turkish society. The SCNS-P&C, developed by Girgis et al. (2011), is a scale that outlines criteria for determining caregiver needs. However, it is necessary to assess the suitability of this scale for Turkish society. This study aims to (a) test the validity and reliability of SCNS-P&C in a Turkish population, and (b) evaluate the psychometric properties.

## 2 | METHODS

### 2.1 | Study design

This research was a cross-sectional survey followed by a test-retest reliability and psychometric validation study. The psychometric evaluation of this study was planned in line with COSMIN taxonomy standards (Mokkink et al., 2010).

### 2.2 | Study sample

The study participants were primary caregivers of cancer patients receiving treatment in a medical oncology clinic in a private hospital in Turkey. Since cancer treatment is paid for by the social security services in Turkey, individuals from every level of society receive medical help from the centre where this study was conducted. Additionally, approximately 2000 new cancer patients apply to the centre each year. Criteria for inclusion of patients in the study were diagnosis of gastrointestinal, urological, lung or breast cancer, and being 18 years or older. Additional criteria included understanding and speaking Turkish, and voluntary participation. Criteria for

inclusion of caregivers in the study were being 18 years or older, understanding and speaking Turkish, voluntary participation, and being a primary caregiver (supporting the activity of daily living for patients). Haematological cancer patients and their caregivers were excluded from the study. The caregivers were contacted at the hospital, and when they came to the hospital for the patients' treatment, they spent 20–30 min filling in the questionnaires.

### 2.3 | Sample size calculation

It is common to recruit at least 5 participants for each item in the 5-point Likert scale. In this current study, a total of 270 participants, 6 participants for each item of the Supportive Care Needs Survey for Partners and Caregivers (SCNS-P&C-T) scale, were sufficient to obtain a Cronbach's alpha reliability of around 0.80 with a 95% confidence interval and 5% error margin.

### 2.4 | Ethical considerations

Afaf Girgis, who developed the original scale, gave permission via e-mail to use the scale in the study. We received approval from the Ethics Committee before collecting the data (date/no:17.02.2016/12). Patients and caregivers gave written informed consents prior to the study. Throughout the study, basic ethical principles such as do no harm, professional volunteerism, respect for life, informed consent, confidentiality and justice (Burns & Grove, 2009) were observed.

### 2.5 | Data collection

Data were collected from September to December 2016, by interviewing cancer patients and their caregivers face-to-face and reviewing patients' medical files. After the first administration of the SCNS-P&C-T, test-retest study was completed with only 30 caregivers within 2–3 weeks.

### 2.6 | Measurements

#### 2.6.1 | The Turkish version of the Supportive Care Needs Survey for Partners and Caregivers (SCNS-P&C-T)

The original scale was developed and tested among an Australian population by Girgis et al. (2011). This scale was developed to evaluate the caregiving needs of caregivers and includes 4 subscales. The item scores range from 0 = “I do not need help” to 5 = “I need a high level of help”. The higher scores indicate that caregivers have higher supportive care needs (Girgis et al., 2011). Permission was granted from the author of the original measure, and then the measure was translated into Turkish. Two faculty members and a lecturer proficient in Turkish and English translated the original scale from English into Turkish. The scale was translated back into English by an expert with a bachelor's degree in English Language and Literature and a

sworn translator. Then experts created the Turkish version using the most appropriate translated scale items. A preliminary test of the Turkish version of the scale was administered to 10 patients to test the clarity of the expressions on the scale.

### 2.6.2 | Demographic and medical information

Patient demographic and medical information was obtained using a survey consisting of 14 questions and developed by the researchers (Meecharoen, Northouse, Sirapo-ngam, & Monkong, 2013; Sklenarova et al., 2015). Seven of these questions were related to socio-demographic characteristics: gender, age, income level, marital, educational, and employment status, current treatments and history of chronic illnesses. The seven remaining questions were related to medical details: type and stage of cancer, duration of illness, ECOG Performance Status, cancer treatments in the previous 2 months and history of chronic illnesses. The caregiver information form was a survey of 12 questions developed by the researchers based on relevant literature and advisor opinions to obtain the caregivers' introductory information and the data on their patients' cancer status (Sklenarova et al., 2015). This form included questions regarding the number of primary caregivers, caregivers' gender, age, relationship to the patient, social security, marital, employment and educational status, income level, cohabitation status and average time allocated for patient care daily.

### 2.6.3 | Hospital Anxiety and Depression Scale

This scale was developed by Zigmond et al. (1983) to detect affective disorders in the population with a medical disease. It can be easily used in community and hospital sampling. The Hospital Anxiety and Depression Scale (HAD) scale includes depression and anxiety subscales. The anxiety and depression scores of the patients are divided into two thresholds; sub-threshold and supra-threshold. This is a four-point Likert-type scale. The scores on both of the subscales range from 0 to 21. Accordingly, the variables examining patients' threshold in terms of anxiety and depression are as follows: 0–7 normal, 8–10 abnormal and 11–21 abnormal (Myrdal, Valtysdottir, Lambe, & Ståhle, 2003; Snaith, 2003). Aydemir et al. (1997) conducted a study to evaluate the Turkish validity and reliability of the scale and found Cronbach's alpha internal consistency coefficient as 0.85 for the anxiety subscale and 0.77 for the depression subscale.

### 2.6.4 | Caregiver Strain Index

This scale is used to identify caregivers' care concerns. It was developed by Robinson in 1983 to measure burden of care on caregivers. The measurement of strain during patient care is composed of 13 items. There is at least one item for each of the sub-headings of employment, financial, physical and social status, as well as time. A total of seven or more positive responses indicated a higher level of strain on the caregiver. Each of the thirteen items that were developed to determine the subjective burden of care on caregivers of cancer patients

referred to a stressor. Participants responded as yes (1) or no (0) to the scale items. The total score was calculated by adding all of the responses given to the 13 items (Robinson, 1983). The reliability and validity of this scale have been tested in Turkish in the previous study, with Cronbach's alpha value of 0.77 (Uğur & Fadiloglu, 2010).

## 2.7 | Statistical analysis

The SAS program (version 9.4, SAS Institute Inc.) was used to evaluate the data. In the analysis of the descriptive data, numbers, percentages, means and standard deviations were used. For testing the validity and reliability of the scale, the analyses given in the procedures section were used.

## 2.8 | Procedures

### 2.8.1 | Reliability

The median time interval for test-retest reliability was about 2 weeks and as a rule of thumb, a sample size of 100 is considered as excellent, 50 as good, 30 as fair, and less than 30 as poor (Terwee et al., 2012). The Pearson product-moment correlation coefficient ( $r$  value) between the retest results was determined as the reliability coefficient (Aktürk & Acemoğlu, 2012; Polit & Beck, 2006).

### 2.8.2 | Validity

#### *Content validity*

The content validity index was used as a criterion for proving the linguistic and cultural equivalence and content validity of the scale items with numerical values as well as for evaluating the expert opinions. The scale with linguistic validity was presented to 10 experts working in the field of oncology to check the scale content validity. These experts include 4 nursing faculty members, 2 medical oncology specialists, 2 oncology nurses, 1 psychiatric specialist and 1 oncology specialist nurse. The scale as rated by the experts was 1 (not eligible), 2 (somewhat eligible), 3 (fairly eligible) and 4 (very eligible) (Polit & Beck, 2006).

#### *Construct validity*

The Kaiser-Meyer-Olkin Test (KMO) and Bartlett's Sphericity Test (for testing whether variables were correlated with each other) were used to determine the adequacy of the sample size before carrying out confirmatory and explanatory factor analysis of the SCNS-P&C-T (Williams, Onsman, & Brown, 2010). According to the results of the confirmatory factor analysis, the original factor structure was not confirmed, so an explanatory factor analysis was performed to make an improvement in the scale.

#### *Convergent validity*

To examine the relationship between the domains of the SCNS-P&C-T and other psychological constructs such as the Caregiver Strain Scale and the HAD scale, Spearman's correlation analysis was conducted.

### 3 | RESULTS

#### 3.1 | Sample description

The study included 270 patients and caregivers. The mean age of the caregivers was 47.1 (47.1 ± 12.8) years. Of the caregiver participants: 57.1% were female, 45.5% had partners, 42.2% were higher education graduates, and 66.5% had a revenue equal to expenditure. Additionally, 57.4% were unemployed, 96.3% were living with their family members, and 75.2% had no chronic disease. About 57.4% of the patients had only one caregiver (see Table 1).

The mean age of the participant patients was 57.4 (57.4 ± 11.7) years. Of the patients: 58.5% were female, 85.1% were married, 2.2% were primary school graduates, and 66% had a middle-income level. Correspondingly, 83.7% were unemployed, 99.3% were living with their family, 40.7% had breast cancer, and 61.8% had metastatic cancer. Additionally, 93.3% had an ECOG Performance Status between 0–2, and 59.3% had no chronic disease. The mean duration of cancer diagnosis was 79.9 (79.9 ± 129.4) weeks (see Table 1).

#### 3.2 | Factor structure of the SCNS-P&C-T

The KMO coefficient was found to be 0.91. It was concluded that the sample size was suitable for factor analysis because the coefficient was over 0.50. The Bartlett globality test result was found to be statistically significant at ( $\chi^2 = 5,913.04$ ;  $p < .001$ ).

The results of the confirmatory factor analysis, including the goodness of fit tests, performed to test whether the study data had confirmed the factor structure of the original scale, are given in Table 2. The chi-square statistics: the minimum fit function chi-square ( $\chi^2$ )/degree of freedom (df) was found to be  $\chi^2/df = 3.50$ ,  $\chi^2/df < 4$ . The root mean square error of approximation (RMSA) was found as 0.10, the standardised root mean square residual (S-RMR) was determined as 0.09, and both values were not below 0.08. Goodness of Fit Index (GFI) was found as 0.64, the corrected GFI was determined as 0.60, and both values were not above 0.90. The comparative fit index (CFI) was found as 0.70, which was not above 0.90. The original factor structure was not confirmed due to differences between cultures in which the scale was applied. Therefore, an explanatory factor analysis was performed to facilitate the scale adaptation (Table 2).

Four subscales were obtained on the scale adapted to Turkish. The lowest factor load was observed as 0.403 in the 17th and 26th items, and the highest factor load was observed as 0.798 in the 5th item. All four factors accounted for 53.66% of the total variance (see Table 3). Factor structures are labelled as Factor 1 “Psychological and Emotional Needs”, Factor 2 “Health Care and Information Needs”, Factor 3 “Work and Social Needs”, and Factor 4 “Communication and Family Needs”. In this study, Health Care Needs and Information Needs were not separately identified, so these needs were assessed under one factor of Health Care and Information Needs. The four-factor structure of the scale was confirmed, but the factor of Family Needs was combined with the subscale Communication. The item-factor loads were found to be between 0.403 and 0.798. In the

**TABLE 1** Caregivers and patients' socio-demographic and medical information (n = 270)

	Caregiver		Patients	
	n	%	n	%
Age (Mean ± SD)	47.1 ± 12.8		57.4 ± 11.7	
Gender				
Female	154	57.1	158	58.5
Male	116	42.9	112	41.5
Type of relationship				
Spouse	123	45.5		
Child	89	32.9		
Brother	18	6.7		
Mother	7	2.6		
Relative	33	12.3		
Marital status				
Married	214	79.3	230	85.1
Single	56	20.7	40	14.9
Social security				
Yes	265	98.9		
No	3	1.1		
Education level				
Primary school	59	21.9	114	42.2
Secondary School	27	10.0	21	7.8
High school	70	25.9	55	20.4
University	114	42.2	80	29.6
Income level (monthly)				
Revenue less than expenditure	16	5.9	18	6.7
Revenue equal to expenditure	178	66.5	178	66.0
Revenue more than expenditure	74	27.6	74	27.3
Employment status				
Employed	115	42.6	44	16.3
Unemployed	155	57.4	226	83.7
Cohabitation				
Alone	8	2.9	2	0.7
With Family	260	96.3	268	99.3
Other	2	0.8		
Number of caregivers				
1 person	155	57.4		
2 people	93	34.5		
3 people and over	22	8.1		
Care time (hours) (Mean ± SD)	8.0 ± 8.3			
Chronic Disease				
Yes	67	24.8	110	40.7
No	203	75.2	160	59.3
Cancer Type				
Gastrointestinal			95	35.2
Urological			14	5.2

(Continues)

**TABLE 1** (Continued)

	Caregiver		Patients	
	<i>n</i>	%	<i>n</i>	%
Lungs			51	18.9
Breast			110	40.7
Disease Stage				
Early stage			60	22.3
Locally advanced stage			43	15.9
Metastatic stage			167	61.8
Disease duration (in weeks) (Mean ± SD)	79.9 ± 129.4			
ECOG				
0–2			252	93.3
3 and more			18	6.7
Cancer treatment in the last two months				
Chemotherapy			191	70.7
Hormone therapy			11	4.1
I did not receive treatment			12	4.4
Surgery + Chemotherapy			15	5.6
Radiotherapy + Chemotherapy			29	10.7
Radiotherapy + Hormone therapy			5	1.9
Chemotherapy + Hormone therapy			7	2.6

Note: SD, standard deviation.

present study, there was no item with a factor load below 0.40, so no item was removed from the scale (see Table 3).

### 3.3 | Reliability

Cronbach's alpha reliability coefficients were found to be 0.92 for Psychological and Emotional Needs, 0.91 for Health Care and Information Needs, 0.83 for Work and Social Needs, and 0.79 for Communication and Family Needs (Table 4).

### 3.4 | Test-retest reliability

The test-retest correlations of the new factor structures of the SCNS-P&C adapted to Turkish were found to vary between 0.362 and 0.550. The correlations were found to be statistically significant for the newly formed factor structures. Intraclass correlation coefficient (ICC) was calculated for the test and the retest. For the test, it was found to be ICC = 0.96 (0.934, 0.980), and for the retest ICC = 0.96 (0.941, 0.981).

### 3.5 | Content validity

In this study, the item-content index was found to be 0.993 in terms of language expression, and the scale content index was found to be 0.956 in terms of content suitability. This result shows that experts had reached consensus on the scale items.

**TABLE 2** Confirmatory factor analysis of the SCNS-P&C-T of Cancer Patients

Confirmatory factor analysis indexes	SCNS-P&C-G (number of items = 39)
Minimum chi-square Goodness of Fit Function	
Chi-square ( $\chi^2$ )	$\chi^2/df = 3.50$
Minimum chi-square Goodness of Fit Function/Degree of Freedom	
Chi-square/chi-square df(2,297.7165/656)	
Pr > chi-square ( $p > \chi^2$ )	<0.0001
Standardised Root Mean Square	
SRMSR	0.0940
RMSEA	
RMSEA Estimate	0.1009
Goodness of Fit Index	
GFI	0.6472
AGFI	0.6015
Comparative Fit Index	
Bentler Comparative Fit Index	0.7002
Bentler Bonett NFI	0.6281
Bentler Bonett Non-Normed Index	0.6787

Abbreviations: AGFI, Adjusted GFI; GFI, Goodness of Fit Index; RMSEA, Root Mean Square Error of Approximation; SRMSR, Standardised RMSR.

### 3.6 | Convergent validity

A moderate positive and significant relationship was found between Caregiver Strain Index and the subscales of Psychological and Emotional Needs ( $r = 0.45$ ), Health Care and Information Needs ( $r = 0.29$ ), Work and Social Needs ( $r = 0.40$ ), and Communication and Family Needs ( $r = 0.39$ ) of the SCNS-P&C-T. A moderate positive and significant relationship was found between the anxiety subscale of the HAD Scale and the subscales of Psychological and Emotional Needs ( $r = 0.35$ ), Work and Social Needs ( $r = 0.28$ ), and Communication and Family Needs ( $r = 0.36$ ) of the SCNS-P&C-T. However, a weak positive and significant relationship was found between the anxiety subscale of the HAD Scale and the subscale of Health Care and Information Needs ( $r = 0.19$ ) of the SCNS-P&C-T. A moderate positive and significant relationship was found between the depression subscale of the HAD Scale and the subscales of Psychological and Emotional Needs ( $r = 0.29$ ), Work and Social Needs ( $r = 0.22$ ), and Communication and Family Needs ( $r = 0.36$ ) of the SCNS-P&C-T. Conversely, a weak positive and significant relationship was found between the depression subscale of the HAD Scale and the subscale of Health Care and Information Needs ( $r = 0.19$ ) of the SCNS-P&C-T (see Table 5).

## 4 | DISCUSSION

In this study, the psychometric characteristics and factor structures of the SCNS-P&C-T were evaluated. The SCNS-P&C-T, the validity

**TABLE 3** Factor structure of the SCNS-P&C-T

Scale Items	Factor 1 <sup>a</sup>	Factor 2 <sup>b</sup>	Factor 3 <sup>c</sup>	Factor 4 <sup>d</sup>
(32) Receiving emotional support for yourself	0.709			
(33) Receiving emotional support for your loved ones	0.708			
(25) Managing the issue of cancer in social environments or at work	0.661			
(31) Managing your sex life issues	0.649			
(38) Exploring your own spiritual beliefs	0.644			
(37) Making decisions about your life in case of uncertainty	0.636			
(30) Getting accustomed to the physical changes of the person with cancer	0.632			
(34) Handling your emotions related to death and dying	0.612			
(24) Talking to other caregivers of cancer patients	0.599			
(35) Dealing with other people not considering the outcomes of caregiving for a person with cancer	0.589			
(39) Finding meaning in the situation/disease of the person with cancer	0.585			
(29) Balancing the needs of the person with cancer and your own needs	0.576			
(28) Empathising with the person with cancer and understanding the experiences of the person with cancer	0.530			
(27) The effect of cancer on your relationship with the person with cancer	0.524			
(16) Addressing concerns about physical or psychosocial deterioration of the person with cancer	0.648			
(5) Accessing information about the possible physical needs of the person with cancer		0.798		
(4) Accessing information about alternative therapies		0.782		
(6) Accessing information about the benefits and side-effects of treatments		0.724		
(12) Ensuring the presence of case management to coordinate services for the person with cancer		0.690		
(15) Obtaining adequate pain control for the person with cancer		0.439		
(13) Being sure complaints regarding care of the person with cancer are properly addressed		0.669		
(7) Obtaining the optimum medical care for the person with cancer		0.669		
(2) Accessing information about prognosis of the person with cancer or the likely outcome		0.668		
(9) Being involved in the patient care, together with the medical staff		0.431		
(3) Accessing information about support services for caregivers/partners of the person with cancer		0.599		
(1) Accessing information related to your needs as a caregiver/partner		0.580		
(19) The effect of caring for the person with cancer on your working life or daily activities			0.681	
(20) Learning about financial support and government benefits for you and/or the person with cancer			0.671	
(17) Finding more accessible hospital parking			0.403	
(14) Reducing the level of stress in the life of the person with cancer			0.571	
(18) Adapting to changes to working life or daily activities of the person with cancer			0.540	
(8) Accessing local health care services when needed (home care etc.)			0.528	
(36) Coping with the unexpected and negative consequences of the treatment			0.516	
(26) Overcoming the anxiety regarding the reoccurrence of cancer			0.403	
(22) Communicating with the family				0.788
(23) Getting more support from your family				0.768
(21) Communicating with the person you are caring for				0.690
(11) Feeling confident that the patient's doctors are communicating with each other to provide optimal care of the patient				0.674

(Continues)



**TABLE 3** (Continued)

Scale Items	Factor 1 <sup>a</sup>	Factor 2 <sup>b</sup>	Factor 3 <sup>c</sup>	Factor 4 <sup>d</sup>
(10) Having opportunities to discuss your concerns with the doctors				0.642
Cronbach's alpha	0.920	0.913	0.834	0.797
Eigenvalue	6.81	6.28	4.58	3.28
Variance Explained at 1%	17.46	16.10	11.71	8.40
Piled %	17.46	34.56	45.27	53.66
Cronbach's alpha for the whole scale	0.95			

<sup>a</sup>Factor 1 Psychological and Emotional Needs.<sup>b</sup>Factor 2 Health Care and Information Needs.<sup>c</sup>Factor 3 Work and Social Needs.<sup>d</sup>Factor 4 Communication and Family Needs.**TABLE 4** Cronbach's alpha values of the SCNS-P&C-T and its subscales

Supportive care needs survey for partners and caregivers of cancer patients	Cronbach's alpha (CI %95)
Factor 1	0.92 (0.90–0.93)
Factor 2	0.91 (0.88–0.92)
Factor 3	0.83 (0.80–0.86)
Factor 4	0.79 (0.73–0.81)
Scale total	0.95 (0.94–0.96)

Abbreviation: CI: Confidence Interval.

and reliability of which have been confirmed, is suitable as a research tool. Four subscales were obtained on the scale adapted to Turkish.

The number of factors in the validity and reliability studies carried out with German and French caregivers is also similar to that of our study (Baudry, Anota, Bonnetain, Mariette, & Christophe, 2019; Sklenarova et al., 2015). However, some items in the factors appeared in different subscales. Health Care Needs and Information Needs could not be separated and were placed in the same factor structure. As shown in previous studies, this situation may be due to the high correlation between these two subscales (Baudry et al., 2019; Girgis et al., 2011; Sklenarova et al., 2015).

Also, the subscale of Family Needs was combined with the subscale of Communication. Similarly, although the scales consisted of four subscales in the same scale's validity and reliability study for German society, some items were found to be placed in different subscales from those in the original scale structure (Sklenarova et al.,

2015). Cancer care models differ according to countries (Micheli et al., 2003; Price et al., 2012; Santin, Treanor, Mills, & Donnelly, 2014). Differences in care services may be the reason why caregivers' needs fall into different subscales. Moreover, it is seen that the difference in factor structure is shaped according to the expectations of caregivers in the different professional groups that form the healthcare teams. In the Turkish healthcare system, the patient's health care and information needs are met by oncologists, oncology training nurses and other consultant health professionals. Psychological and emotional needs are met by psychologists or psychiatrists and, though few in number, expert psychologists trained in oncology provide support.

Receipt of family support and family-related sharings are placed in the communication subscale. In Turkish society, the great majority of caregivers consist of family members may explain why communication and family needs are placed in the same subscale (Uğur & Fadiloglu, 2010). During the scale development study, it was determined that the supportive care needs of caregivers differed according to the levels of anxiety and depression they experienced, and that as anxiety and depression scores increased, supportive care needs also increased (Girgis et al., 2011). Similar to our study, in the validity and reliability study conducted for German society, a positive correlation was revealed between caregivers' care needs and levels of anxiety and depression (Sklenarova et al., 2015). In another study in which the same scale was used, it was stated that there was a relationship between caregivers' depression levels and their care-related information needs (Oberoi et al., 2016). Anxiety or depression problems of the caregiver negatively affect the caregiving process and the treatment of the patient. Supplying supportive care

**TABLE 5** Correlation analysis of the SCNS-P&C-T of Cancer Patients, the Caregiver Strain Scale, and the Hospital Anxiety and Depression Scale (n = 270)

	SCNS-P&C-G_F1	SCNS-P&C-G_F2	SCNS-P&C-G_F3	SCNS-P&C-G_F4	SCNS-P&C-G_Total
CSS_Total	0.45*	0.29*	0.40*	0.39*	0.47*
HADS_Anxiety	0.35*	0.19*	0.28*	0.30*	0.35*
HADS_Depression	0.29*	0.19*	0.22*	0.36*	0.32*

Note: \* $p < .01$ .

Abbreviations: CSS, Caregiver Strain Scale; HADS, Hospital Anxiety and Depression Scale.

to caregivers will not only benefit them, but also the cancer patients that they are taking care of. For this reason, the SCNS-P&C-T will help to discover the areas in which caregivers need support. It was determined that the new factor structures of the Turkish adaptation of the SCNS-P&C and the test-retest correlations were statistically significant.

The needs of caregivers should be well understood, in order to better answer the supportive needs of caregivers. The SCNS-P&C has excellent psychometric features that will allow for the needs of caregivers in four different areas. This scale provides a holistic assessment of the needs of caregivers by different health professionals.

#### 4.1 | Study limitations and strengths

The most significant limitation of this study is that it encompasses only four common cancer types; breast, lung, colon and bladder cancer. The caregivers of patients with rare cancer types were not represented in this study. Another limitation was that the research data was collected from a single centre in Turkey. These two factors limit the conclusions of the study. Additionally, the study sample primarily included people with a higher level of education as well as partners who were the caregivers. The fact that in our study, caregivers were mostly the wives/husbands with a high level of education reflects the average in Turkish population (TSI, 2017). In future studies, choosing a population with a lower level of education and mostly non-partner caregivers would further benefit the supportive needs of caregivers.

## 5 | CONCLUSION

The SCNS-P&C-T is a valid and reliable tool which can be used to identify unmet needs among caregivers in Turkish populations. The scale assesses needs which may be of relevance to different health professionals. The SCNS-P&C-T can be routinely used for evaluating the unmet care needs of caregivers in oncology practice. In future studies, we suggest to examine the impact of untreated care needs of caregivers on patient outcomes.

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## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

## ORCID

Fatma Arikan  <https://orcid.org/0000-0003-0481-1903>

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