ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article DOI: 10.17049/jnursology.1634902

Supportive Care Needs and Nursing Care Perceptions in Cancer Patients Receiving Targeted Therapies and Immunotherapy: A Cross-Sectional Study

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ABSTRACT

Objective: This study was conducted to determine the supportive care needs of cancer patients undergoing targeted therapies and immunotherapy as well as their perceptions of nursing care.

Methods: In this study, a cross-sectional research design, a quantitative research method, was used. The study was conducted with 210 individuals between 04.10.2021 and 28.02.2022. In the study, data were collected using the Individual Description Form, Supportive Care Needs Scale (SCNS-SF), and Patients' Perception of Nursing Care Scale (PPNCS).

Results: Individuals with a mean age of 59.18±12.53 years had a SCNS-SF mean score of 121.42±11.80, and a PPNCS mean score of 23.41±10.64. In the study, a significant difference was found between individuals' needs and care perceptions in terms of gender, educational level, cohabitants, working status and disease stage (P<.05). There is no significant correlation between the PPNCS total score and the SCNS-SF total score (r=-.03, P=.653).

Conclusion: It was determined that the care needs of the individuals were moderate to high, and their perceptions of nursing care (degree of expected needs and patient satisfaction) were low.

Keywords: Targeted therapies, immunotherapy, nursing care perception, supportive care needs, cancer

INTRODUCTION

Cancer, which is a universal problem and causes the death of millions of people every year, ranks second among the causes of death after heart disease.[1] While classical methods such as chemotherapy, radiotherapy and surgical treatment are used in the treatment of cancer,[2,3] new treatment methods have been developed with innovations in health care technologies. In addition to standard treatments in cancer treatment, goal-targeted therapies are preferred more and more every day.[3] While treatments such as chemotherapy and radiotherapy damage healthy cells along with the cancer cells, goal-targeted therapies target only tumour cells to inhibit growth and spread, and thus, healthy cells are protected.[2-4] Goal-targeted therapy is a type of therapy that targets faulty genes, proteins, or the tissue environment that contributes to cancer growth and development. These therapies include signal transduction inhibitors, immunotherapies, and hormone therapies.[2,3,5] Immunotherapy has an important place in cancer treatment since it has fewer side effects and enables the activation of the individual's own immune cells against internal and external stimuli.[2] In immunotherapy, the immune system is activated through cytokines and antibodies, and cancerous cells are considered antigens, and the cancerous cell is destroyed as a result of cellular attack. Immunotherapy acts by activating the body's own immune system or with synthetic stimulants (monoclonal antibodies).[2,3] The use of targeted therapies and immunotherapy in cancer treatment increases the possibility of individual treatment and care.[2,3,5]

Care, which constitutes the basis of nursing, includes a meaningful interaction process such as informing the individual about all the procedures and interventions, considering that he/she is unique, meeting his/her needs, evaluating and supporting him/her holistically, and is the art aspect of nursing. [6,7] Patient-centred care is a criterion for improving the quality of

Received 06.02.2025
Revision Requested 22.01.2026
Last Revision 23.01.2026
Accepted 23.02.2026
Publication Date 28.03.2026

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Cite this article: Doğan N, Tekinsoy Kartın P, Kalyoncuo S. Supportive Care Needs and Nursing Care Perceptions in Cancer Patients Receiving Targeted Therapies and Immunotherapy: A Cross-Sectional Study. *J Nursology*. 2026;29(1):42-52. doi: 10.17049/jnursology.1634902

care in conditions that affect the life of individuals until the end of life, such as cancer.[6,8] Nurses should consider the expectations of the individual they care for to increase the quality of care.[9,10] The results of previous studies revealed that both patients and nurses were satisfied with patient-centred nursing care practices.[11,12] In many countries, studies on individualised care focused on patients' perceptions.[13-15] The perception of care may change according to the patient's personal characteristics and expectations from the institution or service. Socio-demographic characteristics, social environment, educational level, culture, age and ethnicity of the patients affect their level of perception of care.[10,13-16] The level of perception of the care by the patients also shows the satisfaction of the patients with the care they receive. Systematic reviews have emphasised that patients with higher satisfaction have higher perceptions of care.[17]

While there are a few studies on concepts such as individual care, integrative care, and patients' perception of care in cancer patients[14,15,18-26], no study aimed at evaluating the care needs and perception of care in individuals with cancer undergoing targeted therapies and immunotherapy application was found.

AIM

This study was conducted to determine the supportive care needs of cancer patients treated with targeted therapies and immunotherapy and their perceptions of nursing care.

Research questions

- What are the supportive care needs of cancer patients receiving targeted therapy and immunotherapy?
- What are the perceptions of nursing care among cancer patients receiving targeted therapy and immunotherapy?
- How do socio-demographic and disease characteristics affect supportive care needs and perceptions of nursing care?
- Is there a relationship between the supportive care needs and perceptions of nursing care among cancer patients receiving targeted therapy and immunotherapy?

METHODS

Desing of Study

The study was conducted as a cross-sectional study. This study followed the relevant EQUATOR guidelines and named the reporting method.[27] The Strengthening the Reporting of Observational Studies (STROBE) checklist for cross-sectional studies was used to guide reporting.

Place and Characteristics of the Study

The study was conducted in the Health Application and Research Centre, Oncology Day Hospital of a university. In the Oncology Day Hospital, examination, control, chemotherapy and other supportive treatments are provided for Hematology, Oncology and Radiation Oncology patients. The hospital has 6 patient beds and 70 treatment chairs. With two robotic drug preparation devices in the drug preparation unit of the Oncology Day Treatment Centre, patients' drugs are prepared without touched by human hands.

Population and Sample of the Study

Individuals with targeted therapies and immunotherapy Centre, the Oncology Day Hospital of a university constituted the population of the study. 210 individuals who presented to the centre between 04.10.2021 and 28.02.2022 and were administered with targeted therapies and immunotherapy constituted the sample of the study. During the data collection process, 210 individuals with cancer were reached, and according to the result of the Post Hoc Power (G*Power 3.1) analysis performed at the end of the study, it was determined that the Power (1-β err probe) of the test was 99.4% with a confidence interval of 95%, and an effect size of d=.280.

Inclusion Criteria for the Study

- Within the scope of the research study;
- Patients who could speak and understand Turkish,
- Patients who were open to communication and cooperation,
- Patients who were administered targeted therapies and immunotherapy,
- Literate patients,
- Patients who did not have loss of vision and hearing,
- Patients who agreed to participate in the study were included.

Exclusion Criteria for the Study

- Participants with incomplete data (n = 6) and those who declined participation (n = 11) were excluded from the study.

Data Collection

The data were collected through face-to-face interviews with individuals who met the inclusion criteria. In the study, data were collected using the Individual Description Form, Supportive Care Needs Scale Short Form, and Patients' Perception of Nursing Care Scale. The interviews lasted an average of 20-25 minutes. Some information about the disease in the individual description form was obtained from the patient files.

Individual Description Form: This form includes the socio-demographic and disease characteristics of the patients. The individual description form has a total of 24 questions, including 8 questions containing the introductory characteristics of the patients and 16 questions containing information about the disease.[15,28,29]

Supportive Care Needs Scale Short Form (SCNS-SF): Aksuoglu and Senturan [28] performed the Turkish validity and reliability study of the scale. The scale consists of 34 items and five subscales, including "Mental/Psychological", "Health System and Information", "Physical and Daily Life", "Patient Care and Support", and "Sexuality". The lowest and highest scores to be obtained from the scale are 34 and 170, respectively. For each sub-dimension, the score is obtained by dividing the item coefficient. A high score from the scale indicates that the individual's needs are high. A score of 3 or higher is considered an unmet need.[28] While the Cronbach alpha value of SCNS-SF total score was .86, it was found to be .85 for the Physical and Daily Life subscale, .86 for the Mental/Psychological subscale, .85 for the Patient Care and Support subscale, .85 for the Sexuality subscale, and .85 for the Health System and Information subscale.

Patients' Perception of Nursing Care Scale (PPNCS): Its Turkish validity and reliability study was performed by Coban and Kasikci [29]. The scale was developed to measure patients' perceptions of nursing care and their level of satisfaction with care. The scale measures the degree of expected needs and patient satisfaction. It includes 15 items on the quality of nursing care in a five-point Likert-type scale. A minimum of 15 and a maximum of 75 points can be obtained from the scale. The increase in the total score obtained from the scale indicates that the patient is satisfied with the nursing care. The Cronbach's alpha reliability coefficient of the original scale was .94, and the Cronbach's alpha reliability coefficient of the Turkish scale was found to be .92.[29] In this study, the Cronbach's alpha value of the scale was .96.

Statistical Analysis

The distribution of the data in the study was evaluated with Shapiro-Wilk's test statistics, histogram, and Q-Q plot. In the comparisons between groups, an independent two-sample t-test was used for quantitative variables, and one-way analysis of variance was used to compare more than two groups.[30] The Tukey test was used as a multiple comparison test, and the homogeneity of variance was evaluated using Levene's test. Pearson correlation analysis was performed to determine the relationships between quantitative variables. The level of statistical significance was considered to be statistically significant with a P<.05 value in both directions. The data were analysed by a statistical expert. The analysis was carried out by a statistician for a fee.

Ethical Consideration

Ethics approval was obtained from the clinical research ethics committee at Erciyes University Clinical Research Ethics Committee (Number:2021/619, Date: September 22, 2021), with the permission of the Rectorate of the University. In the study, the principles in the Declaration of Helsinki were complied with.

RESULTS

The percentages of the descriptive characteristics of individuals are presented in Table 1. Of the individuals with a mean age of 59.18±12.53, 53.81% were female, 77.14% were married, 46.19% were primary school graduates, 45.24% lived with their spouses, 50.00% were unemployed, and 77.62% had less income than their expenses. It was determined that while 31.43% of the individuals had breast cancer, 37.62% developed metastases, 45.24% had disease stage II, 39.52% had chronic diseases and 44.55% had cardiovascular diseases. It was observed that 41.91% of individuals previously received chemotherapy, 34.29% of them were administered trastuzumab, 50.48% had a stable course of the disease in response to the targeted therapies and immunotherapy, 27.14% developed progression, 12.38% were still smokers, and 65.24% had an improvement in their disease. It was determined that 80.00% of individuals had side effects related to targeted therapies and immunotherapy, and to the side effects of targeted therapies and immunotherapy, 54.76% of them had decreased movement, 60.48% of them had fatigue, 31.81% side effects related to skin, 18.01% neurological system side effects and 44.44% gastrointestinal system side effects (Table 1).

The mean score of SCNS-SF was 121.42±11.80, and the mean score of PPNCS was 23.41±10.64 (Table 2).

PPNCS and SCNS-SF total, Physical and Daily Life, Mental/Psychological, and Health System and Information subscale scores were significantly higher in women. PPNCS, SCNS-SF Sexuality and Health System and Information subscale scores were significantly higher in married people. While the PPNCS, SCNS-SF total and Physical and Daily Life subscale mean scores of illiterate individuals are higher, the SCNS-SF Health System and Information subscale mean scores of High School graduates are significantly higher (P<.05). According to the multiple comparison test, there is a significant difference between primary school-illiterate (P<.001), high school – illiterate (P=.027), and university – illiterate (P<.001) in pairwise comparisons of

Table 1. Demographic and disease-related characteristics of individuals (n=210)

Characteristics	n	%
Gender		
Female	113	53.81
Male	97	46.19
Marital Status		
Married	162	77.14
Single	48	22.86
Educational status		
Illiterate	39	18.57
Primary School	97	46.19
High School	46	21.91
University	28	13.33
Living with person/people		
Partner	95	45.24
Spouse and Children	86	40.96
Mother/father	9	4.286
Alone	20	9.524
Working status		
Working	10	4.76
Not working	105	50.00
Retired	83	39.52
Separated After Illness	12	5.72
Income status		
Income Equal to Expense	47	22.38
Income Less Than Expenses	163	77.62
Diagnosis		
Breast Ca	66	31.43
Lymphoma, CLL, MM	56	26.67
Colon	54	25.71
Brain Tumor	13	6.19
Other Solid Tumors	21	10.00
Metastasis		
Yes	79	37.62
No	131	62.38
Stage of Diseases		
Stage I	33	15.71
Stage II	95	45.24
Stage III	34	16.19
Stage IV	48	22.86
Chronic Disease		
Yes	83	39.52
No	127	60.48
Type of Chronic Disease* (n=110)		
Endocrine	40	36.36
Rheumatism	4	3.63
Gastrointestinal	4	3.63
Neurological	3	2.73
Urinary	3	2.73
Respiratory	7	6.37
Cardiovascular	49	44.55
Previous Treatment		
Chemotherapy	88	41.91
Chemo+ Radiotherapy	25	11.90
Chemotherapy+ Surgery	46	21.91
Chemo+ Surgery+ Radiotherapy	51	24.28
Applied Immunotherapies		
Pembrolizumab	3	1.43
Rituximab	54	25.71

Table 1. Continued

Characteristics	n	%
Applied Targeted Therapies		
Bevacizumab	43	20.48
Panitumumab	7	3.33
Cetuximab	28	13.33
Trastuzumab	72	34.29
Bortezomib	3	1.43
Targeted therapies and immunotherapies response		
Partial Response	37	17.62
Stable Disease	106	50.48
Progressive Disease	64	30.48
Hyperprogressed Disease	3	1.43
Progression		
Yes	57	27.14
No	153	72.86
Smoking		
Uses	26	12.38
Left	27	12.86
Not used	157	74.76
Recovery from Illness		
Yes	137	65.24
No	73	34.76
Decrease in Movement		
Yes	115	54.76
No	50	23.81
Partially	45	21.43
Fatigue		
Yes	127	60.48
No	47	22.38
Partially	36	17.14
Side effect		
Yes	168	80.00
No	42	20.00
Side Effects Occurred* (n=261)		
Skin complaint	83	31.81
Respiratory complaint	1	0.38
Neurological complaint	47	18.01
Gastrointestinal complaint	116	44.44
Rheumatic complaint	14	5.36

CLL, Chronic Lymphocytic Leukemia; MM: Multiple Myeloma; Other Solid Tumors, Lung, stomach, rectum, ovary, cervix
*Percentages are calculated over n.

PPNCS scale scores. There is a significant difference between university - illiterate (*P*=.028), university – primary school (*P*=.012) in pairwise comparisons of SCNS-SF scale scores. There is a significant difference between primary school - illiterate (*P*=.020), high school - illiterate (*P*<.001), university - illiterate (*P*<.001), and high school - primary school (*P*=.002) in pairwise comparisons of SCNS-SF Physical and Daily Life subscale scores. There is a significant difference between high school – illiterate (*P*=.009), university - primary education (*P*=.002), and university - high school (*P*<.001) in pairwise comparisons of SCNS-SF Health System and Information (Table 3).

Table 2. The mean scores of PPNCS and SCNS-SF total and subdimension of individuals (n=210)

Scale and Sub dimensions	n	Mean	SD	Median	25%	75%
SCNS-SF	210	121.4286	11.8021	120	112.75	129
Physical and Daily Life	210	16.4762	3.7636	17	13	18
Mental/Psychological	210	36.1048	5.3908	36	32	40.5
Patient Care and Support	210	18.4619	2.5754	18	17	20
Sexuality	210	10.5714	1.9435	11	9	12
Health System and Information	210	39.8143	3.9795	40	37	42
PPNCS	210	23.419	10.6401	21	19	23

SD, Standard Deviation; PPNCS, Patients' Perception of Nursing Care Scale; SCNS-SF, Supportive Care Needs Scale Short Form

The mean scores for the PPNCS, SCNS-SF total, and all subscale scores were significantly higher for individuals living with their spouses and children, with the exception of the Physical & Daily Life and Patient Care and Support subscale ($P < .05$). The mean scores are high among those living alone on the Patient Care and Support subscale ($P < .05$). According to the multiple comparison test, there is a significant difference between spouse and children ($P=.003$) in pairwise comparisons of PPNCS scale scores. There is a significant difference between parents - spouse ($P<.001$), parents - spouse and children ($P<.001$), lone parent - parent ($P<.001$) in pairwise comparisons of SCNS-SF scale scores. There is a significant difference between spouse and children - spouse ($P=.033$), parent - spouse ($P<.001$), parent - spouse and children ($P<.001$), single - parent ($P=.002$) in pairwise comparisons of SCNS-SF Mental/Psychological scale scores. There is a significant difference between single parents and parents ($P=.016$) in pairwise comparisons of Patient Care and Support scale scores. There is a significant difference between parents - spouse ($P=.002$), alone - spouse ($P<.001$), parents - spouse and children ($P=.003$), alone - spouse and children ($P<.001$) in pairwise comparisons of SCNS-SF Sexuality scale scores. There is a significant difference between parents - spouse ($P<.001$), parents - spouse and children ($P<.001$), lone parents ($P<.001$) in pairwise comparisons of SCNS-SF Health System and Information (Table 3).

PPNCS scores are higher in those who do not work, and SCNS-SF scores are higher in those who do not work due to their illness ($P<.05$). While there were significant differences between the mean values of SCNS-SF Physical and Daily Life, Patient Care and Support, Sexuality and Health System and Information scale values with employment status ($P<.05$), there was no significant difference between the SCNS-SF Mental/Psychological scale value ($P>.05$). According to the multiple comparison test, there is a significant difference between retired - not working ($P=.002$) in pairwise comparisons of PPNCS scale scores. There is a significant difference between separated after illness - working ($P=.002$), separated after illness - not working ($P<.001$), separated after illness - retired ($P<.001$) in pairwise comparisons of SCNS-SF scale scores. There is a significant difference between retired - not working ($P=.043$), separated after illness - retired ($P=.006$) in pairwise comparisons of SCNS-SF Physical and Daily Life scale scores. There is a significant difference between separated after illness, not working ($P=.035$) in pairwise comparisons of SCNS-SF Patient Care and Support Care scale scores. There is a significant difference between separated after illness - working ($P<.001$), separated after illness - not working ($P<.001$), separated after illness - retired ($P<.001$) in pairwise comparisons of SCNS-SF Sexuality scale scores. There is a significant difference between separated after illness - working ($P=.014$), separated after illness - not working ($P<.001$), separated after illness - retired ($P<.001$) in pairwise comparisons of SCNS-SF Health System and Information scale scores (Table 3).

The PPNCS mean scores of those without metastases and the SCNS-SF scale Patient Care and Support subscale mean scores of those with metastases were significantly higher ($P<.05$). Stage II cancer patients have significantly higher mean PPNCS scores and SCNS-SF Mental/Psychological subscale scores ($P < .05$). Stage IV cancer patients have significantly higher mean SCNS-SF scores and scores on all subscales, with the exception of the Mental/Psychological and Sexuality subscale ($P < .05$). According to the multiple comparison test, there is a significant difference between stage II - stage I ($P=.019$), stage III - stage II ($P=.018$), and stage IV - stage II ($P=.004$) in pairwise comparisons of PPNCS scale scores. There is a significant difference between stage II - stage I ($P<.001$), stage IV - stage I ($P<.001$), stage III - stage II ($P=.017$), stage IV - stage III ($P=.001$) in pairwise comparisons of SCNS-SF scale scores. There is a significant difference between stage IV and stage III ($P<.001$) in pairwise comparisons of SCNS-SF Physical and Daily Life scale scores. There is a significant difference between stage II - stage I ($P<.001$), stage III - stage II ($P=.034$) in pairwise comparisons of SCNS-SF Mental/ Psychological scale scores. There is a significant difference

Table 3. PPNCS and SCNS-SF total and subdimension means scores of individuals according to demographic and disease characteristics (n=210)

Characteristics	PPNCS	SCNS-SF	Physical and Daily Life	Mental/ Psychological	Patient Care and Support	Sexuality	Health System and Information
Gender							
Female	26.13±13.79	123.40±9.66	17.61±3.64	37.12±4.93	18.30±2.17	10.24±1.88	40.12±3.96
Male	20.26±2.43	119.13±13.58	15.15±3.48	34.92±5.68	18.64±2.98	10.96±1.96	39.45±3.98
Test and *P*	t=4.450,**<.001**	t=2.582, **.011**	t=4.975,**<.001**	t=2.094**, .037**	t=-0.955, .341	t=-1.848, .066	t=2.100, **.037**
Marital Status							
Married	24.09±11.89	122.14±11.33	16.32±3.81	36.41±5.14	18.45±2.66	10.75±1.91	40.20±3.93
Single	21.15±3.52	119.04±13.13	17.00±3.55	35.06±6.09	18.50±2.28	9.96±1.96	38.52±3.90
Test and *P*	t=2.770, **.006**	t=1.601, .111	t=-1.098, .273	t=1.733, .085	t=-0.116, .907	t=2.009, **.049**	t=2.019, **.045**
Educational status							
Illiterate	30.15±18.49	122.97±5.51	18.77±2.61	37.54±4.58	18.18±1.50	9.74±2.12	38.74±3.14
Primary School	21.38±3.63	122.60±10.68	16.82±3.93	36.19±5.28	18.49±2.18	10.84±1.53	40.25±3.71
High School	23.93±12.27	121.61±12.44	14.54±3.02	35.59±5.08	18.78±3.11	11.39±1.94	41.37±3.92
University	20.25±2.38	114.93±17.87	14.54±3.02	34.64±6.92	18.32±3.83	9.46±2.13	37.25±4.56
Test and *P*	F=7.986,**<.001**	F=3.496, **.017**	F=11.693,**<.001**	F=1.439, .233	F=0.337, .799	F=2.084, .103	F=11.495,**<.001**
Living with person/people							
Partner	21.13±3.42	121.00±10.89	16.2±4.05	35.48±5.31	18.65±2.63	10.85±1.44	39.81±3.06
Spouse and Children	26.51±15.59	123.83±10.88	16.80±3.77	37.57±4.71	18.22±2.55	10.84±2.67	40.40±4.60
Mother/father	20.78±15.59	101.44±19.20	13.89±3.59	28.67±6.61	16.44±3.43	8.56±1.23	33.89±5.18
Alone	22.20±4.84	122.15±6.58	17.55±0.51	36.10±4.94	19.50±1.00	9.00±1.52	40.00±1.91
Test and *P*	F=4.366, **.005**	F=11.308,**<.001**	F=2.393, .070	F=9.025,**<.001**	F=3.467, **.017**	F=13.050,**<.001**	F=4.671, **.004**
Working status							
Working	24.80±4.64	119.2±6.79	16.20±6.12	34.50±1.51	19.30±2.83	9.70±2.16	39.50±1.71
Not working	26.05±14.29	121.07±12.05	16.94±3.53	36.49±5.56	18.14±2.33	10.16±1.87	39.32±4.45
Retired	20.48±2.52	119.98±10.22	15.52±3.65	35.42±5.48	18.51±2.68	10.73±1.63	39.80±2.69
Separated After Illness	19.58±2.31	136.50±13.71	19.25±2.00	38.75±4.39	20.25±3.08	13.75±1.13	44.50±5.55
Test and *P*	F=5.104, **.002**	F=7.785, **<.001**	F=4.766, **.003**	F=1.737, .191	F=2.904, **.036**	F=11.093,**<.001**	F=5.220, **.004**
Income status							
Income equal to expense	25.49±13.83	119.38±9.29	15.79±3.69	35.85±5.42	18.91±2.29	10.04±2.02	38.79±2.69
Income less than expenses	22.82±9.49	122.02±12.39	16.67±3.77	36.18±5.39	18.33±2.64	10.72±2.69	40.11±4.24
Test and *P*	t=1.240, .220	t=-1.581, .117	t=-1.428, .155	t=-0.364, .717	t=1.372, .172	t=-0.935, .351	t=-2.699, **.008**
Metastasis							
Yes	20.89±3.40	123.24±10.57	16.37±3.82	36.29±4.10	19.25±2.22	10.77±2.22	40.56±3.79
No	24.95±12.99	120.34±12.40	16.54±3.74	35.99±6.04	17.98±2.66	10.45±1.75	39.37±4.04
Test and *P*	t= -.390,**<.001**	t=1.736, .084	t=-0.326, .745	t=0.650, .516	t=3.552,**<.001**	t=0.685, .495	t=1.807, .072
Stage of Diseases							
Stage I	20.70±1.97	112.33±13.84	15.91±3.58	32.97±5.90	16.48±2.06	10.39±1.66	36.58±4.07
Stage II	26.79±14.87	123.67±10.42	16.57±3.69	37.78±4.94	18.23±2.40	10.50±1.77	40.59±3.71
Stage III	20.71±3.21	117.21±10.68	14.71±4.14	34.97±6.00	19.00±2.82	9.97±1.95	38.56±2.77
Stage IV	20.54±3.04	126.23±9.33	17.94±3.19	35.75±4.20	19.90±2.06	11.25±2.29	41.39±3.74
Test and *P*	F=6.241,**<.001**	F=13.969,**<.001**	F=5.526, **.001**	F=7.336,**<.001**	F=14.565,**<.001**	F=2.395, .069	F=15.366,**<.001**
Chronic Disease							
Yes	22.52±9.41	122.45±7.69	16.69±3.68	36.30±4.46	18.64±2.37	10.52±2.03	40.30±2.91
No	24.01±11.37	120.76±13.84	16.34±3.82	35.98±5.93	18.35±2.70	10.61±1.89	39.49±4.53
Test and *P*	t=-0.992, .322	t=1.129, .260	t=0.655, .513	t=0.032, .975	t=0.803, .423	t=-1.825, .070	t=2.959, **.003**
Previous Treatment							
Chemotherapy	24.82±13.30	119.34±7.84	16.33±3.95	35.20±4.51	17.77±1.90	10.50±1.92	39.53±2.88
Chemo+Radiotherapy	21.96±4.04	117.8±17.99	17.24±3.74	32.24±5.72	19.40±3.12	9.56±2.31	39.36±6.03
Chemotherapy+Surgery	20.72±3.51	122.06±9.74	15.02±2.98	37.56±5.51	18.76±2.96	11.28±1.42	39.43±2.96
Chemo+Surgery+Radiotherapy	24.16±11.60	126.24±14.01	17.67±3.70	38.24±5.25	18.92±2.82	10.55±2.00	40.86±4.99
Test and *P*	F=1.753, .157	F=4.821, **.003**	F=4.605, **.004**	F=10.804,**<.001**	F=4.132, **.007**	F=3.568, **.015**	F=1.162, .325
Progression							
Yes	20.59±3.22	123.00±10.51	16.14±3.84	36.28±4.46	19.35±2.39	10.86±2.36	40.37±3.77
No	24.47±12.15	120.84±12.23	16.60±3.73	36.04±5.71	18.13±2.57	10.46±1.76	39.61±4.04
Test and *P*	t=-3.633,**<.001**	t=1.091, .276	t=-0.844, .400	t=0.458, .648	t=3.091, **.002**	t=0.537, .593	t=1.131, .260
Recovery from illness							
Yes	25.01±12.76	122.14±11.85	16.96±3.76	35.92±5.40	18.28±2.34	10.61±1.88	40.37±4.24
No	20.43±2.70	120.09±11.68	15.56±3.62	36.45±5.39	18.79±2.95	10.51±2.08	38.78±3.19
Test and *P*	t=4.025,**<.001**	t=1.196, .233	t=2.606, **.010**	t=-0.886, .376	t=-1.277, .204	t=0.202, .840	t=3.251, **.001**

Bold values *P*<.05; t-test / ANOVA (Tukey HSD Post hoc). Welch correction applied where Levene's P<.05. Different superscript letters indicate significant difference between groups (Tukey HSD, P<.05). SCNS-SF, Supportive Care Needs Scale Short Form; PPNCS, Patients' Perception of Nursing Care Scale

Table 4. The relationship between PPNCS and SCNS-SF total and subdimension means scores of individuals (n=210)

Scales	Physical and Daily Life	Mental/ Psychological	Patient Care and Support	Sexuality	Health System and Information	SCNS-SF	PPNCS
Physical and Daily Life	1	r= .40	r= .12	r= .19	r= .17	r= .61	r= .08
Mental/Psychological	**<.001**	1	r= .29	r= .32	r= .30	r= .80	r= .24
Patient Care and Support	.088	**<.001**	1	r= .18	r= .34	r= .53	r= -.28
Sexuality	.006	**<.001**	**.008**	1	r= .47	r= .57	r= -.28
Health System and Information	**.015**	**<.001**	**<.001**	**<.001**	1	r= .68	r= -.17
SCNS-SF	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	1	r= -.03
PPNCS	.252	**<.001**	**<.001**	**<.001**	**.013**	.653	1

The upper part of the matrix is the Pearson correlation coefficients (r). The bottom part of the matrix is the *P* values of the Pearson correlation analysis. Correlation coefficients were expressed as (.00-.20 very poor, .21-.40 poor, .41-.60 moderate, .61-.80 good and .81 and above excellent); SCNS-SF, Supportive Care Needs Scale Short Form; PPNCS, Patients' Perception of Nursing Care Scale

between stage II - stage I (*P*=.002), stage III - stage I (*P*<.001), stage IV - stage I (*P*<.001), stage IV - stage II (*P*<.001) in pairwise comparisons of SCNS-SF Patient Care and Support Care scale scores. There is a significant difference between stage II - stage I (*P*<.001), stage IV - stage I (*P*<.001), stage III - stage II (*P*=.029), stage IV - stage III (*P*=.003) in pairwise comparisons of SCNS-SF Health System and Information scale scores (Table 3).

While SCNS-SF total, Physical and Daily Life, Mental/ Psychological subscale mean scores were higher in individuals who had Chemo+ Surgery+ Radiotherapy in their previous treatment, those with Chemo+ Radiotherapy have higher SCNS-SF Patient Care and Support subscale scores and Chemotherapy+ Surgery Sexuality subscale scores (*P*<.05). According to the multiple comparison test, there is a significant difference between chemo+ surgery+ radiotherapy - chemotherapy (*P*=.004), chemo+ surgery+ radiotherapy - chemo+ radiotherapy (*P*=.016) in pairwise comparisons of SCNS-SF scale scores. There is a significant difference between chemo+ surgery+ radiotherapy - chemo+ surgery (*P*=.003) in pairwise comparisons of SCNS-SF Physical and Daily Life scale scores. There is a significant difference between chemo+ surgery+ radiotherapy - chemotherapy (*P*=.005), chemo+ surgery - chemo+ radiotherapy (*P*<.001), chemo+ surgery+ radiotherapy - chemo+ radiotherapy (*P*<.001) in pairwise comparisons of SCNS-SF Mental/Psychological scale scores. There is a significant difference between chemo+ radiotherapy - chemotherapy (*P*=.025) in pairwise comparisons of SCNS-SF Patient Care and Support scale scores. There is a significant difference between chemotherapy+ surgery - chemo+ radiotherapy (*P*=.002) in pairwise comparisons of SCNS-SF Sexuality scale scores. PPNCS scores of those without progression and SCNS-SF Patient Care and Support subscale scores of those with progression are significantly higher. Those recovering from illness have higher PNCS, SCNS-SF Physical and Daily Life and Health System and Information subscale scores (*P*<.05, Table 3).

There is no significant correlation between the PPNCS total score and the SCNS-SF total score (r=-.03, *P*=.653). A positive and weak significant relationship was found between the total value of the PPNCS and SCNS-SF Mental/Psychological subscale (r=.24, *P*<.001); a negative and weak significant relationship was found with the SCNS-SF Patient Care and Support subscale (r=-.28, *P*<.001); a negative and weak significant relationship was found with the SCNS-SF Sexuality subscale (r=-.28, *P*<.001); and a negative, very weak, significant relationship was found with the SCNS-SF Health System and Information subscale (r=-.17, *P*<.001, Table 4.).

DISCUSSION

In the study conducted to determine the supportive care needs of cancer patients treated with targeted therapy and immunotherapy and their perceptions on nursing care, it was determined that the care needs of the individuals were moderately too high, and their perceptions of nursing care (degree of expected needs and patient satisfaction) were low. Nursing care for cancer patients is influenced by nurses' attitudes towards their profession.[23] Supportive care strategies for cancer patients are known to be intricate and time-intensive from initiation to full execution, and successful care requires prolonged support for the individuals. It is recommended that nurses plan their care by considering this relationship.[26]

SCNS-SF is a measure designed to assess the unmet supportive care needs of cancer patients in a multidimensional manner. In their study on individuals receiving chemotherapy, Aksuoglu and Senturan [28] reported Mental/Psychological (30.46±10.53), Health System and Information (33.94±11.39), Physical and Daily Life (16.56±5.70), Patient Care and Support (11.86±4.46), Sexuality (8.21±4.30) and SCNS-SF mean scores (101.03±29.19). In the study, it was determined that these values were higher, and the needs of individuals receiving targeted therapy and immunotherapy were higher. The

literature also reports that the need for supportive care increases in patients receiving advanced treatment options, due to an increase in symptom burden, uncertainty, and the need for information.[31,32] This may explain why individuals receiving targeted therapy and immunotherapy report a greater need for care. These individuals require more support, and it will be important for nurses to take this into account.

The fact that the mean PPNCS score in the study was found to be 23.41 ± 10.64 suggests that individuals' perceptions of nursing care are at a moderate level. Recent studies in the literature indicate that patients generally perceive nursing care as being at a "moderate–high" level; however, this perception varies depending on sample characteristics, the clinical setting, and the degree to which care is individualized. In particular, recent studies conducted with cancer patients indicate that patients' perceptions of nursing care are closely related to the continuity of care, quality of communication, and symptom management.[33-35] Based on these findings, while nursing care is generally perceived as adequate, improvements in care may be recommended, particularly in areas such as providing information, individualization, and psychosocial.

In the study, a significant difference was found between the care needs and care perceptions of individuals with gender, educational level, cohabitants, employment status, and disease stage. As in previous studies gender, education level, marital status, income status, pain and number of chronic diseases were reported as factors affecting unmet needs.[36,37] In the literature, high rates of multiple unmet needs in supportive care were linked to older age, being female, living in rural areas, having advanced cancer stages, and limited access to health information.[38] When these findings are considered together, it can be concluded that care needs and perceptions are multidimensional and influenced by sociodemographic and clinical factors.

In the study, it was determined that the physical and psychological needs of women were higher; however, the needs of men were higher in the SCNS-SF Patient Care and Support subscale. Women had higher scores in PPNCS, SCNS-SF total, Mental/Psychological, Health System and Information dimensions. It has been reported in the literature that female patients have more unmet physical and psychological needs.[39,40] In the study of Aksuoglu and Senturan [28], was reported that the mean score of men was higher compared to women. When the perception of care was examined in the study, it was determined that the perception of care of women was higher. The results of the study were similar to the study of Coban and Kasikci [29]; however, in the study of Bekmezci [18], was reported that there was no difference between men and women in terms of the perception of care. This variation among the studies suggests that perceptions of care may vary depending on the characteristics of the sample, gender roles, and the measurement methods used.

In the study, it was determined that single individuals obtained higher scores in the Physical and Daily Life, Patient Care and Support subscales, and married people obtained higher scores in the PPNCS and SCNS-SF Health System and Information and Sexuality subscales. The literature indicates that married individuals are better able to maintain their daily activities and manage their care needs thanks to the support they receive from their spouses; in contrast, single individuals report feeling a greater physical burden and greater need for care during the course of their illness.[37] In the study of Aksuoglu and Senturan [28], it was reported that widowed individuals had a higher mean score in Physical and Daily Life dimensions compared to married and single individuals; however, they had the lowest mean score in the Sexuality subscale.[28] In the study, it was determined that the perception of care of married individuals was higher. Unlike the study, it was indicated in previous studies that the care perception of single individuals was higher, although it was not significant.[18,29] Unmet needs were higher among married women, those receiving conservative treatment, and young women (< 40 years). The presence of chronic disease did not increase needs.[40] Considering the mean age in the study, the fact that the individuals were mostly married may have affected these results. Another issue is that individuals living alone have higher psychological needs. In the study, it was determined that individuals living alone had more needs in the Mental/Psychological dimension than those living with their spouse and children.

In the results of the study, it was determined that illiterate individuals in Physical and Daily Life and SCNS-SF mean scores dimensions and high school graduate individuals in the Health System and Information dimension had higher care needs. In the literature, it was indicated that patients with higher education levels had significant unmet needs such as physical, information about the disease, and sexuality.[39] In a previous study, Health System and Information, Sexuality, Patient Care and Support, and SCNS-SF mean scores were higher in high school graduates, and the Physical and Daily Life mean score was higher in illiterate individuals.[28] In the results of the study, In the perception of care, it was determined that the perception of illiterate individuals was the highest. In the literature, it was reported that the level of education was determinant in the perception of care by 21.0%,[18] and that the perception of care decreased as the level of education

increased.[18,21,29] Increasing awareness of individuals with education may have caused them to have more expectations about care and a decrease in their perception of care.

In the results of the study, it was observed that individuals who left their job after the disease obtained high scores in SCNS-SF total and all subscales, namely, their needs were higher. In terms of the perception of care, it was determined that the perceptions of unemployed individuals were higher. The results of the study are similar to the literature.[18,21] These findings suggest that leaving work following an illness increases individuals' need for supportive care, while their perception of care also rises in tandem with these growing needs. In this regard, it is recommended that multidisciplinary approaches be developed to address the increasing need for supportive care among individuals who have left their jobs following an illness, and that psychosocial support services for these individuals be strengthened.

The study found that individuals whose income is lower than their expenses have greater needs regarding the healthcare system and information. This finding is consistent with studies in the literature that highlight the relationship between socioeconomic status and unmet needs for supportive care. Recent studies have shown that individuals with low incomes face greater difficulties in accessing healthcare services and obtaining information; this situation has particularly increased the need for health system and information support. Indeed, studies involving cancer patients indicate that the health system and information domain is one of the highest unmet needs, and that this is associated with the complexity of health care, inadequate communication, and inequities in access to information.[41,42]In the study, it was determined that the care perception of individuals whose income was equal to their expenses was higher compared to those whose income was less than their expenses, although it was not significant. In the study of Coban and Kasikci [29], it was reported that patients whose income was more than their expenses were more satisfied in terms of nursing care compared to those whose income was less than their expenses. In this regard, it is recommended that personalized and accessible supportive care services be developed to address the growing care needs of low-income patients in particular.

In the study, the care needs of individuals with stage IV (Physical and Daily Life, Patient Care and Support, Health System and Information dimension) were found to be significantly higher, and their perception of care was lower. Although it is reported in the literature that there is no difference between cancer stage and unmet needs, it was indicated that patients with Stage IV cancer had more unmet needs. It is reported that the fact that patients with advanced cancer have more and different symptoms compared to patients with early-stage cancer causes a change and an increase in their needs.[39] In this regard, it is recommended that symptom management and comprehensive supportive care services for stage IV cancer patients be strengthened.

The study found a relationship between the PPNCS and the SCNS-SF subscales: Mental/Psychological, Patient Care and Support, Sexuality and Health System, and Information. The study findings are supported by the literature; a high level of unmet care needs, particularly a lack of information, combined with the burden of psychological and physical symptoms, can negatively impact patient satisfaction and perceptions of care. A study reported that cancer patients have high health system and information needs, and that insufficient support in this area is perceived by patients as inadequate care, which lowers their overall perception of care.[43] In light of these findings, it is recommended that both individual experiences and the level of care provided be evaluated from a patient-centered perspective.

Limitations of the Study

The limitation of the study is that it was conducted in a single centre. Therefore, it cannot be generalised to all patients administered with targeted therapies and immunotherapy.

It was determined that the care needs of the individuals were moderately to high, and the perceptions of nursing care (degree of expected needs and patient satisfaction) were low. It was determined that demographic and disease-related characteristics affected the needs and care perceptions of individuals administered with targeted therapy and immunotherapy. Considering these results more carefully while performing individualised care practices may increase care perception and thus satisfaction of individuals and can be an important predictor for increasing the quality of care. It is necessary that individuals with cancer receive targeted therapy and immunotherapy, and their perceptions of care should be considered as a whole; their unmet care needs should be comprehensively evaluated by all team members performing the health care service. It should not be forgotten that it is the responsibility of nurses to determine and manage the supportive care needs of individuals with cancer within the team.

Ethics Committee Approval: Ethics committee approval from Erciyes University Clinical Research Ethics Committee (Date: September 22, 2021, Number: 2021/619)
Informed Consent: Written informed consent was obtained from all participants.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept -ND; Design- ND, PTK; Supervision- ND, PTK; Resources- ND, PTK, SK; Data Collection and/or Processing- SK, ND; Analysis and/or Interpretation- ND, PTK; Literature Search- ND, PTK; Writing Manuscript- ND; Critical Review- ND, PTK; Other-
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.
Use of Artificial Intelligence: Artificial Intelligence-supported applications were not used in this study.

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