GÖBEKLİTEPE
International Journal Of Health Sciences

e-ISSN: 2757-6221

Arrival Date : 10.01.2023
Published Date : 30.06.2023
2023, Vol:6, Issue:12 pp: 49- 58
DOI: http://dx.doi.org/10.55433/gsbd/143

DETERMINATION OF PERCEIVED STRESS LEVELS AND COPING WITH HUMOR IN CANCER PATIENTS RECEIVING CHEMOTHERAPY

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Abstract

This study aims to determine perceived stress levels and coping with humor in cancer patients receiving chemotherapy. This descriptive study was conducted in a single center in Turkey and involved a total of 135 patients who had been diagnosed with cancer. The patients receiving chemotherapy had high levels of perceived stress and their use of humor as a coping strategy in stressful situations was below average. The perceived stress scale score was statistically significantly associated with age, employment status, presence of chronic disease, frequency of chemotherapy sessions and receipt of radiotherapy ($p < 0.05$). The coping humor scale score was statistically significantly associated with age, education, economic status, previous hospitalization and time since diagnosis ($p < 0.05$). Increasing the awareness of patients about humor and the use of humor starting from the time of cancer diagnosis can positively affect treatment and follow-up.

Keywords: Chemotherapy; Stress; Humor; Coping

KEMOTERAPİ ALAN KANSER HASTALARININ ALGILANAN STRES DÜZEYLERİ VE MİZAH YOLUYLA BAŞ ETME DURUMLARININ BELİRLENMESİ

Öz

Bu çalışma, kemoterapi alan kanser hastalarında algılanan stres düzeyleri ve mizahla başa çıkma düzeylerini belirlemeyi amaçlamaktadır. Tanımlayıcı tipteki bu çalışma Türkiye'de tek bir merkezde gerçekleştirilmiş ve kanser tanısı almış toplam 135 hastayı içermektedir. Kemoterapi alan hastaların algılanan stres düzeylerinin yüksek olduğu ve mizahı stresli durumlar karşısında bir başa çıkma stratejisi olarak kullanım durumlarının ortalamanın altında olduğu görülmüştür. Algılanan stres ölçeği puanı ile yaş, çalışma durumu, kronik hastalık varlığı, kemoterapi alma sıklığı ve radyoterapi alma sıklığı arasında istatistiksel olarak anlamlı bir ilişki vardır ($p<0.05$). Mizah yoluyla başa çıkma ölçeği puanı ile yaş, eğitim, ekonomik durum, önceki hastaneye yatış ve tanıdan itibaren geçen süre arasında istatistiksel olarak anlamlı bir ilişki vardır ($p <0.05$). Kanser tanısı alımından itibaren hastaların mizah konusunda farkındalıklarının artırılması ve mizahın kullanılması tedavi ve izlemi olumlu yönde etkileyebilir.

Anahtar Kelimeler: Kemoterapi; Stres; Mizah; Başa çıkma

1. INTRODUCTION

Beyond being a serious and chronic disease, cancer can be perceived as a condition that involves uncertainties, evokes death in pain and suffering, and causes guilt, confusion, panic and anxiety (1,2). Patients undergoing cancer treatment have to face potentially stressful situations, and especially those receiving chemotherapy need to cope with such symptoms as pain, fatigue, sleep disorders, nausea-vomiting, anxiety, depression, loss of appetite, alopecia, skin and nail changes, shortness of breath, mouth ulcers and neuropathy. Furthermore, these symptoms may negatively affect the body image and self-esteem of patients, reducing their quality of life (3,4). Perceived stress is a subjective and objective measure used to determine the level of an individual's stress. The perceived stress level in cancer patients can be determined by studies conducted in this area (2,5). Since cancer affects the whole life on such a scale, it is extremely important to allow cancer patients to express their feelings and concerns if they are to improve their ability to cope with treatment stress and increase their adaptation to their new situation (6). A sense of humor can contribute to a patient's efforts to overcome the difficulties and challenges they face (7,8). Humor has been a part of civilization and human culture for thousands of years, and it is generally accepted that it can make people feel better. There are many anecdotes centered on the benefits of humor to healthcare. The actual value of humor in influencing treatment outcomes and disease processes has long been debated, although the moderating effect of humor on stress, anxiety and depression has led it to be considered and examined as a coping strategy (9,10). Humor can relieve the burden of anxiety, improve one's ability to solve problems, support the maintenance of significant relationships, facilitate discussions of difficult issues, improve decision-making, support the overcoming of negative experiences, aid healing processes and help in the restoration of one's identity (11, 12). Humor can also provide a patient with new insights into their illness and can allow them to put a healthy distance between them and emerging symptoms. Humor has also been found to improve the relationship between the patient and the healthcare professional (13, 14). Literature contains reports of positive outcomes from the use of humor in various healthcare specialties and disciplines, with numerous studies conducted to date exploring the value of humor for patients and nurses in a variety of fields, including neurological units, palliative care settings, learning disability units, geriatric care services, pediatrics, intensive care units and oncology clinics (11, 15, 16, 17). Patients and nurses can use humor as a coping mechanism for dealing with the stress caused directly or indirectly by cancer, and nurses can play an important role in helping to reduce such negative effects (11). Humor is a healthy therapeutic tool that we must value, learn to improve, and add to our professional and personal lives. There are also suggestions in literature that humor is subjective and highly individual and so sensitivity to patient needs and preferences should always be kept in mind (6). Understanding how humor is perceived by the patient and the potential benefits or problems related to the use of humor can enable the development of effective interventions for this population.

2. MATERIALS AND METHODS

2.1 Study Design and Sample

The present study assesses the perceived stress levels of patients undergoing chemotherapy and their ability to cope with stress using humor. This was a descriptive study. The study population consisted of patients who presented to the Ambulatory Chemotherapy Unit of Kastamonu Training and Research Hospital. The study sample consisted of 135 patients who received chemotherapy between 15.10.2021 and 15.04.2022. The inclusion criteria were as follows: volunteering to participate in the research, being older than 18 years of age, having been diagnosed with cancer, having received at least one course of chemotherapy before, being conscious, being able to speak and write in Turkish, and being open to verbal and nonverbal communication. The exclusion criteria were being under the age of 18, being newly diagnosed with cancer and not having undergone any previous chemotherapy, and being unable to contact. The dependent variables of this study were perceived stress and coping style involving humor, and the independent variables were age, gender, education

level, comorbidities, income level, cancer diagnosis, chemotherapy data, the year of cancer diagnosis, the number of chemotherapy cycles, the number of individuals in the household and the type of family. In this context, answers to the following questions were sought;

• What are the perceived stress levels of patients undergoing chemotherapy?
• To what extent do patients undergoing chemotherapy use coping humor?
• Is there a relationship between the perceived stress levels and the use of coping humor in patients undergoing chemotherapy?

2.2. Data Collection Tools

The study data were collected using the "Descriptive Characteristics Form", the "Perceived Stress Scale (PSS)" and the "Coping Humor Scale (CHS)".

2.2.1. Descriptive characteristics form

The form was developed by the researchers based on a review of literature, and included 19 close-ended and open-ended questions on personal information such as age, gender, marital status, education level, cancer diagnosis, chemotherapy frequency, and training about cancer (18, 19).

2.2.2. The Perceived Stress Scale (PSS)-10

This scale, developed by Cohen et al. (20), has three different versions with 14, 10 and 4 items. The validity and reliability study of the 10-item version used in the present study was conducted by Erci (18), who reported an item-total score correlation of 0.32 to 0.66 and a Cronbach's alpha of 0.70. The Cronbach's alpha value in this study was found to be .83. The scale measures the degree to which an individual perceived life as unpredictable, uncontrollable and overloading over the previous month. It is a 5-point Likert type scale (1=never, 2=almost never, 3=sometimes, 4=fairly often 5=very often), with four negatively-worded items (items 4, 5, 7 and 8) and six positively-worded items (items 1, 2, 3, 6, 9 and 10). The scale is evaluated based on the total score, which can be in the range of 0 to 40 points, with a high total score indicating a high level of perceived stress (18).

2.2.3. The Coping Humor Scale

The Coping Humor Scale (CHS) is a 7-item self-reported measure of the use of humor as a coping strategy in stressful situations (21, 22) and is rated on a 4-point Likert-type response scale. The possible total score range is from 7 to 28, with a higher total score indicating the greater use of humor by the respondent as a coping strategy in stressful situations. The Cronbach's alpha reported by various studies ranges from .60 to .70. The reported test-retest reliability coefficient measured over a 12-week period was .80 (22). The Cronbach's alpha value in this study was found to be .94. The scale is widely used in studies addressing humor as a coping strategy. The Turkish validity and reliability study of the scale was conducted by Yerlikaya (23). Items 1 and 4 are reverse coded.

2.3.Procedure

The researchers distributed the data collection forms among the patients who consented to participate in the study. Before filling out the forms, the patients were informed about the study and how the forms should be completed. The administration of the data collection forms took 15–20 min.

2.4. Data Analysis

The data were analyzed using IBM SPSS Statistics (Version 26.0. Armonk, NY: IBM Corp). The study variables were assessed using a Shapiro-Wilk test for normality. Descriptive statistics were calculated based on frequency, percentage, mean, standard deviation and minimum-maximum values. Depending on the result of the normality test, a Mann-Whitney U test was used to compare two groups and a Kruskal-Wallis H test to compare three or more groups. The relationship between PSS and CHS

was assessed using Spearman's correlation analysis. A p-value <0.05 was considered statistically significant for all analyses.

2.5. Ethics Committee Approval

Written approval for the study was obtained from Kastamonu University Faculty of Medicine Clinical Research Ethics Committee (Decision No: 2020-KAEK-143-96, Date: 06/09/2021), and further written approval was obtained from the study center. Those who volunteered to participate in the study were informed about the study and submitted their written consent.

3. RESULTS

Table 1. Distribution of Patients by Descriptive Characteristics (n=135)

Characteristics	Frequency (f)	Percentage (%)
Age		
18-45	12	8.9%
46-65	74	54.8%
65+	49	36.3%
Gender		
Female	74	54.8%
Male	61	45.2%
Marital status		
Married	103	76.3%
Single	32	23.7%
Children		
Yes	123	91.1%
No	12	8.9%
Place of residence for the longest duration		
Village	42	31.1%
Town	41	30.4%
City	52	38.5%
Education level		
Literate-Primary School	101	74.8%
Secondary-High School	20	14.8%
Associate-Undergraduate-Graduate	14	10.4%
Employment		
Employed	19	14.1%
Unemployed	116	85.9%
Economic status		
Low	10	7.4%
Moderate	113	83.7%
Good	12	8.9%
Individuals in the household		
Family members	127	94.1%
Alone	8	5.9%
Chronic Diseases		
Yes[a]	62	45.9%
No	73	54.1%
Previous hospitalization		
Yes	110	81.5%
No	25	18.5%

Type of Cancer		
Breast Cancer	28	20.7%
Ovarian+Uterine+Cervical Cancer	25	18.5%
Colon+Rectal Cancer	23	17.0%
Lung Cancer	20	14.8%
Gastric Cancer	15	11.1%
Other[b]	24	17.9%
Time from diagnosis		
>6 months	32	23.7%
6–12 months	25	18.5%
>12 months	78	57.8%
Frequency of chemotherapy sessions		
Every 7 days	27	20.0%
Every 14 days	46	34.1%
Every 21 days	62	45.9%
Time from chemotherapy initiation		
>3 months	45	33.3%
3–6 months	32	23.7%
>6 months	58	43.0%
Previous surgical procedure		
Yes	95	70.4%
No	40	29.6%
Radiotherapy		
Yes	51	37.8%
No	84	62.2%

[a]Hypertension (n = 33), Diabetes Mellitus (n = 18), COPD (n = 5), Heart failure (n = 4), Hypertension (n = 3), Crohn's Disease (n = 1)

[b]Prostate cancer (n = 8), lymphoma (n = 6), liver cancer (n = 2), soft tissue sarcoma (n = 2), testicular cancer (n = 2), kidney cancer (n = 2), multiple myeloma (n = 2)

Of the study patients, 54.8% were aged 46–65 years, 54.8% were women, 76.3% were married and 91.1% were parents. In addition, 38.5% of the patients lived predominantly in a city environment and 74.8% were literate and/or primary school graduates. Of the patients, 85.9% were unemployed, 83.7% had a moderate economic status, 94.1% were living with family members, 54.1% had no additional chronic disease and 81.5% had been hospitalized previously.

While 20.7% of the patients were followed up for breast cancer, the time from diagnosis was more than 12 months in 57.8%. In addition, 45.9% were undergoing chemotherapy at 21-day intervals, the time from chemotherapy initiation was more than 3 months in 43%, 70.4% had undergone surgery previously and 62.2% were undergoing radiotherapy (Table 1).

Table 2. Distribution of Mean PSS and CHS Scores of the Patients (n=135)

Scale	$\bar{X}$±SD	Min–Max	Score range
The Perceived Stress Scale(PSS)-10	28.87±5.35	19–40	0–40
The Coping Humor Scale (CHS)	16.71±4.51	7–28	7–28

SD: Standard deviation, Min–Max: Minimum–Maximum

The mean perceived stress scale score of the patients undergoing chemotherapy was 28.87±5.35, which was above the average, and the mean coping humor scale score of the patients was 16.71±4.51, which was below the average (Table 2).

Table 3. Evaluation of the Mean PSS and CHS Scores According to the Descriptive Characteristics of the Patients (n=135)

Characteristics	PSS		CHS	
	X̄±SD	Mean Rank	X̄±SD	Mean Rank
Age				
18-45	33.50±2.35	100.46	21.41±6.33	103.88
46-65	28.62±5.40	66.86	16.95±4.09	70.71
65+	28.12±5.32	61.78	15.20±3.79	55.12
KW	9.615		16.997	
P	**0.008**		**0.000**	
Education level				
Literate-Primary School	28.73±5.26	66.98	15.83±4.01	61.21
Secondary-High School	28.50±5.37	64.50	17.60±3.08	80.65
Associate-Undergraduate-Graduate	30.42±6.07	80.36	21.85±6.08	98.93
KW	1.634		14.980	
P	0.442		**0.001**	
Employment				
Employed	25.84±5.80	46.53	16.94±3.55	71.68
Unemployed	29.37±5.13	71.52	16.68±4.67	67.40
U	694.000		1032.000	
P	**0.010**		0.646	
Perceived economic status				
Low	28.40±3.97	61.80	16.20±2.14	62.90
Moderate	28.88±5.36	68.17	16.30±4.29	65.46
Good	29.16±6.56	71.58	21.00±5.96	96.17
KW	0.356		7.408	
P	0.837		**0.025**	
Chronic diseases				
Yes	27.48±5.48	57.72	16.25±3.98	63.48
No	30.05±5.97	76.73	17.10±4.92	71.84
U	1625.500		1982.500	
P	**0.005**		0.198	
Previous hospitalization				
Yes	28.53±5.15	65.64	16.06±4.26	62.27
No	30.36±6.04	78.40	19.60±4.54	93.20
U	1115.000		745.000	
P	0.140		**0.000**	
Time from diagnosis				
>6 months	29.93±5.13	76.53	18.25±3.74	80.56
6–12 months	27.52±5.25	57.76	14.68±4.15	52.64
> 12 months	28.87±5.44	67.78	16.74±4.71	67.77
KW	3.254		7.720	
P	0.196		**0.021**	
Frequency of chemotherapy sessions				
Every 7 days	29.18±5.18	68.30	16.03±3.11	61.15
Every 14 days	27.34±4.96	57.07	16.26±3.96	67.70
Every 21 days	29.87±5.52	75.98	17.35±5.32	71.21
KW	6.211		1.347	
P	**0.045**		0.510	
Radiotherapy				
Yes	30.98±4.80	84.14	17.52±5.42	73.94
No	27.59±5.29	58.20	16.22±3.77	64.39
U	1319.000		1839.000	
P	**0.000**		0.153	

SD: Standard deviation, PSS: Perceived Stress Scale, CHS: Coping Humor Scale, KW: Kruskal-Wallis H, U: Mann-Whitney U

The mean PSS and CHS scores were higher in the 18–45 age group than in the other age groups, and the difference was statistically significant (p=0.008, p= 0.000). Considering education levels, the mean CHS score was higher in the associate, undergraduate and graduate group than in other groups, and the difference was statistically significant (p=0.001). The mean PSS score was higher in the unemployed patient group than in the employed group, and the difference was statistically significant (p=0.010). The patients reporting a good economic status had a higher mean CHS score than the other groups, and the difference was statistically significant (p=0.025). The mean PSS score was higher in the patient group with no additional chronic disease other than cancer than in those with chronic diseases, and the difference was statistically significant (p=0.005). Patients with no previous hospitalization had a higher mean CHS score than those with previous hospitalizations, and the difference was statistically significant (p=0.000). Considering the time since cancer diagnosis, patients who were diagnosed more than 6months ago had a higher mean CHS score than the other groups, and the difference was statistically significant (p=0.021). Patients who were undergoing chemotherapy every 21 days had a higher mean PSS score than the other groups, and the difference was statistically significant (p=0.045). Patients who were receiving radiotherapy had a higher mean PSS score than those not undergoing radiotherapy, and the difference was statistically significant (p=0.000) (Table 3).

Table 4. The Relationship between PSS and CHS

Correlations		
Spearman's Rho		CHS
PSS	R	.318**
	p	.000

r: correlation coefficient.

** Correlation significant at a 0.01 level (2-tailed).

There was a positive and weak relationship (r = .31, p=0.000) between the perceived stress levels and the use of coping humor in chemotherapy patients (Table 4).

4. DISCUSSION

One of the most commonly used cancer treatments is chemotherapy. The stressors perceived by cancer patients undergoing chemotherapy can be listed as uncertainties after the cancer diagnosis, physical symptoms, anxiety, depression, hopelessness and self-concept changes, and emotional symptoms such as stress (24). Humor is just one of the methods that can be used to cope with these stressors, and can be considered a supportive approach to cancer-related psychological problems alongside other cancer treatment methods. The use of humor is known to improve the immune system, lower the pain threshold, reduce stress hormones in the body, enhance the functioning of natural killer cells, relax the muscles, increase quality of life and contribute to psychological well-being (10,25).

In our study, the mean score of the patients on the perceived stress scale was 28.87±5.35 (Table 2), in which a high total score indicates a high level of perceived stress. Studies in literature involving patients with different types of cancer found patients to generally have high levels of perceived stress (26,27,28). Cancer causes high levels of stress, and it is also known that stress is involved in carcinogenesis. Cancer diagnosis, cancer treatments and treatment-related symptoms are important components of perceived stress (29).

In our study, the mean score of the patients on the CHS was 16.71±4.51 (Table 2), which was below the average, which suggests that the rate of patients using humor as a coping strategy in stressful situations is low. Previous studies conducted with patients with different types of cancer and undergoing different cancer treatments have reported on the benefits of the frequent use of humor (10,12,19,25.30). A study involving patients with ovarian cancer reported that humor was a frequently used coping mechanism that helped alleviate anxiety (30). Similarly, in a study of patients undergoing radiotherapy it was stated that humor was frequently used and aided patients in coping with the disease (30). These studies revealed the positive effects of humor on the psychology of cancer patients (10,25,30).

In our study, the mean PSS and CHS scores were higher in the 18–45 age group than in the other age groups (Table 3). The higher level of stress perceived by young people is consistent with previous studies, which can be attributed to their coping experiences (31). Our study also found a more common use of humor among individuals in the 18–45 age group. Previous studies report that the use of humor is affected by several factors, among which age is prominent (15). It is believed that this may be due to the common use of humor in the young adult group as an effective coping tool, and the use of humor as a means of countering stressful situations.

Our study found that patients with undergraduate and graduate levels of education had a higher mean CHS score than the other groups (Table 3), which maybe due to the patients' awareness of using humor as a way of coping with stress increases with a higher level of education. Our study found that unemployed patients had a significantly higher mean PSS scores than those who were employed (Table 3). A study of breast cancer patients identified a higher level of anxiety among unemployed cancer patients, and in the present study, patients with a good economic status had a significantly higher mean CHS score (26). It is a fact that cancer and cancer treatment can cause patients and caregivers to experience financial stress. Such stress accounts for a major proportion of the stress experienced by patients, and coping is known to be negatively affected by poor economic status (32).

In the present study, the mean PSS score was significantly higher in the patient group with no additional chronic disease other than cancer than in those with additional chronic diseases (Table 3). Contrary to the present study, previous studies have shown that chronic diseases increase perceived stress (33,34). It is believed that perceived stress may be greater when the patient has not had to cope with a chronic disease before or to endure the related processes, and so they may be more deeply affected when facing a disease such as cancer that evokes death and is mostly perceived negatively by society. Our study also found that patients with no previous hospitalization had a significantly higher mean CHS score than the other patients. Moreover, patients diagnosed more than 6 months previously had a significantly higher mean CHS score than the other groups (15). These two findings of our study indicate that the previous experience of the patient is an important factor in the use of humor and suggests that the previous hospitalization of patients and their experiences during the diagnostic process may affect their use of humor.

Our study found that patients who were undergoing chemotherapy every 21 days had a significantly higher mean PSS score than the other patients, suggesting that the time between treatment sessions can lead to stress in patients. Our study also found that patients who were undergoing radiotherapy had a significantly higher mean PSS score than those who were not undergoing radiotherapy. Radiotherapy, like chemotherapy, results in stress by causing different symptoms and different experiences for the patient, and it can be expected that the combined administration of different cancer treatments can lead to greater stress (35).

Our study established a positive and weak relationship between the perceived stress levels of patients and their use of coping humor (Table 4). The use of humor is known to result in greater resilience to stress, which may be because humor makes people feel better mentally, and can draw upon the resulting energy to cope with the stressful situation, not the stressful situation itself (36). There is a need for further studies evaluating the relationship between the use of humor and perceived stress in cancer patients undergoing treatment.

5. LIMITATIONS

This study has some limitations. The first of these, the study was conducted in a single center, preventing the generalization of the findings to other patients. Another limitation was that the Covid-19 pandemic may affect the results of the study.

6. CONCLUSION AND RECOMMENDATIONS

This study found that the patients undergoing chemotherapy had high levels of perceived stress, and that their use of humor as a coping strategy in stressful situations was below average. Patients and nurses can use humor to cope with stress resulting directly or indirectly from cancer.

Future studies are recommended to include a larger sample size to allow the generalization of the data to a wider population along with qualitative researches to understand the views of cancer patients and healthcare professionals regarding the use of humor.

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