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Fear, Anxiety, and Coping Self-efficacy of Individuals With Cancer During COVID-19 and Predictive Risk Factors: A Descriptive and Correlational Study

Tuğba Karataş, RN, PhD[a,*], Sultan Ayaz-Alkaya, RN, PhD[a], Nuriye Özdemir, MD[b]

[a] *Gazi University Faculty of Nursing, Ankara, Turkey*
[b] *Department of Medical Oncology, Gazi University Faculty of Medicine, Ankara, Turkey*

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ABSTRACT

Objectives: In this study, we determined COVID-19-related fear, anxiety, and coping self-efficacy in individuals with cancer and predicted the risk factors of these parameters.
Data Sources: A descriptive and correlational study was conducted in a single cancer center with 396 individuals. The data were collected using the Participant Information Form, the Fear of Coronavirus Scale, the Coronavirus Anxiety Scale, and the Cancer Behavior Inventory Short Form. Approximately 94% of individuals had received the COVID-19 vaccine. The boosting effect of the vaccination on self-confidence ($\beta = 0.209$), duration of diagnosis ($\beta = 0.219$), and perception of mental health ($\beta = 0.284$) was associated with fear of COVID-19. Smoking ($\beta = 0.116$), vaccination dose ($\beta = 0.139$), disease stage ($\beta = 0.101$), perception of physical health ($\beta = -0.262$), and perception of mental health ($\beta = -0.112$) were associated with coping self-efficacy.
Conclusion: We found that most individuals did not have anxiety, had a moderate level of fear, and their coping self-efficacy was satisfactory.
Implications for Nursing Practice: The perception of mental health was the common risk factor for fear and coping self-efficacy. Health professionals should be aware of the psychological problems experienced by individuals with cancer, and they should adopt strategies that can increase self-efficacy in coping.

Introduction

Cancer is a serious disease with high global mortality and morbidity. The World Health Organization reported that cancer ranks second among the causes of death from noncommunicable diseases.[1] According to the data published by the International Agency for Research on Cancer, the prevalence of cancer in 2020 was 4.3% in Africa, 7.6% in Latin America, 18.7% in North America, 26.7% in Europe, and 40.8% in Asia. Mortality rates were 7% in North America, 7.1% in Africa, 7.2% in Latin America and the Caribbean, 19.6% in Europe, and 58.3% in Asia. However, the incidence of cancer in 2040 is estimated to be 28.9 million and the mortality rate might be 16.2 million.[2]

Individuals with cancer face many physical, psychosocial, spiritual, and financial difficulties related to the diagnosis, treatment, and prognosis of the disease.[3] During the COVID-19 pandemic, cancer patients had a higher tendency to experience mental health problems, such as stress, depression, insomnia, denial, anger, fear, and anxiety.[4] These individuals were highly vulnerable to mortality risk, which was approximately 10 times higher than that of the general population owing to COVID-19 infection.[5,6] A study showed that 29.2% of cancer patients experienced anxiety, fear, worry, and frustration,[7] while another study found that more than half of the individuals with cancer experienced anxiety, depression, or fear related to COVID-19.[8] According to a meta-analysis study conducted by Ayubi et al, the prevalence of depression in cancer patients is 37% (27%–47%) and the prevalence of anxiety is 38% (31%–46%).[9]

Postponing or delaying cancer treatment to protect individuals with cancer from COVID-19 infection,[7,9,10] difficulties in accessing cancer treatment and care,[7] changing chemotherapy regimen,[7] prolonging the time between chemotherapy cycles,[10] temporary termination of treatment,[10] recurrence or progression of cancer,[7] and increased risk of COVID-19 infection owing to the immunosuppressive effect of chemotherapy[10,11] were among the main causes of fear and anxiety experienced by cancer patients. Karacin et al[10] reported that while 12% of scheduled chemotherapy sessions were generally postponed in the pre-COVID-19 period, the rate increased to 14.2% during the pandemic; many patients did not attend the chemotherapy cycles because of COVID-19-related fear and anxiety. Kim and Kim[7] found that approximately one-fifth of cancer patients were

* Address correspondence to: Tuğba Karataş, Gazi University Faculty of Nursing, 06490, Ankara, Turkey.
E-mail address: tkarats@hotmail.com (T. Karataş).

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forced to change their treatment plan because of the COVID-19 pandemic, and 62.1% experienced a delay in their treatment. A change in treatment resulted in moderate to severe depression in one in four individuals. Postponing the chemotherapy of patients for any reason, along with fear and anxiety, directly affected the survival rate of patients and, thus, their adherence and treatment response to chemotherapy.[12,13]

Patients encounter many symptoms during treatment, both as a physiopathology of cancer and as a side effect of antineoplastic treatment. According to a systematic review and meta-analysis study, the most common and functionally challenging symptoms experienced by individuals are pain and fatigue.[14] The increase in pain and fatigue causes a serious deterioration in the quality of life of individuals. Therefore, effective short-term solutions need to be developed to mitigate adverse clinical outcomes.

An effective solution is to increase self-efficacy for coping with cancer. Self-efficacy for coping with cancer might differ between individuals depending on the type of cancer. For example, in a study that investigated changes over time in self-efficacy for coping with cancer and cancer-related coping responses (such as helplessness/hopelessness, anxious behavior, cognitive avoidance, combative spirit, and fatalism) in women with breast cancer, the researchers found that basic coping self-efficacy was negatively associated with helplessness/hopelessness, anxious preoccupation, and avoidance at 3 months, and coping self-efficacy decreased over time.[15] Therefore, while cancer care and treatment are administered, providing solutions that increase the adherence of individuals to the treatment is important for enhancing the resilience of the patients during and after treatment and increasing their self-efficacy in coping with pain and other uncomfortable symptoms.[16]

Self-efficacy in coping with cancer is negatively associated with physical[17] and psychological symptoms,[18,19] but it is directly positively associated with quality of life.[3,17–20] As self-efficacy in coping with cancer increases, the physical, social, emotional, and functional well-being[20,21] of patients, their prechemotherapy resilience level,[22] and their mental adaptation to cancer increase,[19] whereas their cancer symptom burden[21] and anxiety/depression decrease.[18]

Considering the stress and coping model proposed by Lazarus and Folkman,[23] determining the psychological problems and self-efficacy in coping with the disease can contribute to the comprehensive cognitive evaluation of cancer patients, revealing the skills or resources required for coping with stress, and also help understand how patients adapt to the disease. A high level of coping self-efficacy might contribute to the positive cognitive evaluation of individuals, and their health outcomes might improve further. Additionally, determining the self-efficacy of coping with cancer and pandemic-related fear/anxiety might help understand coping strategies, cognitive assessment, psychosocial adjustment to the disease, and personal expectations, and may enhance the self-confidence of cancer patients.

An increase in fear and/or anxiety during the pandemic period might have caused the already impaired well-being, disease control, and quality of life of individuals to worsen, and their mental processes and decision-making mechanisms might have been adversely affected. Cancer is a serious life-threatening chronic disease. Therefore, all components of cancer that might affect survival need to be considered. The quality of life of cancer patients might be improved through rigorous and extensive studies on the mental health condition and coping self-efficacy of cancer patients.

This study was conducted to determine COVID-19-related fear, anxiety, and the coping self-efficacy level in cancer patients and to determine the predictive factors of the variables. We asked the following questions:

- What was the coronavirus fear level of cancer patients during the pandemic?
- What was the coronavirus anxiety level of cancer patients during the pandemic?
- What was the coping self-efficacy level of cancer patients during the pandemic?
- What was the relationship between fear, anxiety, and coping self-efficacy of cancer patients?
- What factors can predict fear, anxiety, and coping self-efficacy in cancer patients?

Methods

Study Design and Participants

The study was conducted in a single center using a descriptive and correlational design. The study population consisted of individuals who received cancer treatment in the outpatient chemotherapy unit of a university hospital between December 2021 and April 2022. The sample size was calculated a priori via a power analysis based on the self-efficacy mean score of another study.[24] The results of the analysis showed that at least 376 individuals were required, with a small effect size of 0.12, α of 0.05, and power of 0.80. We included 406 cancer patients from the chemotherapy unit. The study was performed with 396 individuals.

The inclusion criteria for the study were individuals (1) 18–65 years old, (2) confirmed to have a neoplasm via histopathological examinations, (3) who received at least one course of antineoplastic therapy, (4) aware of the disease, and (5) able to communicate in Turkish. The exclusion criteria were (1) development of any complication owing to antineoplastic treatment, (2) a history of cognitive impairment or any psychiatric disease, and (3) dependence on others to perform daily activities.

Setting

The study was conducted in the outpatient chemotherapy unit of a university hospital. The unit was located in one of the largest and oldest universities in the capital city of Turkey, was equipped with advanced technology, and served patients from many parts of the country.

Instruments

The data were collected using a questionnaire, the Participant Information Form, the Fear of COVID-19 Scale, the Coronavirus (COVID-19) Anxiety Scale–Short Form, and the Cancer Behavior Inventory–Brief Form.

Participant Information Form

The form was developed by the researchers and contained 22 questions about the sociodemographic characteristics of the individuals (age, gender, education, marital status, employment, and smoking) and disease and treatment-related characteristics (disease diagnosis, disease stage, duration of diagnosis, presence of any comorbid disease, cancer treatment, drugs used, chemotherapy cycles, frequency of the cycles, side effects, whether infected with COVID-19 in the past 6 months, whether received COVID-19 vaccination, vaccine doses, the boosting effect of the vaccine on the self-confidence of individuals, and the perceived physical and mental health in the past 6 months).

The age of the participant was categorized as <45 and ≥ 45 years. The incidence of noncommunicable diseases, such as cancer, increases in both men and women who are above 45 years. The American Cancer Society has recommended that individuals who are above 45 years should undergo early diagnosis and screening tests.[25]

The following questions were asked to individuals to evaluate the perceived physical and mental health status and the effect of being vaccinated on self-confidence: "If you have been vaccinated, what effect does being vaccinated have on your self-confidence?" (The answers could be "getting vaccinated increased my self-confidence even more," "getting vaccinated had no effect on my self-confidence," or "getting vaccinated decreased my self-confidence."). "How do you evaluate your physical health in the last 6 months?" (The answers could be "good," "moderate," or "poor."). "How do you evaluate your mental health in the last 6 months?" (The answers could be "good," "moderate," or "poor.").

Fear of COVID-19 Scale

The scale was developed by Ahorsu et al[26] to determine COVID-19-related fear levels in adults. The scale focuses on determining the emotional problems that individuals experienced owing to the coronavirus. It is a five-point Likert-type scale and consists of seven items with a single subdimension. The scores can range from 1 to 5, with "1" = strongly disagree, "2" = disagree, "3" = undecided, "4" = agree, and "5" = strongly agree. The total score can range from 7 to 35. A high score on the scale indicates a high level of fear of COVID-19.[26] The validity and reliability study of the scale in Turkey was performed by Bakioğlu et al.[27] The Cronbach α reliability coefficient of the Turkish version of the scale was found to be 0.88.[27] In this study, Cronbach α coefficient of the scale was found to be 0.70.

Coronavirus (COVID-19) Anxiety Scale–Short Form

The scale was developed by Lee[28] to determine the possibility of dysfunctional anxiety related to the COVID-19 pandemic. The Coronavirus Anxiety Scale–Short Form focuses on the reactions of individuals, such as cognitive, behavioral, emotional (such as fear and anger), and physical (such as sleep disorders), related to the anxiety of the coronavirus.[28] It is a five-point Likert-type scale and consists of five items with a single subdimension. The scores range from 0 to 4, with "0" = never, "1" = rare, less than a day or two, "2" = few days, "3" = more than 7 days, and "4" = almost every day in the past 2 weeks.[28] The scale score can range from 0 to 20. A score $\geq$ 9 indicates a high level of dysfunctional anxiety.[28] The validity and reliability study of the scale in Turkey was conducted by Biçer et al.[29] The factor structure of the Turkish version was identical to the original version, and the Cronbach α reliability coefficient was found to be 0.83.[29] In this study, Cronbach α coefficient was found to be 0.99.

Cancer Behavior Inventory–Brief Form

The inventory was first developed by Heitzmann et al[30] with 33 items. The inventory assesses the coping self-efficacy of cancer patients.[30] Each item can be scored from 1 (not at all sure) to 9 (I am completely confident). The final score is obtained by summing the scores of all items. A higher score indicates higher coping self-efficacy in cancer.[30] The validity and reliability study of the short form of the inventory with 12 items, consisting of four subdimensions, including "maintaining independence and a positive attitude," "participating in medical care," "coping and stress management," and "managing affect," was conducted by İyigün et al.[31] The Cronbach α reliability coefficient was found to be 0.87.[31] In this study, Cronbach α coefficient of the scale was found to be 0.76.

Data Collection

The researchers included cancer patients who met the inclusion criteria. Written informed consent was obtained from the individuals who agreed to participate in the study. After taking appropriate pandemic precautions, the researchers interviewed the patients using the aforementioned instruments in person while the patients received chemotherapy. The data collection process took approximately 20 minutes.

Data Analysis

The data were analyzed using the IBM SPSS (Statistical Package for the Social Sciences, Chicago, Illinois) version 25.0 program for Windows. The dependent variables included the fear of COVID-19, coronavirus anxiety, and coping self-efficacy in cancer. The independent variables included sociodemographic and disease-related characteristics. The mean, standard deviation, minimum-maximum values of the scales, frequency, and percentage distribution of the sociodemographic characteristics were calculated. The normality of the data was assessed by the Kolmogorov–Smirnov test. Independent samples *t* tests were conducted for normally distributed binary groups, and Mann–Whitney *U* tests were conducted for data that did not follow the normal distribution. Pearson correlation coefficient was used to determine the relationship between the total scores of the scales. Categorical data were coded as 0 and 1 for multiple regression analysis. The variables that were statistically significant in the bivariate analysis were examined in the multiple linear regression analysis with backward selection. The significance level was considered to be 0.05 for all analyses.

Ethical Consideration

Ethical approval from the Gazi University Ethics Commission (no. 2021–1213) and written institutional permission were obtained for data collection. After the participants were informed about the purpose and process of the study and signed the informed consent form, the questionnaire and scales were filled in by the researchers. The participants were informed that no personal information would be requested by the researchers, and their answers to the questionnaires and scales would not be used for anything other than scientific purposes. The study was conducted according to the framework of the Declaration of Helsinki.

Results

Demographic and Disease-Related Characteristics of Cancer Patients

Among the recruited individuals (N = 406), two suffered cardiac arrest, five refused to participate, and three were unable to complete the study because of fatigue and feeling sick. The participation rate was 97.5% (n = 396).

The mean age of the participants was 55.56 $\pm$ 8.03 years and 54.5% were female. Approximately 41% were high school and university graduates, 83.1% were married, 16.2% were working, and 92.2% were nonsmokers. The three most common types of cancer were breast (20.5%), colorectal (19.9%), and lung (13.6%) cancers. Approximately 40% of the participants were in the fourth stage of the disease. Approximately 41.4% of the participants had comorbid diseases, and 38.4% of them were on medication. Also, 20.7% of the participants were diagnosed with cancer within the past 3 months. Approximately 34.1% of the participants received seven or more cycles of chemotherapy, and the frequency of the cycle was 18 days or more in approximately 54% of cases. Among the participants, 78.5% stated that they experienced side effects related to cancer treatment. Approximately 94% of participants were vaccinated for COVID-19, and approximately 15% suffered from COVID-19 disease in the past 6 months. The perception of physical and mental health in the past 6 months was found to be good in 45.5% and 55.8% of the patients, respectively (Table 1).

Factors Associated With Fear of COVID-19 in Cancer Patients

The mean score of the Fear of COVID-19 Scale was 16.28 $\pm$ 5.69 (minimum 7, maximum 35). The fear of coronavirus was higher in the participants who were over the age of 45, did not work, had a

TABLE 1
Demographic and Disease-Related Characteristics of Patients and Mean Scores of Fear and Coping Self-efficacy (n = 396).

Characteristics	n (%)	Fear of COVID-19 Scale	Cancer Behavior Inventory–Brief Form
Age (mean, SD), y	55.56 ± 8.03		
<45 years	43 (10.9)	14.19 ± 5.37	90.98 ± 11.90
≥45 years	353 (89.1)	**16.53 ± 5.69***	89.69 ± 12.39
Sex			
Female	216 (54.5)	16.43 ± 5.31	88.23 ± 12.88
Male	180 (45.5)	16.10 ± 6.13	**91.75 ± 11.40***
Education level			
<High school	234 (59.1)	16.37 ± 5.32	89.17 ± 12.89
High school and above	162 (40.9)	16.14 ± 6.21	90.79 ± 11.47
Marital status			
Married	329 (83.1)	16.12 ± 5.84	90.05 ± 12.41
Single	67 (16.9)	17.04 ± 4.92	88.78 ± 12.04
Working status			
Yes	64 (16.2)	14.36 ± 6.05	**95.92 ± 10.07***
No	332 (83.8)	**16.65 ± 5.56***	88.66 ± 12.40
Smoking status			
Yes	31 (7.8)	14.65 ± 5.97	**96.00 ± 9.23***
No	365 (92.2)	16.42 ± 5.66	89.31 ± 12.44
Disease stage			
<4th stage	237 (59.8)	16.39 ± 5.25	88.79 ± 11.89
4th stage	159 (40.2)	16.11 ± 6.32	**91.38 ± 12.87†**
Duration of diagnosis			
≤3 months	82 (20.7)	13.76 ± 5.11	**93.91 ± 10.47***
≥4 months	314 (79.3)	**16.93 ± 5.66***	88.76 ± 12.57
Treatment-related side effects			
Yes	311 (78.5)	16.29 ± 5.71	89.22 ± 12.50
No	85 (21.5)	16.25 ± 5.69	**92.07 ± 11.52†**
Status of being vaccinated against COVID-19			
Yes	372 (93.9)	16.30 ± 5.73	89.98 ± 11.97
No	24 (6.1)	15.92 ± 5.19	87.58 ± 17.25
Vaccination dose (n = 372)			
≤2 doses	163 (43.8)	14.79 ± 5.53	**92.39 ± 11.56***
>2 doses	209 (56.2)	17.48 ± 5.62	88.09 ± 11.98
Boosting effect of the vaccine on self-confidence (n = 372)			
Yes	290 (77.9)	**16.84 ± 5.74***	89.99 ± 12.49
No	82 (22.1)	14.39 ± 5.30	89.91 ± 9.99
Being infected with COVID-19			
Yes	59 (14.9)	16.24 ± 4.99	91.46 ± 10.92
No	337 (85.1)	16.28 ± 5.82	89.55 ± 12.56
Perception of mental health in the past 6 months			
Good	180 (45.5)	15.06 ± 5.25	**94.90 ± 10.06†**
Poor	216 (54.5)	**17.29 ± 5.86***	85.61 ± 12.49
Perception of mental health in the past 6 months			
Good	221 (55.8)	14.71 ± 5.21	**92.75 ± 11.15***
Poor	175 (44.2)	**18.26 ± 5.68***	86.14 ± 12.80

* $P < .01$.
† $P < .05$.

poor perception of physical and mental health in the past 6 months, were diagnosed with cancer 4 months ago or earlier, and stated that the vaccine increased their self-confidence ($P < .01$) (Table 1). The age, employment status, boosting effect of vaccination on self-confidence, duration of diagnosis, perception of physical and mental health in the past 6 months, and coping self-efficacy in cancer were included in the multiple linear regression model. The model consisting of the boosting effect of the vaccination on self-confidence, the duration of diagnosis, and the perception of mental health explained 16% of the variance of COVID-19-related fear (adjusted $R^2 = 0.16$, $F = 24.694$, $P < .001$). The boosting effect of vaccination on self-confidence ($\beta = 0.209$), duration of diagnosis ($\beta = 0.219$), and perception of mental health ($\beta = 0.284$) were associated with the fear of COVID-19 (Table 2).

Factors Associated With Anxiety Related to Coronavirus in Cancer Patients

The mean score of the Coronavirus (COVID-19) Anxiety Scale–-Short Form was 0.41 ± 1.77 (minimum 0, maximum 15). As per the cut-off point of the scale (≥9 points), only 2.3% (n = 9) of the participants had anxiety. Therefore, an analysis of anxiety-related factors could not be performed.

Factors Associated With Coping Self-efficacy of Participants Diagnosed With Cancer

The coping self-efficacy mean score was 89.83 ± 12.34 (minimum 58, maximum 108). Coping self-efficacy was higher among men, workers, smokers, those who were in the fourth stage of the disease, diagnosed with cancer 3 months ago or later, had no side effects, received two or fewer doses of the COVID-19 vaccine, and had a good perception of physical and mental health ($P < .05$). The gender of the participants, employment status, smoking status, disease stage, duration of diagnosis, the experience of side effects, vaccination dose, perception of physical and mental health in the past 6 months, and fear were included in the multiple linear regression model. The model consisting of the smoking status, disease stage, vaccination dose, and the perception of physical and mental health explained 20% of the variance in coping self-efficacy (adjusted $R^2 = 0.20$, $F = 13.704$, $P < .001$). Smoking ($\beta = 0.116$), vaccination dose ($\beta = 0.139$), and disease stage ($\beta = 0.101$) were positively associated, whereas the perception of physical health ($\beta = -0.262$) and the perception of mental health ($\beta = -0.112$) were negatively associated with coping self-efficacy (Table 3).

Discussion

The risk of coronavirus transmission is a serious problem that adversely affected the emotional well-being of cancer patients. Antineoplastic drugs often weaken the immune system and increase the risk of serious illness or complications. Thus, about 9% of cancer patients avoided visiting the doctor or hospital because of the fear of COVID-19 infection, and 80% of them were worried about being infected with COVID-19.[32] Our findings suggested that the COVID-19-related fear of cancer patients was moderate. The reduction in fear was probably owing to the emotional relief provided by the fact that almost everyone was vaccinated, and more than half of the people were vaccinated with more than two doses. The fear levels were moderate also because most individuals did not have a COVID-19

TABLE 2
Results of Regression Analysis on Factors Associated With Fear of COVID-19.

Variables	B	95% CI for B		SE	β	P	Regression
		Lower Bound	Upper Bound				
Boosting effect of vaccination on self-confidence (Ref: Remaining the same)	2.89	1.52	4.01	0.66	0.209	<.001	$F = 24.694$
Perception of mental health (Ref: Good)	3.27	1.85	3.95	0.55	0.284	<.001	$P < .001$
Duration of diagnosis (Ref: ≤3 months)	3.06	1.41	3.95	0.67	0.219	<.001	Adjusted $R^2 = 0.16$

Ref, reference; SE, standard error; B, unstandardized coefficient; β, standardized coefficient; CI, confidence interval.

TABLE 3
Regression Analysis Results on Factors Associated With Coping Self-efficacy in Cancer.

Variables	B	95% CI for B		SE	β	P	Regression
		Lower Bound	Upper Bound				
Smoking status (Ref: No)	5.11	0.95	9.27	2.08	0.116	.016	$F = 13.704$
Vaccination dose (Ref: >2 doses)	3.34	1.10	5.58	1.13	0.139	.004	$P < .001$
Perception of physical health (Ref: Good)	−6.28	−8.81	−3.74	1.28	−0.262	<.001	Adjusted $R^2 = 0.20$
Perception of mental health (Ref: Good)	−2.68	−5.21	−0.15	−1.29	−0.112	.038	
Disease stage (Ref: ≥3rd stage)	2.47	0.20	4.72	1.15	0.101	.033	

Ref, reference; SE, standard error; B, unstandardized coefficient; β, standardized coefficient; CI, confidence interval.

infection in the past 6 months. Several studies[33,34] found that COVID-19-related fear of cancer patients increased during the pandemic. Especially in the early stages of the pandemic, about 66% of cancer patients experienced fear related to COVID-19 in a study by Yao et al[35] and 39% in a study by Caston et al.[36] Fear acted as a threat to the health of cancer patients during the pandemic. Hence, the risk factors that might increase fear should be considered.

The results of the multiple linear regression analysis showed that the duration of diagnosis, the boosting effect of vaccination on self-confidence, and the perception of mental health were significantly associated with the fear of COVID-19. The fear level among cancer patients increased as their diagnosis period, and their self-confidence boosted by vaccination increased. This finding indicated that fear probably enabled cancer patients to prevent their clinical condition from worsening by encouraging the patients to adhere to preventive measures and get vaccinated. Similarly, Kıyak and Polat[33] found that fear was higher in vaccinated individuals than in nonvaccinated individuals. Additionally, individuals who perceived their mental health as poor were more likely to be scared of COVID-19. Fear increases with the prolongation of the diagnosis period, more intense side effects of antineoplastic treatment, the difficulty of symptom control, a decrease in functional independence, and an increase in the psychological burden of individuals.

Public health emergencies, such as the pandemic, can cause anxiety and fear because of the lack of precise information on the treatment of COVID-19, the high risk of transmission, and uncertainty.[36] However, we found that the COVID-19-related anxiety level was very low, and most cancer patients did not have anxiety. Similarly, Irusen et al[37] found that only 3% of the participants had COVID-19-related anxiety. Kıyak and Polat[33] found that the COVID-19-related anxiety level of breast cancer patients was very low. Dehghan et al[38] found that approximately three-quarters of cancer patients did not have anxiety or had mild anxiety. Chen et al[39] found that approximately two out of every three individuals had mild to severe anxiety during the pandemic. However, Runida and Menekli[40] recorded a higher coronavirus anxiety score than that recorded in this study, and individuals had severe anxiety. This difference might be because of the high number of COVID cases recorded when that study was being conducted.

Cancer causes significant psychological and emotional stress because it is a life-threatening fatal disease, its duration of treatment is long and difficult, and the treatment is associated with many adverse side effects.[4] Therefore, cancer-related anxiety might be more prominent than COVID-19-related anxiety in cancer patients, and they might experience more anxiety because of the consequences of cancer than because of the risk of COVID-19 infection. Also, considering that the study was conducted in the later part of the COVID-19 pandemic, the fact that most individuals were vaccinated, the declining number of cases, and the increase in knowledge and awareness of COVID-19 protection might have affected anxiety. Predictive factors could not be examined in this study because most individuals did not have anxiety.

Coping self-efficacy is an important process in cancer diagnosis, treatment, and survival after treatment, and it fluctuates depending on how well the person copes with these situations.[18] In this study, we found that individuals had a good level of coping self-efficacy. In the study conducted by Amirshamsi et al,[41] the coping self-efficacy of individuals was above average, similar to our study. The Cancer Behavior Inventory−Brief Form scale does not have a cut-off score, and the highest score that can be achieved is 108. Our findings showed that the participants successfully coped with the disease during the pandemic. In other studies,[19,42] individuals were found to have lower self-efficacy in coping with cancer. This difference probably occurred because those studies were conducted before the pandemic. Increasing self-efficacy in coping with cancer can decrease physical and psychological symptoms, promote self-care, enhance the quality of life, and facilitate compliance with healthy lifestyle behaviors of individuals who are developing/maintaining safe behaviors.[18,42–44]

This study highlighted that some characteristics of cancer patients (vaccination dose, perception of physical health, smoking, cancer stage, and perception of mental health) were significant determinants of coping self-efficacy. Interestingly, smoking was a predictor of self-efficacy in coping with cancer in this study. Individuals with cancer tend to smoke as a source of coping, and smoking might provide emotional relief or resilience in stress management. We also found that individuals who received fewer than two doses of vaccination had high self-efficacy in coping with cancer. This might have occurred because individuals predicted that a low dose of vaccine would be safer for them because of possible vaccine complications that might develop in the future. It is expected that individuals who perceive their physical health as good have higher self-efficacy in coping. The stage of the disease was another predictor of the self-efficacy of coping with cancer, which was high in those with advanced stages of the disease. This finding puts huge responsibilities on oncologists to perform early diagnosis or screening tests. As recommended by the American Cancer Society,[25] oncologists and oncology nurses should encourage individuals over the age of 45 to undergo diagnosis and screening tests. Although early diagnosis might allow effective disease management, it can create a psychological burden among individuals diagnosed with cancer when they least expect it or at the age when they are most productive. Considering that the self-efficacy of coping was low among individuals with poor perception of physical and mental health in this study, it is necessary to help individuals control their psychological and physical symptoms. For this, oncologists and oncology nurses need to determine the support resources of the patients for the possible or existing cancer-related cognitive, affective, and behavioral reactions, activate these resources, evaluate the burden of caregivers, and apply interventional strategies, such as cognitive behavioral therapy to effectively control the symptoms.

Strengths

We used highly valid and reliable scales in the study. By including individuals diagnosed with different types of cancer in this study, we received diverse responses on coping self-efficacy, especially the responses of patients with different disease metastases or prognoses. Additionally, the self-efficacy of coping might have positively induced

cancer patients to be aware of their inner strengths and to apply them to fight the disease. The sample size of 396 individuals with cancer was also favorable.

Limitations

Our study had some limitations. Because this was a single-center study, the generalizability of the results is limited. Individuals from the Turkish population were included in the study, and the study was conducted in Turkish. Thus, the results of the study cannot be generalized to every group, considering the cultural characteristics of minorities living in Turkey who have a native language other than Turkish.

An inclusion criterion for the study was being 18–65 years old. The prevalence and incidence of cancer increase with advancing age. However, changes in the physiology of old individuals and increasing comorbid diseases with advancing age also have multifaceted negative effects on the psychological, physical, and social support and the coping abilities of individuals with cancer. To keep the multifaceted effects under control, individuals over the age of 65 were not included in the study. Although the scales used in this study had high validity and reliability, they might not be suitable for clinically evaluating mental health conditions. Being able to answer questions logically and not having any mental pathology written in their medical knowledge were accepted as criteria showing that the individuals were mentally competent. The evaluation of the results of the study was based on the answers given by the cancer patients. Additionally, the responses of individuals to the items on the scale might have been affected by various factors. The side effects experienced during chemotherapy created difficulties in filling out the questionnaires in some cases. The social support levels or sources of the individuals could not be evaluated. It could be questioned how the fear, anxiety, and coping self-efficacy levels of the patients were also evaluated from the perspective of the caregivers. Also, interventional or longitudinal studies with a larger and heterogeneous sample group should be performed to reduce psychological and/or somatic symptoms, as well as physical symptoms of individuals, and increase their self-efficacy in coping.

Conclusion

In this study, we found that the participants had a moderate level of COVID-19-related fear and a good level of coping self-efficacy. Most cancer patients did not have coronavirus-related anxiety. The factors that influenced the fear of COVID-19 included the duration of diagnosis, the boosting effect of vaccination on self-confidence, and the perception of mental health. The vaccination dose, perception of physical and mental health, smoking, and cancer stage were significant determinants of coping self-efficacy. Psychosocial support should be provided to reduce the fear of individuals, and techniques for effectively managing physical and psychological symptoms should be taught to cancer patients. Various techniques, such as health education and counseling, to develop problem-focused coping skills could be implemented to further improve the coping self-efficacy levels of individuals.

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Declaration of Competing Interest

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