ORIGINAL RESEARCH

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Evaluation of Psychological Distress in Patients Undergoing Cancer Treatment in an Oncology Department During the COVID-19 Pandemic

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ABSTRACT Objective: Patients with cancer have an increased risk of severe coronavirus disease-2019 (COVID-19) because their immune systems are suppressed due to cancer treatments or cancer itself. Therefore, patients with cancer are prone to COVID-19 infection. In this study, we evaluated the anxiety of patients receiving cancer treatment in our oncology department during the COVID-19 pandemic. **Material and Methods:** This descriptive cross-sectional study consisted of 220 patients receiving cancer treatment in the medical oncology clinic of our hospital between 01 and 30 April 2020. Study data were obtained using a questionnaire consisting of 26 questions. The Hospital Anxiety and Depression Scale was used to determine the patients' psychological distress. The scale results were compared with the results of Kruskal-Wallis, Mann-Whitney U, and chi-square tests. **Results:** We observed that 80 (36.4%) and 40 (18.2%) of the 220 patients studied had risks of depression and anxiety, respectively. In this study, 46.4% of the patients believed that their illness was being negatively affected by the COVID-19 pandemic, and 45.5% of the patients worried that their treatment would be interrupted during this period. **Conclusion:** Our results suggest that patients with cancer need more psychosocial support than do the general population during this pandemic period. These needs should be considered while planning oncological health services, and appropriate arrangements should be made.

Keywords: Cancer; anxiety; depression; COVID-19; Hospital Anxiety and Depression

Coronavirus disease-2019 (COVID-19) is caused by a new and rapidly spreading CoV called severe acute respiratory syndrome-CoV-2 (SARS-CoV-2).[1] The first case of a human with COVID-19 caused by SARS-CoV-2 was reported in Wuhan, China, in December 2019. Since then, 54,300,000 and 1,300,000 people have contracted COVID-19 and have died due to COVID-19, respectively.[2] The data available so far suggest that elderly people are more susceptible than the younger population to COVID-19 complications, particularly if they have comorbidities such as diabetes, cardiovascular disease, chronic kidney disease, chronic lung disease, and active cancer.[3] Some cancer therapies and some cancers themselves suppress the immune system. Immunosuppression can expose these patients to serious complications from infection, which can lead to treatment delays and unnecessary hospitalizations, negatively affecting disease prognosis.[4] Thus, patients with cancer are at an increased risk of COVID-19. A study conducted in China revealed that the risk of COVID-19 is 3.5 times higherin patients with cancer than in the normal population.[5]

Furthermore, during the COVID-9 pandemic, the hospital admissions of patients with cancer significantly decreased, their diagnosis was delayed, and their treatment was affected due to insufficient health care resources for patients requiring regular evaluation in hospitals. Thus, the COVID-19 pandemic likely created or exacerbated mental health problems.[6,7]

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The current pandemic could lead to additional psychological distress for patients with cancer during the treatment period due to possible delays in treatment that may worsen the cancer prognosis. Furthermore, patients with cancer are more worry about having COVID-19 infection due to immune suppression in cancer and serious complications caused by COVID-19. In addition, increased exposure to thehospital environment increases infection risk.[8] Therefore, this study aimed to investigate anxiety in patients undergoing cancer treatment in our oncology department during the COVID-19 pandemic.

MATERIAL AND METHODS

Our descriptive cross-sectional study consisted of patients undergoing cancer treatment in the medical oncology clinic of our hospital between 01 and 30 April 2020. Patients with cancer >18 years old who voluntarily agreed to participate in the study were included. A similar study conducted in Türkiye, revealed that at least 212 patients should be included in our study for a Type I error rate of 5% and study power of 80% in calculations made with the Minitab 16 program Statistical Software (Minitab Inc., State College, PA, USA).[9]

Study data were obtained using a questionnaire consisting of 26 questions. Inclusion criteria were having a cancer diagnosis, age >18 years, ability to read and write, and absence of mental disability. Patients meeting the inclusion criteria were informed about the study. A questionnaire was provided to those who volunteered to participate in the study, and the filled questionnaires were collected on the same day.

The questionnaire was created by the investigators and consists of questions regarding the patients' sociodemographic characteristics, concerns related to COVID-19, and the Hospital Anxiety and Depression (HAD) Scale. The HAD Scale was created by Zigmond and Snaith and is used to measure the severity of depression (HAD-D) and anxiety (HAD-A).[10] The goal of this scale is not to diagnose but rather to determine the risk group through screening anxiety and depression in patients with physical conditions in a short period. The scale has 14 questions in total, 7 each for anxiety and depression. Participants can score between 0 and 21 on each subscale. In the Turkish validity and reliability study performed by Aydemir et al., cutoff scores for anxiety and depression subscales were 10/11 and 7/8, respectively.[11] For example, participants receiving ≥11 points on HAD-A should be carefully evaluated for anxiety.

STATISTICAL ANALYSIS

The results of the study were analyzed using the SPSS 22.0 (IBM Corporation, Armonk, NY, USA) package program. The Kolmogorov-Smirnov test was used to determine whether continuous data followed a normal distribution. Continuous variables that were not normally distributed were presented as median with the smallest and highest values. For comparison of these data, the Mann-Whitney U and Kruskal-Wallis tests were used for two and more than two groups, respectively. Categorical variables, presented as numbers or percentages, were analyzed using the chi-square or Fisher exact test where appropriate. In all the tests, the statistical significance level was set to $p<0.05$.

ETHICAL CONSIDERATIONS

The study was conducted according to the Declaration of Helsinki. Participants were informed about the study, and informed consent was obtained verbally from them. Institutional permissions and local ethics committee approval (Ondokuz Mayıs University Clinical Research Ethics Committee, date: April 22, 2020, no: B.30.2.ODM.0.20.08/224) were obtained for the study. This Study was approved by the Ministry of Health of the Republic of Turkey.

RESULTS

A total of 220 patients, 137 (62.3%) women and 83 (37.7%) men, participated in the study. The median age of the patients was 57 (22-80) years, and 75.9% of the patients were married. The percentages of patients with primary/secondary school education and of patients living with their spouses and children were 57.3% and 58.5%, respectively. The distributions of some sociodemographic characteristics of the participants are presented in Table 1.

TABLE 1: Sociodemographic characteristics of the study participants.

Variables		n (%)
Age (year) [median (minimum-maximum)]		57 (22-80)
Sex	Male	83 (37.7)
	Female	137 (62.3)
Education status	Primary/middle school degree	126 (57.3)
	High school or higher levels of education	94 (42.7)
Marital status	Married	167 (75.9)
	Single, widowed, or divorced	53 (24.1)
Employment status	Employed	50 (22.7)
	Unemployed	170 (77.3)
Persons living in the house	Alone	15 (6.8)
	Spouse	51 (23.3)
	Spouse and children	129 (58.5)
	Other (parents, etc.)	25 (11.4)
Frequency of leaving home during the pandemic	One day per week	138 (62.7)
	2-3 days per week	29 (13.2)
	4-7 days per week	21 (9.5)
	Never	32 (14.5)

The proportions of the participants with various cancers were as follows: breast cancer, 32.2%; lung cancer, 18.2%; female genital organ cancers (ovary, endometrium, cervix, etc.), 12.9%; digestive system cancers (colon, rectum, stomach, etc.), 11.4%; pancreatic cancer, 6.1%; male genital organ cancers (testis, prostate, etc.), 3.8%; skin and soft tissue cancers, 3.8%; and other cancers (brain, larynx, etc.), 11.6%. Furthermore, 6.9%, 21.5%, 28.5%, and 43.1% of the patients were in stages 1, 2, 3, and 4 of the disease, respectively. In addition to cancer treatment, 21.8% (48) of the patients were taking psychiatric medication.

Among the participants, 46.4% believed that their illness was negatively affected by the COVID-19 pandemic, and 45.5% worried that their treatment would be interrupted during this period. Only 16 (7.3%) patients considered terminating their treatment during the pandemic. Furthermore, 16 (7.3%) patients could not attend hospital appointments on time.

Additionally, 16.8% of the participants changed the people they lived with due to the COVID-19 pandemic. Moreover, 62.7% went outdoor once a week, whereas 14.5% of them never left their houses during the pandemic. Regarding the daily grocery shopping, 16.4% of the patients did it themselves, whereas 83.6% of the patients got it done by a relative.

The patients' scores on the anxiety and depression scale were compared according to some of their characteristics. No difference was observed in the scores for both subscales in terms of sex, education level, marital status, persons living in the household, and cancer stage ($p>0.05$). However, the anxiety score was significantly high in patients aged ≥60 years and in those taking psychiatric medication ($p=0.03$ and $p=0.02$, respectively). Furthermore, the depression scores of patients taking psychiatric medication were significantly high ($p=0.004$). The distribution of HAD Scale scores according to the patients' sociodemographic characteristics and their answers to the questions regarding the COVID-19 pandemic is presented in Table 2.

According to the evaluation on the basis of the HAD Scale scores, 80 (36.4%) and 40 (18.2%) of the 220 patients had risks of depression and anxiety, respectively. The number of patients at risk of both depression and anxiety was 31 (14.1%). No signif-

TABLE 2: Distribution of the Hospital Anxiety and Depression Scale (HAD-A and HAD-D) scores of the study participants according to some variables (n=220).

Variables		Anxiety score (HAD-A) median (minimum-maximum)	p value	Depression score (HAD-D) median (minimum-maximum)	p value
Sex	Male	6 (0-19)	0.15	6 (0-19)	0.94
	Female	6.5 (0-17)		6 (0-19)	
Age (year)	<60	6 (0-18)	**0.03***	6 (0-16)	0.27
	≥60	7 (0-19)		6 (0-19)	
Education status	Primary/middle school degree	6 (0-18)	0.35	6 (0-17)	0.20
	High school or higher levels of education	6 (0-19)		6 (0-18)	
Marital status	Married	6 (0-17)	0.13	5 (0-16)	0.21
	Single, widowed, or divorced	6 (0-19)		6 (0-19)	
Employment status	Employed	6 (0-17)	0.38	6 (0-14)	0.85
	Unemployed	7 (0-19)		6 (0-19)	
Persons living in the house	Alone	7 (1-17)	0.22	8 (0-15)	0.23
	Spouse	6.5 (0-19)		6 (0-19)	
	Spouse and children	6 (0-19)		5 (0-19)	
	Other (parents, etc.)	6 (0-16)		4 (0-16)	
Patient taking any psychiatric medications	Yes	8 (0-19)	**0.02***	8 (0-19)	**0.004***
	No	6 (0-17)		5 (0-19)	
Cancer stage	Stage 1-2	6 (0-18)	0.87	5 (0-18)	0.55
	Stage 3-4	7 (1-19)		7 (0-19)	
Patient thinks the COVID-19 pandemic will negatively affect his/her disease	Yes	8.5 (1-19)	**0.000***	8 (0-19)	**0.000***
	No	5 (0-14)		5 (0-15)	
Patient worried that the pandemic will disrupt his/her treatment	Yes	9 (0-19)	**0.000***	8 (0-19)	**0.000***
	No	5 (0-15)		5 (0-14)	
Patient considered terminating his/her treatment during the pandemic	Yes	9 (1-14)	**0.019***	8 (1-15)	0.068
	No	6 (0-19)		6 (0-19)	
Patient missed appointments during the pandemic	Yes	8.5 (0-17)	0.15	5 (2-19)	0.74
	No	6 (0-19)		6 (0-19)	
People living with the patient changed during the pandemic	Yes	9 (0-19)	**0.02***	6 (0-19)	0.13
	No	6 (0-18)		6 (0-16)	
Shopping done for the patient during the pandemic by	The patient	5 (0-17)	**0.02***	4 (0-14)	**0.04***
	Others	7 (0-19)		6 (0-19)	
Frequency of leaving home during the pandemic	One day per week	7 (0-17)	0.53	5.5 (0-19)	0.88
	2-3 days per week	5 (0-19)		6 (0-14)	
	4-7 days per week	6 (0-17)		6 (0-14)	
	Never	6.5 (1-15)		7 (0-13)	

*<0.05; HAD: Hospital Anxiety and Depression.

icant difference was observed in the risks of anxiety and depression according to age (p=0.17 and p=0.26, respectively). Similarly, no difference was observed in the risks of anxiety and depression according to age groups (Table 3). The risks of anxiety and depression were significantly higher in the patients taking psychiatric medication (31.3% and 52.1%, respectively) than in those not on psychiatric medication (14.8% and 32.0%, respectively; p=0.01 for both comparisons; Table 3). The distribution of anxiety and depression risks according to the sociodemographic characteristics of the participants and their answers to the questions re- garding the COVID-19 pandemic is presented in Table 3.

TABLE 3: Distribution of risk status in terms of anxiety and depression according to the cutoff values of the Hospital Anxiety and Depression Scale.

Variables		Risk of anxiety		p value	Risk of depression		p value
		Yes (n=40)	No (n=180)		Yes (n=80)	No (n=140)	
Sex	Male	13 (15.7)	70 (84.3)	0.56	30 (36.1)	53 (63.9)	1.00
	Female	27 (19.7)	110 (80.3)		50 (36.5)	87 (63.5)	
Age (year)	<60	21 (17.5)	99 (82.5)	0.91	40 (33.3)	80 (66.7)	0.32
	≥60	19 (19.0)	81 (81.0)		40 (40.0)	60 (60.0)	
Education status	Primary/middle school degree	21 (16.7)	105 (83.3)	0.61	49 (38.9)	77 (61.1)	0.44
	High school or higher levels of education	19 (20.2)	75 (79.8)		31 (33.0)	63 (67.0)	
Marital status	Married	33 (19.8)	134 (80.2)	0.38	64 (38.3)	103 (61.7)	0.36
	Single, widowed, or divorced	7 (13.2)	46 (86.8)		16 (30.2)	37 (69.8)	
Employment status	Employed	9 (18.0)	41 (82.0)	1.00	17 (34.0)	33 (66.0)	0.89
	Unemployed	30 (17.9)	138 (82.1)		61 (36.3)	107 (63.7)	
Persons living in the house with the patient	Alone	2 (13.3)	13 (86.7)	0.43	8 (53.3)	7 (46.7)	0.34
	Spouse	9 (17.6)	42 (82.4)		21 (41.2)	30 (58.8)	
	Spouse and children	27 (21.1)	101 (78.9)		44 (34.4)	84 (65.6)	
	Other (parents, etc.)	2 (8.0)	23 (92.0)		7 (28.0)	18 (72.0)	
Patient taking any psychiatric medications	Yes	15 (31.3)	33 (68.8)	**0.01***	25 (52.1)	23 (47.9)	**0.01***
	No	25 (14.8)	144 (85.2)		54 (32.0)	115 (68.0)	
Cancer stage	Stage 1-2	15 (24.2)	47 (75.8)	0.21	21 (32.8)	43 (67.2)	0.58
	Stage 3-4	25 (15.8)	133 (84.2)		59 (37.8)	97 (62.2)	
Patient thinks the COVID-19 pandemic will	Yes	32 (31.4)	70 (68.6)	**0.000***	53 (52.0)	49 (48.0)	**0.000***
negatively affect his/her disease	No	7 (6.0)	109 (94.0)		26 (22.4)	90 (77.6)	
Patient worried that the pandemic will disrupt his/her treatment	Yes	34 (34.0)	66 (66.0)	**0.000***	55 (55.0)	45 (45.0)	**0.000***
	No	5 (4.2)	114 (95.8)		24 (20.2)	95 (79.8)	
Patient considered terminating his/her treatment during the pandemic	Yes	4 (25.0)	12 (75.0)	0.66	9 (56.3)	7 (43.8)	0.14
	No	35 (17.3)	167 (82.7)		70 (34.7)	132 (65.3)	
Patient missed appointments during the pandemic	Yes	5 (31.3)	11 (68.8)	0.17	5 (31.3)	11 (68.8)	0.90
	No	34 (16.8)	168 (83.2)		73 (36.1)	129 (63.9)	
People living with the patient changed during the pandemic	Yes	12 (32.4)	25 (67.6)	**0.03***	16 (43.2)	21 (56.8)	0.44
	No	28 (15.8)	149 (84.2)		62 (35.0)	115 (65.0)	
Shopping done for the patient during the pandemic by	The patient	3 (8.3)	33 (91.7)	0.23	10 (27.8)	26 (72.2)	0.33
	Others	37 (20.3)	145 (79.7)		69 (37.9)	113 (62.1)	
Frequency of leaving home during the pandemic	One day per week	27 (19.6)	111 (80.4)	0.09	88 (63.8)	50 (36.2)	0.92
	2-3 days per week	3 (10.3)	26 (89.7)		19 (65.5)	10 (34.5)	
	4-7 days per week	7 (33.3)	14 (66.7)		12 (57.1)	9 (42.9)	
	Never	3 (9.4)	29 (90.6)		21 (65.6)	11 (34.4)	

*<0.05.

DISCUSSION

Studies on the evaluation of the experiences of patients with cancer and their symptoms of anxiety and depression during the COVID-19 pandemic are limited. Mental illnesses have been more common in patients with cancer than in the general population.[12,13] Mental illness has been found to negatively affect treatment compliance, prolong hospitalization, and decrease the quality of life.[14,15] Thus, the risk of mental diseases during the COVID-19 pandemic is likely increased in patients with cancer receiving immunosuppressive therapy and requiring regular hospital treatment.

The data of studies that evaluated depression in patients with cancer have been conflicting. Mitchell et al. published a meta-analysis consisting of 66 studies that evaluated depression in patients with cancer. In this study, the prevalence of major depression was 16.3% in patients without palliative care.[16] In our study, the risks of depression and anxiety as evaluated by HAD were 36.4% and 18.2%, respectively. The proportions of patients with cancer with risks of depression and anxiety were higher in our study than in other similar studies. Similarly, Wang et al. found that 23.4% and 17.7% of cancer patients had risks of depression and anxiety, respectively, during the COVID-19 pandemic.[17] These findings show that, during the pandemic, patients with cancer must be assessed for mental distress in addition to their medical care. Moreover, the American Society of Clinical Oncology states that all patients diagnosed with cancer should be evaluated for the symptoms of anxiety and depression.[18] Additionally, health services should be made accessible to patients at risk of mental health problems.

According to our study data, the risk of depression was higher in patients with cancer who believed the pandemic would negatively affect their disease or that their treatment would be disrupted than in patients who did not have these concerns. Similarly, Wang et al. stated that mental distress is high in patients who believe their cancer treatment will be disrupted due to the COVID-19 pandemic.[17] Therefore, the proper management of health services, the accessibility of health services, and, most importantly, the dissemination of information in a timely manner will increase the psychological resilience of the patients and reduce the frequency of mental illness. According to the World Health Organization, regular sleep and a healthy diet are crucial for mental health. During quarantine, physical activities such as cleaning must be performed to maintain mobility. Moreover, singing and painting and simple physical exercises should be included to maintain mental health.[19]

In our study, the proportions of patients with anxiety and depression were higher among those taking psychotropic medication and having a history of a psychiatric disease than among the rest of the participants. Patients with cancer having a mental illness have a risk of the recurrence of depression and anxiety disorders during the pandemic. Therefore, these patients should be examined carefully for existing mental illnesses. During this pandemic, individuals with any mental illness should be in constant contact with a psychiatrist. Regular use of psychiatric drugs, routine and planned daily life, and attention to sleep patterns will make it easier for people to cope with this challenging situation.

During the pandemic, many people with chronic diseases had to live alone to protect themselves from the disease. According to our study data, people who had to live alone due to the pandemic had higher levels of anxiety than those who continued to stay with their families. There are two aspects to this relationship: being alone or staying away from relatives may increase anxiety symptoms, or people with high levels of anxiety may prefer to live alone to avoid contracting COVID-19. In both cases, psychosocial support provided during the pandemic will be beneficial in reducing the patients' anxiety levels.

The risks of depression and anxiety were found to be lower in patients shopping for themselves compared with those who received help for shopping. Although no evaluation was made to determine their functionality in our study, we can conclude that the feeling of self-sufficiency has a protective effect against depression and anxiety symptoms. Thus, the ability of patients to continue their controlled social lives is protective in terms of mental health, provided the risk of contracting an infection is considered.

The limitations of our study are that a self-report scale was used to screen patients' depressive symptoms, and a clinical interview was not conducted. For individuals at risk of depression or anxiety, the diagnosis should be confirmed through clinical interviews. Furthermore, appropriate psychological support must be provided to these people.

CONCLUSION

Mental problems should also be evaluated during the medical examinations of patients with cancer during the pandemic. These patients need more psychosocial support than do the general population during this

period. These factors must be considered while planning oncological health services, and appropriate arrangements should be made.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Yasemin Kemal, Aytül Karabekiroğlu, Özlem Terzi;* ***Design:*** *Yasemin Kemal, Aytül Karabekiroğlu, Özlem Terzi;* ***Control/Supervision:*** *Yasemin Kemal, Aytül Karabekiroğlu, Özlem Terzi;* ***Data Collection and/or Processing:*** *Yasemin Kemal;* ***Analysis and/or Interpretation:*** *Özlem Terzi;* ***Literature Review:*** *Yasemin Kemal, Aytül Karabekiroğlu;* ***Writing the Article:*** *Yasemin Kemal, Aytül Karabekiroğlu, Özlem Terzi;* ***Critical Review:*** *Yasemin Kemal, Aytül Karabekiroğlu;* ***References and Fundings:*** *Yasemin Kemal, Aytül Karabekiroğlu, Özlem Terzi.*

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