

# The Relationship Between Death Anxiety and COVID-19 Fear and Anxiety in Women With Breast Cancer

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## Abstract

This study determined the relationship between death anxiety and COVID-19 related fear and anxiety in women with breast cancer. This is a descriptive correlation-seeking study. The research included 140 women with breast cancer who visit the day treatment unit of the oncology department of a state university hospital. Personal Information Form, Fear of COVID-19 Scale (FCV-19S), Coronavirus Anxiety Scale (CAS), and Death Anxiety Scale (DAS) were used to collect data. A significant difference was found between the DAS score and body mass index ( $p = .019$ ) and between FCV-19S score and COVID-19 vaccination status ( $p = .007$ ). As the fear of COVID-19 and coronavirus anxiety of women with breast cancer increase, death anxiety also increases. In conclusion, death anxiety should be taken into consideration for this patient group while maintaining the continuity of care for these patients now and in future pandemics.

## Keywords

breast cancer, coronavirus anxiety, COVID-19 fear, death anxiety, nursing

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## Introduction

The COVID-19 pandemic emerged in December 2019 and continues to affect the population throughout the world. This pandemic has raised concerns regarding primary healthcare, including cancer management (Riera et al., 2021). It is reported in the literature that the risk of COVID-19 infection and COVID-19-associated death is high in patients with chronic diseases and those with immunosuppression caused by cancer treatment (Ayubi et al., 2021). Moreover, patients with cancer are more prone to infections that cause suppression of the immune system due to anticancer treatments (Musche et al., 2020). Therefore, these patients are at severe risk for disease transmission and complications of COVID-19 (Massicotte et al., 2021; Tsamakidis et al., 2020). During the COVID-19 pandemic, patients with cancer may experience fear and anxiety caused by the risks associated with COVID-19 infection and difficulties in accessing treatment and care (Al-Rahimi et al., 2021; Juanjuan et al., 2020; Riera et al., 2021; Wang et al., 2020).

Breast cancer is the most common cancer in women according to the literature, and it is also the leading cause of cancer-related deaths (WHO 2021a). Evidence shows that in 2020, 2.3 million women worldwide were diagnosed with breast cancer, which led to 685 thousand deaths (WHO 2021b). Cancer patients are at higher risk for mental health problems (Wang et al., 2020). Patients diagnosed with breast cancer face psychological effects of diagnosis and treatment, especially death anxiety (Karampour et al., 2018; Li et al., 2021; Metcalfe et al., 2021). Previous studies in the literature report that COVID-19 fear and anxiety rates were higher among patients with breast and lung cancers during the COVID-19 pandemic (Sigorski et al., 2020).

Furthermore, cancer diagnosis can lead to severe anxiety (Salehi et al., 2020). Since COVID-19 infection results in death in some cases, it can induce or increase the death anxiety of individuals (Kavaklı et al., 2020). The sharing of data regarding mortality rates by public news channels and the constant use of face masks and disinfectants make clues of death visible (Menzies & Menzies, 2020) which in turn may trigger death anxiety in individuals (Kavaklı et al., 2020). Death is an inevitable part of human life; however, individuals with a chronic illness as deadly as cancer experience substantially higher levels of death anxiety compared to people with other chronic diseases (Bibi & Khalid, 2020). Death anxiety can be defined as “the feeling of irritability and fear arising from the expectation of death as well as the feeling of regret resulting from not being able to achieve personal goals” (Tang et al., 2011). In a previous study, Salehi Zahabi and Mahmoudi (2017) reported that 72.9% of patients with breast cancer had high levels of death anxiety. Similarly, Karampour et al. (2018) reported this rate to be 66.9% in their study. In a previous meta-analysis in which death anxiety was examined in patients with cancer (Soleimani et al., 2020), results showed that patients with cancer experienced moderate death anxiety, and it was higher among women with breast cancer.

Nurses play an important role in the healthcare system and can help women with breast cancer adapt to the psychological changes they experience and improve their

quality of life (Uslu-Sahan et al., 2019). Patients with breast cancer are at high risk during the COVID-19 pandemic and constitute a vulnerable patient group. Therefore, it is necessary to gain more information regarding COVID-19-related fear and anxiety and death anxiety to optimize the care provided to them by incorporating the obtained data into care practices (Kim & Kim, 2021; Menzies & Menzies, 2020). This can help us provide holistic care to patients with cancer during epidemics. The aim of this study is to determine the relationship between death anxiety and COVID-19 fear and anxiety in women with breast cancer. The research questions of this study are as follows: (1) What is the level of death anxiety in women with breast cancer? (2) What is the level of COVID-19-related fear in women with breast cancer? (3) What is the level of COVID-19-related anxiety in women with breast cancer? (4) Is there a relationship between death anxiety and COVID-19-related fear and anxiety in women with breast cancer?

## Materials and Methods

### Study Design

It is a descriptive and correlation-seeking study.

### Setting

This study was carried out in the day treatment unit of a medical school oncology hospital of a state university.

### Study Sample and Participants

The study population consisted of patients previously diagnosed with breast cancer and who applied to the university hospital for chemotherapy treatment between August and September 2021. While calculating the sample size, the mean death anxiety score of patients with breast cancer obtained by Salehi Zahabi and Mahmoudi (2017) was used. In this study, we used Gpower 3.1.9.2. (Faul et al., 2009), at 95% confidence interval ( $1-\alpha$ ), 95% test power ( $1-\beta$ ), effect size of  $d = 0.333$ , and used a two-tailed t-test; the sample size was calculated to be 125. Female patients with breast cancer who were aware of their diagnosis, aged  $\geq 18$  during the time of the study, not in the terminal phase of the disease, and who received chemotherapy in the university hospital were included in the study. Since the present research focused on identifying fear, anxiety, and death anxiety levels among the patients, those with any known psychiatric or neurological problems (based on patient statements) were excluded from the study. Finally, the research was conducted with 140 female patients with breast cancer who met the inclusion criteria.

### Data Collection

Data were collected during face-to-face interviews of the patients while maintaining social distance and wearing face masks as per the COVID-19 regulations. Personal

Information Form, Fear of COVID-19 Scale (FCV-19S), Death Anxiety Scale (DAS), and Coronavirus Anxiety Scale (CAS) were used to collect data.

*Patient Information Form:* It consists of 18 questions that focus on personal and COVID-19-related characteristics of the participants.

*Fear of COVID-19 Scale (FCV-19S):* It was used to evaluate COVID-19-related anxiety levels of the participants. FCV-19S was developed by [Ahorsu et al. \(2020\)](#), and its Turkish validity and reliability study was conducted by [Ladikli et al. \(2020\)](#). The scale has a single factor structure and is a five-point Likert-type consisting of seven items. The total score that can be obtained from the scale ranges between 0 and 35 points. In the original study, the Cronbach's alpha value for internal consistency of the scale was found to be 0.86, and the test-retest reliability was found to be 0.86. Higher scores indicate higher levels of COVID-19-related fear. The Cronbach alpha value of this study was 0.86.

*Coronavirus Anxiety Scale (CAS):* CAS was developed by [Lee \(2020a\)](#), and it is used as a brief mental health screening tool to identify dysfunctional anxiety related to the COVID-19 pandemic. The Turkish reliability and validity study of CAS was conducted by [Biçer et al. \(2020\)](#). The scale has only one dimension and consists of five items. It is a five-point Likert-type scale and scored between 0 and 4. A total score of 0–20 is taken from the scale. Higher scores indicate higher anxiety levels, and the cut-off point was previously identified to be 9. In the original study, the Cronbach's alpha reliability coefficient of the scale was found to be 0.83. The Cronbach alpha value of this study was 0.87.

*Death Anxiety Scale (DAS):* It was developed by [Templer \(1970\)](#) to evaluate death anxiety. DAS consists of 15 true/false questions. Correct answers receive 1 point, whereas incorrect answers receive 0 point. Correct answer for items 1, 4, and 8–14 is “true,” whereas the correct answer for the remaining items is “false.” The total score that can be obtained from DAS ranges between 0 and 15. Higher scores indicate higher levels of death anxiety. A score above the cut-off point of 7 indicates high death anxiety. The validity and reliability of the Turkish version of DAS has been established by [Akça & Köse, 2008](#). In the original study, the test-retest reliability of the scale was found to be .79, and the reliability coefficient Kuder Richardson-20 (KR-20) was found to be .75 ([Akça & Köse, 2008](#)). In the present research, the reliability coefficient KR-20 was found to be 0.63.

## Data Analysis

All data were evaluated using IBM SPSS V22 (Chicago, USA) software. Descriptive data are presented as percentile, mean, standard deviation, median, minimum, and maximum values. Since the data were not normally distributed, Mann-Whitney U and Kruskal-Wallis tests were used to compare the groups and assess the differences between them. Spearman's correlation analysis was used to evaluate the possible correlations between FCV-19S, CAS, and DAS scores of the participants. The statistical significance level was calculated as  $p < .05$ .

## Ethical Approval

Permission to conduct this research was obtained from the Ministry of Health Scientific Research Platform (number: 22T20\_53\_27). Institutional permission was obtained from the hospital (number: E-14567952-900-71532), and ethical approval was obtained from the relevant committee (approval number: 2021/12-64). Before data was collected from the participants, the aim and methodology of the research was explained to each participant, and their verbal consent was obtained.

## Results

The median age of the study participants was found to be 51 years (range: 28–77 years). The duration of cancer diagnosis was 10 months (range: 1–300 months), and median body mass index of the participants was 29.36 (range: 13–49). Of the included participants, 61% were primary school graduates and 87.1% were married. Furthermore, 92.1% of the participants were unemployed, 61.4% had moderate income, and 33.6% had a chronic disease. Among the participants with chronic diseases, 57.4% had hypertension and 36.1% had diabetes. Additionally, 75.7% of the patients with breast cancer had previously received education regarding their disease, and 47.9% of the participants had a family history of cancer.

During the COVID-19 pandemic, 97.1% of the participants adhered to the social distancing norms and wore masks. Furthermore, 75.7% of the participants used disinfectants. Additionally, 28.6% of the patients were diagnosed with COVID-19 during the pandemic, 71.4% had family members who were with diagnosed COVID-19, and 17.9% had family members living in the same house with COVID-19 diagnosis. Furthermore, 75% of the participants were vaccinated against COVID-19 (Table 1).

When the death anxiety score and its relationship with the descriptive characteristics of the participants were investigated, a significant correlation was found between death anxiety score and body mass index ( $p = .019$ ). However, no significant difference was found in the pairwise comparisons conducted using Dunn's test ( $p > .05$ ). There is a significant difference between the FCV-19S score of women and the COVID-19 vaccination status ( $p = .007$ ; Table 2). However, no significant relationship could be identified between DAS and FCV-19S scores and educational level, employment status, family history of cancer, being diagnosed with COVID-19, and family members receiving COVID-19 diagnosis ( $p > .05$ ; Table 2).

The median FCV-19S score of the participants was 17 (min–max: 7–35) points, and median CAS score was 0 (min–max: 0–15) points. Lastly, median DAS score of the participants was 9 (min–max: 1–14) points. On performing correlation analyses, a positive correlation was found between DAS and FCV-19S scores and DAS and CAS scores ( $r = .383$ ,  $p < .001$  and  $r = .271$ ,  $p = .001$ , respectively). Furthermore, a positive correlation was also found between FCV-19S and CAS scores ( $r = .331$ ,  $p < .001$ ) (Table 3).

**Table 1.** COVID-19-Related Characteristics of Women with Breast Cancer.

	n	%
Pay attention to social distancing		
Yes	136	97.1
No	4	2.9
Wearing a mask		
Yes	136	97.1
No	4	2.9
Disinfectant use		
Yes	106	75.7
No	34	24.3
COVID-19 diagnosis		
Yes	40	28.6
No	100	71.4
Diagnosis of COVID-19 in the family		
Yes	100	71.4
No	40	28.6
Family member diagnosed with COVID-19 in the family ( <i>n</i> = 100)		
Living in the same house	25	25
Do not live in the same household	75	75
COVID-19 vaccination status		
Yes	105	75
No	35	25
<b>Total</b>	<b>140</b>	<b>100</b>

## Discussion

Almost 2 years have passed since March 11, 2020, when COVID-19 was declared a pandemic by the World Health Organization (WHO, 2021c). Since then, 243 million confirmed cases and more than 4.9 million deaths have been reported by the WHO globally (WHO, 2021d). Therefore, the purpose of this research was to investigate the relationship between death anxiety and COVID-19-related fear and anxiety in women diagnosed with breast cancer 21 months after the first case was seen in Turkey. In the present research, we found that women with breast cancer have above moderate death anxiety, and this is statistically associated with COVID-19-related fear and anxiety. Furthermore, it was found that death anxiety was correlated with body mass index, and FCV-19S score was correlated with COVID-19 vaccination status.

The mean DAS score of the participants was found to be  $8.86 \pm 2.83$  points. In a previous study on women with breast cancer conducted in Iran, the mean death anxiety score was found to be  $9.25 \pm 2.28$  points (Salmanian & Marashian, 2021). These findings are similar to those of previous studies that were conducted before the COVID-19 pandemic obtained using the Templer DAS for death anxiety assessment

**Table 2.** Comparison of Descriptive Characteristics of Women with Death Anxiety Scale and Fear of COVID-19 Scale Scores.

	n	%	DAS	Test Value	p Value	FCV-19S	Test Value	p Value
<i>Education</i>								
Literate	15	10.7	11 (3–14)			16 (7–35)		
Primary+ secondary school	86	61.4	9 (4–14)	2.437	.487 <sup>a</sup>	18 (7–35)	3.503	.320 <sup>a</sup>
High school	24	17.1	8.5 (1–13)			16 (7–32)		
University and above	15	10.7	10 (5–13)			14 (7–27)		
<i>Working status</i>								
Yes	11	7.9	9 (5–12)	743	.794 <sup>b</sup>	17 (7–35)	666	.736 <sup>b</sup>
No	129	92.1	9 (1–14)			17 (7–35)		
<i>Perceived economic status</i>								
Good	32	22.9	10.5 (1–14)			17 (7–35)		
Medium	86	61.4	9 (3–14)	1542	.463 <sup>a</sup>	18 (7–35)	0.183	.913 <sup>a</sup>
Poor	22	15.7	9 (4–14)			16.5 (7–35)		
<i>Body mass index</i>								
Underweight (< 18.50)	3	21	13 (10–14) (118.50)			22 (17–23)		
Normal (18.50–24.99)	33	23.6	10 (6–13) (83.76)	9.924	<b>.019<sup>a</sup></b>	18 (8–35)	5.565	.135 <sup>a</sup>
Overweight (25–29.99)	36	25.7	9 (1–14) (63.14)			13 (7–35)		
Obese (≥ 30)	68	48.6	9 (3–14) (65.85)			17.5 (7–35)		
<i>COVID-19 diagnosis</i>								
Yes	40	28.6	9 (1–14)			16 (7–35)		
No	100	71.4	9 (3–14)	2158.5	.462 <sup>b</sup>	17 (7–35)	2121.0	.576 <sup>b</sup>
<i>Family history of cancer</i>								
Yes	67	47.9	9 (1–14)	2178.500	.263 <sup>b</sup>	18 (7–35)	2013.500	.071 <sup>b</sup>
No	73	52.1	9 (4–13)			17 (7–35)		
<i>Diagnosis of COVID-19 in the family</i>								
Yes	100	71.4	9 (1–14)			17.5 (7–35)		
No	40	28.6	9 (3–14)	2158.5	.462 <sup>b</sup>	17 (7–35)	2121.0	.576 <sup>b</sup>
<i>COVID-19 vaccination status</i>								
Yes	105	75	9 (1–14)			18 (7–35)		
No	35	25	9 (3–13)	1797	.845 <sup>b</sup>	13 (7–33)	1275	<b>.007<sup>b</sup></b>

Note: FCV-19S: Fear of COVID-19 Scale, DAS: Death Anxiety Scale.  
Statistically significant values ( $p < .05$ ) are shown in bold.

<sup>a</sup>Kruskal–Wallis.

<sup>b</sup>Mann–Whitney U, Median(Min–Max)(Mean rank).

**Table 3.** Correlations between Fear of COVID-19 Scores and Death Anxiety Scale and Coronavirus Anxiety Scale Scores (n = 140)

Scales	Mean ± SD	Median (Min–Max)	FCV-19S	CAS
			r	r
FCV-19S	17.89 ± 7.06	17 (7–35)		
CAS	1.35 ± 2.60	0 (0–15)	0.331*	
DAS	8.86 ± 2.83	9 (1–14)	0.383*	0.271*

Note: FCV-19S: Fear of COVID-19 Scale, CAS: Coronavirus Anxiety Scale, DAS: Death Anxiety Scale  
r: Spearman correlation analysis test

\*p < 0.01

(Karampour et al., 2018; Salehi et al., 2020; Salehi Zahabi & Mahmoudi, 2017). The fact that the findings obtained in the present research are similar with the results of previous studies conducted before the COVID-19 pandemic suggests that cancer is a worrisome experience in itself. Furthermore, we identified a significant relationship between death anxiety and body mass index. There are no studies in the literature investigating the relationship between death anxiety and body mass index. Therefore, we could not compare our results with those of other studies. However, we believe that this finding may be associated with the fact that obesity increases the incidence of breast cancer (Ferrante et al., 2007; Moorman et al., 2001). Based on the results of the present research, it was found that educational level, employment, income level, having other relatives with cancer diagnosis, having family members diagnosed with COVID-19, and being diagnosed with COVID-19 do not have an effect on death anxiety. Our results are consistent with the results of similar studies in the literature (Bibi & Khalid, 2020; Karampour et al., 2018).

Cancer treatments lead to severe anxiety, especially death anxiety, among individuals receiving them (Bandinelli et al., 2021). Difficulty in accessing healthcare services, risk of transmission, and changes in daily life during the COVID-19 pandemic surely increases the intensity of these feelings (Bandinelli et al., 2021). In the present research, COVID-19-related fear among women with breast cancer was found to be at a moderate level. These findings are consistent with the results of another study investigating COVID-19-related fear among 756 people aged 18–68 in Poland (Chodkiewicz & Gola, 2021). In their study, Guven et al. (2020) reported that 80% of the evaluated patients with cancer were afraid of COVID-19. In this study, a significant relationship was identified between COVID-19-related fear and vaccination status. This finding indicates that fear acts as a factor that allows patients with cancer to protect themselves from deteriorating their clinical condition by adhering to social distancing rules, using masks, and getting vaccinated. Furthermore, Ripamonti et al. (2021) found that the level of COVID-19-related fear was significantly lower among patients with cancer compared to the general population. In a previous study that included patients with gynecologic cancer and covered 16 countries in Europe, it was found that the



majority of the patients believed that cancer was more deadly than COVID-19 (Gultekin et al., 2021). This suggests that being diagnosed with cancer may alter the perception of other risky or fatal events as less significant.

In contrast to fear, anxiety about a future threat or danger is elusive and disappears much more slowly (Lee, 2020b). In the present research, when the CAS cut-off score was considered to be  $\geq 9$ , it was found that the COVID-19-related anxiety level of the participants was low. This research was conducted during the period when curfews and quarantine measures were lifted and patients with cancer were receiving their treatment regularly. Therefore, COVID-19 vaccination may have reduced the anxiety levels of the participants. This result is also supported by two other studies in the literature—one conducted with 329 Korean adults approximately 6 months after the onset of the pandemic and another conducted with 860 participants in Turkey (Biçer et al., 2021; Choi et al., 2020). However, in another study performed in Turkey that included 1413 healthy individuals, the mean CAS score was reported to be higher than that reported in this study (Evren et al., 2022). This indicates that there is no significant difference between patients with cancer and healthy individuals in terms of COVID-19-related anxiety. The current study, a positive correlation was found between death anxiety and COVID-19-related fear and anxiety in women with breast cancer. Similarly, Magano et al. (2021) and Nazari et al. (2021) also reported a positive correlation between COVID-19-related fear and anxiety in their study. In their study conducted in the USA, Lee et al. (2020) included 453 adults and reported that COVID-19-related anxiety led to an increase in death anxiety. Pandemics such as the COVID-19 pandemic may further increase the death anxiety experienced by patients with cancer.

This study has some limitations. First, it was conducted in a single center, and the data obtained from the participants included in the research cannot be generalized to the general population. Second, face-to-face interviews of the participants were held; however, the participants themselves answered to the questions of the DAS, FCV-19S, and CAS scales. Therefore, the findings should be evaluated with caution as individuals with death anxiety may also exhibit behaviors that suppress this anxiety. Finally, the findings of the present research are valid only for the time period in which it was conducted as they may change over time.

## Conclusion

According to the results of the present research, it was found that women with breast cancer experienced death anxiety and COVID-19-related fear during the pandemic. Furthermore, a positive correlation was found between death anxiety and COVID-19-related fear and anxiety. In conclusion, healthcare systems should take death anxiety into consideration while maintaining the continuity of care for these patients at present and in future pandemics. Accordingly, we recommend that nurses who remain with patients for long periods of time during chemotherapy should also implement relevant practices to increase patients' psychological resilience.

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