

# Comparison of anxiety and depression levels of caregivers of hospitalized patients for malignant and non-malignant causes

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## ABSTRACT

This cross-sectional study compared anxiety and depression levels among caregivers of malignant and non-malignant inpatients. A total of 204 caregivers at Kocaeli City Hospital were evaluated using a sociodemographic form and the Hospital Anxiety and Depression Scale. Most participants were female (69.1%) and first-degree relatives (86.3%). Understanding caregiver mental health is essential, as it influences patient outcomes, especially in long-term care. Caregivers of cancer patients reported significantly higher anxiety and depression associated with hospitalization frequency ( $p=0.006$ ), recent stay duration ( $p<0.001$ ), and total hospitalization length ( $p<0.001$ ). Female caregivers had higher anxiety scores in both groups ( $p=0.010$ ). Among non-malignant caregivers, anxiety varied by relationship to the patient, while education influenced both anxiety ( $p=0.002$ ) and depression ( $p=0.001$ ). No such associations were observed in cancer caregivers. Findings suggest that female caregivers and those supporting cancer patients are at increased psychological risk, underscoring the need for targeted support interventions.

**Keywords:** cancer, caregiver, anxiety, depression, malignancy

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(Received 4 May 2025, Accepted 3 Jul 2025)

## INTRODUCTION

Malignancy, also known cancer, is a disease caused by the uncontrolled and continuous proliferation of cells as a result of DNA damage in a certain part of the body, under the influence of various genetic and environmental factors<sup>1</sup>. The increasing incidence of cancer in recent years has become an important health problem both nationally and globally. According to GLOBOCAN 2022 data, there were nearly 20 million new cancer cases and 9.7 million cancer deaths in 2022. Estimates show that approximately one in five men or women will develop cancer in their lifetime, and approximately one in 9 men and one in 12 women will die from cancer<sup>2</sup>.

Although incidences are rising every year, advances and improvements in treatment have led to cancer becoming a chronic disease that requires long-term treatment. The demand for long-term support is therefore increasing. Caregivers of cancer patients face a higher burden compared to caring for individuals with other chronic diseases. Numerous studies have revealed that individuals who care for cancer sufferers experience medium to high levels of burden. Caregivers of cancer patients play an important role in the management of the disease, but in the long term, their own health can be negatively affected. As a result, cancer emerges as a condition that significantly affects the overall health of both the patient and the caregiver. People who take on a caregiving role have a variety of challenges in their lives as well as positive thoughts such as achieving spiritual satiety, building strong relationships, increasing sense of responsibility<sup>3</sup>. It has been observed that caregivers of cancer patients spend approximately 33 hours per week on caregiving, and 72% perform complex medical or nursing practices<sup>4</sup>.

Those who care for cancer patients are negatively affected both mentally and physically. These people frequently experience fatigue, loss of appetite, insomnia, neglect of personal care and physical problems. It was revealed that 31.4% of a group of caregivers suffered from chronic thoracic spine pain and 28.3% suffered from chronic low back pain<sup>5</sup>. A series of emotional reactions such as fear, reluctance, helplessness, sadness, and anxiety about losing the patient are observed in caregivers. This situation can also manifest as shock, anger, loneliness and guilt in the individual. The cumulative effect of these emotions can potentially lead to anxiety and depression among caregivers<sup>6,7</sup>.

Studies have shown that approximately 46% of caregivers are at risk of anxiety and 72% are at risk of depression. In addition to the risk of anxiety and depression, the decrease in sleep quality in caregivers is also higher than in patients<sup>8,9</sup>. A study that examined whether there is a difference in anxiety

and depression levels between the caregivers of patients hospitalized for malignancy and the caregivers of patients hospitalized for non-malignant reasons conducted on caregivers of cancer patients receiving chemotherapy treatment revealed that caregivers' anxiety levels increased due to the emergence and intensification of chemotherapy-related side effects<sup>10</sup>.

## **METHODOLOGY**

Approval for the study was received from the Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee with the decision numbered 617 dated July 27, 2023. The research was conducted following the principles of the Declaration of Helsinki and the Good Clinical Practice Guide. The research was conducted in 2023 on relatives of patients hospitalized at Kocaeli City Hospital Internal Medicine and Oncology Service. A total of 204 people participated in the research voluntarily: 102 relatives of patients hospitalized for non-malignant reasons and 102 relatives of patients hospitalized for reasons other than malignancy. In the research, data were collected by the survey method.

The Hospital Anxiety and Depression (HAD) Scale was used. HAD was developed by Zigmond et al. in 1983 and was designed to screen for mood disorders in the population with medical illnesses. It contains a total of 14 questions. The HAD scale includes depression and anxiety subscales. Anxiety and depression scores obtained by patients from the HAD scale are divided into two groups: below threshold and above threshold. Items 1, 3, 5, 7, 9, 11, 13 measure anxiety and items 2, 4, 6, 8, 10, 12, 14 measure depression. It is a four-point Likert-type scale. At the end of the study conducted in Türkiye, the cut-off score was found to be 10/11 for the anxiety subscale and 7/8 for the depression subscale. Those who score above these scores are considered as a risk group. The lowest score that patients can get from both subscales is 0, while the highest score is 21. Accordingly, variables that can examine whether patients are above the threshold in terms of anxiety and depression are; 0-7 is considered normal, 8-10 is borderline abnormal, and 11-21 is considered abnormal. In the Turkish validity and reliability study of the scale, the Cronbach alpha internal consistency coefficient was found to be 0.85 for anxiety and 0.77 for depression<sup>11</sup>.

The data obtained in this study were analyzed using the SPSS (Statistical Package for Social Sciences) for Windows 22.0 program. Normal distribution for continuous variables was tested with the Kolmogorov Smirnov test. Number, percentage, mean and standard deviation were used as descriptive statistical methods in the evaluation of the data. Chi-square ( $\chi^2$ ) analysis was

performed to determine differences between categorical data in independent groups. The t-test was used to compare quantitative continuous data between two independent groups. One-way analysis of variance (ANOVA) and post hoc (Tukey, LSD) analyzes were used to compare continuous data between more than two groups. In all statistical analysis,  $p < 0.05$  was considered significant.

## RESULTS and DISCUSSION

The hospitalization is quite distressing for oncological patients and their caregivers. In this study, differences in anxiety and depression levels were examined between caregivers of patients hospitalized due to malignancy and caregivers of patients hospitalized for non-malignant reasons. In our study, the Cronbach's alpha reliability coefficient of the scale was found to be 0.85 for anxiety and 0.87 for depression. A total of 204 people, including 102 relatives of patients hospitalized for non-malignant reasons and 102 relatives of patients hospitalized for malignancy, participated in the study. Of these 141 (69.1%) were women and 63 (30.9%) were men. Most of them were first degree relatives. The average age was 48. The baseline characteristics of the study participants are given in Table 1. In the cohort, 69.1% of the caregivers were women, 71.9% had a high school education or lower, 77.9% were married, 79.8% had children and 42.6% were housewives. When studies with similar content are examined, it is seen that the majority of caregivers are women, have a low education level, are married, and are housewives<sup>12,13</sup>. In the study, most of the caregivers (86.3%) were first-degree relatives of the patient. Similarly, various studies have shown that caregivers generally consist of family members<sup>8,12 - 14</sup>.

There is no significant difference between the relatives of hospitalized patients with a diagnosis of non-malignancy and malignancy in terms of age, gender, place of origin, marital status, educational status, professional information, proximity to the patient, and psychiatric drug use ( $p > 0.005$  for all).

The demographic characteristics of caregivers of patients hospitalized due to malignancy and those hospitalized due to non-malignant diseases were compared in our study. A difference was found only in the number and duration of hospitalizations. The number of hospitalizations, last hospitalization duration, and total hospitalization duration of caregivers of patients hospitalized due to malignancy were higher than those hospitalized due to other diseases. This shows that cancer patients are hospitalized more often and stay longer than other patients. Of the patients hospitalized for non-malignant reasons, 83 (81.4%) had less than 3 hospitalizations and 19 (18.6%) had 3 or more hospitalizations. On the other hand, 66 (64.7%) of the patients hospitalized due

to malignancy had less than 3 hospitalizations, and 36 (35.3%) had 3 or more hospitalizations. A significant difference was detected between both groups ( $p=0.006$ ). The average last hospitalization time of patients hospitalized for malignancy ( $\bar{x}=8.810$ ) was found to be higher than the last hospitalization average of patients hospitalized for non-malignant reasons ( $\bar{x}=4.360$ ). Caregivers show significant differences in terms of the last hospitalization period and the total hospitalization period ( $p<0.001$ ). The average total length of stay of caregivers of patients hospitalized due to malignancy ( $\bar{x}=26.250$ ) was found to be higher than the average of total length of stay of caregivers of patients hospitalized for non-malignant reasons ( $\bar{x}=10.990$ ).

The anxiety and depression levels of caregivers of patients hospitalized for malignancy were found to be higher than the anxiety levels of caregivers of patients hospitalized for non-malignant reasons. When we look at the studies in the literature, we find that caregivers of cancer patients have high levels of anxiety and depression<sup>10, 13</sup>. Moghaddam et al. it was determined cases of 42% of caregivers of cancer patients had moderate and severe, 19.6% had mild, and 38.4% had minimal depressive symptoms<sup>13</sup>. Oechsle et al. the risk of depression was stated in 91.2% of caregivers of cancer patients, while 66.7% had anxiety symptoms, 36.7% of them had mild level, 30.8% had moderate level and 32% had anxiety symptoms. Three of them had severe levels of anxiety<sup>15</sup>. He et al. when looking at the psychological problems and sleep quality of caregivers of cancer patients were found 46% of the caregivers had anxiety and 72% had depressive symptoms<sup>9</sup>.

**Table 1.** Descriptive characteristics of the caregivers

		Relative of a Patient Hospitalized for non-Malignant Reasons		Relative of a Patient Hospitalized Due to Malignancy		Total		p-value
		n	%	n	%	n	%	
Residential address	Same province with the hospital	95	93.1%	88	86.3%	183	89.7%	$\chi^2=2.601$ $p=0.083$
	Out of Province	7	6.9%	14	13.7%	21	10.3%	
Age	Below average (<48)	48	47.1%	50	49.0%	98	48.0%	$\chi^2=0.079$ $p=0.444$
	Above average ( $\geq 48$ )	54	52.9%	52	51.0%	106	52.0%	
Gender	Female	73	71.6%	68	66.7%	141	69.1%	$\chi^2=0.574$ $p=0.272$
	Male	29	28.4%	34	33.3%	63	30.9%	
Marital status	Single	24	23.5%	21	20.6%	45	22.1%	$\chi^2=0.257$ $p=0.368$
	Married	78	76.5%	81	79.4%	159	77.9%	
Educational background	Primary school and below	47	46.1%	52	51.0%	99	48.5%	$\chi^2=0.928$ $p=0.629$
	Middle school and high school	34	33.3%	34	33.3%	68	33.3%	
	University	21	20.6%	16	15.7%	37	18.1%	
Job	Unemployed	2	2.0%	0	0.0%	2	1.0%	$\chi^2=13.251$ $p=0.066$
	Housewife	44	43.1%	43	42.2%	87	42.6%	
	Employer	12	11.8%	21	20.6%	33	16.2%	
	Officer	6	5.9%	10	9.8%	16	7.8%	
	Retired	9	8.8%	12	11.8%	21	10.3%	
	Self-employment	16	15.7%	11	10.8%	27	13.2%	
	Private sector	11	10.8%	2	2.0%	13	6.4%	
	Student	2	2.0%	3	2.9%	5	2.5%	
Degree of relationship with the patient	First Degree	88	86.3%	88	86.3%	176	86.3%	$\chi^2=0.000$ $p=0.580$
	Second Degree	14	13.7%	14	13.7%	28	13.7%	
Number of Hospitalizations	<3	83	81.4%	66	64.7%	149	73.0%	$\chi^2=7.194$ $p=0.006$
	$\geq 3$	19	18.6%	36	35.3%	55	27.0%	
Psychiatric Drug Use Status	No	93	91.2%	93	91.2%	186	91.2%	$\chi^2=0.000$ $p=0.597$
	Yes	9	8.8%	9	8.8%	18	8.8%	
		Avg.	Sd.	Avg.	Sd.	Avg.	Sd.	p-value
Age		47.230	12.807	48.760	14.222	48.000	13.522	0.418
Number of Hospitalizations		2.000	2.433	3.130	2.967	2.560	2.765	0.003
Last Hospitalization Duration		4.360	4.927	8.810	8.868	6.590	7.496	0.000
Total Hospitalization Duration		10.990	13.114	26.250	21.437	18.620	19.305	0.000

Avg: Average, Sd: Standart deviation, Statistical significance was defined as a p-value of <0.05

In a study conducted on parents of adolescents and young adults with cancer, McCarthy et al. found that approximately half of the parents had post-traumatic stress disorder, and one-third had symptoms of depression and anxiety<sup>16</sup>. In a large-scale study 91% Tanriverdi et al. found that of caregivers had symptoms of depression<sup>14</sup>. According to Nipp et al., high rates of depression and anxiety symptoms have been found in patients with incurable cancer and in their family caregivers. A negative correlation was found between patients' coping abilities and the psychological symptoms reported by their caregivers, highlighting the need to enhance interventions that strengthen coping mechanisms in this context<sup>17</sup>.

Among caregivers of patients hospitalized for non-cancer-related conditions, those with a primary school education or lower exhibit higher levels of anxiety and depression. Furthermore, first-degree relatives tend to report elevated anxiety levels. Existing literature consistently indicates that caregivers' educational attainment is significantly associated with anxiety and depression symptoms. Moghaddam et al. and Ustaalioglu et al. reported that caregivers with only a primary school education exhibited higher levels of anxiety and depression<sup>13,18</sup>.

Among the demographic characteristics we examined in our study, there was no difference in anxiety and depression levels according to age, marital status, profession, hospitalization duration and total duration, and psychiatric medication use. Similar to our research findings, Ustaalioglu et al. and Deshields et al. reported no significant differences in caregivers' anxiety and depression levels based on age, marital status, occupation, or degree of closeness<sup>18,19</sup>. While previous studies reported no significant association between gender and anxiety or depression levels, our findings indicated a gender-based difference in both. This discrepancy may be attributed to cultural lifestyle differences.

In addition, research findings have been found that demographic characteristics are related to anxiety and depression levels, which are inconsistent with our research findings. Al-Zahrani et al. reported significant differences in the depression and anxiety levels of caregivers of patients hospitalized in an internal medicine clinic based on gender, educational level, employment status, and degree of closeness with the patient. However, it was observed that there was no difference in anxiety and depression levels of caregivers according to their marital status<sup>20</sup>. In a study conducted by Işık et al. on relatives of patients receiving care in a palliative care unit, it was found that women had higher levels of anxiety. The study also revealed that both depression and anxiety levels decreased as the education level increased. Additionally, anxiety levels

were higher among married individuals<sup>21</sup>. It is thought that the results that do not coincide with the findings of our study and the studies conducted in the literature may be due to the sample and different data collection tools used in the research.

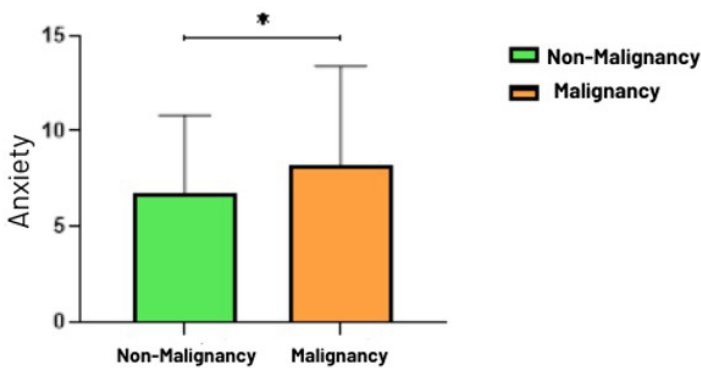
In their studies, Benhaddouch et al. and Sherman et al. demonstrated that emotional burnout and psychosocial distress were markedly high, emphasizing the necessity of identifying and actively preventing burnout among caregivers in oncology services. It is anticipated that, if not addressed, anxiety and depression levels in caregivers will significantly increase, which may adversely impact all aspects of the treatment process<sup>22,23</sup>.

**Findings on HAD levels of relatives of patients hospitalized for malignant and non-malignant reasons**

Anxiety scores differ significantly from patients’ caregivers ( $p=0.026$ ). The anxiety scores of caregivers of patients hospitalized for malignancy ( $\bar{x}=8.230$ ) were found to be higher than the anxiety scores of caregivers of patients hospitalized for non-malignant reasons ( $\bar{x}=6.760$ ) (Table 2, Figure 1).

**Table 2.** Differences in anxiety scores according to caregivers

Groups	Patients Hospitalized for Non-malignancy Reasons (n=102)	Patient Hospitalized Due to Malignancy (n=102)	t	p
	Avg $\pm$ Sd	Avg $\pm$ Sd		
Anxiety	6.760 $\pm$ 4.067	8.230 $\pm$ 5.185	-2.239	0.026*



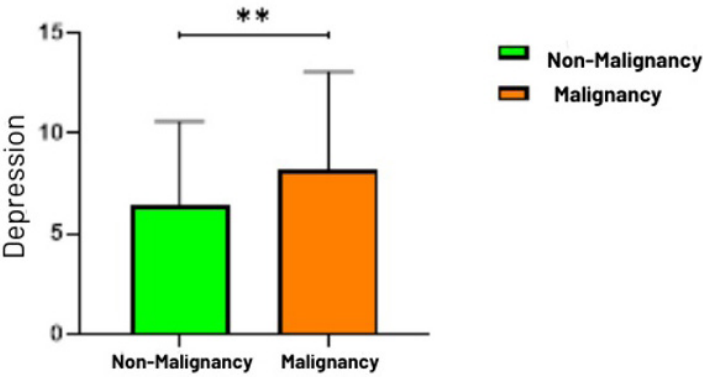
**Figure 1.** Differences in anxiety scores according to caregivers



Depression scores differ significantly depending on the patient’s caregiver ( $t(202)=-2.917$ ;  $p=0.004<0.05$ ). The depression scores of caregivers of patients hospitalized for malignancy ( $\bar{x}=8.230$ ) were found to be higher than the depression scores of caregivers of patients hospitalized for non-malignant reasons ( $\bar{x}=6.370$ ) (Table 3, Figure 2).

**Table 3.** Differences in depression scores according to caregivers

Groups	Patients Hospitalized for Non-malignancy Reasons (n=102)	Patient Hospitalized Due to Malignancy (n=102)	t	p
	Avg $\pm$ Sd	Avg $\pm$ Sd		
Depression	6.370 $\pm$ 4.169	8.230 $\pm$ 4.877	-2.917	0.004**



**Figure 2.** Differences in depression scores according to caregivers

**Table 4.** Differentiation of HAD scores according to descriptive characteristics in relatives of patients hospitalized due to malignancy

Demographic features	n	Anxiety	Depression
<b>Residential adress</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Same province with the hospital	88	8.410 ± 5.125	8.340 ± 4.885
Out of province	14	7.070 ± 5.609	7.500 ± 4.942
t=		0.896	0.597
p=		0.373	0.552
<b>Age</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Below average (<48)	50	8.080 ± 5.090	7.760 ± 4.429
Above average (≥48)	52	8.370 ± 5.321	8.670 ± 5.276
t=		-0.277	-0.945
p=		0.783	0.347
<b>Gender</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Female	68	9.130 ± 5.171	8.650 ± 4.956
Male	34	6.41 0± 4.787	7.380 ± 4.671
t=		2.566	1.238
p=		0.012	0.219
<b>Marital status</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Single	21	6.710 ± 5.120	7.000 ± 4.690
Married	81	8.620 ± 5.161	8.540 ± 4.902
t=		-1.508	-1.297
p=		0.135	0.198
<b>Educational background</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Primary school and below	52	8.870 ± 5.084	8.690 ± 5.047
Middle school and high school	34	7.620 ± 4.942	8.210 ± 5.307
University	16	7.440 ± 6.044	6.750 ± 2.910
F=		0.811	0.970
p=		0.447	0.383
<b>Degree of closeness to the patient</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
First Degree	88	8.570 ± 5.108	8.390 ± 4.796
Second Degree	14	6.070 ± 5.342	7.210 ± 5.437
t=		1.689	0.834
p=		0.094	0.406

Number of Hospitalizations		Avg ± Sd	Avg ± Sd
3 average	66	8.110 ± 5.096	8.380 ± 4.819
3 and below	36	8.440 ± 5.411	7.940 ± 5.037
t=		-0.314	0.428
p=		0.755	0.669
Total Hospitalization Duration		Avg ± Sd	Avg ± Sd
Below average	50	7.280 ± 4.828	8.020 ± 4.971
Above average	52	9.130 ± 5.398	8.420 ± 4.824
t=		-1.826	-0.416
p=		0.071	0.679
Psychiatric Drug Use Status		Avg ± Sd	Avg ± Sd
No	93	7.990 ± 5.155	8.260 ± 5.026
Yes	9	10.670 ± 5.148	7.890 ± 3.100
t=		-1.488	0.216
p=		0.140	0.830

No comparative study has been found in the literature on caregivers of patients hospitalized for malignant and non-malignant reasons. However, all studies conducted on caregivers of cancer patients have shown that caregivers' anxiety and depression levels are high. Our study is important in terms of comparing this group with the relatives of non-malignant patients. Depression and anxiety that may be experienced during the caregiving process vary depending on not only the patient but also the caregiver's condition. The sociodemographic characteristics of the caregiver may be important in this process. In this study, the anxiety and depression levels of caregivers of cancer patients and other patients were examined in terms of their demographic characteristics. There were differences in anxiety levels according to gender in both groups, and the anxiety levels of female caregivers were found to be higher than those of men Table 4, Table 5. Studies by Guerra-Martín et al., Moghaddam et al., and Işık et al. demonstrated a significant difference in anxiety levels between female and male caregivers<sup>13,21,24</sup>. The fact that women constitute the majority of caregivers is thought to be effective in this result. As in many societies around the world, women undertake more care responsibilities due to the persistence of a patriarchal structure in our society<sup>25</sup>.

The anxiety scores of those who had a first-degree degree of relationship with the patient (x=7.020) were found to be higher than the anxiety scores of those with a second-degree degree of closeness to the patient (x=5.140) (t=1.619; p=0.013<0.05; d=0.466; η<sup>2</sup>=0.026). Depression scores of patients' relatives do not differ significantly depending on the degree of relationship with the patient (p>0.05).

**Table 5.** Differentiation of HAD scores according to descriptive characteristics in relatives of patients hospitalized for non-malignancy reasons

Demographic features	n	Anxiety	Depression
<b>Residential adress</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Same province with the hospital	95	6.650 ± 3.962	6.240 ± 4.096
Out of province	7	8.290 ± 5.438	8.140 ± 5.080
t=		-1.026	-1.166
p=		0.308	0.246
<b>Presence of Chronic Disease in Those Non-Malignancy</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
No	72	6.780 ± 4.197	6.290 ± 4.423
Yes	30	6.730 ± 3.805	6.570 ± 3.549
t=		0.050	-0.302
p=		0.960	0.763
<b>Age</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Below average (under 48)	48	6.270 ± 4.191	5.850 ± 3.832
Above average (48 and above)	54	7.200 ± 3.940	6.830 ± 4.433
t=		-1.158	-1.186
p=		0.249	0.238
<b>Gender</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Female	73	7.260 ± 4.110	6.730 ± 4.221
Male	29	5.520 ± 3.738	5.480 ± 3.970
t=		1.981	1.364
p=		0.050	0.176
<b>Marital status</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Single	24	6.750 ± 4.183	7.080 ± 4.169
Married	78	6.770 ± 4.058	6.150 ± 4.172
t=		-0.020	0.955
p=		0.984	0.342
<b>Educational background</b>		<b>Avg ± Sd</b>	<b>Avg ± Sd</b>
Primary school and below	47	8.340 ± 3.625	8.020 ± 4.301
Middle school and high school	34	5.180 ± 3.688	5.060 ± 3.550
University	21	5.810 ± 4.445	4.810 ± 3.544
F=		7.572	7.752
p=		0.001	0.001
PostHoc=		1>2, 1>3 (p<0.05)	1>2, 1>3 (p<0.05)

Degree of closeness to the patient		Avg ± Sd	Avg ± Sd
First Degree	88	7.020 ± 4.251	6.330 ± 4.157
Second Degree	14	5.140 ± 2.070	6.640 ± 4.396
t=		1.619	-0.260
p=		0.013	0.795
Number of Hospitalizations		Avg ± Sd	Avg ± Sd
3 average	83	6.480 ± 4.272	6.390 ± 4.236
3 and below	19	8.000 ± 2.769	6.320 ± 3.973
t=		-1.476	0.065
p=		0.062	0.948
Total Hospitalization Duration		Avg ± Sd	Avg ± Sd
Below average	84	6.540 ± 4.146	6.180 ± 4.237
Above average	18	7.830 ± 3.585	7.280 ± 3.816
t=		-1.232	-1.015
p=		0.221	0.312
Psychiatric Drug Use Status		Avg ± Sd	Avg ± Sd
No	93	6.650 ± 4.122	6.130 ± 4.160
Yes	9	8.000 ± 3.391	8.890 ± 3.551
t=		-0.954	-1.921
p=		0.342	0.058

According to the HAD scoring of relatives of patients hospitalized for non-malignant reasons, women’s anxiety scores ( $x=7.260$ ) were found to be higher than men’s anxiety scores ( $x=5.520$ ) ( $t=1.981$ ;  $p=0.05$ ;  $d=0.434$ ;  $\eta^2=0.038$ ). Depression scores of patients’ relatives do not differ significantly according to gender ( $p>0.05$ ).

Anxiety scores of patient relatives differ significantly according to educational level ( $F=7.572$ ;  $p=0.001<0.05$ ;  $\eta^2=0.133$ ). The reason for the difference is that the anxiety scores of those with primary school education and below are higher than the anxiety scores of those with secondary and high school education ( $p<0.05$ ). The anxiety scores of primary school students and below are higher than the anxiety scores of university graduates ( $p<0.05$ ).

Depression scores of patients’ relatives differ significantly according to their educational level ( $F=7.752$ ;  $p=0.001<0.05$ ;  $\eta^2=0.135$ ). The reason for the difference is that the depression scores of those with primary school and below education level are higher than the depression scores of those with secondary and high school education ( $p<0.05$ ). The depression scores of primary school students and below are higher than the depression scores of university graduates ( $p<0.05$ ).

Caregivers of cancer patients face a higher risk of anxiety and depression. Caregiving burden is associated with higher levels of anxiety and depression, weakened immune systems, and negative effects on physical, mental, and social health. For this reason, caregivers, especially family members, are often called “hidden patients”. It should not be forgotten that depression and anxiety experienced by patients’ relatives can affect the morale, motivation and treatment of cancer patients. Special professionals should be available in these services to provide psychological support to caregivers. Creating systems for cancer patients and their caregivers to receive psychological counseling will help them develop strategies to cope with psychological problems. This will increase the quality of care for the patient being cared for, and will enable caregivers to be more helpful to their patients and to protect their own health and therefore social health. In this regard, healthcare personnel serving in this process have duties. It can be very valuable for family physicians to take part in this process and may take a close interest in the health of this personality.

#### **STATEMENT OF ETHICS**

Approval for the study was received from Local Ethics Committee with the decision numbered 617 dated July 27, 2023.

#### **CONFLICT OF INTEREST STATEMENT**

The authors have no conflicts of interest to declare.

#### **AUTHOR CONTRIBUTIONS**

Design, SK, ETB, NK; acquisition of data, SK, NK; analysis of data, SK, NK; statistical analysis, SK, EŞ; drafting of the manuscript, SK, NK, EŞ; critical revision of the manuscript, EŞ; supervision, EŞ.

#### **FUNDING SOURCES**

No financial support and funding sources was used for the study.

#### **ACKNOWLEDGMENTS**

We would like to thank the healthcare professionals we work with and who support our work, the individuals who participated in our survey, and our close circle who motivate us.

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