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RESILIENCE, POST-TRAUMATIC GROWTH, DEPRESSION, AND ANXIETY IN CANCER PATIENTS

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Abstract – *Objective:* *This study aimed to examine the relationship between resilience, post-traumatic growth, depression, and anxiety in cancer patients.*

Patients and Methods: *This cross-sectional and descriptive study included a total of 130 patients who were referred to the oncology service of a training and research hospital for chemotherapy. The data were collected using an information form, the Post Traumatic Growth Inventory (PTGI), the Brief Resilience Scale (BRS), and the Hospital Anxiety and Depression Scale (HADS).*

Results: *The mean age of the patients was 51.65±15.94 years, 61.5% were male, 75.4% were married, 36.2% had reproductive system cancer, 80.8% were receiving chemotherapy, and 40.8% had previously received chemotherapy. A highly significant positive correlation was found between the patients' PTGI total and subscales scores ($p<0.05$), while a low positive significant correlation was found between the patients' BRS total, spiritual change, and relating to other scores ($p<0.05$). A moderately significant negative correlation was determined between the patients' BRS total, depression, and anxiety scores ($p<0.05$) and a low negative significant relationship between the patients' depression and spiritual change scores ($p<0.05$).*

Conclusions: *The patients had above-average post-traumatic growth and resilience scores and high levels of depression and anxiety. There was a moderately significant negative correlation between their BRS total, depression, and anxiety scores ($p<0.05$).*

KEYWORDS: *Anxiety, Cancer, Depression, Post-traumatic growth, Resilience.*

INTRODUCTION

Cancer is one of the leading health problems with high mortality and morbidity rates worldwide. With the emergence of more effective treatments in cancer treatment and technological developments, the life expectancy of cancer patients has extended [1,2] but it is known that many psychological problems arise due to the poor management of this process [1,3].

When people hear the word cancer, the first thing that comes to mind is a sudden, uncontrollable, and life-threatening disease. Due to the life-threatening nature of cancer, individuals who are diagnosed with it experience significant stress. Moreover, a cancer diagnosis causes patients to have to make major changes to their lives; these changes can subject them to social, occupational, and economic losses [4]. The intense stress, losses, and fear of death experienced by cancer patients can result in these patients perceiving these situations traumatic experiences. Cancer patients tend to have reactions and psychological and behavioral responses that are like those experienced by individuals with post-traumatic stress disorder. Cancer patients experience stress, anxiety, anger, emotional changes, depression, sleep problems, fatigue, and diminished quality of life [1-6]. Anxiety and depression are known to be the most common psychological symptoms among all symptoms [1,2].

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These reactions individuals show after being diagnosed with cancer or during the treatment process are natural and expected. Cancer patients' ability to adapt to the disease and its treatment can be impaired due to the distress caused by the life-threatening nature of the disease and the lack of control patients have over the disease and its treatment process. During this adaptation process, every patient has different reactions [7]. Several studies have examined the factors affecting this adaptation process, with some reporting that the way the patient perceives the disease or the meaning they assign to the disease affects their reactions [1,4,8] and others arguing that the patient's coping ability and resilience are the most crucial factors affecting adaptation [9,10]. Resilience is defined as the ability to achieve positive and unexpected success under difficult conditions and to adapt to extraordinary conditions and situations [11]. Cancer complicates an individual's life, yet it has been shown that after being diagnosed with this disease, some individuals adopt a stance whereby they attach more meaningfulness to their lives, considering the disease as an opportunity for change, and thereby they cope better with the challenges the disease presents [7]. Studies have shown that patients with these behaviors have higher resilience, a stronger potential for post-traumatic growth, and better-coping mechanisms [7,12,13].

The literature includes several studies on the concepts of resilience [14-16], depression and anxiety levels, and post-traumatic growth potential, all crucial factors affecting the response of cancer patients to the disease [1-3], but only a limited number of studies on the relationship between these concepts. Therefore, this study aimed to determine the levels of resilience, post-traumatic growth, depression, and anxiety in cancer patients and to examine the relationship between these variables.

PATIENTS AND METHODS

Study Population and Sample

The study was conducted between April and July 2021 in the outpatient chemotherapy unit of the Medical Oncology Department of a University-affiliated Training and Research Hospital in Istanbul (Turkey). The sample of the study consisted of 130 patients who were selected by the convenience sampling method from among the individuals who applied to the outpatient oncology clinic. Participant eligibility criteria were as follows: a) 18 years of age and over; b) no apparent cognitive impairment; c) covered by health insurance; d) no status of terminal-stage cancer.

Data Collection Tools

The data were collected by the researchers through face-to-face interviews with cancer patients who voluntarily agreed to participate in the study. The interviews lasted approximately 20–30 minutes. The data were collected using an information form, the Post Traumatic Growth Inventory (PTGI), the Brief Resilience Scale (BRS), and the Hospital Anxiety and Depression Scale (HADS). Before the interviews, the purpose of the study was explained to the patients and their written consent to participate was obtained. They were then asked to complete the data collection forms.

Information Form

The information form, prepared by the researchers in line with the relevant literature [1-16], consists of a total of 17 open and closed-ended questions about the patient's age, gender, marital status, diagnosis, duration of disease, and treatment methods.

PTGI

This scale was developed by Tedeshi and Colhoun[17] (1996) to determine whether people have post-traumatic growth after traumatic experiences. The scale is a five-point Likert-type scale, with scoring between 0-5, where 0 = I did not experience this change as a result of my crisis and 5 = I experienced this change to a very great degree as a result of my crisis. The scale consists of 21 items and five subscales, namely, New Possibilities, Personal Strength, Spiritual Change, Appreciation of Life, and Relating to Others. The consistency coefficient of all scale items was found to be .93. Scale scores, which range from 0 to 105, indicate whether one has grown after the trauma or not. The Turkish validity and reliability study of the scale was performed by Karanci, Aker, and Işikli [18]. In the present study, Cronbach's alpha value for the total scale was calculated as .92.

BRS

This scale was developed by Smith et al[19] (2008) to measure the resilience of individuals. The Turkish validity and reliability study of the scale was performed by Dogan[20] (2015). The BRS is a five-point Likert-type self-reported scale consisting of 6 items. Higher scale scores indicate higher resilience. The internal consistency reliability coefficient of the scale varied between .80 and .91 and the test-retest reliability coefficient was between .62 and .69. In this study, Cronbach's alpha value for the total scale was calculated as.63.

HADS

This scale was developed by Zigmond and Snaith[21] (1983) to measure anxiety and depression in patients without mental disorders. The Turkish validity and reliability study of the scale was performed by Aydemir et al[22] (1997). HADS is a four-point Likert-type scale consisting of fourteen items, seven to measure anxiety and seven to measure depression, and two subscales, anxiety and depression. The Cronbach's alpha value was calculated to be .85 and .77 for the subscales of anxiety and depression, respectively, while the cut-off scores were found to be 7 and 10 for the subscales of anxiety and depression, respectively. Higher scale scores indicate higher levels of anxiety and depression. In this study, Cronbach's alpha values were calculated as .76 and .82 for the subscales of depression and anxiety.

Statistical Analysis

The data for this study were analyzed with the SPSS 25.0 program (SPSS Inc., Armonk, NY, USA) and evaluated using mean, standard deviation, minimum and maximum values, number, and percentage. The Kolmogorov-Smirnow test was applied to check whether the data had normal distribution, the results of which showed that the data were normally distributed ($p>0.05$). Pearson's correlation analysis was used to evaluate the relationships between the scale scores. For statistical tests, the level of significance was accepted as $p<0.05$.

RESULTS

The mean age of the patients was 51.65±15.94 years, 61.5% were male, 75.4% were married, and 30.8% were university graduates. The time elapsed since their cancer diagnosis was less than one year for 60.8% of the patients, and 36.2% of the patients had reproductive system cancer, 40.8% had received chemotherapy treatment for their cancer, and 66.2% had a chronic disease other than cancer. Moreover, 16.9% of the patients received psychiatric counselling, 12.3% regularly used psychiatric drugs, and 32.3% were greatly affected by the diagnosis of cancer (Table 1). When descriptive characteristics and cancer diagnosis were compared with PTGI, BRS, and HADS scores, there was not found significant difference.

The participants' mean total PTGI score was 66.51 (22.67), their mean BRS score was 19.41 (3.26), and their mean depression and anxiety scores were 15.86 (4.45) and 15.11 (4.05), respectively (Table 2). In addition, 98.5% of the participants scored above 7 on the subscale of depression, and 90% scored above 10 on the subscale of anxiety.

There was a highly significant positive correlation between the patients' PTGI total and subscales scores ($p<0.05$). A low positive significant correlation was found between the patients' BRS total, spiritual change, and relating to others' scores ($p<0.05$). A moderately significant negative correlation was determined between the patients' BRS total, depression, and anxiety scores ($p<0.05$). Lastly, a low negative significant relationship was found between the patients' depression and spiritual change scores ($p<0.05$) (Table 3).

DISCUSSION

This study, which was conducted with cancer patients who applied for chemotherapy in an oncology clinic for chemotherapy treatment, aimed to determine their resilience, post-traumatic growth, depression, and anxiety levels and to examine the relationship between these variables. The participants had moderate levels of resilience, moderate post-traumatic growth, and high levels of anxiety and depression. There was a positive relationship between resilience and post-traumatic growth and a negative relationship between depression and anxiety.

The moderate level of resilience found in the participating cancer patients of this study is supported by the systematic review study of Tamura et al[23] (2021), who reported the same. Studies have highlighted that a high level of resilience may be related to the strong coping skills that develop in cancer patients who have had traumatic experiences and that patients with high levels of resilience tend to have shorter recovery times and show more post-traumatic growth [4]. Moreover, it could be argued that patients with previous cancer treatment experience come out of this process with stronger coping skills, which in turn improves their resilience.

The participating cancer patients in this study had moderate PTGI scores (66.51). Studies on post-traumatic growth in oncology patients have found that the diagnosis of cancer has a positive effect on post-traumatic growth [24-27]. In these studies, the PTGI score was reported as 53 in a study involving breast cancer patients [24], 56.5 (22) in a study involving patients with gynecological cancer, and 63.36 in a study involving patients with glioma [26]. These scores were lower than that determined in the present study, which could be attributed to the fact that several different types of cancer were diagnosed in the present study, and that the time elapsed after the diagnosis of cancer was between 1–10 years.

TABLE 1. Distribution of the Patients' Descriptive Characteristics (N=130).

	n	*%*
Sex		
Female	50	38.5
Male	80	61.5
Education level		
Primary school	36	27.7
Secondary school	21	16.2
High school	33	25.3
University	40	30.8
Marital status		
Single	32	24.6
Married	98	75.4
Disease		
Respiratory System Cancer	23	17.7
Gastrointestinal System Cancer	39	30.0
Reproductive System Cancer	47	36.2
Hematological System Cancer	12	9.2
Nervous System Cancer	5	3.8
Urinary System Cancer	4	3.1
Chronic disease		
Yes	44	33.8
No	86	66.2
Previous treatment modalities		
Chemotherapy	53	40.8
Radiotherapy	3	2.3
Surgical treatment	7	5.4
Chemotherapy + Surgical Treatment	26	20.0
Chemotherapy + Radiotherapy + Surgical Treatment + Immunotherapy	10	7.7
Chemotherapy + Radiotherapy	15	11,5
Chemotherapy + Radiotherapy + Surgical Treatment	16	12.3
Status of receiving psychiatric support		
Yes	22	16.9
No	108	83.1
Regular use of psychiatric medication		
Yes	16	12.3
No	114	87.7
State of being psychologically affected by the diagnosis of cancer		
No	11	8.5
Yes, but a little	34	26.2
Undecided	7	5.4
Yes	36	27.7
Yes, very much	42	32.3
Time elapsed after diagnosis		
<1 year	79	60.8
1-5 year	42	32.3
Over 5 years	9	6.9

TABLE 2. Distribution of the Patients' BRS, HADS, PTGI, and Subscales Scores (N=130).

Scales	*Min.*	*Max.*	*X(SD)*
PTGI Total	4	105	66.51 (22.67)
New Possibilities	2	41	17.43 (6.13)
Personal Strength	0	20	12.12 (4.55)
Spiritual Change	0	10	5.77 (2.88)
Appreciation of Life	0	10	6.96 (2.64)
Relating to Others	0	40	23.54 (9.41)
BRS	9	28	19.41 (3.26)
Depression	7	28	15.86 (4.45)
Anxiety	7	25	15.11 (4.05)

TABLE 3. The Relationship Between the Participants' Mean BRS, HADS, and PTGI Scores (N=130).

		1	2	3	4	5	6	7	8	9
1. PTGI Total	**r**	1								
	p									
	N	130								
2. New Possibilities	r	.884**	1							
	p	**.000**								
	N	130	130							
3. Personal Strength	r	.909**	.723**	1						
	p	**.000**	**.000**							
	N	130	130	130						
4. Spiritual Change	r	.802**	.599**	.729**	1					
	p	**.000**	**.000**	**.000**						
	N	130	130	130	130					
5. Appreciation of Life	r	.797**	.689**	.704**	.583**	1				
	p	**.000**	**.000**	**.000**	**.000**					
	N	130	130	130	130	130				
6. Relating to Others	r	.950**	.754**	.845**	.810**	.686**	1			
	p	**.000**	**.000**	**.000**	**.000**	**.000**				
	N	130	130	130	130	130	130			
7. BRS	r	.165	.137	.095	.218*	.117	.195*	1		
	p	.061	.119	.280	**.013**	.185	**.026**			
	N	130	130	130	130	130	130	130		
8. Depression	r	-.133	-.119	-.032	-.172*	-.107	-.168	-.446**	1	
	p	.132	.177	.715	**.050**	.224	.056	**.000**		
	N	130	130	130	130	130	130	130	130	
9. Anxiety	r	-.003	.008	.052	-.040	.014	-.039	-.376**	.657**	1
	p	.975	.926	.559	.649	.874	.659	**.000**	**.000**	
	N	130	130	130	130	130	130	130	130	130

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Being diagnosed with cancer and coping with the many difficulties experienced during the treatment process present major challenges for cancer patients, as demonstrated by the 31.3% of patients in this study who reported that they were greatly affected by this experience. Although this experience is mentally exhausting, it can also provide an opportunity for cancer patients to develop and grow spiritually.

The patients' mean depression and anxiety scores were 15.86 (4.45) and 15.11 (4.05), respectively, with 98.5% scoring above 7 on the subscale of depression and 90% scoring above 10 on the subscale of anxiety. Similar to the literature, the incidence of anxiety and depression was found to be high in cancer patients in this study. In a study conducted with cancer patients who were receiving treatment in a tertiary healthcare institution, it was reported that 29.41% had high levels of depression and 18.09% had high levels of anxiety [28]. In the study of Baqutayan[1] (2019), it was reported that 90% of cancer patients had anxiety and depression. In the study by Mess et al[3] (2021), it was found that 37% of patients with breast cancer had mild anxiety and 7% had moderate anxiety. In the study conducted with patients newly diagnosed with cancer, it was reported that the rate of depression and anxiety among patients was 26.2% and 28.6%, anxiety has been observed in 74.3% of low-income individuals and 80% of females[29]. Additionally, in Naser et al[30] (2021) study, it was found that anxiety and depression were more prevalent in hospitalized patients than in an outpatient setting. Cancer treatment is a long-term treatment and during this process, the patient may experience physical and psychological symptoms. Caregivers should play an important role in the early detection of depression and anxiety, which are among the most common symptoms, and should enable rapid interventions.

A low positive significant correlation was found between the patients' BRS total, spiritual change, and relating to others' scores (p<0.05). One study conducted with breast cancer patients in China reported a positive significant relationship between resilience and post-traumatic growth [31]. Studies have emphasized that the capacity for post-traumatic growth is governed by the ability of individuals to perceive the trauma in a more positive light and to have good coping skills. A high level of resilience is one of the common characteristics of individuals with good coping

skills [4]. Considering that the cancer patients included in the present study had above-average moderate levels of resilience, it was not surprising that they also had high levels of post-traumatic growth.

A moderately significant negative correlation was found between the patients' BRS total, depression, and anxiety scores ($p<0.05$), which means that as the resilience of the patients decreased, their coping power weakened, and they had more anxiety and depression. Likewise, several studies have emphasized that resilience has a positive relationship with post-traumatic growth [26,27,32] and a negative relationship with anxiety and depression [23,27,31,33].

A low negative significant relationship was found between the patients' depression and spiritual change scores ($p<0.05$). This result indicates that spiritual changes contributed to decreasing depression in cancer patients. In a review study of resilience in cancer patients, it was reported that patients who find meaning or try to find meaning in their cancer experiences show more post-traumatic growth, their resilience increases, and their mental symptoms decrease [4]. In the present study, the decrease in the depression levels of the cancer patients as a positive result of the spiritual changes shows that they are trying to find meaning in their new experience of living with cancer.

CONCLUSIONS

According to the findings obtained in this study, the cancer patients had moderate levels of resilience and experienced post-traumatic growth after the diagnosis, as well as anxiety and depression. There was a positive relationship between resilience and post-traumatic growth, and a negative relationship between depression and anxiety. Resilience is, therefore, an important concept for the protection of mental health in cancer nursing, insofar as protecting the mental health of cancer patients contributes to helping them complete their cancer treatment and maintain their quality of life. In line with these results, it is recommended that programs be developed in cooperation between oncology and psychiatry nurses to improve resilience in cancer patients, that cancer patients who experience anxiety and depression be directed to get psychological support, and that coordination be established between oncology and consultation-liaison psychiatry units.

In line with the results obtained from this study, interventions to increase the resilience of oncology patients should be implemented so that they experience less anxiety and depression. Programs that will strengthen oncology patients should be added to the treatment plan. For patients to emerge stronger from their cancer experience, a team that will provide continuous psychological support to them should be established and the connection with consultation-liaison psychiatry should be maintained.

Ethical Approval:

Before conducting the study, written permission was obtained from the hospital where the study was conducted, and ethical approval was granted by the Scientific Research Ethics Committee of the University of Health Sciences (date: 2021/10 and no: 10/12). The study was conducted in line with the principles of the Declaration of Helsinki.

Informed Consent:

All patients who agreed to participate in the study were informed about the purpose of the study, and their written consent was obtained.

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Data Availability Statement:

The data that support the findings of this study are available on request from the corresponding author, [EEA]. The data are not publicly available.

Author Contributions:

Study conception and design: EEA, ED; Data collection: CP; Data analysis and Interpretation: EEA; Drafting of the article: EEA, ED, CP.

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Conflict of Interest:

The authors declare no conflicts of interest.

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