

Determine of fear of recurrence, psychological well-being and prosociality level in cancer patients

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ABSTRACT

Aims: The aim of this study was to investigate the level of fear of recurrence, psychological well-being, and prosociality in cancer patients in the remission and to determine the variables affecting them.

Methods: This descriptive-cross-sectional type study was conducted between August and December 2023 in the medical oncology outpatient clinic of a state hospital in Ankara, Turkey with 172 cancer patients in remission. Data were collected using the Descriptive Information Form, fear of cancer recurrence inventory (FCRI), Psychological Well-Being Scale (PWBS), and Adult Prosociality Scale (APS). SPSS 26 statistical software was used for statistical analysis.

Results: The mean FCRI score of the participants was 13.33 ± 13.78 , the mean PWBS score was 46.88 ± 4.28 , and the mean APS score was 61.42 ± 5.18 . A statistically significant difference was found between FCRI scores according to the patients' previous psychiatric treatment status, between PWBS scores according to their educational status, and between APS scores according to gender ($p < 0.05$). In addition, a statistically significant positive correlation was found between PWBS scores and APS scores ($p < 0.05$).

Conclusion: According to the results of this study, patients had low levels of fear of cancer recurrence and high levels of psychological well-being and prosociality. Previous psychiatric treatment was found to be effective on fear of recurrence, education on psychological well-being, and gender on prosociality. In addition, as the prosociality levels of the patients increased, their psychological well-being levels also increased. Therefore, it is recommended to increase prosocial behaviors as a means of enhancing psychological well-being, given the positive relationship between them.

Keywords: Cancer, fear of recurrence, psychological well-being, prosociality

INTRODUCTION

Cancer is one of the leading causes of death in the world. With recent advances in medicine and technology, cancer has become a curable disease, prolonging the life expectancy of patients and increasing survival rates. During the remission period, when the disease is under control and the treatment process is over, patients may experience physical or mental problems even though they feel somewhat relieved. One of the mental problems experienced during this period is the fear of recurrence. Patients may experience fear, anxiety, or worry about the cancer reappearing or progressing in the same area or anywhere else in the body (Ferlay et al., 2019; Lebel et al., 2016). Research shows that high levels of fear of recurrence could impair a person's mental health, leading to anxiety, depression, sleep disorders, social isolation, and decreased quality of life (Simard et al. 2013; Ağaç & Özçetin, 2021).

Psychological well-being plays an important role in coping with the fear, anxiety, and stress experienced by cancer patients (Ağaç & Özçetin, 2021). Psychological well-being is

an individual's being in harmony with himself/herself and his/her environment, maintaining emotional balance, and getting satisfaction from life. Individuals with elevated levels of psychological well-being define themselves as happier, more capable, and more satisfied with life (Diener, Scollon, & Lucas, 2009). Psychological well-being can directly affect the ability of cancer patients to cope with the difficulties they may encounter during the remission period. Psychological well-being is critical for the general well-being of patients. Improving cancer survivors' psychological well-being can lead to better medical outcomes and overall quality of life (Diener et al. 2009; Niu, Bhurosy, & Heckman, 2021). Therefore, it is important to identify patients' psychological well-being and associated factors during remission.

Cancer is a chronic disease that deeply affects an individual's physical and psychological well-being. Individuals try to cope with this challenging process by maintaining or restructuring their personal and social development in times of illness

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or crisis. In times of crisis or illness, individuals can both strengthen their own emotional well-being and reinforce their social support networks by showing prosocial behaviors, that is, by helping others. Prosocial behavior, which is one of the essential elements of social interaction, is defined as voluntary behavior without any expectation of reward in order to benefit another person or group (Chen, 2024; Pfattheicher, Nielsen., & Thielmann, 2022). Prosocial behaviors are based on positive social behaviors such as consoling, helpfulness, sharing, cooperation, altruism, involvement, volunteerism, and empathy. Prosocial behaviors strengthen an individual's social ties, reduce loneliness and social isolation, increase self-esteem, and make them feel positive (Aknin, Van de Vondervoort, & Hamlin, 2018; Pfattheicher, Nielsen, & Thielmann, 2022). By exhibiting prosocial behaviors, cancer patients can strengthen their social support networks, which can help them cope more effectively with the physical and mental challenges caused by the disease.

In order for cancer patients in remission to have a good quality of life, it is aimed to have good mental health as well as physical health. Therefore, it is important to investigate the factors affecting mental health (Firkins, Hansen, Driessnack, & Dieckmann, 2020). Although there are studies in the literature investigating fear of recurrence and psychological well-being in cancer patients in remission (Firouzbakht, Hajian-Tilaki, & Moslemi, 2020; Hampton et al. 2024; Niu et al. 2021; Oztas, Ugurlu, & Kurt, 2022), no studies investigating prosociality has been found. The results of this study may guide the planning of psychosocial interventions to improve the quality of life of cancer patients in remission.

Aim of the Study

The aim of this study was to investigate the level of fear of recurrence, psychological well-being, and prosociality in cancer patients in the remission period and to determine the variables affecting them.

Questions of the Study

In this research, answers to the following questions were sought:

What is the level of fear of recurrence, psychological well-being, and prosociality of cancer patients in the remission period?

What are the variables affecting fear of relapse, psychological well-being, and prosociality levels of cancer patients in the remission period?

Is there a relationship between fear of recurrence, psychological well-being, and prosociality in cancer patients during the remission period?

METHODS

Ethical Aspects of the Study

In order to conduct the study, written permission was obtained from the University of Health Sciences Scientific Researches Ethics Committee with the approval of the ethics committee (Date: 22.08.2023, Decision No: 46418926) as well as and from the Medical Oncology Department of Gülhane Training and Research Hospital, University of Health Sciences, where the study was conducted. In addition, the purpose of the study was explained to the patients participating in the study,

and it was emphasized that participation was voluntary. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Study Design and Participants

This was a descriptive and cross-sectional study conducted in the medical oncology department of a tertiary hospital in Ankara, Türkiye. The study included 172 patients diagnosed with cancer in remission who were followed up as outpatients in the medical oncology outpatient clinic between August and December 2023. The sample size was calculated as 156 using the G* power 3.1.9.4 program, based on Cohen's (1970) parameters that $d=0.2$ (small) effect size for a single sample $=0.95$ power $(1-)=0.80$. The target sample was determined to be 172, taking into account that there may be a 10% shortfall in data collection. The study included patients who were 18 years of age or older, had completed the treatment process (chemotherapy, radiotherapy, etc.), had not received any cancer treatment for at least six months, and were in remission without a history of recurrence or metastasis.

Data Collection Tools

The data were collected using the Descriptive Information Form, fear of cancer recurrence inventory, Psychological Well-Being Scale, and Adult Prosociality Scale.

Descriptive Information Form: This form was prepared by the researchers in line with the literature (Firouzbakht et al., 2020; Hampton et al., 2024; Niu et al., 2021; Oztas et al., 2022) and consisted of questions to determine the sociodemographic and clinical characteristics of the patients.

Fear of cancer recurrence inventory (FCRI): It was developed by Simard and Savard (2009), and its Turkish validity and reliability study was conducted by Eyrenci and Berk (2018). The scale consists of a total of 22 items and is based on a 5-point Likert scale. The inventory is scored between 0-4, ranging from 0 (never/ever) to 4 (always/very much). The total score that can be obtained from the inventory varies between 0-88. A high score indicates a high level of fear of recurrence (Eyrenci & Berk, 2018). The inventory has five sub-dimensions: triggers, functional impairments, recurrence-related meta-cognitions, emotion-focused coping strategies, and quality of life.

Eyrenci and Berk (2018) found the Cronbach alpha internal consistency coefficient of the inventory to be 0.94 for the total. In this study, the Cronbach's alpha internal consistency coefficient of the inventory was 0.95 for the total, 0.92 for the Triggers subscale, 0.92 for the Functional Impairment subscale, 0.90 for the Metacognitions of Relapse subscale, 0.75 for the Emotion-Focused Coping Strategies subscale, and 0.89 for the quality of life subscale.

Psychological Well-Being Scale (PWBS): It was developed by Diener et al. (2009), and its Turkish validity and reliability study was conducted by Telef (2013). The scale, consisting of 8 items in total, defines important elements of human functioning, from positive relationships to feelings of competence and having a meaningful and purposeful life. The items of the scale are answered on a 1-7 scale ranging from strongly disagree (1) to strongly agree (7). The minimum score is 8, and the maximum score is 56. A high score indicates that the person has many psychological resources and strengths. Telef (2013) found the Cronbach alpha internal consistency

coefficient of the scale to be 0.80. In this study, the Cronbach's alpha internal consistency coefficient was found to be 0.89.

Adult Prosocialness Scale (APS): It was developed by Caprara et al. (2005) to identify voluntary behaviors that are performed without expecting a reward to benefit individuals or groups. The Turkish validity and reliability study was conducted by Bağcı and Samur Öztürk (2016). The scale consists of one dimension and a total of 16 items. Participants are expected to rate the behaviors specified in the scale from 1 (never) to 7 (always), indicating frequency. The score that can be obtained from the scale is between 16 and 80. A high score indicates a higher level of prosocial behaviors. Bağcı and Samur Öztürk (2016) found the Cronbach Alpha's internal consistency coefficient of the scale to be 0.91. In this study, the Cronbach Alpha internal consistency coefficient of the scale was found to be 0.85.

Data Collection

The research forms were administered to the patients by face-to-face interview method in the waiting room after their outpatient clinic examinations. The participants were informed about the purpose of the study and that participation was voluntary. It took an average of 12-15 minutes to complete the forms.

Statistical Analysis

The research data were analyzed was performed with appropriate statistical methods in the IBM statistical package for social sciences (SPSS Inc., Chicago, IL) for Windows 26.0 program. Mean, standard deviation, minimum, maximum, frequency, and percentage were used in descriptive statistics of the characteristics of the patients in the study. The Kolmogorov-Smirnov test was used to determine whether the data were normally distributed, and it was determined that the data did not meet the normal distribution. Mann Whitney U test was used for paired group comparisons, Kruskal-Wallis H test was used for three or more group comparisons, and Mann Whitney U with Bonferroni correction was used for post hoc analysis. The relationship between the scale scores was evaluated by the Spearman's correlation test. $p < 0.05$ was considered statistically significant.

RESULTS

Table 1 presents the descriptive characteristics of the patients in the study. Of the patients, 72.1% ($n=124$) were female, the age range was 18-80 years, and the mean age was 51.24 ± 12.53 years. 78.5% ($n=135$) of the patients were married, 36% ($n=62$) were primary school graduates, and 77.3% ($n=133$) were not employed. For 46.5% ($n=80$) of the patients, 37 months or more had passed since the cancer diagnosis. The proportion of patients who had previously received psychiatric treatment was 10.5% ($n=18$).

Table 2 presents the mean scores of FCRI, PWBS, and APS for the patients. The mean scores of triggers, functional impairments, metacognitions related to relapse, emotion-focused coping strategies, quality of life, and total FCRI were 4.03 ± 4.36 , 0.41 ± 1.13 , 2.52 ± 2.46 , 3.56 ± 3.42 , 2.05 ± 2.85 , and 13.33 ± 13.78 , respectively. The mean PWBS score was 46.88 ± 4.28 and the mean APS score was 61.42 ± 5.18 .

In this study, FCRI, PWBS, and APS scores were compared according to the descriptive characteristics of the patients in

Table 1. Descriptive characteristics of patients (n=172)

	n	%
Age (51.24 ± 12.53)	18-40	33 19.2
	41-50	45 26.2
	51-60	54 31.4
	61 and above	40 23.3
Gender	Female	124 72.1
	Male	48 27.9
Marital status	Married	135 78.5
	Single	37 21.5
Education status	Literate	10 5.8
	Primary school	62 36.0
	Middle school	19 11.0
	High school	27 15.7
	Undergraduate and higher	54 31.4
Employment status in an income generating job	Employee	39 22.7
	Unemployed	133 77.3
Time from cancer diagnosis to today	12 months	33 19.2
	13-24 months	31 18.0
	25-36 months	28 16.3
	37 months and above	80 46.5
Previous psychiatric treatment status	Yes	18 10.5
	None	154 89.5

Table 2. Mean FCRI, PWBS and APS scores of patients

	Mean	SD	Patients' min-max scores	Scale's min-max scores
FCRI triggers	4.03	4.36	0-17	0-24
Functional impairments	0.41	1.13	0-8	0-8
Metacognitions related to relapse	2.52	2.46	0-11	0-16
Emotion focused coping strategies	3.56	3.42	0-18	0-20
Quality of life	2.05	2.85	0-18	0-20
Total	13.33	13.78	0-64	0-88
PWBS	46.88	4.28	26-56	8-56
APS	61.42	5.18	42-78	16-80

FCRI: Fear of cancer recurrence inventory, PWBS: Psychological Well-Being Scale, APS: Adult Prosocialness Scale, SD: Standard deviation, Min: Minimum, Max: Maximum

the study and the statistically significant ones are presented in **Table 3**. A statistically significant difference was found between the total FCRI median scores according to the patients' previous psychiatric treatment status ($Z=1868.50$; $p=0.013$). The FCRI median scores of those who had received psychiatric treatment before were higher ($p < 0.05$). No statistically significant difference was found between the FCRI median scores of the participants according to other sociodemographic characteristics except for except for their previous psychiatric treatment status ($p > 0.05$).

A statistically significant difference was found between the PWBS median scores of the patients according to their educational status ($X^2=11.576$; $p=0.021$). Post hoc analysis with Bonferroni correction was conducted to determine from

Table 3. Comparing patients' median scores of FCRI, PWBS and APS according to descriptive characteristics

	FCRI total		PWBS		APS	
	Median	Min-max	Median	Min-max	Median	Min-max
Gender						
Female	7.5	0-64	48	40-56	61	42-69
Male	12	0-54	48	26-56	62	43-78
	Z=3534.50 p=0.051		Z=2782.00 p=0.492		Z=3623.50 p=0.026*	
Education status						
Literate	0	0-37	48	43-52	62.5	46-48
Primary school	10	0-54	62	26-55	61	42-69
Middle school	15	0-51	48	33-52	61	51-72
High school	12	0-37	48	43-55	63	43-70
Undergraduate and higher	12	0-64	54	33-56	62	49-68
	X ² =4.793, p=0.309		X ² =11.576, p=0.021*		X ² =1.957, p=0.744	
Previous psychiatric treatment status						
Yes	11	0-51	48	26-56	62	42-78
None	20	0-64	47	33-56	62	52-69
	Z=1868.50, p=0.013*		Z=1338.50, p=0.444		Z=1483.50, p=0.624	
Z: Mann-Whitney U test, χ ² : Kruskal-Wallis test, *p<0.05, FCRI: Fear of cancer recurrence inventory, PWBS: Psychological Well-Being Scale, APS: Adult Prosocialness Scale						

Z: Mann-Whitney U test, χ^2 : Kruskal-Wallis test, *p<0.05, FCRI: Fear of cancer recurrence inventory, PWBS: Psychological Well-Being Scale, APS: Adult Prosocialness Scale

which groups this difference originated. According to the results of this analysis, the PWBS median score of primary school graduates was found to be statistically significantly higher than those with undergraduate and higher education (p<0.05). There was no statistically significant difference between the PWBS median scores of the participants according to other sociodemographic characteristics except for educational status (p>0.05) (Table 3).

A statistically significant difference was found between the APS median scores of the patients according to gender (Z=3623.50; p=0.026). The APS median score of female patients was higher than that of male patients (p<0.05). No statistically significant difference was found between the APS median scores of the participants according to other sociodemographic characteristics except for gender (p>0.05) (Table 3).

Table 4 presents the correlation between the FCRI, PWBS, and APS scores of the patients. There was no statistically significant correlation between FCRI total and subscale scores and PWBS scores (p>0.05). Similarly, no statistically significant correlation was found between FCRI total and subscale scores and APS scores (p>0.05). A statistically significant weak positive correlation was found between PWBS scores and APS scores (r=0.153, p=0.045) (p<0.05).

DISCUSSION

This study was conducted to investigate the levels of fear of recurrence, psychological well-being, and prosociality in cancer patients in the remission period and to determine the variables affecting them. The fear of relapse levels of the patients in the study was found to be low. In our study, no cut-off point was determined for the Turkish version of the FCRI. However, since the patients' FCRI total and subscale mean scores were close to the lowest score that could be obtained

Table 4. Correlation between FCRI, PWBS and APS scores of patients

Scales and dimensions		2	3	4	5	6	7	8
Triggers ¹	r	0.518	0.906	0.875	0.821	0.958	-0.122	0.037
	p	<0.001	<0.001	<0.001	<0.001	<0.001	0.110	0.632
Functional impairments ²	r		0.510	0.448	0.587	0.577	-0.252	-0.044
	p			<0.001	<0.001	<0.001	0.001	0.569
Metacognitions related to relapse ³	r			0.843	0.841	0.929	-0.105	-0.028
	p				<0.001	<0.001	0.171	0.719
Emotion focused coping strategies ⁴	r				0.799	0.906	-0.031	0.012
	p					<0.001	0.684	0.878
Quality of life ⁵	r					0.898	-0.155	0.024
	p						0.056	0.759
FCRI total ⁶	r						-0.145	0.010
	p						0.057	0.895
PWBS ⁷	r							0.153
	p							0.045*
APS ⁸	r							
	p							

r: Spearman's correlation analysis, *p<0.05

from this scale, their fear of recurrence levels was evaluated as low. Simard et al. (2013) reported that approximately 39%-97% of cancer patients experience different degrees of FCR. In the literature, fear of recurrence can be considered normal and functional up to a certain level as it helps cancer survivors stay alert to potential recurrence symptoms and adhere to medical regimens in cancer survivors (Lebel et al., 2016; Hampton et al., 2024). However, studies emphasize that patients should be carefully monitored as fear of relapse can turn into chronic anxiety and negatively affect individuals' mood, quality of life, and daily functioning (Ağaç & Özçetin, 2021). In this context, it can be concluded that even though the level of fear of recurrence was found to be low in the patients in our study, they should still be monitored during the remission period.

In this study, only the status of receiving psychiatric treatment was found to affect the fear of relapse. Those who had received psychiatric treatment before had a higher level of fear of recurrence. Previous studies with cancer survivors have shown that many factors, such as age, education, family/spouse support, cancer type, anxiety, depression, and receiving psychiatric treatment, affect fear of recurrence (Jung et al., 2024; Sun, Fang, Wang, & Wu, 2024). Similar to our research result, in a study conducted by Oztas et al. (2022) with breast cancer survivors in Turkey, fear of cancer recurrence was found to be higher in individuals with psychiatric drug use. Our results highlight the importance of monitoring individuals who have previously received psychiatric treatment in terms of fear of recurrence during the remission.

In this study, patients were found to have high levels of psychological well-being because their Psychological Well-being Scale scores were close to the highest score that could be obtained from this scale. There are different results in studies investigating the level of psychological well-being in cancer survivors (Abu-Helalah, Alshraideh, Al-Hanaqta, & Arqoub, 2014; Carlson, Waller, & Mitchell, 2012). Abu-Helalah et al. (2014) found that the levels of psychological well-being of

colorectal cancer survivors were high. Carlson et al. (2012) found that the majority of cancer survivors experienced psychological distress. This difference may be due to the different characteristics of the sample group.

In this study, it was found that other descriptive characteristics such as age, gender, marital status, and employment status did not affect psychological well-being, aside from education. Psychological well-being levels of patients with primary school graduates in the study were higher than those with undergraduate and graduate education. In a study conducted by Fong et al. (2017) with breast cancer survivors, it was found that there was no relationship between education level and psychological well-being. Firouzbakht et al. (2020) found that there was a positive relationship between education level and psychological well-being. In studies investigating cancer survivors' emotional well-being, many variables such as age, cancer type, social support, cancer beliefs, cancer beliefs, self-efficacy and patient-centered communication have an effect on psychological well-being (Niu et al. 2021). In our study, it can be thought that other variables may play a role in the difference in psychological well-being in patients with primary school graduates and patients with postgraduate education.

In this study, it was determined that the prosociality level of the patients was high. There is no study in the literature to determine the level of prosociality in cancer patients. Prosocial activities such as donations, volunteering, and helping behavior are known to enhance an individual's emotional well-being, strengthen social ties, and support psychological resilience (Pfattheicher et al. 2022). In this context, it can be considered that the high prosociality levels of the patients in our study will contribute to their effective coping with the difficulties they will experience during the remission period.

In this study, the prosociality level of female patients was found to be higher than that of male patients. Similar to our findings, in studies examining the level of prosocial behavior in different sample groups, it was determined that women tend to exhibit higher prosocial behavior than men (Espinosa & Kovářík 2015; Kuhnert et al. 2017). Our results highlight attention to the gender difference in the prosociality level of patients diagnosed with cancer.

In this study, no relationship was found between fear of recurrence and psychological well-being and prosociality of cancer patients in the remission period. However, a positive relationship was found between patients' psychological well-being and their prosociality. Accordingly, when patients feel psychologically well, they tend to exhibit more prosocial behaviors, which are voluntary social actions aimed at helping others. On the other hand, it can be said that showing prosocial behaviors, that is, doing good without expecting anything in return, and showing positive social behaviors increase their psychological well-being. In the literature, although there are no studies investigating the relationship between psychological well-being and prosociality in cancer patients. However, there are studies showing that prosocial behavior and well-being have positive effects on each other and that there is a mutual positive relationship between prosocial behavior and well-being (Aknin et al. 2018; Hui 2022; Titova & Sheldon, 2022). Our findings are consistent with this literature.

Limitations

The limitations of this study are that the data collection tools in the study are based on self-report and the study was conducted in a single center.

CONCLUSION

This study analyzed the levels of fear of recurrence, psychological well-being, and prosociality; the factors affecting them; and the relationship between them in cancer patients in the remission period. According to the results of this study, patients had low levels of fear of recurrence and high levels of psychological well-being and prosociality. Previous psychiatric treatment affects fear of relapse, education level affects psychological well-being, and gender affects prosociality. These results may guide the planning of interventions to improve the quality of life of patients in remission. In addition, this study showed that there is a positive relationship between psychological well-being and prosociality. Therefore, patients can be encouraged for prosocial behaviors.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of the University of Health Sciences Scientific Researches Ethics Committee (Date: 22.08.2023, Decision No: 46418926).

Informed Consent

All patients signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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