Original Article

Coping Strategies and Related Factors among Patients with Cancer During the COVID-19 Pandemic in Tehran, Iran (2021–2022)

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Abstract

Background: Patients with cancer often struggle with coping with stress and anxiety. Additionally, the COVID-19 crisis has reduced the availability of coping strategies for managing stress. This study aims to determine coping strategies and related factors in patients with cancer during the COVID-19 pandemic. **Materials and Methods:** This descriptive study was conducted on 305 patients with cancer admitted to the Cancer Institute of Imam Khomeini Hospital in Tehran, Iran, from 2021 to 2022. The researcher used a simple random sampling method. To collect data, a demographic and clinical information questionnaire, along with the Lazarus and Folkman (1985) Ways of Coping Questionnaire, was utilized. Data were analyzed using Spearman's correlation, Mann–Whitney, and ANOVA tests. **Results:** The mean (SD) age of participants was 53.90 (13.54). Among the participants, 155 (50.82%) were men, 243 (79.67%) had been diagnosed less than 2 years prior, 166 (54.43%) were undergoing chemotherapy, and 81 (26.56%) had colon cancer. Patients predominantly used positive reappraisal (13.51 (2.61)) and escape-avoidance (12.87 (2.51)) coping strategies more than other strategies. A significant relationship was found between the variables of age, sex, number of children, and education level with the coping strategies of the patients ($p < 0.05$). **Conclusions:** The findings indicate that patients with cancer frequently used emotion-based strategies to manage their stress and anxiety during the COVID-19 pandemic. It appears that coping strategies adopted by patients differ somewhat from those before the pandemic. Thus, it is recommended to adjust training according to the demographic factors related to the coping strategies utilized by patients.

Keywords: *Cancer, coping strategies, COVID-19 pandemic*

Introduction

Cancer results from the excessive growth and proliferation of body cells.[1] The occurrence of cancer has increased due to population growth and aging as well as the rise in risk factors associated with this disease. In 2019, there were about 10 million cancer-related deaths worldwide, which is double the number from 20 years ago.[2] The experience of cancer is one of the most stressful events a person can face.[3] Studies indicate that almost one-third of patients with cancer are affected by psychological issues such as depression and anxiety.[4] Additionally, a meta-analysis reported the prevalence of mental health problems in patients with cancer to be as high as 53%.[5] Concurrently, the conditions created by the COVID-19 pandemic have heightened anxiety and worry among these patients.[6]

Patients with cancer have immunodeficiency and, compared to the general population, are at greater risk of severe outcomes related to COVID-19, such as admission to intensive care units, the need for mechanical ventilation, or death.[7] This vulnerability has caused these patients to be particularly concerned about COVID-19 and its effects on their health,[8] and their mental health has decreased significantly during the COVID-19 outbreak.[9] These patients need to adapt to the challenges posed by this viral disease to maintain their physical health and psychological wellbeing.[10] Coping strategies employed by patients with cancer in responding to the various issues related to COVID-19 and the associated anxiety and stress can play a crucial role in adapting to their circumstances and influencing their psychological experiences.[7] These strategies are pivotal in determining patients' vulnerability and significantly impact their psychological and

How to cite this article: Mehrabi E, Mohammadi E, Rasekhi A, Asgari E, Rezayat F. Coping strategies and related factors among patients with cancer during the COVID-19 pandemic in Tehran, Iran (2021–2022). Iran J Nurs Midwifery Res 2025;30:517-23.

Submitted: 20-Nov-2023. **Revised:** 05-Feb-2025. **Accepted:** 11-Feb-2025. **Published:** 24-Jul-2025.

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Access this article online

Website: https://journals.lww.com/jnmr

DOI: 10.4103/ijnmr.ijnmr_360_23

Quick Response Code:

physical wellbeing.[11] According to Folkman *et al*. (1986), coping is defined as individuals' dynamic cognitive and behavioral efforts to manage challenging external or internal demands.[12] Lazarus and Folkman identified two categories of coping: problem-focused and emotion-focused. Problem-focused coping aims to manage or change the issue causing distress, while emotion-focused coping seeks to regulate emotional responses to that problem.[13] Patients with cancer often exhibit a weak response to stress, anxiety, and challenging situations[14,15] and may perceive their coping resources as insufficient.[16] On the other hand, the COVID-19 crisis has reduced the availability of coping strategies,[17] including social support and access to mental health professionals, which have diminished as a result of the pandemic.[18] Researchers are investigating which coping styles are most effective during the recent COVID-19 pandemic compared to those previously utilized.[19]

In the realm of coping strategies for patients with cancer, studies have been conducted in various countries.[20,21] However, effective coping strategies can differ among various societies and cultures.[22] Consequently, the aforementioned studies may not adequately address the needs of Iranian society. Research on coping strategies for patients with cancer in Iran has been conducted.[16,23,24] These studies were carried out under normal conditions, prior to the COVID-19 pandemic, highlighting the necessity for research in the current context. The pandemic has not only affected people's emotions but also altered their coping strategies.[25] Behavioral and psychological changes resulting from pandemic-induced closures have led to shifts in the utilization of existing coping strategies.[26] Additionally, in the study by Charsouei *et al*.,[27] conducted in Iran during the COVID-19 pandemic, the rates of utilizing problem-oriented and emotion-oriented strategies by patients with breast cancer and spinal metastasis were 22.25 (1.41) and 30.42 (1.30), respectively. This study focused solely on women with breast cancer, despite the fact that coping strategies can differ by cancer type.[28]

The present study was conducted to determine coping strategies and related factors in patients with cancer during the COVID-19 pandemic.

Materials and Methods

The present study is part of a larger descriptive study that investigates the levels of stress, anxiety, coping strategies among patients with cancer, and the relationships between these variables and the demographic and clinical variables of the patients during the COVID-19 pandemic in 2021–2022.

The research environment was the Cancer Institute of Imam Khomeini Hospital Complex, one of the largest cancer treatment centers, which has four inpatient wards. The research population included patients with cancer hospitalized at the Cancer Institute. To calculate the sample size, considering $r = 0.15$, $\alpha = 0.05$, and $\beta = 0.20$, a sample size of 274 was determined, and the final sample size was adjusted to 305, accounting for 10% attrition. The research sample consisted of patients who met the inclusion criteria: They were at least 18 years old, had no psychiatric disorders (according to information in the patients' files), and were able to respond to the research tools' questions. Sampling began in early October 2021 and concluded in mid-January 2022. The researcher employed a simple random method to determine the days of her presence in the hospital. She considered a 2-week interval for the discharge of previous patients and the admission of new patients to the Cancer Institute. Then, for each phase, one day was selected from the 14-day period using the lottery method. The researcher wrote down the dates on small pieces of paper based on the calendar, placed them in a box, and randomly drew one. She visited the Cancer Institute on the specified date. Following the discharge of previous patients and the admission of new patients, the researcher used the same lottery method to select another day to attend the hospital. This process continued until the researcher selected and studied the required samples. Each time she visited the Cancer Institute on the designated days, a numerical code was assigned to all the files in the inpatient wards. These codes were entered into GraphPad software, which generated random numbers. In this manner, the samples were selected using a simple random sampling method. By reviewing the selected files and patient information, the patients who met the criteria were included in the study. After obtaining written informed consent from the patients, the researcher provided a demographic and clinical information questionnaire, as well as the Lazarus and Folkman Ways of Coping Questionnaire, and asked the patients to complete both questionnaires.

Demographic and clinical information questionnaire:

The questionnaire included questions about age, gender, marital status, number of children, level of education, occupation, income level, duration since diagnosis, type and grade of cancer, type of inpatient ward, type of treatment, and history of COVID-19 vaccination.

Lazarus and Folkman Ways of Coping Questionnaire:

The Ways of Coping Questionnaire evaluates the thoughts and actions that individuals use to manage stressful experiences in their everyday lives.[29] It consists of 66 questions, each rated on a Likert scale from 0 to 3. A score of 0 indicates "does not apply and/or not used," while a score of 3 indicates "used a great deal." Strategies that receive higher scores are considered the coping strategies most frequently utilized by patients.[12] Padyab *et al*. translated the scale into Persian and assessed its validity and reliability. Factor analysis identified eight factors: confrontive coping, distancing, self-control, seeking social support, escape avoidance, accepting responsibility, planful

problem solving, and positive reappraisal, which together accounted for 61% of the total variance. The reliability of the tool was assessed using Cronbach's alpha coefficient method. The alpha coefficients were 0.63 for confrontive coping, 0.73 for distancing, 0.60 for self-control, 0.84 for seeking social support, 0.80 for escape avoidance, 0.66 for accepting responsibility, 0.82 for planful problem solving, and 0.82 for positive reappraisal.[30] In the present study, the tool's reliability was assessed, and the alpha coefficient was 0.85.

The collected data were entered into IBM SPSS software version 22. Since the data distribution was not normal according to the results of the Kolmogorov–Smirnov test, the relationships between demographic and clinical variables and coping strategies of patients were investigated using nonparametric tests such as Spearman's correlation test and the Mann–Whitney test. Additionally, considering the assumption of homogeneity of variances and the sufficiently large sample size, the ANOVA test was also employed to analyze the data.

Ethical considerations

The researcher obtained permission from the ethics committee of Tehran University of Medical Sciences (ID: IR.TUMS.FNM.REC.1400.126), presented a letter of introduction to the authorities of the research environment, introduced herself, and explained the study's objectives to the participants. She assured participants of the confidentiality of their information and emphasized that their names and family names would not be mentioned in the questionnaires. Written informed consent was obtained from all participants to take part in the study.

Results

Demographic and clinical characteristics of patients with cancer are shown in Tables 1 and 2, as well as in Figure 1. According to Figure 1, the number of patients with colon cancer (81 (26.56%)) and breast cancer (47 (15.41%)) was higher than that of other types of cancer. As Table 3 shows, the coping strategies of positive reappraisal (13.51 (2.61)) and escape avoidance (12.87 (2.51)) were used by patients more than other coping strategies.

Among the demographic and clinical variables, the relationship between some of them and the coping strategies of patients with cancer was significant, as shown in Tables 4-7. According to Spearman's correlation test, there were significant negative relationships between age and self-control (R = -0.13, p = 0.02), seeking social support (R = -0.12, p = 0.04), and positive reappraisal (R = -0.12, p = 0.04) strategies. In other words, with increasing age, the use of these strategies decreased. Furthermore, according to the Mann–Whitney test, the relationship between gender and the escape-avoidance strategy was significant, with women adopting this coping strategy more than men (p = 0.04), although the difference was not substantial. Additionally, according to the ANOVA test, there was a statistically significant relationship between education level and the distancing strategy. The use of the distancing strategy was lower in illiterate and elementary-level patients and higher in university-educated patients (p = 0.05). Last, according to Spearman's correlation test, there were significant negative correlations between the number of children and the distancing (R = -0.14, p = 0.01) and self-control (R = -0.11, p = 0.04) strategies. As the number of children increased, the use of distancing and self-control strategies decreased.

Table 1: Demographic characteristics of patients participating in the research

Demographic characteristics	Results	*n* (%)
Gender	Male	155 (50.82%)
	Female	150 (49.18%)
Marital status	Single	18 (5.90%)
	Married	242 (79.34%)
	Divorced	16 (5.25%)
	Widow	29 (9.51%)
Education	Illiterate-elementary	93 (30.49%)
	Pre high school–high school-diploma	140 (45.90%)
	University	72 (23.61%)
Occupation	Unemployed	59 (19.54%)
	Self-employed	75 (24.83%)
	Employee	83 (27.48%)
	Housewife	85 (28.15%)
Income	Less than 50 million Iranian Rial	67 (24.36%)
	50–100 million Iranian Rial	204 (74.18%)
	More than 100 million Iranian Rial	4 (1.45%)
Age		21-86

Table 2: Clinical characteristics of patients participating in the research

Clinical characteristics	Results	*n* (%)
Type of inpatient ward	Surgery	141 (46.23%)
	Oncology	164 (53.77%)
duration since diagnosis	Less than 2 years	243 (79.67%)
	More than 2 years	62 (20.33%)
Cancer grade	One	74 (24.26%)
	Two	145 (47.54%)
	Three	86 (28.20%)
Cancer stage	One	72 (23.61%)
	Two	107 (35.08%)
	Three	61 (20.00%)
	Four	65 (21.31%)
Type of treatment	Chemotherapy	166 (54.43%)
	Surgery	139 (45.57%)
COVID-19 vaccination	Not vaccinated	138 (45.25%)
	One dose of vaccination	63 (20.66%)
	Two doses of vaccination	104 (34.10%)

Table 3: Descriptive results of coping strategies in patients participating in the research

Coping strategies	Mean (SD)	Median	Minimum	Maximum
Confrontive coping	8.07 (2)	8	2	14
Distancing	9.08 (2.32)	9	3	17
Self-control	12.23 (2.66)	12	2	20
Seeking social support	11.89 (2.63)	12	0	18
Accepting responsibility	5.84 (1.70)	6	2	11
Escape avoidance	12.87 (2.51)	13	6	21
Planful problem solving	9.1 (2.55)	9	3	17
Positive reappraisal	13.51 (2.61)	13	5	21

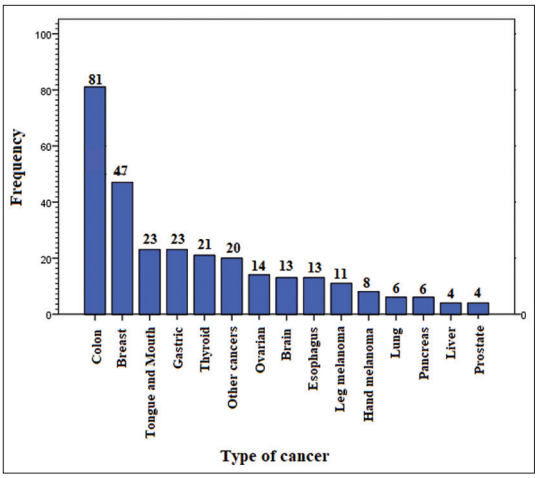

Figure 1: Frequency of different cancer types in patients participating in the research

Discussion

The present study aimed to determine coping strategies and related factors in patients with cancer during the COVID-19 pandemic. According to the results, patients with cancer predominantly used positive reappraisal and escape-avoidance strategies compared to other strategies. In descending order, self-control and seeking social support were used more than other coping methods. In the study by Ahadi *et al*.,[31] escape avoidance and seeking social support were among the strategies that patients commonly employed. The results of the present study align with this finding; however, there are notable differences between the two studies. Ahadi *et al*. indicated that patients rarely used self-control and positive reappraisal strategies and frequently opted for confrontive coping strategy.[32] This difference may stem from the fact that the mentioned study was conducted before the pandemic. COVID-19 has affected not only people's emotions but also their coping strategies.[28] In the study conducted by Zabalegui *et al*.,[33] patients with cancer primarily used distancing, cognitive escape avoidance, seeking and using social support, and focusing on the positive. The distancing strategy, which was not among the most frequently utilized in the present study, was widely used in Zabalegui *et al*.'s research. The difference in findings may be attributed to the timing of the two studies, with Zabalegui *et al*.'s study not being conducted during the pandemic. Behavioral and psychological changes resulting from the lockdowns imposed during COVID-19 likely influenced the adjustment of coping strategies.[25]

In Gibbons *et al*.'s[34] study involving patients with breast cancer, results indicated that patients employed strategies such as seeking support and positive reappraisal to cope with treatment-related distress. Similarly, another study cited that the most commonly used strategies included reliance on social support, focusing on positive thoughts, and avoidance-based methods.[21] In contrast, the self-control strategy, which was prevalent among participants in the present study, was not frequently used by patients in these two studies. It is noteworthy that these studies were qualitative and relied on interviews with a limited number of patients. Moreover, research conducted by Tan on patients with cancer in Turkey found that the strategy of seeking social support was utilized the least.[32] This discrepancy could be due to the absence of a pandemic context in Tan's study. In another study conducted during the COVID-19 pandemic, participants reported using spiritual beliefs, social/emotional support, and positive reframing more than other coping strategies.[35] The findings of the present study are consistent with this research. However, the instruments employed in our study differed, which is why the strategy of spiritual beliefs was not among those reported by our participants. Regarding coping strategies among breast and colorectal cancer survivors during the COVID-19 pandemic, Galica *et al*.[36] identified three themes: "adapting means and methods to connect with others," "being intentional about the outlook," and "taking action toward a brighter future." Participants in both studies appeared to benefit from seeking social support; however, their results were not entirely consistent. This inconsistency may arise from the qualitative nature of Galica *et al*.'s research, which involved a smaller participant pool and employed interview techniques.

As for the relationship between demographic and clinical variables and coping strategies, the present study found negative relationships between the number of children and the distancing and self-control coping strategies. With an increase in the number of children, both distancing and self-control strategies tended to decrease. Environmental

Table 4: Relationship between age with self-control, seeking social support, and positive reappraisal strategies in patients participating in the research

Response variable / Independent variable	Self-control		Seeking social support		Positive reappraisal	
	R	*p*	*R*	*p*	*R*	*p*
Age	-0.13	*0.02	-0.12	*0.04	-0.12	*0.04

Spearman's correlation test. *$p \leq 0.05$

Table 5: Relationship between gender and escape-avoidance strategy in patients participating in the research

Results / Independent variable		Mean (SD)	*p*
Gender	Male	12.62 (2.55)	*0.04
	Female	13.12 (2.44)	

Mann–Whitney test. *$p \leq 0.05$

Table 6: Relationship between education level and distancing strategy in patients participating in the research

Results / Independent variable		Mean (SD)	*p*
Education	Illiterate-elementary	8.61 (2.21)	*0.05
	Pre high school–high school-diploma	9.21 (2.24)	
	University	9.41 (2.53)	

ANOVA test. *$p \leq 0.05$

Table 7: Relationship between the number of children with self-control and distancing strategies in patients participating in the research

Response variable / Independent variable	Self-control		Distancing	
	R	*p*	*R*	*p*
Number of children	-0.11	*0.04	-0.14	*0.01

Spearman's correlation test. *$p \leq 0.05$

social factors, such as the presence of a social network, are related to coping efforts.[37] Schetter *et al*.[37] found that living alone correlated with increased use of support-seeking and behavioral escape-avoidance strategies.

In the current study, negative relationships were also identified between age and the self-control, social support-seeking, and positive reappraisal coping strategies. The use of these strategies decreased with age. Age-related changes significantly influence the choice of coping strategies across different age groups. Younger individuals favor positive reappraisal, a proactive strategy, for emotional regulation.[38] Hernández *et al*.[39] demonstrated that younger individuals rely on social support strategies more than older adults to regain their job abilities and cope with disease-related limitations. In younger patients, the consequences of the disease are potentially greater and more permanent, and it is more likely to interfere with their social and occupational interactions. Additionally, Schetter *et al*. found significant negative relationships between age and both seeking and using social support and focusing on the positive.[39] The results of the present study also showed these relationships. At the same time, in the study of Schetter *et al*.,[37] there was a negative and significant relationship between the age variable and behavioral escape avoidance. However, the relationship between the age variable and cognitive escape avoidance was not significant. In the present study, the relationship between age and escape avoidance was not significant. Notably, the escape-avoidance strategy was not categorized into cognitive and behavioral types in our study.

Among the demographic variables, a significant relationship was found between gender and the escape-avoidance coping strategy, with women utilizing this strategy more. This finding aligns with results from Faraci *et al*.,[40] which indicated that women were more likely to employ escape-avoidance strategies. When faced with stress, this strategy may evoke a sense of empowerment among women, leading to its increased usage in female patients with cancer.[41] Conversely, Wang *et al*. reported that men exhibited a higher average use of the avoidance strategy compared to women.[42] The discrepancy may arise from differences in patient populations as Wang *et al*.'s[42] research focused on individuals in the final stages of kidney disease, whose experiences differ from those of patients with cancer. The way people evaluate stressful situations and deal with psychological pressure differs in different situations.[43]

Furthermore, the present study identified a significant relationship between education level and the distancing strategy, with university-educated patients utilizing this strategy more than those with lower educational attainment. In Kershaw *et al*.'s[44] study, no significant relationship was found between education level and patients' coping strategies. This difference may be attributed to the varying categorization of coping strategies employed in that research, which differentiated between active and avoidant strategies, neither of which showed a significant relationship with patients' education levels.

Conclusion

The present study showed that during the COVID-19 pandemic, patients with cancer predominantly adopted positive reappraisal and escape-avoidance coping strategies, followed by self-control and seeking social support. Compared to the results of studies conducted before the pandemic, it appears that the coping strategies adopted by patients have shifted somewhat since the onset of COVID-19. Considering that these coping strategies are often emotion-oriented and can only temporarily alleviate stress,[45] and recognizing that patients with cancer experience heightened stress and anxiety during the pandemic, it is crucial for nurses to teach problem-oriented

coping strategies. This can help patients adopt more effective methods to reduce their stress and anxiety during this critical period. Furthermore, given the relationships between factors such as age, gender, number of children, and education level with the coping strategies of patients, nurses should take these factors into account and tailor their training according to the specific conditions and needs of each patient group. It is also suggested that future research investigate the effects of such training on the levels of stress and anxiety in patients with cancer.

Acknowledgements

This article is the result of a research project under contract number 1400-2-100-54404 dated 09/12/2021. We express our gratitude to all the patients who participated in the research and the staff of the Cancer Institute.

Financial support and sponsorship

Tehran University of Medical Sciences and Health Services

Conflicts of interest

Nothing to declare.

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