



## The Relationship between Coping Strategies and Quality of Life in Women with Breast Cancer

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### Quantitative Study

#### Abstract

**Background:** Coping strategies with life changes are different depending on various situations. The individuals' quality of life (QOL) is, to some extent, influenced by the way they deal with life events. The present study aimed to determine the relationship between coping strategies and QOL of women with breast cancer.

**Methods:** This descriptive-analytical study was performed on 35 women with recently diagnosed breast cancer in Baqiyatallah Hospital, Tehran, Iran, in 2021-2022. Data were collected using the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30) and the Coping Operations Preference Enquiry (COPE). This study used SPSS statistical software to analyze the data. A Pearson correlation coefficient test was used to examine the relationship between variables.

**Results:** Generally, the average QOL was approximately 58 to 60 and 57 to 63 at the beginning of study and the 3-month follow-up, respectively. There was a significant and positive relationship between active coping strategies and high QOL in all areas of the QOL at the beginning of treatment and 3-month follow-up (Pearson correlation coefficient > 0.70,  $P < 0.01$ ). There was a significant relationship between younger age, higher education, marital status, lower disease stage, non-use of chemotherapy, and better QOL at the beginning of treatment and 3-month follow-up ( $P < 0.05$ ).

**Conclusion:** The QOL of women suffering from breast cancer is not only related to coping strategies but also to the demographic variables, such as age, disease stage, marital status, the type of treatment, and education.

**Keywords:** Coping; Breast; Cancer; Quality of life

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## Introduction

Breast cancer is the most common cancer in women and the second leading cause of death by cancer in women (Humpel & Jones, 2004). In developed countries, 12% of women aged 20-34 have breast cancer (Hickey, Peate, Saunders, & Friedlander, 2009). Meanwhile, breast cancer accounts for more than 25% of cancers in Iranian women (Poorkiani et al., 2010). The highest incidence of this disease is in the ages of 35 to 44 years (Taleghani, Yekta, & Nasrabadi, 2006). Iranian women get the disease 10 years earlier than their Western counterparts (Harirchi, Karbakhsh, Kashefi, & Momtahan, 2004). Diagnosing and treating breast cancer is a stressful and anxious experience (Alagizy, Soltan, Soliman, Nashat, & Gohar, 2020; Rashid, Aqeel, Bushra, & Salim, 2021). Affected women experience treatments such as chemotherapy, radiotherapy, and surgery as well as unpleasant side effects such as hair loss, nausea, and sexual problems (Hayati, Shahsavari, & Mahmoodi, 2009; Widiyanti, Yona, Masfuri, & Waluyo, 2019). These complications and consequences seriously endanger the short-term and long-term quality of life (QOL) of patients (Bottomley, 2002). Facing breast cancer inevitably leads to psychological coping reactions (Kvillemo & Branstrom, 2014). The concept of coping was first introduced in 1966 by Richard Lazarus (Lazarus, 2013). He believed that stress consists of three stages: first, the initial evaluation which is the observation of a danger, second, the secondary evaluation which is searching for an answer in mind, and third, using the searched answer, that is, coping (Palmer & Cooper, 2013). In other words, coping strategies are efforts made by individuals to restore balance or eliminate the perturbation. Problem-solving, adapting to the problem, or failing to reach a solution will appear as the results (Frydenberg, 1993).

Coping strategies start from the beginning of disease and the resulted stress and continue until the treatment of women suffering from breast cancer is completed (Ganz, Desmond, Leedham, Rawland, Meyerowitz, & Belin, 2002). Cancer coping strategies are particularly important in the long-term consequences of the disease. There is a significant relationship between the average QOL scores and the coping strategies type (Ahadzadeh & Sharif, 2018; Velasco et al., 2020). Problem-oriented and emotion-oriented coping strategies can predict the QOL of patients who have cancer (AbdAllah, Shafik, & Abdel-samea, 2018). In addition, patients with good QOL have more positive strategies and hope for higher recovery than others (Kershaw, Northouse, Kritpracha, Schafenacker, & Mood, 2004). Niemela et al. (2010) have shown that behavioral isolation and denial strategies are strongly associated with poor QOL (Niemela, Vaisanen, Marshall, Hakko, & Rasanen, 2010).

Regarding the importance of coping strategies for QOL and their psychological consequences in patients with cancer, the present study aimed to determine the relationship between coping strategies and the QOL in women who have breast cancer when it is diagnosed and to evaluate the status of patients' coping strategies in the medium term. Moreover, the results were compared with the results of a 3-month follow-up.

## Methods

The present study was a descriptive-analytical one, and the study population was all women with recently diagnosed breast cancer in Baqiyatallah Hospital, Tehran, Iran, in 2021-2022. The sample size was 32 people based on 5% alpha and 20% beta errors, and finally 35 people were included in the study. Patients were selected by simple random sampling method according to the inclusion criteria. Inclusion criteria were women aged between 20 and 50 diagnosed with breast cancer, starting the treatment

within the last three months, and willing to participate in the study. Exclusion criteria were women with breast cancer with a history of mental illness and other chronic comorbidities. The interviewers explained the study goals to the patients, and received the conscious consent form when patients confirmed to participate in the study, and all principles of confidentiality were observed. The ethics code of study was obtained from the Medical Ethics Committee of Baqiyatallah Al-Azam Hospital with the number IR.BMSU.BAQ.REC.1400.013.

Data were collected using an exclusive, validated questionnaire, the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 (EORTC QLQ-C30) to assess the QOL of patients with cancer. The reliability and validity of the questionnaire were highly consistent (Cronbach's alpha coefficient  $> 0.70$ ) across three different groups studied (Aaronson et al., 1993). It is a multidimensional questionnaire consisting of 30 questions that measure the QOL in 5 functional areas (physical, emotional, cognitive, and social functions, and role-playing), 9 areas of symptoms (fatigue, pain, nausea and vomiting, shortness of breath, diarrhea, constipation, decreased sleep, decreased appetite, and economic problems caused by the disease), and a general area of the QOL. The reliability and validity of the EORTC QLQ-C30 was assessed and confirmed in Iranian patients (Cronbach's alpha coefficient  $> 0.70$ ) (Montazeri et al., 1999).

Coping strategies were measured by the coping skills questionnaire, i.e., Coping Operations Preference Enquiry (COPE) by Carver et al. (1989), which is based on Lazarus' stress model and behavioral self-regulation model (Carver, Scheier, & Weintraub, 1989). This checklist is a multidimensional tool that examines how people respond to stress. The checklist consists of 28 questions, 2 categories of active and avoidant coping strategies, and 14 coping subscales, including active coping, use of instrumental support, positive reframing, planning, use of emotional support, venting, humor, acceptance, religion, self-blame, self-distraction, denial, alcohol/drug use, and behavioral disengagement. Each of the subscales has two questions and each question has four options. On this scale, a higher score indicates the use of avoidant coping strategies. The coping skills questionnaire has been validated according to Iranian culture and uses other coping scales in Iran and the reliability of this questionnaire based on Cronbach's alpha coefficient was 0.94 (Jalalinezhad, Yazdkhasti, & Abedi, 2013).

Then two questionnaires were distributed among women, at the beginning of the study, and if they had any doubts about the questions, they would ask the researcher. Three months later, patients filled out the questionnaires again. SPSS software (version 24, IBM Corporation, Armonk, NY, USA) was used for data analysis at a significance level of less than 0.05. Descriptive statistics for qualitative variables were frequency distribution and frequency percentage and for quantitative variables were mean and standard deviation (SD). The Kolmogorov-Smirnov test first checked the distribution normality of the quantitative variables to analyze the data. Then, considering the normality, parametric or nonparametric and Pearson correlation coefficient tests were used to examine the relationship between variables.

## **Results**

In general, the average QOL of patients in different areas was about 57 to 63, indicating their low QOL at the beginning of the treatment and the 3-month follow-up. There was no significant difference in QOL areas between the beginning of treatment and the 3-month follow-up (Table 1).

**Table 1.** Basic and demographic information of women with breast cancer

Variable		Value
Disease stage	Stage 1	12 (34.3)
	Stage 2	6 (17.1)
	Stage 3	8 (22.9)
	Stage 4	9 (25.7)
Treatment	Surgery	11 (31.4)
	Chemotherapy	13 (37.1)
Marital status	Surgery and chemotherapy	11 (31.4)
	Single	14 (40.0)
Education	Married	21 (60.0)
	Diploma and under diploma	14 (40.0)
Employment	Master's degree	13 (37.1)
	Bachelor's degree and higher	8 (22.9)
	Housewife	18 (51.4)
	Employed	17 (48.6)

Data are presented as number and percentage

The mean  $\pm$  SD of patients' QOL and coping strategies scores at the beginning of treatment and three months later are shown in tables 2 and 3. There was no significant difference at the beginning of treatment and 3-month follow-up in any areas of active and avoidant coping strategies in paired t-test (Kolmogorov-Smirnov test was used to check the normality of data distribution). The P-value in test was 0.05, which indicated the normality of the data distribution.

There was a significant and positive relationship between active coping strategies and the QOL in all areas, including physical, emotional, cognitive, and social functions, role-playing, and overall health at the beginning of treatment and three months later (Pearson correlation coefficient  $> 0.70$ ,  $P < 0.01$ ) (Table 4). In addition, there was a significant and negative relationship between avoidant coping strategies and QOL in all areas, including physical, emotional, cognitive, and social functions, role-playing, and overall health at the beginning of treatment and 3-month follow-up (Pearson correlation coefficient  $< -0.74$ ,  $P < 0.01$ ).

There was a significant relationship between patients' younger age and better QOL in all areas at the beginning of treatment (Pearson correlation coefficient  $< -0.552$ ,  $P < 0.05$ ) and at 3-month follow-up (Pearson correlation coefficient  $< -0.501$ ,  $P < 0.05$ ). There was also a significant relationship between patients' younger age and the use of active coping strategies at the beginning of treatment (Pearson correlation coefficient  $< -0.466$ ,  $P < 0.05$ ) and at 3-month follow-up (Pearson correlation coefficient  $< -0.500$ ,  $P < 0.05$ ).

At the beginning of treatment and after three months, the QOL in all areas was significantly higher in patients with lower stage than in patients with higher stage ( $P < 0.01$ ).

**Table 2.** Quality of life (QOL) of women with breast cancer at the beginning of treatment and three months later

QOL	Beginning of treatment (mean $\pm$ SD)	3-month follow-up (mean $\pm$ SD)	P-value
Physical function	60.05 $\pm$ 26.16	63.31 $\pm$ 27.89	0.344
Role performance	60.37 $\pm$ 27.14	57.17 $\pm$ 27.28	0.253
Emotional function	58.22 $\pm$ 31.37	60.94 $\pm$ 25.78	0.405
Cognitive function	59.60 $\pm$ 31.61	57.82 $\pm$ 28.55	0.623
Social function	60.97 $\pm$ 28.02	62.25 $\pm$ 27.41	0.696
General health	59.97 $\pm$ 27.61	58.57 $\pm$ 25.24	0.631

QOL: Quality of life; SD: Standard deviation

**Table 3.** Coping strategies of women with breast cancer at the beginning of treatment and three months later

		Beginning of treatment (mean ± SD)	3-month follow-up (mean ± SD)	P-value
Active coping strategies	Active coping	4.82 ± 1.99	4.82 ± 2.16	> 0.999
	Use of instrumental support	4.85 ± 2.08	4.60 ± 1.86	0.163
	Positive reframing	4.88 ± 1.76	4.85 ± 1.59	0.872
	Planning	5.08 ± 2.29	5.00 ± 2.10	0.646
	Use of emotional support	4.74 ± 1.89	4.85 ± 1.83	0.524
	Venting	4.85 ± 2.00	4.60 ± 1.81	0.203
	Humor	4.91 ± 1.94	4.91 ± 1.86	> 0.999
	Acceptance	4.80 ± 2.05	4.97 ± 1.93	0.362
	Religion	5.05 ± 1.78	4.82 ± 1.99	0.211
	Avoidant coping strategies	Self-blame	5.28 ± 1.77	5.14 ± 1.88
Self-distraction		5.17 ± 1.74	5.11 ± 1.72	0.751
Denial		5.22 ± 1.84	5.17 ± 1.87	0.751
Alcohol/drug use		5.14 ± 2.08	5.11 ± 1.92	0.845
Behavioral disengagement		5.22 ± 1.66	4.94 ± 1.87	0.169

SD: Standard deviation

In addition, active coping strategies were significantly higher in patients with lower stages than in patients with higher stage ( $P < 0.001$ ).

The QOL in all areas was significantly lower in patients receiving surgery and chemotherapy than in patients receiving surgery ( $P < 0.01$ ), at the beginning of treatment and after three months. In addition, coping strategies were significantly lower in patients receiving surgery and chemotherapy than those receiving surgery ( $P < 0.001$ ).

The QOL in all areas was significantly higher in married patients than in single patients ( $P < 0.01$ ), at the beginning of treatment and after three months. In addition, the active coping strategies were significantly higher in married patients than in single patients ( $P < 0.01$ ).

The QOL in all areas was significantly higher in patients with higher education than in patients with less education ( $P < 0.05$ ), at the beginning of treatment and after three months.

**Table 4.** Examining the relationship between quality of life (QOL) and coping strategies in women with breast cancer at the beginning of treatment and three months later (Part I)

	QOL: Physical function		QOL: Role performance		QOL: Cognitive function	
	Beginning of study	3-month follow-up	Beginning of study	3-month follow-up	Beginning of study	3-month follow-up
Active coping	0.74	0.87	0.77	0.86	0.80	0.80
Use of instrumental support	0.78	0.78	0.78	0.78	0.81	0.81
Positive reframing	0.78	0.78	0.76	0.71	0.75	0.75
Planning	0.81	0.81	0.79	0.70	0.80	0.69
Use of emotional support	0.75	0.75	0.82	0.75	0.78	0.78
Venting	0.79	0.75	0.74	0.70	0.79	0.77
Humor	0.82	0.80	0.86	0.75	0.82	0.70
Acceptance	0.84	0.78	0.88	0.76	0.88	0.76
Religion	0.82	0.82	0.74	0.74	0.83	0.83
Self-blame	-0.74	-0.72	-0.79	-0.79	-0.77	-0.81
Self-distraction	-0.82	-0.76	-0.84	-0.79	-0.88	-0.79
Denial	-0.81	-0.81	-0.77	-0.77	-0.76	-0.76
Alcohol/drug use	-0.75	-0.83	-0.87	-0.83	-0.82	-0.82
Behavioral disengagement	-0.79	-0.79	-0.75	-0.75	-0.78	-0.78

Numbers are Pearson correlation coefficient. P-value for all correlations is less than 0.01. QOL: Quality of life

**Table 4.** Examining the relationship between quality of life (QOL) and coping strategies in women with breast cancer at the beginning of treatment and three months later (Part II)

	QOL: Emotional function		QOL: Social function		QOL: General health	
	Beginning of study	3-month follow-up	Beginning of study	3-month follow-up	Beginning of study	3-month follow-up
Active coping	0.75	0.80	0.75	0.75	0.77	0.80
Use of instrumental support	0.82	0.81	0.71	0.71	0.80	0.80
Positive reframing	0.77	0.75	0.70	0.70	0.74	0.74
Planning	0.77	0.69	0.75	0.75	0.78	0.81
Use of emotional support	0.79	0.78	0.76	0.76	0.82	0.82
Venting	0.81	0.77	0.71	0.71	0.78	0.70
Humor	0.80	0.70	0.75	0.78	0.81	0.75
Acceptance	0.87	0.76	0.86	0.78	0.88	0.88
Religion	0.77	0.83	0.78	0.78	0.81	0.81
Self-blame	-0.76	-0.81	-0.76	-0.76	-0.80	-0.87
Self-distraction	-0.90	-0.79	-0.86	-0.90	-0.85	-0.85
Denial	-0.88	-0.76	-0.79	-0.79	-0.76	-0.76
Alcohol/drug use	-0.85	-0.82	-0.83	-0.83	-0.83	-0.83
Behavioral disengagement	-0.78	-0.78	-0.78	-0.78	-0.73	-0.73

Numbers are Pearson correlation coefficient. P-value for all correlations is less than 0.01.

QOL: Quality of life

## Discussion

The present study investigated the relationship between QOL and coping strategies in women with breast cancer. There was a significant and positive relationship between active coping strategies and QOL at the beginning of treatment and a three-month follow-up. There was a significant relationship between younger age, higher education, married status, lower disease stage, and not using chemotherapy with better QOL in all areas of the QOL and active coping strategies at the beginning of treatment and 3-month follow-up.

Patients suffering from cancer face many psychosocial problems leading to great psychological stress, and in this respect, few diseases are similar to cancer. Patients with breast cancer showed severe anxiety symptoms before and after diagnosis. Therefore, it is very important to consider stress management in such a way that the patient can deal with the disease efficiently (Iwamitsu, Shimoda, Abe, Tani, Okawa, & Buck, 2005). Problem-oriented coping style was the most common stress coping strategy in patients with cancer (Amirshamsi, Shahrabaki, & Dehghan, 2022). There was a statistically significant relationship between problem-oriented coping strategies and QOL (Maleknia & Kahrazei, 2015). Kwon et al. (2012) showed that the QOL of patients who had cancer decreased over time (Kwon, Ryu, Noh, Sung, 2012). Identifying coping strategies in these patients can show how patients with cancer cope with this strong stress. In some studies, the use of active coping strategies affected survival and cancer recurrence (Velasco et al., 2020).

In a study, Kershaw et al. (2004) indicated that coping strategies were associated with the QOL of women with breast cancer, and behavioral isolation and denial strategies were strongly associated with poor QOL (Kershaw et al., 2004). According to the study by Hagan et al. (2017), coping strategies, such as acceptance, were associated with better QOL and better mood in patients. At the same time, denial and self-blame were negatively correlated with these outcomes (Hagan et al., 2017), which is consistent with the present study results.

Asturias et al. (2021) study showed that demographic factors, such as age, education, and marital status affected stress management and coping strategies

(Asturias, Andrew, Boardman, & Kerr, 2021), which is consistent with the results of this study. Moreover, a study by Nipp et al. (2016) reported that younger people were more likely to use active coping strategies than older people (Nipp et al., 2016).

Greer et al. (2010) indicated that cognitive-behavioral therapy (CBT) could be an active supplementary psychological therapy for patients with cancer. In addition, CBT, especially problem solving, can result in conversion of the coping strategies. Although the results of these two studies are not comparable, it can be concluded that the QOL of patients who have cancer can be improved by intervening in coping strategies (Greer, Park, Prigerson, & Safren, 2010).

It is suggested to design appropriate psychological interventions in future studies to improve coping strategies in patients with cancer and evaluate the effectiveness of such interventions on the QOL of patients.

In this study, the most important limitation was the small number of women recently diagnosed with cancer who were willing to participate in the study. It was tried to overcome the limitation by increasing the time frame and properly explaining the study goals.

## **Conclusion**

The QOL of women who have breast cancer is related to coping strategies and demographic variables, such as age, disease stage, marital status, the type of treatment, and education. Performing effective interventions to change and adapt coping strategies in the patients can positively impact their QOL.

## **Conflict of Interests**

Authors have no conflict of interests.

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