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Association of Coping Strategies with Death Anxiety through the Mediating Role of Disease Perception in Patients with Breast Cancer: A Cross-Sectional Study

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ABSTRACT

Background: Understanding disease symptoms is among the important psychological and behavioral variables in cancer treatment. The present study aimed to investigate the relationship between coping strategies and death anxiety through the mediation of disease perception in patients with breast cancer in Abadan in 2020.

Methods: The study was a descriptive correlation performed by path analysis. The statistical population included all patients with breast cancer in Abadan in 2020 who referred to medical centers for six months. A total of 200 of them were selected as the sample of the study using convenience sampling. Research instruments included the Death Anxiety Scale (DAS), the Ways of Coping Questionnaire (WCQ), and the Brief Illness Perception Questionnaire (Brief IPQ). The proposed model was evaluated using path analysis with AMOS software.

Results: The results showed that there was a significant association between emotion-focused strategy and disease perception ($\beta = 0.67$, $P = 0.002$), problem-focused strategy and disease perception ($\beta = -0.08$, $P = 0.001$), disease perception and death anxiety ($\beta = 0.39$, $P = 0.001$), and between emotion-focused strategy and death anxiety ($\beta = -0.26$, $P = 0.001$). There was no significant association between problem-focused strategy and death anxiety. The results of path analysis indicated that disease perception played a mediating role in the association between the emotion- and problem-focused strategies with death anxiety ($P = 0.01$).

Conclusion: According to the results of the study, the relationship between coping strategies and death anxiety through the mediation of disease perception had a good fit and can be an important step in identifying the factors affecting the death anxiety of patients with breast cancer.

Introduction

Breast cancer is the most prevalent and the leading cause of death among women worldwide.¹ The experience following a diagnosis of cancer is a far worse and unbelievable experience than with other diseases by disrupting the occupational, socioeconomic, and family life of the patients.² Anxiety from fear of

death is an effective factor in mental health in patients with cancer.³ Patients may experience physical symptoms during medical or surgical interventions. Anxiety and distress exacerbate in patients with increased symptoms caused by anxiety from fear of death.⁴ The annoying existential concerns that come with death anxiety in patients at an advanced level of cancer, the interaction between physical symptoms, and concerns about the family, age, and self-esteem increase the degree of death anxiety.⁵ Death anxiety can result in severe fear and neuroticism which, in turn, negatively affect patients' capabilities and control.⁶ Due to its highly ambiguous nature, death is perceived as a

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threat to many people, particularly in patients diagnosed with serious problems, such as cancer.⁷ Lehto and Stein showed that death anxiety is an effective factor in mental health and a significant psychological diagnosis in patients with cancer.⁸

Given the ambiguous, uncontrollable, and immutable nature of death, anxiety is generally related to coping strategies.⁹ Stress coping strategies refer to continuous changes in behavioral and cognitive efforts of an individual in regulating internal and external desires, which are assessed beyond his/her level of tolerance.¹⁰ Lazarus and Folkman identified two stress-coping methods: 1- problem-focused coping that assesses direct activities based on self and environment to eliminate or change threatening conditions, 2- emotion-focused coping that includes activities or thoughts used to control undesired emotions caused from stressful conditions.¹¹ When a patient struggles with cancer, he/she has to deal with many challenges and goals, which can be medical, physical, emotional, interpersonal, and spiritual.

Understanding the disease symptoms is among the important psychological and behavioral variables in cancer treatment, which is based on the acquisition of information from different sources and patient's beliefs and can affect the mental health and capability of the individual in coming to terms with the disease. Awareness of the disease includes information in five dimensions: identity refers to disease labels and symptoms (e.g., fatigue and weakness), causes of or beliefs about the disease, perceived duration of the disease by the notions of acuity and chronicity; expected disease outcomes and results by economic, social, psychological, and physical effects and effectiveness of control, treatment, and improvement.¹²

Farahbakhsh Beh et al. showed a significant negative correlation between the cognition of disease and social support, and between resilience and death anxiety.¹³ Sharifi Saki et al. reported a significant relationship between the properties of psychosis and disease awareness.¹⁴ Bibi and Khalid showed that there is a significant negative relationship between death anxiety and social support, with the latter contributing to a lower level of death anxiety and an increase in the recovery period.¹⁵ Mikulincer and Florian showed that there is a significant relationship between emotion- and problem-focused coping strategies and death anxiety.¹⁶ Monirpour et al. reported that social support and coping strategies could, respectively, predict 16% and 32% of treatment compliance of patients with cardiovascular diseases.¹⁷ Soleimani et al. reported that there is a significant relationship between emotion-focused coping strategy, problem-focused coping strategy, and avoidance strategy and disease perception. They concluded that coping strategies with stress are effective in the perception of the disease in mothers

with children with type 1 diabetes, with better perception of the child's disease leading to the use of more appropriate coping strategies.¹⁸ Hashemi Razini et al. reported that there is a significant correlation between coping strategies and source of control and death anxiety in the elderly.¹⁹

There is scant Iranian research on the relationship between coping strategies and disease awareness with death anxiety among cancer patients. Moreover, none of these studies investigated the relationship between coping strategies and disease awareness and death anxiety in a patient with breast cancer. Accordingly, the present study sought to investigate the association between coping strategies with death anxiety according to the moderating role of disease perception in patients with breast cancer.

Methods

The study was a descriptive correlation performed by path analysis. The statistical population included all patients with breast cancer in Abadan, Iran, in 2020 who referred to medical centers for six months. A total of 200 of them were selected as the sample of the study using convenience sampling. Patients were introduced to the researcher after examination by a specialist physician and receiving a diagnosis of breast cancer. The inclusion criteria included having breast cancer diagnosed by a specialist doctor, age range between 30-50 years, having at least a middle school education, and not being under treatment for a mental health condition. The exclusion criteria included failure to completely answer all the questions. For ethical considerations, the researcher obtained written consent from the participants for participation in the study. The research objectives were explained to the patients and were told they could stop participating in the study at any time. The study was approved by the Ethical Committee of Abadan University of Medical Sciences (code: IR.ABADANUMS.REC.1399.103).

Research Instruments

1. The Death Anxiety Scale (DAS)

This scale was developed and validated by Templer in 1970. It is a self-executive questionnaire comprised of 15 correct-incorrect items. The total score of the questionnaire is in the range of 0 and 15, where the higher score indicates a higher degree of anxiety. In the present study, the Persian version of this scale was used.²⁰ Sharif Nia et al. reported the reliability of this scale at 0.83 based on Cronbach's alpha coefficient. In the present study, Cronbach's alpha coefficient was 0.88 for the scale.²⁰

2. Ways of Coping Questionnaire (WCOQ)

The WOCQ was developed by Lazarus and Folkman in 1980 and revised in 1985. This 66-item



questionnaire was developed based on cognitive-phenomenological theories on tension, estimation, and coping. Moreover, this questionnaire had two major emotion- and problem-focused subscales. Sixteen items of this questionnaire are deviatory and 50 items evaluate the coping style. The WOCQ scoring is done through either raw or relative methods. Raw scores describe the coping effort for each of the eight types of coping styles and are the sum of responses to the items. The relative scores describe the ratio of effort made in each type of coping. The present study used the relative scoring method. In both methods, individuals respond to each item on a 4-point Likert scale, which shows the frequency of each strategy as follows: 0 “Does not apply or not used,” 1 “Used somewhat,” 2” Used quite a bit,” and “Used a great deal.”²¹ In the present study, the Persian version of this questionnaire was used.²² Kordi et al. reported a Cronbach's alpha of 0.97 for the questionnaire. Cronbach's alpha coefficient was found to be 0.87 for the questionnaire in our study.²²

3. The Brief Illness Perception Questionnaire (Brief IPQ)

Brief IPQ is a 9-item questionnaire designed to rapidly assess cognitive and emotional representations of illness.²³ The Brief IPQ uses a single-item scale approach to assess perception on a 0–10 response scale. It is developed by forming one question that best summarizes the items contained in each subscale of the Illness Perception Questionnaire-Revised which has over 80 items. The Brief IBQ comprises 5 items on cognitive representation of illness perception: consequences, timeline, personal control, treatment control, and identity. There are 2 items on emotional representation: concern and emotions. One item is related to illness comprehensibility. The last item is

concerned with perceived cause of illness, in which respondents list the three most important causal factors in their illness. For this questionnaire, the general word ‘illness’ can be replaced by the name of a particular illness such as asthma. The word ‘treatment’ in the treatment control item can be replaced by a particular treatment such as ‘surgery’ or ‘physiotherapy. In the present study, the Persian version of this questionnaire was used.²⁴ Masaeli et al. reported the reliability of this questionnaire equal to 0.73 based on Cronbach’s alpha coefficient. In the present study, Cronbach's alpha coefficient was 0.82 for the questionnaire.²⁴

Statistical analyses

Data were analyzed by descriptive and inferential statistics such as mean, standard deviation, and Pearson correlation coefficient. To determine the significance of mediating-based relations, the bootstrap method was utilized. The path analysis was used to assess the proposed model. SPSS and AMOS were used for analyzing the data.

Results

The participants included 200 women with breast cancer. The demographic variables of the participants are shown in Table 1. Descriptive statistics including mean and standard deviation (SD) and Pearson correlation coefficient of study variables are presented in Table 2.

According to the data in Table 3, the root means square error of approximation (RMSEA= 0.28; TLI= 0.535; AGFI= 0.724) showed that the initial model required modification. To this end, the non-significant relationship between problem-focused strategy and death anxiety was removed. Figure 1 shows the final model in which the root means square

Table 1. Demographic variables of the participants.

Demographic variables		N	%
Age (years)	30-35	32	19.00
	35-40	67	33.50
	40-45	59	29.50
	45-50	42	21.00
Employment status	Housewife	161	80.50
	Employed	39	19.50
Marital status	Single	31	15.50
	Married	169	84.50
Education	Middle school	96	48.00
	High school	74	37.00
	College education	30	15.00

Table 2. Mean, standard deviation (SD), and Pearson correlation coefficients of the study variables

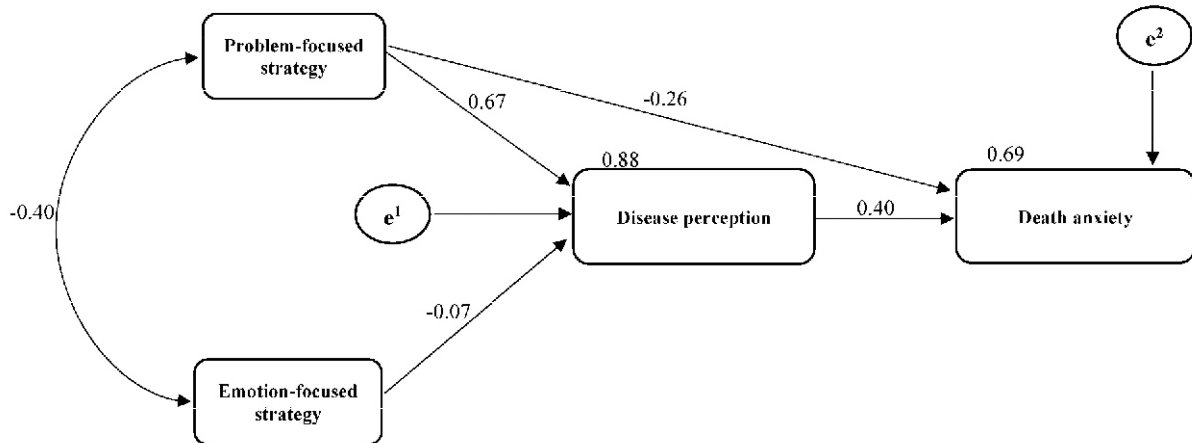
variables	M	SD	1	2	3	4
1. Emotion-focused strategy	44.39	5.25	1			
2. Problem-focused strategy	46.61	3.55	-0.39*	1		
3. Disease perception	74.64	12.79	0.87*	-0.55*	1	
4. Death anxiety	9.25	2.28	0.55*	-0.25*	0.75*	1

M: Mean; SD: Standard deviation; *: p < 0.05

**Table 3.** Initial and final model fit indicators

Fit indicators	χ^2	df	(χ^2 /df)	GFI	AGFI	IFI	TLI	CFI	NFI	RMSEA
Initial model	12.03	1	12.03	0.902	0.724	0.913	0.535	0.910	0.913	0.28
Final model	2.44	1	2.44	0.993	0.902	0.997	0.970	0.997	0.996	0.06

GFI: Goodness of Fit Index; AGFI: Adjusted Goodness of Fit Index; IFI: Incremental Fit Index; TLI: Tucker Lewis Index; CFI: Comparative Fit Index; NFI: Normalized Fit Index; RMSEA: Root Mean Square Error of Approximation

**Figure 1.** Final modified model

error of approximation (RMSEA= 0.06; χ^2 /df= 2.44; CFI= 0.997; GFI= 0.993) indicated a good model fit.

Based on the data in Table 4 there was no significant direct correlation between problem-focused strategy and death anxiety (β = -0.09, P = 0.06). The correlation between emotion-focused strategy and disease perception was positive and significant (β = 0.67, P = 0.002). Moreover, there was a negative and significant correlation between problem-focused strategy and disease perception among the patients with breast cancer (β = -0.08, P = 0.001). We also observed a direct and significant correlation between disease perception and death anxiety (β = 0.39, P = 0.001). The correlation between emotion-focused strategy and death anxiety was negative and significant (β = -0.26, P = 0.001).

The indirect path from emotion-focused strategy to death anxiety through the mediating role of disease perception was significant (β = 0.408, P = 0.01). Moreover, the indirect path from problem-focused strategy to death anxiety through the mediating role of disease perception was significant (β = -0.607, P = 0.02) (Table 5).

Discussion

The present study aimed to investigate the relationship between coping strategies and death anxiety through the mediation of disease perception in patients with breast cancer in Abadan. The emotion- and problem-focused strategies had a direct effect on disease awareness in patients with breast cancer. The emotion-focused strategy directly

Table 4. Path coefficients of direct associations between research variables in the initial and final model.

Path	Initial model			Final model		
	Path type	β	P	Path type	β	P
Emotion-focused strategy to disease perception	Direct	0.67	0.001	Direct	0.67	0.002
Problem-focused strategy to disease perception	Direct	-0.08	0.02	Direct	-0.08	0.001
Disease perception to death anxiety	Direct	0.42	0.001	Direct	0.39	0.001
Emotion-focused strategy to death anxiety	Direct	-0.27	0.001	Direct	-0.26	0.001
Problem-focused strategy to death anxiety	Direct	-0.09	0.06	Direct	-	-

Table 5. Results of the Bootstrap method for investigating indirect and intermediary paths

Predictor variable	Mediator Variable	Criterion variable	Final model			
			Bootstrap	Lower limit	Upper limit	P
Emotion-focused strategy	Disease perception	Death anxiety	0.408	0.352	0.457	0.01
Problem-focused strategy	Disease perception	Death anxiety	-0.607	-0.123	-0.021	0.02



affected death anxiety in patients with breast cancer. Moreover, disease perception had a direct effect on death anxiety in patients with breast cancer. This finding is consistent with the results of Hashemi Razini et al.¹⁹ and Mikulincer and Florian.¹⁶ Hashemi Razini et al. showed that there was a significant relationship between coping strategies and locus of control with death anxiety among older adults. They also reported that avoidance and emotion-oriented coping and external locus of control significantly could predict death anxiety.¹⁹ Mikulincer and Florian reported that the accumulation of negative life events was related to high levels of fear of personal death.¹⁶ However coping strategies mediated this relationship. The mindfulness efforts can be either external (problem-focused) or internal (emotion-focused). The problem-focused coping strategy refers to stress management efforts. The emotion-focused coping strategy refers to efforts made to reduce the emotional stress a person feels. According to Skinner et al.²⁵, strategies are different types of coping styles, which may be related to highly different results. It is very important to comply with stressful events such as cancer. The coping style is a common method to deal with a stressful event and comply with it. In addition to biological mechanisms, psychological factors can affect psychosomatic diseases such as breast cancer. What makes this chronic disease psychologically important is its broad range of neuropsychiatric aspects.

Coping strategies are among the individual psychological variables, which may have an important role in death anxiety. Coping refers to an individual's efforts to manage the strategic requirements of a specific situation.²⁶ One of the common strategies to manage challenging situations is making efforts to deal with stressors and alter them. Emotion-focused coping is concentrated on the emotional outcomes of a stressful situation. This strategy includes different approaches, such as not thinking about the problem (denial or avoidance) and opening up the problem to others.

The direct effect of a problem-focused strategy on death anxiety was not significant in patients with breast cancer. Regarding coping strategies and death anxiety, it can be said that death anxiety in a two-way interaction not only is among the results of selection and use of effective coping strategies in compliance with change and stress but also creates healthy psychological space through which proper identification and evaluation of stressful situations can be made to select an effective coping strategy. In this regard, due to specific disease conditions and their harmful physical and psychological effects, cancer patients fail to use problem-focused coping strategies, which include constructive measures to deal with stressful conditions and eliminate/change the sources of stress. This failure inhibits them from

dealing with stressful situations properly.²⁷

A low level of stress is among other characteristics of people who use an effective problem-focused coping strategy. Low level of emotional stress enables a person to use cognitive and dynamic skills to cope with problems, thereby achieving more satisfaction. On the other hand, denial and passivity are two characteristics of individuals with ineffective coping styles. Denial of a stressful situation can result in avoidance and passive behavior in dealing with stressful situations, thereby causing an inability to use potential capabilities and initiative. With this coping style, the problem remains unsolved, and the degree of dissatisfaction increases. The characteristics of denial and passivity, and their consequences in an ineffective coping with stressful conditions increase problems and dissatisfaction levels through reducing self-confidence.

The emotion- and problem-focused coping strategies have an indirect effect on death anxiety in patients with breast cancer through disease perception. This finding is consistent with the results of Soleimani et al.³ and Basharpour et al.²⁸ To explain this finding, it can be said that patients with breast cancer suffer from a high level of stressors.²⁹ On the other hand, coping methods are mindfulness efforts to manage internal and external stress.³⁰ Death anxiety and stress are among the most common concepts in human communities and affect many people. Stress seems to be an essential component and an inevitable result of human interaction with the environment. However, what causes a difference in patients' performance is the way they fight the disease. The majority of patients with breast cancer can manage their health at an acceptable level and continue to live in a highly stressful environment. The coping styles are among the key concepts in dealing with stress. Given the inevitable nature of stress, the use of appropriate coping styles can protect the person against severe stresses. The ability to cope with stress and identify a proper method to deal with stressful changes allows the patients to determine the sources of stress and the way they affect their lives, and take an appropriate stance for reducing pressure and stress and achieve calmness. Psychologists believe that even the treatment of the most severe physical diseases requires changing individuals' response patterns.

The emotion- and problem-focused coping strategies have an indirect effect on death anxiety in patients with breast cancer through disease perception. Future studies are recommended to consider the cause-and-effect relationship of these variables in the form of experimental designs. Future studies are also recommended to perform experimental designs at a more general level considering socio-cultural and economic conditions of different segments of society. Hospitals are also recommended to implement specific psychological



programs for psychotherapists, psychiatric nurses, midwifery consultants, and rehabilitation programs for patients with breast cancer.

The present study was performed on patients with breast cancer in Abadan. Caution should be applied in generalizing the results to other communities in different time and place situations due to different cultural conditions. The participants sometimes showed a lack of interest and motivation in answering the questions. Another limitation of this study was failure to consider the duration of the participants' disease.

Conflict of Interest

The authors declare that there is no conflict of interest.

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