Prediction of Death Anxiety Based on Body Image Concerns Mediated by Disease Perception in Patients With Breast Cancer

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Research Article

Keywords: Body image, Breast cancer, Death anxiety, Disease perception

Posted Date: August 17th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-718958/v1>

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Abstract

Background

Fear of death and its associated anxiety are among the effective factors of mental health in patients with cancer. The present study aimed to predict death anxiety based on body image concerns mediated by disease perception in patients with breast cancer.

Methods

In this descriptive correlation study, Templer's Death Anxiety Scale, Littleton's Body Image Concern Inventory, and Broadbent's Brief Illness Perception Questionnaire were used to collect data. The statistical population included all patients with breast cancer in Abadan city in 2020 who referred to medical centers for six months. A total of 200 of which were selected as the sample of the study using convenience sampling. The proposed model was evaluated using path analysis with AMOS software.

Results

The results showed that there was a significant association between body image and disease perception ($\beta = 0.33$, $P = 0.001$), and death anxiety ($\beta = 0.57$, $P = 0.001$), and between disease perception and death anxiety ($\beta = 0.39$, $P = 0.001$). There was a relationship between body image and death anxiety through the mediating role of disease perception in patients with breast cancer ($P = 0.009$).

Conclusion

According to the results of the study, the relationship of body image with death anxiety through the mediation of disease perception had a good fit and is an important step in identifying the factors affecting the death anxiety of patients with breast cancer.

Introduction

Breast cancer is the most common cancer diagnosed among women globally. It is most often seen in the middle of life and between the ages of 35 and 55 years (1). Prognosis improvement and timely diagnosis result in an increased number of women living with the consequences of the disease and complications associated with its treatment. A major consequence of cancer treatment is temporary or permanent changes in the appearance, feelings, and function of the body (2). Moreover, surgery can result in a permanent scar, asymmetry of the breasts, and reduced feelings. There are also side effects associated with chemotherapy, radiotherapy, and hormone therapy, including hair fall, weight fluctuation, skin and nail color change, dermatitis, and onset or exacerbation of menopause symptoms (3). Therefore, post-treatment changes in appearance can cause body image concerns (BICs) among many women, which is

a warning as BI-related concerns are accompanied by increased risks of undesired psychological and physical consequences, such as depression, anxiety, concerns related to sexual relations and intimacy, and reduction of lifespan (4). Fear of death and its associated anxiety are among the effective factors of mental health in patients with cancer (5). Cancer diagnosis and treatment can be stressful factors (6). During the medical or surgical interventions, the patients may experience physical symptoms. With an increase in the symptoms and reduction of perceived function, the level of anxiety and distress elevates in these patients (7). These concerns are mostly due to death anxiety (DA). Existential concerns accompanied by DA can be very annoying. In patients at the advanced stage of cancer, the interaction between physical symptoms, concerns about family, age, and reduced self-esteem result in the experience of DA (8). This can cause severe neurotic fear and may lead to disability and loss of control (9). Due to its highly ambiguous characteristics, death is perceived as a threat to many people, particularly in patients diagnosed with risky problems, such as cancer (10). Lehto and Stein (5) found that DA is an effective factor of mental health and a significant psychological diagnosis in patients with cancer. Moreover, body image (BI) is an important element of the quality of life of patients with cancer (11). It encompasses beliefs, as well as conscious and unconscious feelings. BI is a person's mental image of their physical appearance. In other words, it is a person's negative and positive feelings about their body shape and size (12). Although BI is a multidimensional structure, it is often defined as a degree of physical appearance (size, shape, and general appearance) (13). BI misperception can lead to physical and psychological problems (14).

When a person is fighting cancer, they may face many goals and challenges, which can be medical, physical, emotional, interpersonal, and spiritual. These goals and challenges, related to the quality of life, have all been threatened and impaired by cancer. 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 compliance with the disease (15). Disease perception includes information in five dimensions: Nature refers to disease labels and symptoms (e.g., fatigue and weakness), the causes of or beliefs about the disease, perceived duration of 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 (16). Farahbakhsh Beh et al. (17) showed a significant negative correlation between the perception of disease and social support, and between resilience and death anxiety. Sharifi Saki et al. (18) reported a significant relationship between the properties of psychosis and disease perception. Bibi and Khalid (4) showed that there is a significant negative relationship between death anxiety and social support, that the latter contributed to a reduction of death anxiety and an increase in the recovery period. Mikulincer and Florian (19) showed that there is a significant relationship between emotion- and problem-focused coping strategies with death anxiety. Monirpour et al. (20) reported that social support and coping strategies could predict 16% and 32% of treatment compliance of patients with cardiovascular diseases. Basharpour et al. (21) showed that health-related beliefs and disease perception account for 23% and 39% of the total variance of health-related behaviors, respectively.

Soleimani et al. (22) showed that there is a significant between emotion-focused coping strategy, problem-focused coping strategy, and avoidance strategy with disease perception. Wittkowski (23) found a significant relationship between BIC and psychological well-being. Based on the literature review, scant studies have been conducted in Iran on the relationship of disease perception and BI with DA in cancer patients. However, none of them has investigated the relationship of disease perception and BI with DA in patients with breast cancer. Given the paucity of studies on patients with breast cancer, the present study sought to investigate a causal association between body image 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 city and 200 of which 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 were: age range between 30–50 years, having at least a middle school education, and having no mental disorders. The exclusion criteria included failure to completely answer all the questions.

Research Instruments

The Death Anxiety Scale (DAS)

This scale was developed and validated by Templer in 1970. This scale 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. Sharif Nia et al. (24) reported the reliability of this scale equal to 0.83 based on Cronbach's alpha coefficient. In the present study, Cronbach's alpha coefficient was 0.88 for the scale.

The Brief Illness Perception Questionnaire (Brief IPQ): Brief IPQ is a 9-item questionnaire designed to rapidly assess cognitive and emotional representations of illness (25). 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 on illness comprehensibility. The last item is on 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. Broadbent et al. (26) 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.

Body Image Concern Inventory (BICI)

BICI was developed by Littleton et al. (27) with 19 items measuring a person's dissatisfaction and concern about their appearance. Littleton et al. (27) investigated the factor structure of the inventory. The results indicated that there are two important factors. The first factor is comprised of 11 items including a person's dissatisfaction with their appearance, as well as examining and hiding perceived defects or flaws in appearance. The second factor contains 8 items measuring the interference of concern about appearance with social function. In this inventory, the subject is asked to score each item from 1 "completely disagree" to 5 "completely agree." In this inventory, the score of 1 means "I have never had this feeling or done it" and the score of 5 means "I always have this feeling or do it." The overall score varies between 19 and 95, with higher scores representing higher levels of dysmorphic concern. Mohammadi and Sajadinejad (28) reported the reliability of this questionnaire equal to 0.87 based on Cronbach's alpha coefficient. In the present study, Cronbach's alpha coefficient was 0.85 for the questionnaire.

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 has been 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. Descriptive statistics including mean and standard deviation (SD) and Pearson correlation coefficient of study variables are presented in Table 1.

Table 1. Mean, standard deviation (SD), and Pearson correlation coefficients of the study variables

Variables	M	SD	1	2	3
1. Body image	32.52	5.91	1		
2. Disease perception	76.64	12.79	0.73*	1	
3. Death anxiety	9.25	2.28	0.32*	0.75*	1

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

In the proposed model, the three variables of body image, disease perception, and death anxiety were evaluated. Table 2 presents the fitting indices for the proposed model. Figure 1 shows the proposed model in which the root means square error of approximation (RMSEA= 0.06; $\chi^2/df= 2.44$; CFI= 0.997; GFI= 0.993), indicated a good model fit.

Table 2. Proposed model fit indicators

Fit indicators	χ^2	df	(χ^2/df)	GFI	AGFI	IFI	TLI	CFI	NFI	RMSEA
Proposed 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

Based on the data in Table 3 there was a significant direct association between body image and disease perception ($\beta = 0.33$, $P = 0.001$). The association between disease perception and death anxiety was positive and significant ($\beta = 0.39$, $P = 0.001$). We also observed a direct and significant association between body image and death anxiety ($\beta = 0.57$, $P = 0.001$).

Table 3. Path coefficients of direct effects between research variables in the proposed model.

Path	Proposed model		
	Path type	β	P
Body image to disease perception	Direct	0.33	0.001
Disease perception to death anxiety	Direct	0.39	0.001
Body image to death anxiety	Direct	0.57	0.001

The indirect path from body image to death anxiety through the mediating role of disease perception was significant ($\beta = 0.271$, $P = 0.009$) (Table 4).

Table 4. Results of the Bootstrap method for investigating indirect and intermediary paths

Predictor variable	Mediator Variable	Criterion variable	Proposed model			
			Bootstrap	Lower limit	Upper limit	P
Body image	Disease perception	Death anxiety	0.271	0.209	0.332	0.009

Discussion And Conclusion

The present study aimed to investigate a causal association between body image with death anxiety according to the moderating role of disease perception in patients with breast cancer. According to the results, the proposed model had a good fit and was an important step in identifying the factors affecting

the death anxiety of patients with breast cancer. To explain, it can be said that having a disease can affect the patient's relationships. The presence of a disease can lead the patient to use ineffective coping and adaptive mechanisms which, in turn, can increase their level of stress. Increased stress is directly related to physical factors and can exacerbate the disease severity. It has been proved that negative perception and self-esteem are signs of depression (29). The appearance of the majority of patients changes because of their use of specific drugs and chemotherapy (e.g., hair loss and amputation), which can be very annoying to them and affect their BI. Furthermore, fear of death largely dominates a patient's life. It sometimes disturbs daily life and leads to depression and dejection. It is the pervasive and psychotic forms of fear of death that destroy all values of life. It encompasses other life's fears and even turns into fear of life. Fear of death is not a pure single fear. It indicates different forms of fear.

Disease perception had a direct effect on DA in patients with breast cancer. To explain, it can be concluded that not only biological mechanisms, but also psychological factors can affect psychosomatic diseases, including breast cancer. What makes this chronic disease psychologically important is the broad range of its neuropsychiatric aspects. Many neuropsychiatric disorders are associated with breast cancer, including depression, euphoria, bipolar disorders, abnormal crying and laughing, psychosis, attention deficit, information processing, executive function, concentration, learning, and memory. Emotional disorders (depression, fatigue, and anxiety) are among the most common psychological symptoms in patients with breast cancer and are largely connected to disabilities and poor living conditions in such patients (30). Breast cancer can be considered a disorder at the Axis III in the form of a risk factor of suicide through causing depression, cognitive and personality changes, and inhibition of rupture (31).

Adaptation with the present conditions is the best strategy for enhancing the quality of life of patients with breast cancer. Disease perception is an important psychological variable defined as the patients' belief and image of their disease. It can affect their adaptability to the disease and subsequently their quality of life. This perception can show the outlook of their treatment and adaptation of their therapeutic diets (32). It is believed that behavioral differences in patients (perception and interpretation of disease symptoms) cannot arise merely from differences in well-being. Symptoms that may be misinterpreted by a person or family and lead to a visit to the doctor may be interpreted differently by another person or family (33). The findings showed that disease perception is the most important predictor of low adaptation, including social malfunctioning, fatigue, anxiety, and depression.

Leventhal et al.'s Self-Regulatory Model has contributed to the examination of patients' perceptions of disease. In this model, each patient, after observing the symptoms of the disease or pain, forms a schema or system of beliefs about the disease and accordingly proceeds to interpret the observed symptoms (34). Therefore, a patient's belief can affect his/her interpretation of the disease symptoms.

The results showed a significant relationship between BI and DA in patients with breast cancer. In other words, DA increases in patients with breast cancer who develop more attention to their BI. To explain, it is postulated that all people, regardless of their culture, language, race, and nationality, are concerned with

their physical appearance, have a certain image of their body and appearance, and form this image in their mind, which affects their performance. This can be seen in the use of different types of clothing, ornaments, cosmetics, sports, hairstyles, etc. BI is individuals' subjective picture of their own body, specifically from the others' eyes. Some people use this term only for physical appearance and some others use it in a broader sense that includes such concepts as bodily actions, movements, and coordination (35). Humans covet beauty and have long had natural tendency towards it. A good appearance enhances a person's self-image and self-confidence. As a result, social activities are formed at an acceptable level. Appearance, as the first thing that appears in social situations while dealing with others, forms an important part of a person's identity. In today's highly dynamic and rapidly-changing society, where the first perceptions and influences on the other side are important, the appearance, symbols, and external signs are gaining considerable value and importance (36). Accordingly, beauty is considered very important as an element of social status in the evaluation of individuals' social positions.

Given that the present study aimed to develop a causal model of DA and BI mediated by disease perception in patients with breast cancer, future studies are recommended to consider the cause and effect relationship of these variables within an experimental design framework. Moreover, it is recommended to conduct experimental studies at a more general level considering the cultural, social, and economic conditions of individuals and different groups of society. It is also recommended to consider a special hospital unit for training psychological and rehabilitation programs to patients with breast cancer.

Declarations

Funding: N/A

Conflicts of interest/Competing interests: The authors declare that they have no conflict of interest.

Availability of data and material: The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code availability: N/A

Authors' contributions: Conceptualization, Supervision: KS, FSM; Methodology: KS, FSM; Investigation, writing–review & editing: FSM. Writin –original draft: FSM; Funding acquisition, Resources: KS, FSM.

Ethics approval: This article was approved by the Ethics Committee of Islamic Azad University of Abadan. Ethical observations with the code IR.ABADANUMS.REC.1399.103

Consent to participate: Written informed consent was obtained from participants, according to national and international ethical standards.

Consent for publication: The consent for publication of the result of the study was obtained from all of the participants. No personal/contact information of the participant was reported in this study.

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Figures

Figure 1

Proposed model of the research