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Factores Influencing Body Image and Self-Deception among Breast Cancer female patients

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Abstract

Background: *The psychological well-being of the breast cancer woman is certainly negatively impacted when a major part of her body, like her breast, which symbolizes her femininity, is subjected to numerous physical changes, scarring, and deformities as a result of illness and its treatment.*

Objectives: *The study sought to determine whether age at diagnosis, marital status, length of illness, and type of treatment were associated with variations in the degree of body image and self-deception among breast cancer patients, as well as to investigate the correlation between Patients' body image and self-deception.*

Method: *A cross sectional study design used, employed a sample of 134 female cancer patients undergoing treatment at the inpatient and outpatient sitting, a Validated tool consists of patients' personal information, patients' body image scale, and self-deception scale were used to answer research questions.*

Results: *The findings indicated that there were differences in patients' body image scale based on the variables of social status, length of illness, and type of treatment. Additionally, the responses of participant on self-deception scale are varied based on the variables age at diagnosis and social status. Lastly, the findings demonstrated a positive relationship between breast cancer patients' levels of self-deception and body image.*

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Conclusion: *The study suggested designing counselling programs to help breast cancer patients feel better about their bodies and lessen the negative effects of self-deception.*

Keywords: *Body Image, Self-Deception, Breast Cancer Patients, Length of illness, Type of treatment*

1. Introduction

In a woman's social, familial, professional, and other spheres of life, her body image is a fundamental pillar. The psychological well-being of a woman is certainly negatively impacted when a major part of her body, like her breast, which symbolizes her femininity, is subjected to numerous physical changes, scarring, and deformities as a result of illness and its treatment. She may become dissatisfied with her body image and withdraw from the different roles and situations she participates in as a result. This is frequently accompanied by a number of emotional disorders, including shame, anger, and anxiety (1).

(2) found that between 11% and 86% of people with a history of cancer experience body image dissatisfaction. Patients' physical appearance is undoubtedly altered by their illness and exposure to different types of treatment, as evidenced by the appearance of scars, ulcers, or the removal of body parts. Breast cancer patients' body image dissatisfaction has been connected to a number of detrimental outcomes, including anxiety, depression, and sexual dysfunction. The idea of body image Satisfaction is the degree to which a person is content with the mental image they have created of their body, taking into account its size, shape, and external appearance as well as the degree to which each part works well. This encompasses the favorable feelings connected to this picture as well (3). It is also described as the condition in which a person experiences rejection and discontent with their physical character or acceptance and optimism. It displays the total value that a person places on themselves based on how they look (4).

Patients may use self-deception as one tactic to increase their degree of satisfaction with their body image following the changes brought on by their illness. This tactic entails persuading oneself of a reality that fits with one's aspirations, capabilities, and desires and that one wishes to exist (or not). It aids in their temporary acceptance and adjustment to their unpleasant reality (5). People use a variety of deceptive tactics to deceive others, such as lying, concealing the truth, manipulating it, or misleading others in other ways (6) Furthermore, people can successfully deceive themselves by concentrating on facts and information that support their objectives, aspirations, and hopes.

A person who intentionally engages in self-deception does so with full awareness and intent. It entails misrepresenting and changing facts, modifying opinions to suit one's own interests, emphasizing and highlighting one's own strengths, ignoring and hiding flaws, and avoiding anything that could make one feel uncomfortable or hurt, whether it be from other people or particular circumstances (7). It is also described as an adaptive functional process that enables a person to adapt and deal with the harsh and challenging external reality in order to defend themselves (8).

The study by (9) attempted to examine body image, self-efficacy, and sleep quality among breast cancer patients, the study sample consisted of 251 breast cancer patients. The results indicated that body image was at a moderate level among breast cancer patients, and there was an inverse correlation between body image and self-efficacy. The study also found that enhancing self-efficacy could reduce the negative effects of body image on sleep quality in breast cancer patients. Meanwhile, the study by (10) aimed to identify the level of self-deception and academic procrastination among a sample of students at King Khalid University in the Mahayil Asir Governorate and to examine the relationship between self-deception and academic procrastination within the study sample. The sample consisted of 649 students, proportionally distributed by gender, with 297 males and 352 females. The study concluded that the levels of self-deception and academic procrastination among the sample were low. The results also showed a statistically significant positive correlation between self-deception and academic procrastination.

According (11), self-deception is a conscious and deliberate process in which an individual distorts reality to highlight their strengths. The person conceals information they do not want to reveal, presents misleading information, distorts facts, manipulates others, and misleads them with false information. In addition, they justify all of their actions and words, convincing themselves that they are always right, thus justifying everything that is wrong to increase their level of self-satisfaction. the study by (12) aimed to examine body image and its relationship with future anxiety among female workers The study focused on female educators with and without breast cancer. The sample consisted of 120 female educators, divided into 60 educators with breast cancer from the Health Insurance Hospital in Suez, and 60 educators without breast cancer from the old Girls' Preparatory Schools in Suez. The study found a positive correlation between body image and future anxiety and its dimensions among those with breast cancer. However, no positive correlation was found between future anxiety and body image among those without breast cancer. There were no significant differences in future anxiety between those with and without breast cancer, but significant differences were found in body image.

The study by (13) aimed to examine the relationship between body image, quality of life, and anxiety among breast cancer patients, and to determine how body image predicts both quality of life and anxiety among these patients. The sample included 75 breast cancer patients. The study revealed a significant negative relationship between body image and quality of life, a positive relationship between body image and anxiety, and no variation in body image and quality of life according to age. Body image was found to predict both quality of life and anxiety (9)

The idea for the current study arose from the high number of breast cancer cases and the direct association of the disease with changes in body image and its impact. This impact can be due to the removal of one breast, the appearance of scars and ulcers on the breast, and the subsequent psychological effects on the patient that may influence her ability to continue fulfilling her roles. Additionally, there is concern about body image and fear of cancer spreading to other parts of the body, along with the psychological and physical suffering resulting from the disease and its treatment. In response, breast cancer patients may resort to strategies to help them adapt to and accept the physical changes resulting from the disease and its treatment. This aligns with the concept of self-

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deception, which is one of the key strategies they might use.

Moreover, the diagnosis and treatment of breast cancer affect women both physically and psychologically, as this is one of the most painful aspects of the disease, playing a significant role in changes in body image. Cancer treatment can lead to major changes in body image, such as the loss of a breast or part of it, as well as scars or skin changes. Through reviewing studies and theoretical frameworks, the researchers found a scarcity of studies addressing the relationship between body image and self-deception among breast cancer patients. This prompted them to address this issue and answer the research questions.

2. Research Questions

The following research question will frame this study.

- Are there statistically significant differences at the significance level ($\alpha = 0.05$) in the level of body image among breast cancer patients attributed to the variables: age at diagnosis, marital status, duration of the illness, and type of treatment?
- Are there statistically significant differences at the significance level ($\alpha = 0.05$) in the level of self-deception among breast cancer patients attributed to the variables: age at diagnosis, marital status, duration of the illness, and type of treatment?
- Is there a statistically significant correlation at the significance level ($\alpha = 0.05$) between body image and self-deception?

3. Materials and Methods

3.1. Design of the Study

The current study relies on the descriptive survey methodology as it is a suitable approach for investigating the study problem. This methodology can contribute to providing the necessary information to understand body image and self-deception among breast cancer patients and the relationship between them. It also allows for analyzing and interpreting this information to achieve the study's objectives.

the study used descriptive study design, theses design focuses on studying the phenomenon as it exists in reality and aims to describe it accurately. It can be expressed either qualitatively or quantitatively. Qualitative expression describes the phenomenon and clarifies its characteristics, while quantitative expression provides a numerical description that indicates the extent or size of the phenomenon or the degree of its association with other phenomena.

3.2. sitting

The study conducted in Oncology cancer centre, features over 300 beds, and it's one of the main direction for cancer patients in the country. According to previous data from the National Cancer Registry from 1999 to 2015, the number of patients with breast cancer in 2018 and 2019 was estimated to be 271 based on a linear prediction model (14). The study was conducted from June 15, 2024, to August 15, 2024,

3.3. Participants and sample size

To calculate sample size; sample size calculator software was used with Confidence Level 95%, Margin of Error 7%, Population Proportion 5%. The minimal sample size required for this study is 114. However, the study involved 134 breast cancer patients receiving treatment at the Centre. the Cancer Centre was chosen as the accessible population due to practical reasons such as the availability of study participants, resources to facilitate the study procedures, and the application of its tools. All cancer female patients receiving treatment at the centre were eligible to participate in this study, the patients who were inpatient in critical Care unit were excluded from this study related to a critical patient's condition.

3.4. Study Variables

- Age at diagnosis
- Marital status: with three categories (single, married, other)
- Duration of illness
- Type of treatment: with three categories (surgical, chemotherapy, radiotherapy)
- breast cancer women body image
- breast cancer women self-deception

Age at diagnosis, marital status, duration of illness, and type of treatment are treated as independent variables, while body image and self-deception among breast cancer patients are considered dependent variables.

3.5. Data collection tool

The data collection tool consists from three scale:

1. **personal information:** the patients were asked to mention information about her age at diagnosis, marital status, duration of illness, and type of treatment were treated.
2. **Second - Body Image Scale:** To measure body image, the body image scale used in in this study developed by (15). This scale consists of 10 items. To ensure the reliability of the study tool, a test-retest method was employed by applying the scale and reapplying it after two weeks to a group of 25 breast cancer patients outside the study sample. The Pearson correlation coefficient between their scores on the two occasions was calculated, with a value of 0.86. Additionally, the internal consistency was calculated using Cronbach's alpha, which yielded a value of 0.83. These values were deemed suitable for the purposes of this study.
3. **Self-Deception Scale:** To achieve the study's objective, the self-deception scale developed by (16) used in this study. This scale consists of 17 items distributed across four dimensions: biased information seeking, biased interpretation, false memory, and rationalization. (16) intended to scrutinise the stability coefficients for the dimensions of the self-deception scale using a sample of 200 individuals with chronic illnesses. The stability coefficient for the entire scale ranged from 0.88 to 0.81 while the values for the dimensions ranged between 0.81 and 0.73. The internal consistency coefficients of the scale were estimated using Cronbach's alpha, with the internal consistency coefficient for the entire scale being 0.92. The internal consistency values for the dimensions ranged between 0.79 and 0.70. Meanwhile, to ensure the reliability of the study tool, a test-retest method was employed by applying the scale and reapplying it after two weeks to a group of 25 breast cancer patients outside the study sample the result of study of internal

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consistency coefficient for the entire scale was 0.84, and Cronbach's alpha coefficient was 0.86.

3.6. Tool validity

The scale was translated into Arabic and reviewed by English language specialists to ensure the accuracy of the translation. Appropriate adjustments were made based on their feedback and opinions. The scale was also back-translated from Arabic to English, and it was confirmed that the items retained their original meaning. The scale was then presented to ten experts for their opinions on the accuracy and validity of the scale's content, including: the relevance of the items to the scale, the correctness of the language formulation, and suggestions for additions, modifications, or deletions as they saw fit. Based on the agreement and feedback from the reviewers, the items that were deemed necessary to be revised were adjusted. It is noteworthy that the agreement rate among the reviewers regarding the scale's validity, clarity, and appropriateness of its items was 90%, indicating a high level of consensus.

4. Ethical Responsibilities

Approval for this study was granted by the Clinical Research Ethics in the center, under the decision number (16-2024). Institutional permission was also secured to conduct the study across all inpatient treatment and care clinics within the facility. This study was performed in line with the principles of the Declaration of Helsinki, and necessary permissions for scale usage were obtained. Informed consent was obtained from the participants.

5. Data collection and analysis

Informed consent was obtained from the patient prior to their participation in the study. Data were collected from patients via Google Survey self-report. All patients respond in the presence of the researcher, and the patients were being asked if they need further explanation for survey items. The average time to complete the survey was 10 minutes. statistical analysis was conducted using SPSS software (Version 20, IBM Corp., Armonk, NY, USA). Descriptive statistics were employed to summarize the demographic and clinical characteristics of the participants. Inferential statistics were applied to assess the relationships between variables. The significance level was set at ($p < 0.05$).

6. Results

To answer first research question, the means and standard deviations of the participants' scores on the body image scale were calculated. Table (1) illustrates this.

Table1: Means and Standard Deviations of the Participants' Scores on the Body Image Scale According to the Study Variables

Variable	Categories	Mean	Standard deviation	Number
Age at diagnosis	from 20-40 years	3.95	.97	46
	from 41 to 6o years	3.96	.94	88
Marital status	single	4.17	.61	7
	married	3.72	.97	101
	divorce , widowed	3.75	.81	26
Duration of illness	less than 5 years	4.29	.84	17
	5- 10 years	3.83	.79	29
	more than 10 years	3.81	.81	88
Type of treatment	Surgical therapy	4.23	.88	92
	Chemotherapy	4.02	.87	24
	Radiotherapy	3.99	.84	18

Table (1) shows the variation in means and standard deviations of breast cancer patients' scores on the body image scale related to the variables: age at diagnosis, marital status, duration of illness, and type of treatment. To determine the statistical significance of the differences between the means, a four-way ANOVA (without interactions) was used. Table (2) presents the results of this analysis.

Table2: Analysis of Variance (ANOVA) for Breast Cancer Patients' Body Image Scores According to Variables

Variable	Sum square	Average square	Freedom level	f value	Statistical Significance
Age at diagnosis	2.526	2.526	1	4.324	.1380
Marital status	14.635	7.318	2	12.526	.0000
Duration of illness	.2270	.1140	2	.5972	.0240
Type of therapy	6.356	3.178	2	10.881	.0010
Error	129.931		1.031	126	
Total	153.675			133	

Table (2) indicates that there are no statistically significant differences ($\alpha = 0.05$) attributed to age at diagnosis, with an F-value of 4.324 and a p-value of 0.138. However, there are statistically significant differences ($\alpha = 0.05$) attributed to marital status, with an F-value of 12.526 and a p-

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value of 0.000; to the duration of illness, with an F-value of 5.972 and a p-value of 0.024; and to the type of treatment, with an F-value of 10.881 and a p-value of 0.001. To determine which specific groups these significant differences favour, post-hoc comparisons using the Scheffe method were conducted, as shown in Table (3).

Table 3: post-hoc Comparisons Using Scheffe's Method for the Variables: Marital Status, Duration of Illness, and Type of Treatment

Marital Status	Mean	Single	Married	Divorced or widowed
Single	4.17			
married	3.72	.44*		
divorced or widowed	3.75	.52*	.22	
Duration of illness	Mean	Less than 5 years	5-10 years	More than 10 years
less than 5 years	4.29			
5-10 years	3.83	.37*		
More than 10 years	3.81	.32*	.29	
Type of treatment	Mean	surgical	Chemotherapy	Radio therapy
Surgical	4.23			
Chemotherapy	4.02	.68*		
Radiotherapy	3.99	.83*	.36	

The table (3) shows statistically significant differences ($\alpha = 0.05$) in breast cancer patients' scores on the body image scale based on the variables: marital status, duration of illness, and type of treatment.

- Marital Status: The level of satisfaction with body image among unmarried breast cancer patients is lower compared to married patients.
- Duration of Illness: The level of satisfaction with body image is lower among breast cancer patients who have had the illness for less than 5 years compared to those who have had the illness for 5 to 10 years or more than 10 years.
- Type of Treatment: The level of satisfaction with body image is lower among breast cancer patients who underwent surgical treatment compared to those who received chemotherapy or radiation therapy.

To answer second research question, the means and standard deviations of the study sample's scores on the self-deception scale were calculated, as shown in Table (4).

Table 4: The means and standard deviations for the study sample's estimates on the self-deception scale, according to the study variables

Variable	Group	Mean	Standard Deviation	Number
Age at diagnosis	From 20 -40 years	3.83	.930	46
	From 41-60 years	3.85	.890	88
Marital status	Single	3.60	.790	7
	Married	3.55	.810	101
	Divorced or widowed	3.49	.760	26
Duration of illness	Less than 5 years	4.46	.840	17
	5 -10years	4.01	.860	29
	More than 10 years	3.97	.910	88
Type of chemotherapy	Surgical	4.28	.900	92
	Chemotherapy	3.95	.820	24
	Radiotherapy	3.97	.860	18

Table (4) shows the variation in the means and standard deviations for breast cancer patients' responds on the body image scale, attributed to the following variables: age at diagnosis, marital status, duration of illness, and type of treatment. To determine the statistical significance of the differences between the means, a four-way analysis of variance (4-WAYS ANOVA without interactions) was used. Table (5) presents the results of this analysis.

Table 5: analyse the four-way ANOVA results for breast cancer patients' estimates on the body image scale according to the study variables

Source of variance	Sum square	Level of freedom	Average square	F value	Statistical significant
Age at diagnosis	.7250	1	.725	1.287	.2690
Marital status	4.163	2	2.081	1.502	.1310

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Duration of illness	8.635	2	4.318	5.348	.0010
Type of treatments	2.655	2	1.327	8.149	.0080
Error	171.979	126	1.127		
Total	188.157	133			

The results indicate the following:

- Age at Diagnosis: The F-value was 4.324 with a statistical significance of 0.269, indicating no statistically significant differences (α = 0.05) attributable to age at diagnosis.
- Marital Status: The F-value was 1.502 with a statistical significance of 0.131, showing no statistically significant differences (α = 0.05) attributable to marital status.
- Duration of Illness: Statistically significant differences (α = 0.05) were found with an F-value of 5.348 and a significance level of 0.001.
- Type of Treatment: Statistically significant differences (α = 0.05) were observed with an F-value of 8.149 and a significance level of 0.008.

To determine the specific nature of these significant differences, post-hoc comparisons using Schaffer's method were conducted, as detailed in Table (6).

Table 6: Post-hoc Comparisons Using Scheffe's Method for the Variables

Duration of illness	**Mean**	**Less than 5 years**	**5 to 10 years**	**More than 10 years**
Less than 5 years	4.46			
5-10 years	4.01	.34*		
More than 10 years	3.97	.40*	.17	
Type of treatment	**Mean**	**Surgical**	**Chemotherapy**	**Radiotherapy**
Surgical	4.28			
Chemotherapy	3.95	.59*		
Radiotherapy	3.97	.41*	.24	

It is evident from Table (6) that there are statistically significant differences (α = 0.05) in the levels of self-deception among breast cancer patients based on the variables of illness duration and type of treatment. Specifically:

- Illness Duration: The level of self-deception among breast cancer patients with a duration of illness of less than 5 years is higher compared to those whose illness duration is between 5 to 10 years and those with more than 10 years.
- Type of Treatment: The level of self-deception among breast cancer patients who have undergone surgical treatment is higher compared to those who have received chemotherapy and radiation therapy.

To answer third research question, Pearson's correlation coefficient was calculated between the level of body image and the level of self-deception among breast cancer patients. The coefficient was found to be 0.64, which is statistically significant at the level of α = 0.05. This indicates a positive correlation between body image satisfaction and self-deception levels among the patients.

7. Discussion

The study results showed no differences in body image satisfaction among breast cancer patients based on the age at diagnosis. This can be attributed to several factors such Health Conditions, the deteriorating health of patients and the nature of the illness often hinder their ability to achieve their aspirations and goals, as well as their ability to engage in daily activities. The disease impedes or prevents them from continuing their usual activities. and Cultural and Social Factors, the cultural and social context, including traditional values, respect for religious teachings, and social support institutions, also plays a role. Social institutions provide various forms of support, and the media and technology, including websites offering information about the disease and treatment, contribute by sharing real-life stories of patients who have overcome the disease and adapted to it. as well as Support Systems, the support from family, friends, and community institutions, along with media portrayals and technological resources, helps patients navigate their condition and may diminish the impact of age-related differences in body image satisfaction. These factors align with the findings of the study by (13), which also indicated no significant differences in body image satisfaction among breast cancer patients based on the age at diagnosis.

The study results showed no significant differences in the level of self-deception among breast cancer patients based on the variables of age at diagnosis and marital status. This might be because, regardless of the patient's age at diagnosis or marital status, all breast cancer patients receive care from the same medical and psychological team, with the same instructions and information regarding the disease, side effects of treatment, and how to manage these issues in a straightforward manner. Additionally, the practice of self-deception among breast cancer patients depends on the degree of threat the disease poses to their body image and their ability to live normally. The higher the threat level and body image changes, the more likely the patient is to engage in self-deception. These findings differ from those of the study by (17), which found significant differences in self-deception based on age and marital status.

The study results also indicated that the level of self-deception among breast cancer patients who underwent surgical treatment was higher compared to those who received chemotherapy or radiation therapy. This result can be explained by the noticeable

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physical changes caused by surgical procedures, such as the removal of one breast, which can leave scars and have psychological impacts on the patient. These changes can lead to reduced self-confidence, discomfort in social interactions, and feelings of embarrassment and shame. Consequently, patients may resort to self-deception strategies to accept and convince themselves and others of their altered appearance (18).

The study results showed a positive correlation between the level of dissatisfaction with body image and the level of self-deception among breast cancer patients. This result can be interpreted as follows: as dissatisfaction with body image increases among breast cancer patients, their tendency to engage in self-deception also rises. Self-deception serves as a mechanism to immerse oneself in illusions and fantasies, diverting attention away from harsh realities that one needs to be fully aware of and adapt to, rather than avoiding or ignoring them (19)

8. Conclusion

The study highlights the critical need to address body image and self-deception among women with breast cancer. It underscores the importance of educating patients about the available medical advancements, such as surgical, chemotherapy, and radiotherapy options, to empower them with knowledge and improve their overall treatment experience. Additionally, the findings advocate for the design of targeted advisory programs that aim to mitigate the adverse effects of self-deception and enhance body image satisfaction. These programs could play a pivotal role in improving the psychological and emotional well-being of breast cancer patients. Furthermore, the study calls for broader research efforts, including further surveys and comparative studies, to deepen the understanding of body image and self-deception across diverse cancer patient groups, providing a more comprehensive perspective on this issue.

9. Study Limitations

This study has several limitations that should be addressed in future research. Firstly, the sample size of 134 women, while informative, may limit the generalizability of the findings to the wider population of breast cancer patients. A larger and more diverse sample size is necessary to enhance the validity and applicability of the results. Secondly, the study focuses exclusively on women with breast cancer, excluding other cancer types that may exhibit different patterns of body image and self-deception. Comparative studies involving various cancer patient groups are recommended to explore these differences. Lastly, the reliance on self-reported measures may introduce bias, as participants may underreport or overreport their experiences. Future studies could incorporate mixed-method approaches, including qualitative interviews and clinical assessments, to provide a more nuanced understanding of the issues at hand.

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