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# Indicators of psychological distress and body image disorders in female patients with breast cancer

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## ABSTRACT



Breast cancer patients are vulnerable to elevated stress related to receiving the diagnosis, unfamiliar and invasive treatment, and coping with the side-effects of treatment, which may find various forms of expression. Another common feature of this patient population is body image dysphoria. Both the disease and treatment lead to impairments in physical appearance and general bodily functioning. This study aimed to explore the differential manifestations of stress and the nature of body image dysphoria within a sample of female breast cancer patients (n=80), compared to female patients with other sites of disease (n=80) in order to examine differences in the experiences of distress in these groups. Patients completed 4 questionnaires relating to psychological distress and body image dysphoria. The results showed the breast patients reported significantly higher levels of body image dysphoria and reflected differential indicators of stress, namely more psychological and behavioral expression, as compared to the other group.

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## Introduction

Breast cancer is the most frequent cancer in women and is the second most common cancer in general. More than 2 million new diagnoses worldwide were reported in 2018 [1]. While rates of breast cancer have been higher among women in developed regions of the world, rates are rising nearly everywhere [2]. Cancer survival has improved since the mid-1970s largely due to improvements in detection practices and the increased use of adjuvant systemic therapies, inter alia newer cytotoxic drugs, adjuvant hormonal therapy and biologics, in addition to regional radiotherapy [3,4]. Due to these advances, a growing number of cancer patients will become long-term survivors, living with the physiological and psychological effects of their disease and treatment [5].

A cancer diagnosis is an important source of psychological distress and is followed by an extended interval of treatment which in itself is also experienced as stressful [6]. Studies indicate that women with breast cancer are among the most distressed of the subgroups of cancer diagnoses and report distress related to fear of

disease progression and recurrence. This distress may manifest as depressed mood, stress, and elevated anxiety relating to prognosis, disability, and death [7].

Previous studies suggest that psychological disorders negatively affect treatment, cancer progression, and outcomes, and thus exert a significant effect on morbidity and mortality [8,9]. As such, the importance of the patient's psychological well-being cannot be overstated. A key goal in breast cancer therapy is to improve the support of the growing numbers of women diagnosed with the disease to facilitate adjustment into survivorship in the long-term [5].

Breast cancer research has historically concentrated on both the physical and mental health sequelae of cancer and its treatment, but commonly health care providers tend to focus chiefly on patients' physical symptoms, and place less emphasis on mental health [5]. Stress and the well documented insults to body image faced by patients are common features of the psychological distress which these patients experience, which negatively impacts the patient's ability to adjust after cancer and into survivorship [10].

This research follows on and expands on a previous study [11], and goes on to explore the aetiology of

psychological distress in these patients in more detail. Further facets of body image disturbances and the complexity of body image responses to breast disease are examined and useful therapeutic interventions are discussed.

#### *Cancer-specific stress disorders in breast patients*

In the context of this study, stress is defined generally as a multidimensional construct referring to an individual's response to external conditions and more subjectively, as the response to the appraisal of these demands, which is mediated by one's coping skills [12].

The human stress response may be conceptualized as both physiologically- and psychologically- based. In terms of physiology, both acute and chronic stress following a life event such as the diagnosis of cancer have implications for the disruption of various neurotransmitters and neurohormones. Neurotransmitters impact both the physical and psychological functioning of the individual experiencing stress. In psychological terms, problems with the cognitive processing of a stressor may precipitate a stress response. Both perception and cognitive appraisal are critical in this functioning, and information from the pre-frontal cortex and frontal lobes (the decision making and higher cognitive function centres of the brain) mediates emotional, psychological, and behavioural outcomes. The physiological and psychological pathways interrelate closely, resulting in a stress cascade that involves both the endocrine and autonomic nervous systems, thereby incorporating a hormonal element. Interactions between neurotransmitters, stress hormones, and negative effect of these on the immune system resulting from chronic/enduring stress, can alter the balance between neurotransmitters [13].

With respect to cancer patients, both of these stress pathways are pertinent. Somatic disease in itself may cause physical stress reactions where pain or other symptoms may give rise to severe distress. Furthermore, oncological treatments frequently generate physiological stress through excessive demand on the body by way of painful and often invasive onco-therapeutic interventions. Psychological stress appears to stem from the individual's understanding that the diagnosis implies a life-threatening disease and having to live with its consequences. The symptoms of cancer-specific stress include, inter alia, intrusive thoughts, marked negative emotions towards cancer diagnoses, and treatments together with avoidant cognitions and behaviours. These symptoms of stress are all associated with deficits in quality of life (QOL) and correlated with poorer clinical outcomes, while in animal models of cancer there is evidence that stress may decrease the effectiveness of treatment or increase resistance to chemotherapeutic agents [6,14].

Stress is considered a major precipitating psychological issue for cancer patients from diagnosis through treatment

and prognosis, and even long after treatment has been completed. It is a significant comorbidity as it is associated with the growth and progression of disease and is closely related to further psychological comorbidities such as anxiety and depression [15]. Indeed, research indicates that it is the chronicity of negative affect such as anxiety, depressed mood, and/or hopelessness that appears to correlate more strongly with outcomes than is true of stressful events, suggesting that it is the prolonged arousal of negative affective pathways that furnishes the strongest association with disease progression through its effect on, inter alia, tumour growth, angiogenesis and metastasis [14,16]. Studies suggest that these stress-induced neurobiological changes lead to significant impairment of the immune system and prolonged anxious behavior changes [14]. Mood disturbances, including depression and anxiety, correlate highly with stress and, as such, mood disturbance has been commonly used as an indicator of stress [6].

Some research indicates that while initial stress following a diagnosis of cancer tends to decrease over time, a notable proportion of patients continue to experience elevated levels of stress, sometimes for years after successful completion of oncological treatment. In some cases, patients may even go on to develop posttraumatic stress disorder (PTSD) resulting from the cancer diagnosis, indicating varying responses to the same stressor of cancer diagnosis [6].

#### *Body image disorders in breast cancer patients*

Body image is widely acknowledged to be a critical psychosocial issue for breast cancer patients and studies show that the better the patient's body image, the better is the capacity to cope with cancer [17]. The construct of body image is multidimensional and encompasses feelings, perceptions, thoughts, and behaviors associated with the whole body and how it functions [8]. It has been described as a subjective picture the individual forms in her mind regarding her own body, based on her observations of herself and by judging what others think, based on their reactions, with associated features such as emotional expression, imitation, identification, ideals of beauty, and social factors [17,19].

According to the Cash [20] cognitive-behavioural model of body image, inherent in the concept of body image is the notion of satisfaction or dissatisfaction with one's body that is modified by two factors, appearance investment and self-evaluation. Appearance investment refers to the individual's own view of the significance of appearance and physical attributes, where self-evaluation refers to the contextual cultural ideals of beauty in physical appearance, the degree to which the individual is satisfied with her appearance, and whether there is dissonance between the subjective perception of her physical characteristics and the ideal characteristics. Since research

suggests that the breast forms part of a woman's identity and femininity and that women are socialized to perceive that their personal value is bound up with their outward appearance [21], it is clear that change or loss of a breast will have a notable impact on the patient's sense of her body and its attractiveness.

Studies suggest that body image is closely correlated with both psychological and physical symptoms including identity, self-esteem, perceptions of attractiveness, and social interactions. Thus, body image disorders are associated with poorer self-esteem, increased social anxiety, greater self-consciousness, and depressive symptoms and, furthermore, they are significantly related to anxiety, fatigue, and fear of recurrence [17]. As such, there exists a significant correlation between psychological distress and poor body image [19].

Breast cancer therapy commonly results in adverse effects with visible and nonvisible physiological impacts (10). Patients receiving treatment for breast cancer are exposed to significant changes in their appearance, such as the loss or disfigurement of the breast, surgical scarring, radiotherapy related skin changes and weight gain resulting from systemic treatments. These changes are closely bound to appearance and body image [19]. Upwards of 50% of breast cancer survivors experience body image-related concerns regarding both their body appearance and function. Adjusting to these physiological changes is challenging because treatment is demanding, both physically and emotionally, and is associated with increased psychopathology including anxiety and depression. Research suggests that one in every three breast cancer patients experiences chronic body-related distress, such as fear of or shame regarding their altered bodies, which disrupts attempts to resume normal life after cancer [10].

In terms of age, younger women have been found to be particularly at risk for psychological distress during and after treatment since these women often have more aggressive breast cancers and tend to attach greater importance to their breasts in terms of their femininity and sexuality [17]. Stage of treatment is an additional factor in the development of body image disorders with some studies suggesting that oncological treatment significantly affects body image and the patient's quality of life immediately post-surgery and adjuvant treatment whereas other research suggests that body image concerns only emerge at a later time [22,23].

## Materials and Methods

### *Participants*

Convenience sampling was used to select participants for this study. 80 female breast cancer patients and 80 female patients receiving treatment for other types of

cancer, (ovary, cervix, lung, and colon) were canvassed to participate. All were patients at three oncology outpatient treatment facilities within the Durban, Kwa-Zulu Natal, South Africa area, receiving adjuvant chemotherapy or a combination of chemo-and radiotherapy. Some had previously undergone surgery. In order to meet the inclusion criteria, participants had to be between the ages of 30 and 70 years with no history of disease or other comorbid conditions. The identified patients were approached by the researcher and invited to take part in the study of their psychological experiences during treatment. The participants all provided written and oral consent before taking part.

### *Materials*

Participants meeting the inclusion criteria were given a demographic questionnaire and a series of 4 questionnaires to complete.

- Brief demographic questionnaire: a brief demographic questionnaire detailing the participant's age, marital status, and medical history.

- The Beck Depression Inventory (BDI) [24]: This is a widely-used, 21-item multiple-choice inventory measuring attitudes and severity of depressive symptomatology. Pertinent to the present study are items relating to irritability, pessimism, feelings of guilt or being punished, self-dissatisfaction, and social withdrawal, in addition to physiological symptoms such as tiredness, weight loss, and loss of libido. This inventory evaluates depression in normal and psychiatric populations. Several items indicate the presence of hopelessness and suicidal ideation. Items are scored on a 4-point continuum, with the total score range being 0–63. High scores point to more severe level of depression.

- The Rosenberg Self-Esteem Scale [25]: This widely-used scale measures global self-esteem using a 10-item Likert-type scale. It comprises a scale of 0–30, with a score of less than 15 indicative of low self-esteem. Of the 10 items, five are positively worded statements and five are negatively worded. This scale measures global self-worth by means of measuring both positive and negative perceptions of the self. It is considered reliable and valid for the assessment of self-esteem

- The Stress Symptom Checklist (SSCL) [26]: This is an 87-item checklist relating to symptoms of unhealthy stress. The intensity or severity of stress is measured as reported by the patient's reactions across 3 dimensions: physical (18 items), psychological (27 items), and behavioural (42 items). Each dimension is separately scored with a score of three or more indicative of elevated stress. High scores signify high levels of stress. The maximum score is 87. The checklist allows for further interpretation, with scores of 8 and below indicative of low stress, mild stress ranging from

9 to 15, moderate stress from 16 to 30, and the severe stress from 31 to 45. Profound stress is reflected in scores of 46 and above. Moreover, the SSCL offers an indication as to whether the respondent reflects stress reactions which are mainly physical or psychological and/or behavioural in nature. This scale is a useful clinical measure of stress.

•Body Image Scale (BIS) [18]: The BIS is a 10-item, patient-reported outcome scale designed to briefly but comprehensively rate 3 dimensions of body image, for use exclusively with cancer patients: the affective (pertaining to feelings such as self-consciousness), behavioural (for example difficulties with looking at oneself naked) and cognitive (level of satisfaction with appearance). There is a 4-point response scale, the final score being the sum of all 10 items, with a range of 0-30. Low scores signify fewer symptoms and lower levels of body image distress while higher scores are associated with more symptoms and greater body image dysphoria.

## Results

Data were analyzed using non-parametric tests as the frequency of the scores was not normally distributed. The Mann Whitney (two-sample Wilcoxon rank-sum test) was used to compare differences between the breast and other groups on the measures administered.

The BDI results suggest that no notable differences exist between the breast and other group in terms of levels of depression ( $p=0.3$ ) and the measures of the majority of patients fell within the minimal/mild range. Similarly, the Rosenberg Self-esteem Scale showed no significant differences between the breast and other group ( $p=0.2$ ) indicating that both groups reported similar measures of self-esteem, with the majority of all the patients scores falling within the low average range.

In terms of stress, according to the SSCL results, no notable differences emerged between the groups on measures of physiological reactions, however other differences were apparent (Table 1).

Stress response		Breast		Other	Total	p-value
<b>Psychological</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>		
<5	26	32.5	42	52.5	68	<b>0.055</b>
5-9	13	16.3	7	8.8	20	
10-14	9	11.3	7	8.8	16	
15-19	7	8.8	5	6.3	12	
20-24	7	8.8	2	2.5	9	
25-30	7	8.8	8	10.0	15	
31-34	4	5.0	3	3.8	7	
35-39	5	6.3	1	1.3	6	
40-46	2	2.5	5	6.3	7	
<b>Total</b>	<b>80</b>	<b>100</b>	<b>80</b>	<b>100</b>		
<b>Behavioural</b>						
<5	12	15.0	30	37.5	42	<b>0.002</b>
5-9	16	20.0	15	18.8	31	
10-14	15	8.8	9	11.3	24	
15-19	5	6.3	7	8.8	12	
20-24	6	7.5	4	5.0	10	
25-30	4	5.0	2	2.5	6	
31-34	4	5.0	2	2.5	6	
35-39	2	2.5	1	1.3	3	
40-45	5	6.3	5	6.3	10	
46-49	6	7.5	3	3.8	9	
50-64	5	6.3	2	2.5	7	
<b>Total</b>	<b>80</b>	<b>100</b>	<b>80</b>	<b>100</b>		

Although no notable differences emerged between the two groups along physiological responses to stress, significant differences in psychological ( $p=0.055$ ) and behavioural ( $p=0.002$ ) manifestations of stress were found. In terms of the psychological responses, the most notable differences emerged on items related to feelings of tension or being “keyed up” ( $p=0.007$ ), low self-esteem ( $p=0.04$ ), and self-dislike ( $p=0.021$ ), with the breast group reflecting higher scores on these measures. Moreover, behavioural responses yielded significant differences, in particular on items relating to irritability ( $p=0.001$ ), restlessness

( $p=0.003$ ), experiencing emotional outbursts frequently ( $p=0.002$ ), and difficulties with concentration ( $p=0.001$ ), with the breast cancer group again experiencing these reactions more frequently. In sum, this suggests that patients with breast cancer experience more severe psychological and behavioural stress symptoms than do patients with other sites of disease.

The results of the BIS also showed significant differences between the breast and other group on several items, with the breast group reflecting higher levels of body image dissatisfaction on all items (Table 2).

**Table 2.** Results of the Body Image Scale

BIS item	response	breast		other		total	p-value
		n	%	n	%		
1. Have you been feeling self-conscious about your appearance?	Not at all	15	18.8	31	38.8	46	0.01
	A little	32	40.0	26	32.5		
	Quite a bit	15	18.8	10	12.5		
	Very much	18	22.5	13	16.3		
2. Have you felt less physically attractive as a result of your disease or treatment?	Not at all	22	27.5	52	65.0	74	<0.001
	A little	29	36.3	13	16.3		
	Quite a bit	19	23.8	8	10.0		
	Very much	10	12.5	7	8.8		
3. Have you been dissatisfied with your appearance when dressed?	Not at all	33	41.0	39	48.8	72	0.71
	A little	31	38.8	20	25.0		
	Quite a bit	9	11.3	15	18.8		
	Very much	7	8.8	6	7.5		
4. Have you been feeling less feminine as a result of your disease or treatment?	Not at all	37	46.3	57	71.3	94	0.01
	A little	26	32.5	10	12.5		
	Quite a bit	10	12.5	8	10.0		
	Very much	7	8.8	5	6.3		
5. Did you find it difficult to look at yourself naked?	Not at all	44	55.0	50	62.5	94	0.44
	A little	21	26.3	16	20.0		
	Quite a bit	7	8.8	5	6.3		
	Very much	8	10.0	9	11.3		
6. Have you been feeling less sexually attractive as a result of your disease or treatment?	Not at all	20	25.0	48	60.0	68	0.001
	A little	33	41.3	17	21.3		
	Quite a bit	14	17.5	7	8.8		
	Very much	13	16.3	8	10.0		
7. Did you avoid people because of the way you felt about your appearance?	Not at all	42	52.5	59	73.8	101	0.01
	A little	24	30	13	16.3		
	Quite a bit	11	13.8	5	6.3		
	Very much	3	3.8	3	3.8		
8. Have you been feeling the treatment has left your body less whole?	Not at all	29	36.3	43	53.8	72	0.11
	A little	35	43.8	20	25.0		
	Quite a bit	9	11.3	11	13.8		
	Very much	7	8.8	6	7.5		
9. Have you felt dissatisfied with your body?	Not at all	27	33.8	42	52.5	69	0.02
	A little	29	36.3	22	27.5		
	Quite a bit	15	18.8	10	12.5		
	Very much	9	11.3	6	7.5		
10. Have you been dissatisfied with the appearance of your scar?	Not at all	42	52.5	54	67.5	96	0.08
	A little	23	28.8	15	18.8		
	Quite a bit	9	11.3	5	6.3		
	Very much	6	7.5	6	7.5		

The most significant differences between the breast and other groups emerge with respect to feelings of sexual attractiveness ( $p=0.001$ ) and physical attractiveness ( $p<0.001$ ) as a result of the disease and treatment, with the breast cancer group reporting significantly less satisfaction with physical and sexual attractiveness. 52 respondents from the other group reported no problems with feeling physically unattractive whilst only 22 patients from the breast group had no difficulties with perceptions of physical unattractiveness. With regard to feelings of being sexually unattractive, 10% of the other group noted extreme feelings of unattractiveness while 16.3% of the breast group experienced marked feelings of sexual unattractiveness attributed to the disease and treatment. Further differences were found in terms of dissatisfaction with one's body ( $p=0.02$ ), social avoidance resulting from body dissatisfaction ( $p=0.01$ ) and feeling less feminine ( $p=0.01$ ) as a result of disease and treatment. On all these measures, the breast group scored consistently higher results.

These findings correspond with the results of other studies which have suggested that breast cancer and its treatment engender higher levels of body image dysphoria in patients than does disease in other sites.

## Discussions

The principal goal of this study was the examination of the psychological distress experienced by female breast cancer patients and the identification of the differences in psychological experience which these patients undergo, with particular reference to expression of stress and issues of body image. Since the literature widely shows that breast patients experience elevated levels of stress and more severe body image dysphoria when compared to patients with other forms of disease, this study set out to determine the accuracy of these findings.

In terms of stress, the results of the SSCL indicate that breast cancer patients expressed their levels of stress post-diagnosis more through psychological and behavioural responses than did the other group. Reactions such as tension, low opinion of the self, and self-dislike emerged as significant differences between the responses of the two groups with the breast patients reporting experiencing these more intensely. Similarly, in terms of behavioural manifestations of stress, the breast group reported more severe symptoms of irritability, restlessness, emotional outbursts, and impaired ability to concentrate, symptoms which are well described in the literature as being associated with stress in breast patients [27]. Further, features such as fearfulness, apathy, social isolation, and difficulty with remembering and decision-making were more marked in the breast group, confirming the results of previous studies [28].

These results underscore that patients in the breast group experienced stress more intensely and severely than did patients in the general group, and through differential means, suggesting that the experience of distress for these patients differs in nature and severity to that of other patients.

The findings here also confirm that breast patients experience greater body image distress as reported on all the items of the BIS, with significantly higher measures of dysphoria in terms of physical and sexual attractiveness, loss of feelings of femininity, and elevated levels of self-consciousness, which yielded the most notable differences between the two groups. Interestingly, while 22.5% of the breast respondents reported intense feelings of self-consciousness about their appearance, approximately half of that number viz. 10.0% reported difficulties with looking at themselves naked. Similarly, while 16.3% of the breast group reported marked feelings of sexual unattractiveness resulting from the disease and treatment, only 8.8% reported notable negative effects on feelings of femininity. Some studies have suggested that while self-consciousness appears to be linked to a woman's identity, her naked appearance is very closely associated with her perception of her body. Moreover, the concept of femininity is overarching and thus broader than sexual attractiveness [29].

Research suggests that women are generally more dissatisfied with the appearance of their bodies than are men [30], and this tendency is exacerbated by the diagnosis and treatment associated with oncology. Previous studies have identified impairments in sexual attractiveness and sexual intimacy as a critical issue for women in terms of body image during their treatment, particularly those who have undergone mastectomy and that self-consciousness and dissatisfaction with their bodies have emerged as impacting significantly on patients' body image perceptions [23]. A recent study has demonstrated further body image issues, such as discomfort about self-image, loss of confidence in body functioning, and avoiding intimacy or exposing the physical self, as critical in these patients. The same study found that grief expressions relating to loss of function or of the perceived prior attractive self were prevalent. In addition, the patients feared being regarded as vain for articulating their body image concerns, feeling they should feel gratitude for their survival instead [31].

### *Therapeutic interventions*

Optimal treatment of breast cancer-specific distress is supportive and problem-focused [32]. Education, control of physical symptoms, and maintenance of effective and inter-disciplinary communication constitute critical factors.

Studies suggest that various interventions may improve patients' coping with distress, improve their affect, and reduce the negative effects of disease or treatment, thereby improving their quality of life. Five types of intervention were found to be effective, especially when used jointly: education regarding the disease, behavioral training, for example relaxation or yoga, cognitive-behavioral therapy (CBT) including training in coping skills, stress management skills, and support in professionally led or group contexts [33].

Supportive-expressive therapy is focused on current life issues, challenges to optimal coping, and the facilitation of expression of emotions. CBT is aimed at helping patients to identify negative or irrational thoughts they may have regarding themselves and their disease, to examine how these thoughts lead to dysfunctional behaviors and then guides the patient as to how to assimilate more reasonable thoughts and more adaptive behaviors [34]. CBT has been shown to positively affect many psychological outcomes, particularly depression, anxiety, and mood disorders [35]. CBT may include coaching in relaxation techniques to alleviate stress, psychoeducation, cognitive restructuring, and graduated exposure to feared or unwanted thoughts and both CBT and supportive expressive therapy have been shown to be effective in reducing symptoms of psychological distress in cancer patients [36,37]. A significant improvement in QOL measures was observed in women receiving CBT on an individual level [35]. A recent study found that an exposure-based cognitive-behavioral body image intervention was successful in bringing about positive changes in body image disturbance, with noted improvements in related symptoms such as depression and self-esteem [38].

## Highlights

- ✓ Breast cancer patients experience psychological distress differently as compared to patients with other sites of disease.
- ✓ Specific body image disturbances and elevated stress are prominent sequelae of breast cancer.
- ✓ The prevalence and severity of these comorbid symptoms warrant closer observation of patients to facilitate identification those at risk of distress.

## Conclusions

This study was aimed at the examination of the differential nature of psychological distress as experienced by breast cancer patients in particular. It is broadly acknowledged that breast cancer is a disease which connotes unique comorbidities owing to the significance of the breast as a sexual organ. These findings confirm previous data in that, with respect to specifically body

image issues and stress, the patients were found to experience elevated levels of distress as compared to patients with cancers in other sites. The breast patient is more vulnerable to feelings of impaired femininity, a diminished perception of her sexual attractiveness, and a tendency towards social avoidance resulting from increased feelings of self-consciousness. Similarly, with respect to the experience of stress, the breast patient undergoes higher levels of psychological and behavioural symptomatology, including tension, irritability and restlessness.

These results indicate that both body image and stress remain significant issues for the rising numbers of patients undergoing adjuvant treatment for breast cancer. The goal of oncology is not to merely extend survival intervals but also to optimize the patient's quality of life. While the literature suggests that mental health issues are often under-diagnosed and undertreated in oncology patients, it is now clearly critical that healthcare professionals, particularly those working in the field of oncology, become more aware of the singular psychological issues facing breast cancer patients in order to maximize their ability to deliver quality care.

## Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

## Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript. Informed consent was obtained from all individual adult participants included in the study.

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