FACTORS AFFECTING THE IMPACT OF BREAST CANCER ON BODY IMAGE AND SEXUAL FUNCTIONING

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ABSTRACT

SHIAHNA M. DYE: Factors Affecting the Impact of Breast Cancer on Body Image and Sexual Functioning
(Under the direction of Donald Baucom, Ph.D.)

The diagnosis and treatment of breast cancer impacts a woman on many levels. Women often experience a wide range of psychological and sexual difficulties. The psychosocial and psychosexual impact of this disease is influenced by a number of factors including medical factors, individual factors, and relationship factors. Overall, breast cancer treatments (medical factors) did not disrupt sexual functioning or body image. Instead, depression and fatigue (individual factors) were found to impact women’s sexual functioning, and depression was related to women’s own body image as well as how she perceived her male partner to view her body. Lastly, women’s perceptions of their male partners’ view of their bodies (relationship factor) were related to the women’s own body image and marital satisfaction. Results suggest a more optimistic view regarding the anticipated negative consequences of a breast cancer diagnosis.
This is dedicated in memory of my loving father who instilled in me the value of an education and unwavering faith. “Then Jesus told them, ‘I assure you, if you have faith and don’t doubt, you can do things like this and much more (Matthew 21:21).”
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FACTORS AFFECTING THE IMPACT OF BREAST CANCER ON BODY IMAGE AND SEXUAL FUNCTIONING

The diagnosis and treatment of breast cancer impacts a woman on many levels. Women often experience a wide range of psychological and sexual difficulties. The psychosocial and psychosexual impact of this disease is influenced by a number of factors. For the current study, these factors will be separated into three categories: medical factors, individual factors, and relationship factors in order to explore their impact on body image and sexual functioning. Medical factors include various aspects of the treatment process including surgical and other medical treatments. Individual factors pertain to physical and psychological elements such as pain, fatigue, depression, and anxiety. Lastly, relationship factors consist of the interpersonal aspects of the couple’s relationship as viewed both by the women with breast cancer and their partners.

The Impact of Medical Factors on Body Image and Sexual Functioning in Women with Breast Cancer

Women with breast cancer are faced with a number of options and considerations concerning their treatment process. These options, however, often come with a price; some are more costly than others. These treatment considerations include the type of surgical treatment performed; the option of breast reconstruction; and type of post surgical treatment such as chemotherapy (occasionally offered prior to surgery).
The principal surgical treatments for breast cancer are lumpectomy (breast-conservation) and mastectomy. Both treatments have similar survival rates, so the choice of treatment often rests largely on the differential impact of the two treatment options on physical and psychological well-being (King, Kenny, Shiell, Hall, & Boyages, 2000). Because each surgical treatment physically alters the breast which in American culture embodies femininity, womanhood, sexuality, attractiveness, nurturance, and motherhood (Pikler & Winterowd, 2003), women’s views of their bodies are likely altered as a function of the surgery they receive.

Research has typically found that women who have undergone breast-conserving surgery demonstrate more positive body images than women who have had mastectomies for the treatment of breast cancer. More specifically, women with breast-conserving surgery are less likely to experience feelings of loss, become self-conscious about body presentation, or experience significant changes in body ideal, and are more likely to retain perceptions of physical attractiveness and femininity when compared with women who have undergone mastectomies (Engel et al., 2004; King et al., 2000; Steinberg, Juliano, & Wise, 1985). The greater disruption of the sense of femininity and sexual desirability among mastectomy patients is seen as a reaction to the greater disfigurement of the more extensive surgery.

Often accompanying the type of surgical intervention undertaken is the choice of breast reconstruction. This option is widely assumed to offer psychological benefits to women treated by mastectomy for breast cancer. Levels of satisfaction with body image for women who undergo reconstruction are reported to fall in between those women treated with mastectomy without reconstruction and those receiving breast-conserving treatment (Mock, 1993; Wellisch et al., 1989).
When exploring the effects of surgical treatment type on sexual functioning, however, results have not been as conclusive. The more widespread practice of breast-conserving surgical treatment in comparison to mastectomy was expected to diminish the negative impact of treatment on sexual functioning. Unfortunately, this goal has not been fully realized. Several studies have shown no difference in sexual functioning for breast cancer survivors on the basis of surgical treatment (Ganz, 1997; Levy et al., 1992; Kiebert, de Haes, & van de Velde, 1991) whereas others find that women who have breast-conserving surgery report better sexual functioning (Meyer & Aspegren, 1989; Steinberg et al., 1985). Thus, the impact of breast preservation and reconstruction in preventing and ameliorating sexual problems in cancer patients is subtle at best (Schover, 1997) and appears to protect only women’s perception of their body but does not contribute to a more positive sexual adjustment (Schain et al., 1994).

Another aspect of the treatment process that has been examined is the type of postoperative (or preoperative) treatment received. Women with breast cancer may receive chemotherapy, antiestrogenic therapy (e.g., tamoxifen), or both. Chemotherapy use has been shown to be a predictor of poor sexual functioning (Ganz et al., 1996) with women reporting vaginal dryness, decreased libido, dyspareunia (painful intercourse), and difficulty reaching orgasm (Young-McCaughan, 1996). Even up to five years posttreatment, sexual problems remain more common in women treated with chemotherapy (Ganz et al., 1998).

*The Impact of Individual Factors on Body Image and Sexual Functioning in Women with Breast Cancer*

In addition to the medical treatments that women receive, there are also individual factors that play a role in the impact of breast cancer on body image and sexual functioning.
These factors include physical experiences such as pain and fatigue as well as psychological features including depression and anxiety.

As a result of the aforementioned treatments, breast cancer patients are more susceptible to physical symptoms such as pain and fatigue. Chronic localized or regional pain thought to result from damaged nerves (Elliot & Folley, 1989) is common after breast cancer surgery with prevalence rates ranging from 20-27% (Stevens, Dibble & Miaskowski, 1995). In addition to pain experienced in the breast area, women with breast cancer also experience pain or discomfort in the vaginal area during sex. Because these women experience symptoms such as poor vaginal lubrication and vaginal atrophy, sex is often painful or uncomfortable which results in an avoidance of sexual activity. Thus, since pain appears to be quite common and pervasive in this particular group of women, irrespective of its location, it is a salient factor in the relationship between breast cancer and declining sexual functioning.

Fatigue is another symptom that is common to breast cancer patients that is often found to co-occur with pain and has been implicated as a major hindrance of sexual pleasure (Winningham, 1994). Posttreatment breast cancer survivors, who had previously received chemotherapy as a part of their treatment, appear to be more likely to report more severe and persistent fatigue in comparison to healthy women in a similar reference group or other breast cancer survivors who did not receive chemotherapy as a part of their treatment (Bower et al., 2000). However, fatigue may not only be due to the cancer treatment, but also due to the cancer itself, and may persist after treatment has been completed, even in those patients who are felt to be cancer free (Nail, 2002).
Recent studies have consistently found high rates of fatigue in breast cancer patients lasting months to years after treatment. Investigators suggest that this pervasive problem is unlikely to be accounted for by treatment effects and propose further investigation of the close relationship between post-cancer fatigue and diagnoses of depression and anxiety (Bower et al., 2006; Nieboer et al., 2005; Young & White, 2006). Goldstein et al. (2006) longitudinally investigated the relationship between fatigue and mood disorder in a sample of women with breast cancer and found mood disorder to be the only significant predictor of fatigue. Results further indicated that fatigue was relatively stable over time but was unlikely to evolve into a mood disorder, suggesting that the two symptoms have independent determinants yet still frequently accompany one another.

Irrespective of fatigue, studies have shown that depression and anxiety are prevalent in cancer patients. In breast cancer patients, Kissane et al. (1998) noted that up to 45% of early stage breast cancer patients had anxiety or depression or both. Women reported feeling less attractive, experiencing significant stress concerning hair loss or weight gain, and many reported losing interest in sex. Even within the general population, depression and anxiety in women are often associated with an increase in female sexual dysfunction (Henson, 2002). Therefore, for breast cancer patients who are experiencing a host of other symptoms and concerns (e.g., performance anxiety, fear or pain or discomfort during sex) that compromise their sexual functioning (i.e., sexual excitement, arousal, and orgasm) in addition to depression and anxiety, the impact of these psychological problems can only serve to magnify a potentially devastating blow to their sexuality.
The Impact of Relationship Factors on Body Image and Sexual Functioning in Women with Breast Cancer

In addition to medical factors and individual factors, there are also relationship factors that play a role in how breast cancer affects a woman’s sexual functioning and body image. Northouse et al. (1998) found that when one partner has a serious illness, both partners in an intimate relationship experience distress, and this distress in turn can adversely affect their sexual relationship. Partners are viewed as essential sources of support for women during this difficult time, and their partners’ responses are critical to the women’s adjustment. For example, Wimberly et al. (2005) found that perceived partner emotional involvement, perceived partner sexual interest, and perceived partner negative reaction to surgical scars to be predictors of women’s psychosexual adjustment after breast cancer. Perceived partner emotional involvement and perceived partner sexual interest were also predictive of marital satisfaction for women. Conversely, Wai Ming (2002) found that partners’ lack of social support and disruption of sexual relationship by breast cancer treatment were factors leading to an increase in marital problems.

In addition to the physical effects experienced as a result of breast cancer, there are psychological effects in the form of body image concerns that can inhibit sexual functioning for both partners. Body image concerns are amplified in women with breast cancer as a result of their perceived disfigurement to a body part associated with femininity and sexuality. Her body image concerns can be further increased if the woman perceives her partner as negatively reacting to her new physical form. Wai Ming (2002) found that perceived partner evaluation of her physical appearance was a better predictor of her marital satisfaction than was her own negative body image. Thus, it appears that if a woman is uncomfortable with her body or perceives that her partner does not like the way she looks,
she may then withdraw sexually which impacts the couple’s sexual relationship again as a pattern of withdraw and avoidance develops.

Overall, studies suggest that perceived partner reactions play an integral role in the couple’s psychosexual response to the diagnosis and treatment of breast cancer which warrants further investigation.

In order to further elucidate the relationship among breast cancer, body image, and sexual functioning, the current study seeks to explore these relationships by first investigating the overall affects of chemotherapy and surgery on sexual functioning and body image. It has been demonstrated that chemotherapy affects sexual functioning and that surgery affects body image, but are there other mechanisms through which this occurs? It is possible that these are direct and straightforward relationships; however it is also likely that there are other factors that could further explain the relationships among these variables. Additionally, the relationship among the aforementioned factors and sexual functioning and body image will be explored. Thus, the following four hypotheses are posited.

It is hypothesized that (1) chemotherapy will be associated with level of sexual functioning. More specifically, women treated with chemotherapy will experience lower levels of sexual functioning than women not receiving chemotherapy. Additionally, chemotherapy can have a number of physical affects on the body including pain and fatigue, which have also been implicated as major hindrances to sexual functioning (Winningham, 1994). Thus, it appears that the impact that chemotherapy has on sexual functioning can be partially attributed to the physical affects of pain and fatigue.

The prevalence of psychological disorders, particularly symptoms of depression and anxiety, in cancer patients is high (Derogatis et al., 1983). Depression results from feelings of
loss, and anxiety is experienced in response to feelings of not knowing what will happen next. After chemotherapy, women experience a number of losses including a loss of hair and a loss of skin, etc. Additionally, they may experience anxiety about their future which could include more treatments and cancer reoccurrence. Thus, undergoing chemotherapy might also impact sexual functioning through the woman’s experience with anxiety and depression. In sum, it is expected that the relationship between chemotherapy and sexual functioning will be partially mediated by two prominent physical symptoms, pain and fatigue, and two mood symptoms, depression and anxiety.

Further, given the effects of chemotherapy on estrogen in younger women, this relationship is predicted to be moderated by age such that younger women who have had chemotherapy treatment are expected to be affected more in their sexual functioning than older women.

Research has generally found that women with breast-conserving surgery demonstrate more positive body images than women with mastectomies as a result of the decreased likelihood of feelings of loss or self-consciousness and the retention of feelings of attractiveness and femininity. Research has been inconclusive regarding the assumed benefits of mastectomy with reconstruction on body image. Regarding the effect of surgical treatment on sexual functioning, overall, studies have shown no difference in sexual functioning for breast cancer survivors on the basis of surgical treatment (Ganz, 1997; Levy et al., 1992; Kiebert, de Haes, & van de Velde, 1991). Therefore, it is predicted that type of surgical treatment will be associated with level of body image, but not with level of sexual functioning. More specifically, women with lumpectomies are predicted to have more
positive body images, followed by women with mastectomies with reconstruction, and lastly women with mastectomies alone.

In general, surgery is expected to impact a woman’s body image. However, it seems plausible that depression and anxiety could further explain how the relationship between surgery and body image operates. Once a woman undergoes surgery, they may experience feelings of loss about their altered breasts and feelings of anxiety about how they will look afterwards and even if their new bodies will be accepted by their partners. The logic follows that the impact of surgery on a woman’s body image could occur through her experiences with depression and anxiety. Therefore, it is predicted that the relationship between surgery and body image will be partially mediated by depression and anxiety.

It is logical to assume that in general, if a woman has a good body image that she would have higher levels of sexual functioning. However, for women diagnosed with breast cancer, there does not seem to be a relationship between these two variables, or the relationship is inconsistent across studies. This finding would suggest that there is some additional variable which is unaccounted for that impacts the relationship between body image and sexuality. One such moderating factor is likely to be chemotherapy. More specifically, for women who have undergone chemotherapy treatment, body image is not predicted to be related to sexual functioning because even if these women do have more positive body images, they may still have lower levels of sexual functioning as a result of the physiological effects of chemotherapy treatment. However, among women not receiving chemotherapy, body image and sexual functioning would be expected to be correlated. Consistent with this perspective, it is posited (3) that the relationship between body image and sexual functioning will be moderated by chemotherapy status. In particular, body image
and sexual functioning will be positively associated in women who did not undergo chemotherapy treatment. In contrast, body image and sexual functioning are hypothesized not to be correlated among women who received chemotherapy.

Finally, it is predicted that (4) women’s perceptions of how their partners view them will be associated with the women’s own marital satisfaction as well as with the women’s body image. Findings suggest that among women with breast cancer, the females’ perceptions of their male partners’ reaction to her breast cancer strongly influence the women’s adjustment over time (Wai Ming, 2002). Thus, it is expected that more positive perceptions of how women believe their male partners view the women will be associated with higher levels of the women’s own marital satisfaction as well as higher levels of the women’s own body image.

**Method**

*Participants*

Participants were 134 couples in which the women had been recently diagnosed with early-stage breast cancer. These participants were part of a larger study focused on treating heterosexual couples in which the female had breast cancer. Participants were recruited at the University of North Carolina (UNC) Hospital, Duke University Medical Center, and various cancer clinics in the same geographic area. Women were eligible to participate if the following criteria had been met: (1) they had been diagnosed with Stage I, II, or IIIa breast cancer within one calendar year of the recruitment date, and their diagnosis had never exceeded Stage IIIa, (2) they had no prior history of breast cancer unless it occurred in the past year in which the invasive cancer was diagnosed, (3) they had not had any form of cancer (except basal cell carcinoma) within the past five years, (4) the woman and her male
partner were married or had lived together in a committed relationship for at least 12 months, (5) both the woman and her partner were willing to participate, and (6) both partners spoke English.

In order to determine if a woman was eligible for the study, the research team first reviewed potential participants’ medical records. For women who met inclusion criteria, a letter from the attending physician was sent to the women, briefly informing them about the study. Then, each woman was approached by members of the research team during her next appointment at the breast clinic at UNC Hospitals or at the Duke University Medical Center. The team provided the woman with information about the study along with a brochure and asked the woman to complete a form allowing the research team to contact her about participating in the study. If the research team was unable to meet with the woman at her appointment, the research team contacted her by telephone in order to describe the study. These procedures were approved by UNC’s and Duke’s Institutional Review Board.

Procedure

As part of a larger study (see Baucom et al., 2005 for details), participants were recruited as described above. Following recruitment, participants and their partners completed an initial assessment session, consisting of a number of baseline questionnaires, which included demographic data and background characteristics of the participants that were utilized in the present study, and video-taped interaction tasks. The couples were then be randomly assigned to one of three experimental conditions (i.e., Cancer-Focused Relationship Enhancement, a couple-based cognitive behavioral therapy with a focus on cancer-related issues; couple-based Cancer Education, in which couples received medical information about breast cancer; or Treatment-as-Usual, in which couples received written
materials about breast cancer and a list of community resources). The couples received $40 for completing the initial assessment session.

The present study will focus on measures, described in the next section, completed by the participants during the initial assessment.

**Materials**

*Derogatis Interview for Sexual Functioning -Self Report (DISF-SR; Derogatis & Melisaratos, 1979).* Sexual adjustment was measured with a 25-item inventory that assesses five aspects of sexual experiences including sexual cognition/fantasy, sexual arousal, sexual behavior/experiences, orgasm, and sexual drive/relationship during the last 30 days. Sexual cognition/fantasy, sexual arousal, and sexual behavior/experiences were measured with five items, rated on an 9-point scale from 0 (“not at all”) to 8 (“4 or more per day”). The last two items assessing sexual arousal were rated on a 5-point scale from 0 (“never”) to 4 (“always”). Orgasm was measured with six items rated on a 5-point scale from 0 (“never”) to 4 (“always”). Sexual drive/relationship was measured with four items. The first item was measured on a 9-point scale from 0 (“not at all”) to 8 (“4 or more per day”). The other three items were rated on a 5-point scale from 0 (“not at all”) to 4 (“extremely”). Reliability and validity of the DISF have been well established, with the majority of research focusing on sexually dysfunctional patients and non-patient comparison participants (Derogatis & Meyer, 1979; Derogatis, Meyer, & Dupkin, 1976). Test-retest reliability coefficients for the 10 domain scores range from .61 (Information) to .96 (Attitude), with internal consistency coefficients ranging from .56 (Information) to .97 (Experience) (Derogatis & Melisaratos, 1979).
Quality of Marriage Index (QMI; Norton, 1983). Relationship satisfaction was measured with six items (i.e., “Circle the number corresponding to your relationship in the past week.”), rated on a 7-point scale from 1 (“very strong disagreement”) to 7 (“very strong agreement”). The last item (i.e., “Circle the number that best describes the degree of happiness, everything considered, in your marriage or relationship.”) was rated on a 10-point scale from 1 (“very unhappy”) to 10 (“very happy”). Scores range from 6-45 with higher scores indicating higher levels of satisfaction. Prior research has shown that the QMI has excellent reliability ($\alpha = .97$) and convergent and discriminative validity, correlating highly with other self-report measures of marital satisfaction (Heyman, Sayers, & Bellack, 1994).

Self-Image Scale (SIS; Halford, Scott, & Smythe, 2001). Body image adjustment was measured with eleven items from the Self-Image Scale that was designed specifically for women with cancer. There are two scales: Self-Acceptance, comprising six items that assess acceptance of appearance and sense of femininity (e.g., “I feel attractive.”), and Partner Acceptance, comprising five items that assesses women’s perceptions of their partners’ acceptance of their appearance (e.g., “I think my partner finds me attractive.”). This measure is rated on a 5-point scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). Scores range from 10-50 with higher scores indicating better self-image. Intrascale reliabilities are high, with alphas ranging from .83 to .92 for Self Acceptance and from .82 to .91 for Partner Acceptance (Scott, Halford, & Ward, 2004).

Brief Symptom Inventory-18 (BSI-18; Derogatis, 2000). Psychological distress (i.e., anxiety and depression) was measured with an 18-item inventory that assesses their levels of distress. These items are rated on a 5-point scale ranging from 0 (“not at all”) to 4 (“extremely”). Higher scores indicate more distress. The total score of the BSI-18 has been
reported to have a reliability of 0.89. Evidence of its validity has also been established through strong correlations with the 53-item BSI and other established measures of psychological symptoms (Derogatis, 2000).

**Brief Fatigue Inventory (BFI; Mendoza et al., 1999)**. In order to assess symptoms of fatigue associated with cancer, participants rated ten items from the Brief Fatigue Inventory. These items measured tiredness in the last week, fatigue now, fatigue in the past 24 hours and fatigue interference in life in the last 24 hours. Items are rated on a 10-point scale ranging from 1 (“no fatigue”) to 10 (“fatigue as bad as you can imagine”). Fatigue interference is rated on a 10-point scale from 1 (“does not interfere”) to 10 (“completely interferes”). Higher scores indicate greater fatigue and fatigue interference. Reliability for this instrument has been established with an internal consistency coefficient of 0.96. Construct validity has been established with factor analysis with high factor loadings ranging from 0.81 for usual fatigue to 0.92 for activity. Evidence of concurrent validity has also been established through its strong correlations with the fatigue subscales of the Functional Assessment of Cancer Therapy (FACT) and Profile of Mood States (POMS). Lastly, discriminant validity was established by comparing BFI scores of patient groups who were expected to have differing levels of fatigue (Mendoza et al., 1999).

**Brief Pain Inventory (BPI; Cleeland & Ryan, 1994)**. In order to assess pain associated with cancer, participants rated two items from the Brief Pain Inventory that asked participants to rate their usual and worst cancer pain in the last week. This item is rated on a 10-point scale ranging from 1 (“no pain”) to 10 (“pain as bad as you can imagine”). Higher scores indicate greater pain. The Brief Pain Inventory has demonstrated both reliability and validity across cultures and languages and has been adopted widely in studies of
effectiveness of pain management, with coefficient alphas ranging from 0.78 to 0.97 (Cleeland & Ryan, 1994).

Results

Sample Characteristics

A total of 134 women participated in the study. The mean age of participants was 52.9 years (SD=11.6) with a range from 29 to 82; 85% were Caucasian, 10% were African-American, 3% were Asian, and 2% were Hispanic. Women were married for an average of 23.6 years (SD=14.2) with 40.3% having an average family income between $100,000 and $249,999. The average number of years of education was 16.4 (SD=2.9).

When breast cancer treatment was considered, 32% had been treated with chemotherapy. Half of the women had lumpectomies, 26% had mastectomies without reconstruction, 9% had mastectomies with reconstruction, and 14% did not have surgery.

Predictors Relating to Sexual Functioning

It was predicted that chemotherapy would be associated with level of sexual functioning such that women who were treated with chemotherapy would be expected to experience lower levels of sexual functioning than women who did not receive chemotherapy. Additionally, this relationship was predicted to be moderated by age and partially mediated by depression, anxiety, pain, and fatigue. A paired samples t-test was conducted to evaluate this relationship. As shown in Table 1, overall the women demonstrated a somewhat low level of sexual functioning relative to a nonpatient population (Derogatis, 1997); however, no significant differences were found in sexual functioning based on chemotherapy status. Because no significant differences were found overall, no mediation is possible. However, in order to gain further understanding of the relationships
among these variables, standard regressions were conducted (see Table 2). Although the overall models were not supported, depression and fatigue were found to predict sexual drive, arousal, and orgasm such that women who experienced higher levels of depression and fatigue reported lower sex drives, lower levels of arousal, and lower satisfaction with their orgasms. In addition, regressions were conducted to test for moderation of age. As shown in Table 2, there was no moderation of age; that is, chemotherapy did not have a differential effect on sexual functioning for younger women.

Additionally, it was expected that type of surgical treatment would not be associated with level of sexual functioning. A One-way ANOVA was conducted and confirmed that there were no significant differences in sexual functioning based on surgical status.
Table 1

*Means and Standard Deviations of Sexual Functioning Measure by Chemotherapy Status*

<table>
<thead>
<tr>
<th>Sexual Functioning</th>
<th>Chemotherapy</th>
<th>Standard Score*</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Cognition</td>
<td>Yes</td>
<td>42</td>
<td>10.60</td>
<td>8.82</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>44</td>
<td>12.76</td>
<td>8.36</td>
</tr>
<tr>
<td>Sexual Arousal</td>
<td>Yes</td>
<td>39</td>
<td>8.25</td>
<td>5.14</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>8.19</td>
<td>5.54</td>
</tr>
<tr>
<td>Sexual Behaviors</td>
<td>Yes</td>
<td>39</td>
<td>8.30</td>
<td>5.08</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>42</td>
<td>9.10</td>
<td>5.69</td>
</tr>
<tr>
<td>Orgasm</td>
<td>Yes</td>
<td>39</td>
<td>10.56</td>
<td>7.74</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>10.77</td>
<td>7.49</td>
</tr>
<tr>
<td>Sexual Drive</td>
<td>Yes</td>
<td>40</td>
<td>10.65</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>40</td>
<td>11.06</td>
<td>3.78</td>
</tr>
</tbody>
</table>

* Note. Standard score based on norms for non-patient population (Derogatis, 1997).
Table 2

*Summary of Regression Analyses Relating Each Predictor Variable to Sexual Functioning*

<table>
<thead>
<tr>
<th></th>
<th>Sexual Cognition/Fantasy</th>
<th>Sexual Arousal</th>
<th>Sexual Behavior/Experiences</th>
<th>Orgasm</th>
<th>Sexual Drive/Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>-.075</td>
<td>-.208*</td>
<td>-.172</td>
<td>-.302**</td>
<td>-.280**</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.049</td>
<td>-.097</td>
<td>-.058</td>
<td>-.153</td>
<td>-.130</td>
</tr>
<tr>
<td>Pain</td>
<td>.021, .113</td>
<td>-.079, .006</td>
<td>-.017, .021</td>
<td>-.124, -.124</td>
<td>-.007, -.029</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-.016</td>
<td>-.232**</td>
<td>-.140</td>
<td>-.200*</td>
<td>-.278**</td>
</tr>
<tr>
<td>Age x Chemo</td>
<td>-.652</td>
<td>.066</td>
<td>-.152</td>
<td>-.194</td>
<td>-.069</td>
</tr>
</tbody>
</table>

*Note.* Values are standardized regression coefficients.

* *p<.05. ** p<.01.*
Predictors Relating to Body Image

It was predicted that type of surgical treatment would be associated with body image such that women who had not undergone surgery would have higher body image scores, followed by women who had breast conserving surgery, mastectomies with reconstruction, and lastly those who had mastectomies without reconstruction. Additionally, this relationship was predicted to be partially mediated by depression and anxiety. For this analysis, chemotherapy was coded as a 0 or a 1, and the four surgical conditions were dummy coded as four variables to denote whether a woman was in a category or not. None (no surgery) was the reference variable to which the other categories were compared. A One-way ANOVA was conducted and revealed no significant differences in body images scores based on surgical status (See Table 3). Because no significant differences were found overall, again, no mediation is possible. However, in order to gain further understanding of the relationships among these variables, standard regressions were conducted. The overall models were not supported, but depression was found to predict how a woman felt about her body ($\beta = -.299$, $p=.001$) as well as how she perceived her partner felt about her body ($\beta = -.271$, $p<.01$); that is, women with lower levels of depression felt better about their bodies and perceived that their partners felt better about their bodies.

Additionally, it was expected that women’s perceptions of their partners’ views of their body would be associated with women’s own body image as well as their marital satisfaction. Correlational analyses show that women’s perceived partner acceptance was positively correlated with women’s own body image ($r=.431$, $p<.01$) and their marital satisfaction ($r=.433$, $p<.01$).
Table 3

*Means and Standard Deviations of Body Image Scores by Surgical Treatment Type*

<table>
<thead>
<tr>
<th>Surgical Treatment</th>
<th>Body Image</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Self-Acceptance</td>
<td>19.37</td>
<td>4.98</td>
</tr>
<tr>
<td></td>
<td>Partner Acceptance</td>
<td>18.28</td>
<td>4.69</td>
</tr>
<tr>
<td>Lumpectomy</td>
<td>Self-Acceptance</td>
<td>21.28</td>
<td>4.81</td>
</tr>
<tr>
<td></td>
<td>Partner Acceptance</td>
<td>21.11</td>
<td>3.97</td>
</tr>
<tr>
<td>Mastectomy without Reconstruction</td>
<td>Self-Acceptance</td>
<td>19.40</td>
<td>4.33</td>
</tr>
<tr>
<td></td>
<td>Partner Acceptance</td>
<td>19.57</td>
<td>4.67</td>
</tr>
<tr>
<td>Mastectomy with Reconstruction</td>
<td>Self-Acceptance</td>
<td>18.25</td>
<td>5.45</td>
</tr>
<tr>
<td></td>
<td>Partner Acceptance</td>
<td>20.75</td>
<td>4.79</td>
</tr>
</tbody>
</table>
Relationship between Body Image and Sexual Functioning

The relationship between body image and sexual functioning was predicted to be moderated by chemotherapy status such that in women who did not undergo chemotherapy treatment, how they felt about their bodies would be related to how they functioned sexually. This relationship, however, was not expected to be maintained in women who did undergo chemotherapy treatment. Regression analyses were conducted to examine this relationship (See Table 4). The findings indicated that body image was significantly associated with sexual drive and experiencing orgasms such that women with higher body images had higher sexual drives and more satisfying orgasms. However, the results further indicated this was an overall effect for women, such that chemotherapy did not moderate the relationship between body image and sexual functioning.
Table 4

Summary of Regression Analyses Relating Body Image, Chemotherapy, and Their Interaction to Sexual Functioning

<table>
<thead>
<tr>
<th></th>
<th>Sexual Cognition</th>
<th>Sexual Arousal</th>
<th>Sexual Behaviors</th>
<th>Orgasm</th>
<th>Sexual Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Image</td>
<td>.152</td>
<td>.247</td>
<td>.140</td>
<td>.441**</td>
<td>.376**</td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>-.103</td>
<td>.181</td>
<td>-.527</td>
<td>.391</td>
<td>.070</td>
</tr>
<tr>
<td>Body Image x Chemotherapy</td>
<td>.259</td>
<td>-.169</td>
<td>.652</td>
<td>-.342</td>
<td>.028</td>
</tr>
</tbody>
</table>

Note. Values are standardized regression coefficients.
* p<.05. ** p<.01.
Discussion

This study examined the impact of breast cancer and its treatment on women’s sexual functioning and body image. Overall, it was found that breast cancer treatments such as chemotherapy and surgical treatment did not disrupt sexual functioning. In general, this population experienced lower levels of sexual functioning when compared to a non-patient population (See Table 1), but this does not seem to be attributable to breast cancer treatments but rather to some other factor related to the cancer experience. This finding is contrary to what has been found in previous studies (Ganz, 1996; Young-McCaughan, 1996) which report deleterious effects of chemotherapy on sexual functioning. However, these studies were based on the use of older chemotherapy drugs and since these drugs are steadily changing, it is plausible that the newer chemotherapy drugs may not have the same negative side effects. On the other hand, it was a woman’s mood (i.e., depression) and physical symptoms such as fatigue that were found to impact her sexual functioning. This finding is consistent with other studies that demonstrated depression and fatigue to interrupt sexual functioning in normal populations (Henson, 2002) as well as those with breast cancer (Winningham, 1994).

This study also found that body image was not influenced by what type of surgical treatment a woman underwent but rather her mood impacted how she felt about her own body as well as how she perceived her partner felt about her body. This finding is contrary to what was predicted and to those studies that report improvements in or higher body images in women who undergo breast conserving surgery versus those who have mastectomies. Although there were no significant differences among the surgical groups, there was a trend consistent with previous findings in which women who had breast conserving surgery
reported slightly higher body image scores followed by women who had mastectomies without reconstruction and those who had not undergone surgery.

Thus, these findings can provide hope to women that the anticipated negative psychological responses to surgery are not automatic and that they and their partners can still have positive views about the changes in their bodies regardless of the type of surgery they have. Furthermore, women’s perceptions of how their partners felt about their bodies were associated with their own body image and marital satisfaction. This demonstrates the importance of the male partner and how they view their female partners. This is consistent with other findings that demonstrate better adjustment to breast cancer among women who receive support and acceptance from their partners (Wimberly et al., 2005).

Although, these results diverge from what was predicted and from what has previously been found in the literature, what they do provide is hope in that the negative consequences typically associated with breast cancer and its treatment are not automatic. Many women can still feel good about their bodies and maintain healthy sexual relationships with their partners; regardless of the treatments they receive which, overall, is good news for women who are diagnosed with breast cancer.

Limitations

Although this study contributes important findings, its limitations should be noted. This study was cross-sectional research and not longitudinal, so the long term effects of these treatments are unknown. Some of these women are still in the active stage of treatment; therefore, it is not certain as to how these treatments may impact the women in the long run. There have been longitudinal studies that have found that the negative effects of breast cancer treatments are persistent or worsen over time (Bower et al., 2006; Ganz et al., 1998;
Ganz et al., 2002; Young-McCaughan, 1996). Thus, the promising findings from the current study must be viewed cautiously until the long term adaptation of these women becomes known.

Another limitation of this study for interpretation is that women self-select their surgical conditions. What this means is that caution is warranted in interpreting the results because they cannot be compared across conditions since it is unknown how women would have reacted if they were to have a different procedure performed. For example, if women who elected breast reconstruction had not received reconstruction, it is unclear how they might have felt about their bodies; perhaps they would have felt worse about themselves. Therefore, we cannot conclude that having reconstruction does not lead to more positive body image, although this group of women did not demonstrate significantly higher body images than women without reconstruction (who self-selected not to have reconstruction).

Clinical Implications and Future Directions

Overall, the results of this study demonstrated that even with breast cancer treatments such as chemotherapy and surgery, women experience similar levels of sexual functioning and body images across treatment conditions. Rather, it was individual factors such as depression and fatigue that had association with sexual functioning and body image. Clinically, this suggests that in order to help women with breast cancer adjust more effectively, it may be most advantageous to employ strategies to help them to better cope with their fatigue and feelings of depression (although caution must be exercised given the correlational nature of the findings). Further, results suggest the importance of a woman’s perceptions of how her partner is reacting to her body. Thus, male partner involvement could also be a key component in helping women to better cope and adjust.
Future research directions include further investigation of the effects of newer treatments on women’s psychosexual functioning and examining these effects longitudinally to assess their impact over time as treatment effects have been demonstrated to be maintained posttreatment.

Conclusions

Although the results of this study were not what as anticipated, they may be representative of a more optimistic outlook in the breast cancer literature. This study can provide hope to women diagnosed with breast cancer because they do not have to assume that the negative consequences often associated with this disease and its treatment will inevitably occur. It is likely that with time and more research, treatments are improving and less negative side effects are the result. Further, it is plausible to suggest that with such a major emphasis in society on breast cancer diagnosis, treatment, and research, the stigma is decreasing. As the general population becomes more aware of and gains more knowledge about breast cancer, psychological effects may be less extreme, therefore, helping women to find better ways to cope. Additionally, as more women become survivors and share their stories, other women can see that they can still be valued and respected, thus helping them to adjust more effectively.
REFERENCES


