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Sexual activity and body image: examining gender variability and the influence of psychological distress in cancer patients

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Abstract

Psychosocial factors impacting on the overall quality of life for cancer patients may differ between men and women. This study examined the influence that psychological distress, clinical, and social variables have on sexual activity and body image in adult oncology patients. Symptom data was collected from the Memorial Symptom Assessment Scale (MSAS). Analysis indicated women and patients with reported functional limitations were more likely to be less satisfied with how they looked. The final model showed that younger adults, Caucasians, those who were married and patients with some functional limitations were more likely to have problems with sexual interest/activity. Gender was not a significant predictor of having problems with sexual interest/activity. These results can be used by clinicians to identify patients who may be at an increased risk for negative body image and problems in sexual functioning. Further research regarding gender differences in cancer-related psychological symptoms is needed to assist healthcare professionals in providing comprehensive care while alleviating unresolved and interrelated health and psychosocial symptoms.

Keywords

gender; body image; sexual activity; psychological distress; cancer; symptoms

Introduction

The diagnosis of cancer may compromise quality of life and a patient's overall well-being. Yet, such a diagnosis extends beyond the physical etiology and manifestations. Psychological distress is defined as:

a multi-factorial, unpleasant experience of an emotional, psychological, social or spiritual nature that interferes with the ability to cope with cancer, its physical symptoms, and its treatment. (National Comprehensive Cancer Network 2003)

Psychological distress is multi-dimensional and may often be exacerbated among those with a medical diagnosis (Zabora *et al.* 2001, Boehmke 2004, Bulli *et al.* 2009, Hamer *et al.* 2009). While significant advances have been made in quantifying the specific etiology of cancer, there is a growing body of literature documenting the psychological (depression, anxiety) and social consequences (decreased social activity, sexual inactivity) of this chronic condition (Avis *et al.* 2003, Kroenke *et al.* 2004, Reeve *et al.* 2009).

A number of recently published studies have documented the impact psychological distress has among cancer patients (Brain *et al.* 2006, Bulli *et al.* 2009, Reeve *et al.* 2009). A study by Li *et al.* (2012) found psychological scores were negatively associated with number of perceived symptoms. Additionally, Kutner (2007) found a strong negative relationship between health-related quality of life (HRQOL) and distress. Unfortunately, psychological distress among cancer patients goes unresolved. A recent study found that 90% patients receiving outpatient services reported unmet psychological needs (Li *et al.*, 2012). These unmet needs have resulted in increased treatment for psychological symptoms which influence physical, mental, and sexual health (Boehmke and Dickerson 2005).

One area in cancer research gaining significant momentum is the impact psychological distress has on body image and sexual interest or activity in cancer patients. Clinicians and researchers often fail to recognize the impact disease has on areas of sexual activity and body image, particularly among the ailing patient. The urgency, and rightfully so, is to cure and/or find the most effective method of treatment. However, there must be a collective approach that addresses not only the physical aspects of the disease, but also the psychological and social concerns including body image and sexual interest or activity.

Problems with sexual functioning (lack of desire, inability to orgasm) are found to be the most compromised health related quality of life issue after treatment, affecting more than half of all cancer patients (Carmack Taylor 2004, Hoyt Zambroski *et al.* 2005). Recent data show that unmet sexual needs were positively related to total symptom distress and depression (Li *et al.* 2012). Deshields (2011) similarly found that problems with sexual interest/activity were the most prevalent symptoms in both male and female cancer patients.

Defined as a 'mental picture of the "physical self" and includes perceptions, attitudes, and affect regarding ones physical appearance, state of health, skills, and sexuality' (Roid and Fitts 1998), body image is an essential component of sexual activity and interest (Li and Rew 2010). Healthcare providers and researchers increasingly recognize body image, similar to sexual health, as a significant component in the health-related quality of life of cancer patients (DeFrank *et al.* 2007, Grogan 2008). Recent studies assessing psychosocial concerns of men and women diagnosed with cancer showed that having support in dealing with changes in their bodies was rated as 'very important' by more than half the participants (McIllmurray *et al.* 2001, Soothill *et al.* 2001). Although both men and women are concerned with their body images, researchers should account for gender differences in conceptualized body image (Woertmen and van den Brink 2012).

Evolutionary and sociocultural perspectives show that gender is an important determinant of how satisfied (or not) someone is with their body (Algars *et al.* 2009, Woertmen and van den Brink 2012). From an evolutionary (albeit hetero-normative) perspective, men are thought to place greater importance on physical attractiveness in their mate choice than women resulting in women less satisfied with their physical appearance (Barrett 2002). Additionally, the sociocultural perspective contends that women in the U.S. show higher levels of body dissatisfaction than men, with more rigid cultural beauty ideologies held for women (Strigel-Moore and Franko 2004). Females in the U.S. are shown to report twice the level of body dissatisfaction and more stress as their male peers (Grant *et al.* 2006, Hampell and Peterman 2006). Data further support the belief that women and men have different perspectives on body image (Li and Rew 2010) and sexual activity.

The gendered phenomenon of body image and sexuality have been supported in the literature among cancer patients (Grant *et al.* 2006, Hampell and Peterman 2006, Algars *et al.* 2009, Tekkis *et al.* 2009, Li and Rew 2010). For women undergoing treatment for cancer, sources of female identity (long hair, large breasts) may be altered or removed, resulting in high distress and body dissatisfaction (Ashing-Giwa *et al.* 2004). Tekkis *et al.* (2009) similarly found that women who underwent abdominoperineal resection reported poorer body image and being less sexually active than men. Cash *et al.* (2004) also found similar results, showing that women are more concerned about their body image, with more than half (89%) reporting concerns with their weight.

As demonstrated, psychological distress, physical health, sexual activity and body image are interrelated and an important health-related quality of life measure among cancer patients. However, factors that may explain the relationship between psychological distress, body image and sexual activity, among cancer patients in general and gender differences in particular, have not been thoroughly examined (Grant *et al.* 2006, Hampell and Peterman 2006, Algars *et al.* 2009). The few available studies examining the association between gender and psychological distress have excluded the influence of this relationship on sexual activity or body image (Walsh *et al.* 2000, Tranmer 2003, Kutner 2007, Teunissen *et al.* 2007).

The primary aim of the current study is to explore the influence of psychological distress on body image and sexual activity in a sample of oncology patients receiving outpatient treatment at a large comprehensive cancer center. The study further aimed to describe gender differences in the prevalence and severity of psychological distress, negative body image, and problems with sexual activity and interest in a sample of oncology patients. Selected demographic characteristics (race, education, age, marital status), health/clinical variables (physical functioning, pain), and psychosocial indicators (psychological distress and severity) were considered to explore their possible influence on body image and sexual activity. This exploratory model allowed us to examine gender differences and the independent effect each variable (e.g., health/clinical, psychosocial, demographic) has on negative body image and problems with sexual activity and interest.

Methods

Parent Study

This study is ancillary to a descriptive, cross-sectional study by McMillan *et al.* (2008) funded by the National Institute for Nursing Research (R01-NR008270). The parent project was designed to describe the total symptom experience of patients with cancer. Surveys were administered to determine the mean number of symptoms reported, the most commonly occurring symptoms, symptoms with the highest severity, and the symptoms causing the most distress. Chart reviews were also performed to collect patient demographic information and personal cancer history.

Setting

H. Lee Moffitt Cancer Center is a National Cancer Institute-designated comprehensive cancer center that sees more than 7000 new patients annually with a variety of cancer diagnoses. The outpatient clinics have approximately 220,000 patient visits annually, and the inpatient area has 205 beds. The infusion center has more than 40,000 patient visits annually and the radiation therapy department had 43,413 visits in 2010. Study participants were drawn from all outpatient clinics at H. Lee Moffitt Cancer Center.

Sample

A sample of 288 outpatients was recruited from the infusion center and radiation therapy department during a scheduled clinic visit. Fifty-six participants from the original 288 recruited were omitted due to incomplete data resulting in a final sample size of 232 for the current study. In order to be eligible for the study, patients had to have a diagnosis of cancer in any stage, been non-Hispanic Caucasian or African-American, been receiving any type of, or combination of, cancer treatment (radiation, chemotherapy), more than 18 years of age, able to provide consent, cognitively intact, and able to read and understand English. This investigation was approved by the Protocol Review Monitoring Committee at the H. Lee Moffitt Cancer Center and the University of South Florida's Institutional Review Board.

Measures

Psychological Distress and Severity—The English version of the Memorial Symptom Assessment Scale (MSAS) was used to examine severity, frequency, and distress associated with 32 symptoms commonly associated with cancer (Portenoy *et al.* 1994a). The MSAS was used because it is able to capture the most commonly reported symptoms by cancer patients (Portenoy *et al.* 1994a). The MSAS has three subscales: the global distress scale (GDI); the physical symptom distress score (PHYS); and the psychological distress score (PSYCH). For the purposes of this investigation, only the PSYCH subscale's (worry, feeling nervous, difficulty concentrating) frequency, severity and distress scores were included in the analyses. Two additional single-item questions from the MSAS, 'I don't look like myself' (body image) and problems with sexual interest or activity, were also examined. High scores indicated the more severe or distressing the symptoms are for the patient (Portenoy *et al.* 1994b, 1994c). The MSAS has been validated in numerous patient samples including older adults and cancer patients (McMillan and Small 2007, Lo *et al.* 2010).

Internal consistency was high in the PSYCH groups and the PSYCH group with the addition of the two single-item questions¹.

Physical Health—Single-item questions assessed each patient’s primary metastatic site, stage of disease, cause of pain (cancer-related, non cancer-related, and both) and reports of pain (yes vs no). Functional limitations were measured using the Eastern Cooperative Oncology Group Performance Status (ECOG-PS) (Oken *et al.* 1982). The ECOG-PS is a reliable and validated instrument that is able to provide significant details on comorbidities and level of disability among cancer patients (Oken *et al.* 1982). It has been repeatedly shown as an important prognostic factor for survival among varying cancer diagnoses, such as breast (Swenerton *et al.* 1979), ovarian (Lund *et al.* 1990), small cell lung (Osterlind and Andersen 1986) and non-small cell lung cancers (Sorensen *et al.* 1989).

Functional limitations (via the ECOG-PS) was measured on a 5-point Likert scale (0=normal activity to 4=completely bedridden and unable to carry on self-care) (Sorensen *et al.* 1993). Internal consistency was high in the ECOG-PS².

Demographics—Five demographic variables were included in the analyses: age, gender, race, education, and marital status. Age was scored in a continuous format. Gender was treated as a dichotomous variable. Race was examined via nominal categories (e.g., African American, Caucasian, Asian/Pacific Islander). Education was assessed as categorical data reflecting less than a high school degree and high school graduate and/or professional degree. Marital status was measured as a dichotomous variable (single/divorced/widowed vs married).

Statistical analysis/information for other researchers in the field

Gender specific baseline comparisons (means, standard deviations, frequencies) were calculated to provide a profile of the sample’s demographic characteristics and measure performance. To yield higher level of power and to account for the non-normal distribution of some of the variables, a Mann-Whitney U-test was employed to test the null hypotheses of no difference between the groups on scores for each item in the PSYCH subscale (assessing severity and amount of distress), and the two single-item questions (sexuality and body image). Chi-square analyses were used to evaluate homogeneity of dichotomous and ordinal measures by gender.

Logistic regression models were used to determine the odds ratio (OR) and 95% confidence intervals (95% CI) for sexual interest and activity and body image (‘I don’t look like myself’). Covariates entered in the final models included: gender, race, education, age, marital status, presence of pain, psychological severity, distress, and functional limitations. Statistical significance for all analyses were determined with the probability of a Type I

¹Cronbach α coefficients of 0.73 and 0.69, respectively

²Cronbach α coefficient of 0.72.

error, $p = .05^3$. All statistical analyses were performed with the Statistical Package for Social Sciences (SPSS Inc., Chicago, IL) version 20.0.

Results

Demographics

The sample consisted of 232 adult patients ($n=116$ women). The majority of the sample, for both men and women, were Caucasian (87% and 84%, respectively). The mean age for women was 55.6 ± 11.9 years. The men had a similar mean age range as their female counterparts (55.9 ± 12.5 years, $p=.31^4$). Further analyses confirmed no significant differences between women and men in completing high school (93%, men vs 96%, women, $p=.90^5$), and being married (72%, men vs 62%, women, $p=.07^6$). The majority of the patients resided with a spouse (52%, men vs 48%, women, $p=.05^7$). Results also showed that most patients resided in their own home (50%, men vs 49%, women, $p=.62^8$), with no significant differences between the gender groups (see Table 1).

Health Characteristics—Lymphoma (29%), lung cancer (15%), and leukemia (15%) were the most common diagnoses among men, with breast (29%), lymphoma (17%), and lung cancer (15%) being the most common diagnosed cancers among women. Less than half of the total sample reported with stage IV⁹ disease state (49%, men; 45%, women, $p=.12^{10}$). There was no significant difference ($p=.21^{11}$) between men and women experiencing pain (76% vs 83%, respectively), and the cause of pain (cancer-related: 53%, men; 61%, women, $p=.27^{12}$). Table 1 shows more than half of the sample reported restriction in physically strenuous activity, but were ambulatory and able to carry our light work (64% vs 54%, $p=.31^{13}$; men and women, respectively).

Psychological Symptoms, Distress and Symptom Severity

Both gender groups reported psychological symptoms, psychological distress and symptom severity. Table 2 shows differences in reports of difficulty concentrating (50% vs 32%, $p=$

³Type I error occurs when a true null hypothesis was incorrectly rejected. P refers to the p-value. The p-value represents the probability of concluding (incorrectly) that there is a difference in the sample when no true difference exists (Field 2009). A p-value of .05 means that there is only 5% chance that the result is occurring by chance, a standard criteria in social sciences research

⁴There is a 31% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in mean age between men and women.

⁵There is a 90% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in educational level between men and women.

⁶There is a 7% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in marital status between men and women.

⁷There is a 5% chance that the result is occurring by chance. This falls within the $p = .05$ criterion meaning there is a significant difference in living situations between men and women.

⁸There is a 62% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in residence between men and women.

⁹Stage IV describes invasive cancer that has spread to other organs in the body. It is also referred to as 'advanced' or 'metastatic' cancer (National Cancer Institute 2012).

¹⁰There is a 12% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in disease state between men and women.

¹¹There is a 11% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in pain between men and women.

¹²There is a 27% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in cause of pain between men and women.

¹³There is a 31% chance that the result is occurring by chance. This falls above the $p = .05$ criterion meaning there is no significant difference in physical limitations between men and women.

01), feeling nervous (38% vs 23%, $p=.01$), feeling sad (52% vs 30%, $p=.001$), and worry (63% vs 41%, $p=.001$ ¹⁴). Additionally, a difference was found in the statement, 'I don't look like myself' (body image), with more women reporting in the affirmative (54% vs 39%, $p=.02$ ¹⁵). No significant differences were found, between women and men, in reports of difficulty sleeping, feeling irritable, and problems with sexual interest and activity.

Both gender groups reported problems with sexual interest and activity as the most severe psychological symptom¹⁶. There were no significant differences in reported severity of difficulty concentrating, feeling nervous, difficulty sleeping, feeling sad, worrying, feeling irritable and body image (see Table 3).

Table 4 shows reported distress associated with psychological symptoms. Reports of psychological distress, showed that women found body image ('I don't look like myself') to be significantly more distressing than men¹⁷. There were no significant differences in reported distress of difficulty concentrating, feeling nervous, difficulty sleeping, feeling sad, worrying, feeling irritable and problems with sexual interest or activity.

Body Image and Sexual Interest and Activity

Significant predictors of the presence of the symptom, 'I don't look like myself' (negative body image), were calculated after controlling for important covariates (i.e., age, race, gender, marital status, education, pain, physical limitations, psychological distress, and psychological severity) entered in the final model. As shown in Table 5, women¹⁸ and patients with more functional limitations¹⁹ predicted a greater likelihood of reporting not being as satisfied with how they look. None of the remaining demographic, pain or psychological-related characteristics were statistically significant predictors among the sample.

Problems with sexual interest and activity were similarly calculated after controlling for previously mentioned covariates. The final model showed that younger adults²⁰, Caucasians²¹, those who were married²², and patients with some functional limitations²³ were more likely to report having problems with sexual interest and activity.

Discussion

Previous comparative investigations show some inconsistencies in reported body dissatisfaction, problems with sexual activity and psychological distress in cancer patients

¹⁴There is a 1%-0.1% chance that the results are occurring by chance. These fall below the $p = .05$ criterion meaning there are significant differences in difficulty concentrating, feeling nervous, feeling sad, and worry between men and women.

¹⁵There is a 2% chance that the result is occurring by chance. This falls below the $p = .05$ criterion meaning there is a significant gender difference in body image.

¹⁶ 2.76 ± 1.15 vs 2.44 ± 1.16 , $p=.67$; men and women, respectively

¹⁷ 2.37 ± 1.24 vs 1.81 ± 1.61 , $p=.003$.

¹⁸Odds Ratio (OR)=1.99, 95% CI = 1.13-3.50; $p=.01$. Odds ratio is the ratio of the odds of an event occurring in one group to the odds of it occurring in another group (Field, 2009).

¹⁹OR=1.82, 95% CI = 1.14-2.89; $p=.02$

²⁰OR=.96, 95% CI = .93-.98; $p=.01$

²¹OR=.49, 95% CI = .24-.99; $p=.02$

²²OR=2.18, 95% CI = 1.10-4.30; $p=.04$

²³OR=1.95, 95% CI = 1.19-3.18; $p=.05$

(Massie 2004, Cheung *et al.* 2011). In this sample of oncology patients, we established both gender similarities and differences in psychological symptoms, problems with sexual interest and activity, and negative body image. We further showed the influence identified demographic and health predictors have on negative body image and problems with sexual interest activity.

Gender Differences in Symptom Presence, Severity, and Distress

Results showed that women reported higher presence of the majority of the psychological symptoms (difficulty concentrating, feeling nervous, difficulty sleeping, feeling sad, and worrying) compared to men (Lloyd 1984, Hopwood and Stephens 1995). Our results counter that of previous research, showing more gender similarities than differences in symptom presence (Zambroski *et al.* 2005, Teunissen *et al.* 2007). Zambroski *et al.* (2005) found that of the PSYCH symptoms, only feeling nervous was more prevalent in women than men. Interestingly, we found that men reported higher severity on all PSYCH symptoms compared to women, a result not found in previous studies (Zimmerman 2010, Cheung *et al.* 2011). In the current study, men also reported higher distress on four out of the six PSYCH symptoms, a result not seen in the literature.

Gender and Body Image

Women had significantly higher prevalence of negative body image (54% compared to 39% of men) and significantly higher distress regarding this symptom, supporting the literature and theoretical perspective that negative body image is a gendered phenomena (Lidstone *et al.* 2003). In addition, being female was a significant predictor of higher negative body image, another similar result supported by the literature (Algars *et al.* 2009, Woertmen and van den Brink, 2012).

Current literature shows that women who underwent cancer treatment (surgery, radiation, chemotherapy) have a higher prevalence of negative body image and dissatisfaction with some of the physical outcomes of the disease and/or treatment, such as scars, hair loss, and prosthetics than men (Fobair *et al.* 2006). More importantly, appearance related side effects such as hair loss are often ranked as being more distressing than side effects such as fatigue, nausea, and insomnia (Liu *et al.* 2010). These distress-related side effects can similarly have a significant impact on the sexual health of cancer patients (Julien *et al.* 2010).

Sexual Health in Cancer Patients

Sexuality and cancer are sometimes seen as mutually exclusive, however as evidenced in our sample, problems with sexual activity or interest were the most severe and one of the highest distressing symptoms for both men and women, a result seen in other studies (Schmidt *et al.* 2005, Deshields 2011). It has been similarly reported that men had higher scores of limitations than women and felt more distress through restricted sexuality than women (Schmidt *et al.* 2005). The restrictions in sexual activity and decrease in sexual interest can be a result of a myriad of physical (surgical results from radical prostatectomy, scarring from mastectomy) and psychological (depression) factors (Hawkins *et al.* 2009, Park *et al.* 2009). Problems in sexual functioning (lack of desire, inability to orgasm) are the most enduringly compromised HRQOL issue after treatment for cancer (Carmack Taylor

2004). Given the high severity and distress associated with problems with sexual activity or interest in both sexes, it is imperative that better efforts are made to identify and manage these symptoms (Hoyt Zambroski *et al.* 2005).

Predictors of Sexual Problems

The current study found that being older, married, Caucasian, and having more functional limitations were significant indicators of the presence of sexual problems. Hughes (2009) explains sexuality as the ‘final frontier’ and considers sexuality as an important quality of life issue often undertreated and ignored by health professionals. Furthermore, in older adults, the theme of sexuality is rarely addressed by healthcare professionals (Burt 1995). Sexuality should be recognized as a lifelong need not only among older adults, but also among those receiving cancer treatment (Hughes 2009). Additional research is needed to address the impact sexuality and body image has on the psychological and social well-being, and HRQOL among patients with a chronic illness (Tierney 2008, Watters and Boyd 2009) across the age continuum.

Being married was also a significant predictor of problems with sexual activity for men and women. Data from a national survey suggest that Americans are more likely to be sexually active or engage in sexual activity if they are married (Laumann *et al.* 1994). Therefore, married individuals in our sample may report more problems (i.e., loss of interest or pleasure in sexual activity) because they are more sexually active and may notice these sooner, compared to those who are not married. Studies exploring sexual dysfunction in men (Badr and Carmack Taylor 2009, Hawkins *et al.* 2009) and women (Sheppard 2008, Rowland *et al.* 2009) patients and their spouses are common. These studies find relationship satisfaction, communication, partner views of sexual activity, comorbidities, and specific treatments as predictors of sexual dysfunction in individuals with cancer.

We also observed race differences in reports of problems with sexual activity or interest. It is well established that there are race differences in the reporting, recording, and treatment of psychological and physical symptoms between minority and non-minority cancer patients (Cleeland *et al.* 1997, Edwards *et al.* 2001, Anderson *et al.* 2002). There are also reported differences in cancer treatment and symptom assessment (Cleeland *et al.* 1997, Green *et al.* 2003, Im 2007). Our results corroborate this research, showing that Caucasians reported a higher severity of sexual problems and related psychological symptoms. Despite these findings, there is a need for researchers to further examine why these race differences occur, and if there are identified within race group differences that may explain the inter-race group differences. Studies focusing on men’s health have also found significant race differences regarding quality of life related to sexual functioning with African Americans reporting being less satisfied with their sexual activity after cancer treatment. Yet, other studies have found body image and sexual concerns as similar concerns across cancer patients from all race groups (Ashing-Giwa *et al.* 2004).

Limitations

Although we have demonstrated a significant association between body image, sexual interest, and psychological distress across the gender groups, there are several study

limitations that must be acknowledged. First, this was a retrospective analysis of a database that was developed primarily for clinical care among patients with various cancer diagnoses. Second, the majority of our sample were Caucasian, well-educated, thus the generalizability to other cancer populations is limited. Third, the selection criteria included all types of cancers, therefore, the results cannot be similarly generalized to studies focusing on a specific diagnosis(es). Because this is a retrospective study, the variation of diagnosis, prognosis, and outpatient treatment (pain medications, radiation, chemotherapy) for each participant created a heterogeneous sample. This limitation can be also been seen as a strength as it explores trends of a large patient population from a comprehensive cancer center designated by the National Cancer Institute.

Conclusions

Our study is one of the few to investigate if there are gender differences in problems with, and the association of, sexual activity and (negative) body image among cancer patients (Boehmke and Dickerson 2005, Li *et al.* 2012). Previous studies examining gender differences (among cancer patients) have primarily focused on symptoms such as pain, fatigue, anxiety, and depression. However, results from the current study show the importance of examining the impact psychological distress has on body image among both men and women.

A practical next step to our findings is the administration of an education-based intervention to reduce negative body image and problems with sexual activity in older cancer patients. Using identified predictors such as gender, age, and physical functioning, clinicians and researchers can identify 'at risk' patients in hopes of providing additional resources such as oncology social services and also recruiting them for an education-based intervention. This intervention can further explore reported body image problems (i.e., feeling less feminine/masculine, embarrassment about your body) and sexual problems (i.e., lack of interest, inability to relax and enjoy sex) through peer discussion and provide gender-specific informational materials of adverse effects of treatment to enhance patient control of the illness.

Further research on gender differences, including education-based interventions, is needed to assist healthcare professionals in providing comprehensive care to patients while alleviating psychological and health-related symptoms. Furthermore, the issue of body image needs to be expanded from its current framework of surgical results and chemotherapy-induced hair loss to include weight loss and changes in the skin in both men and women. It is similarly important that we expand our research efforts to focus on the needs of older adults, considering the prevalence of adults 65+ years of age diagnosed with cancer and the age differences in sexuality. In addition, the growth of a diverse older adult population warrants studies to include minority samples that explore racial differences in sexual activity, body image and psychological distress in cancer patients

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Table 1

Demographic, clinical and psychosocial characteristics for participants by gender (N=232)

Variables	Women (n=116)	Men (n=116)	<i>p-value</i>
Age	55.6±1.19	55.9±12.5	.31 [†]
<High school	96%	93%	.91 [*]
Marital Status (% married)	62%	72%	.07 [*]
ECOG (able to do light housework)	54%	64%	.31 [*]
Pain (% yes)	83%	76%	.21 [*]

[†] Mann-Whitney U for Independent Samples^{*} Chi-square

Table 2

Psychological symptom prevalence for participants by gender

Variables*	Men	Women	<i>p</i> -value
Difficulty Concentrating	32%	50%	.01
Feeling Nervous	23%	38%	.01
Difficulty Sleeping	53%	56%	.64
Feeling Sad	30%	52%	.001
Worrying	41%	63%	<.001
Feeling Irritable	45%	43%	.94
"I Don't Look like Myself"	39%	54%	.02
Problem with Sexual Interest or Activity	33%	31%	.78

* Chi-square

Table 3

Psychological symptom severity by gender

Variables*	Men (n=116) Mean (SD)	Women (n=116) Mean(SD)	<i>p-value</i>
Difficulty Concentrating	1.84(0.90)	1.68(0.95)	.48
Feeling Nervous	2.19(1.00)	1.95(1.10)	.21
Difficulty Sleeping	2.45(1.10)	2.20(1.06)	.44
Feeling Sad	1.89(1.11)	1.83(0.98)	.72
Worrying	2.25(1.10)	2.08(1.11)	.64
Feeling Irritable	2.13(1.05)	1.74(0.97)	.23
"I Don't Look like Myself"	2.42(1.22)	2.26(1.16)	.79
Problem with Sexual Interest or Activity	2.76(1.15)	2.44(1.16)	.67

Scale: 0=Not at all; 1=A little bit; 2=Somewhat severe; 3=Severe; 4=Very Severe

* Chi-square

Table 4

Distress associated with psychological symptoms by gender

Variables*	Men (n=116) Mean (SD)	Women (n=116) Mean (SD)	<i>p-value</i>
Difficulty Concentrating	1.84(1.46)	2.09(1.38)	.38
Feeling Nervous	2.48(1.28)	2.25(1.30)	.57
Difficulty Sleeping	2.58(1.23)	2.42(1.22)	.86
Feeling Sad	2.14(1.22)	2.20(1.15)	.88
Worrying	2.38(1.16)	2.18(1.22)	.48
Feeling Irritable	2.10(1.30)	1.74(0.97)	.81
"I Don't Look like Myself"	1.81(1.61)	2.37(1.24)	.01
Problem with Sexual Interest or Activity	2.51(1.37)	2.31(1.43)	.41

Scale: 0=Not at all; 1=A little bit; 2=Somewhat; 3=Quite a bit; 4=Very much

* Chi-square

Table 5

Negative Body Image and Problems with Sexual Activity or Interest: Multivariate Model

Body Image			
Variables	Odds ratio	<i>p</i>-value	95% CI
Gender	1.99	.01	1.13-3.50
ECOG	1.82	.02	1.14-2.89
Sexual Activity or Interest			
Variables	Odds ratio	<i>p</i>-value	95% CI
Age	0.96	.01	0.93-0.98
Marital status	2.18	.04	1.10-4.30
Race	0.49	.02	0.24-0.99
ECOG	1.95	.05	1.19-3.18

Variables initially tested: age, race, gender, education, marital status, ECOG, pain presence, psychological distress, psychological severity.

Model 1: $R^2 = 0.28$, $p = .002$; Model 2: $R^2 = 0.22$, $p = .001$