



Sexual Function, Body Image and Quality of Life of Women with Advanced Cancer

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Abstract

Background Few studies have focused exclusively on the sexuality and body image of women with advanced cancer and the physical and emotional impact of cancer treatment on sexual function.

Objective This study aimed to examine sexual dysfunction, quality of life (QOL) and body image in women with stage III-IV breast, colorectal, and gynecologic cancer.

Methods Sixty women completed the Female Sexual Function Index, the Body Image Scale, the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire and the Beck Depression Inventory. A Spearman correlation test was conducted to examine the associations among scale scores.

Results Body image problems were inversely associated with global QOL ($r_s = -0.357$, $p = 0.006$) and functional scores ($r_s = -0.489$, $p < 0.001$), and positively associated with cancer symptom severity ($r_s = 0.394$, $p = 0.002$). Body image problems were inversely associated with satisfaction with sexual life for both sexually active ($r_s = -0.576$, $p = 0.005$) and inactive women ($r_s = -0.377$, $p = 0.023$). In sexually active women, poor body image was inversely associated with sexual function ($r_s = -0.544$, $p = 0.009$), but unrelated to global QOL ($r_s = 0.304$, $p = 0.181$).

Conclusions More than quantifying sexual dysfunction, it is important to understand the reasons for disruption in sexual activity. The absence of an association between sexual function and QOL and the association between body image and QOL suggest that QOL and sexual function are distinct experiences, and that QOL scales are not enough to detect treatment-induced sexual changes, which are not addressed by health professionals.

Keywords Cancer · Sexuality · Advanced cancer · Sexual dysfunction · Women · Portugal

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Introduction

Women are at a higher risk for divorce after being diagnosed with cancer [1] and have been shown to be more dissatisfied with their sex lives than women without cancer [2]. Gynecologic and colorectal cancer women are more vulnerable to developing sexual dysfunction [3–6], with the risk of developing this being higher in women with an expected five-year survival rate of less than 50% [7]. Although some studies on sexuality included women with advanced cancer [4, 7–9], few studies focused exclusively on this subgroup [6, 10, 11]. Despite desiring sexual intimacy, patients with advanced cancer reported not engaging in sexual intercourse [6]. Additionally, past findings suggest that women with cancer do not receive enough information on sexuality [6, 12].

Surgery [13], radiotherapy [8, 9, 13], chemotherapy [7, 8, 14] and endocrine therapy [15] can affect sexual function by changing hormone levels [9, 14], causing vaginal stenosis [9] and decreasing vaginal lubrication [9, 11, 14]. Previous studies reported a relation between sexual function, body image, and quality of life in women with cancer [3, 5, 7, 8, 14, 16]. Although past findings indicate that sexuality and body image are important across all cancer stages [17, 18], the relationship between body image and sexual function in women with stage III and IV cancer has not been adequately explored [4, 7, 14].

Body image comprises cognitive and emotional aspects of a person's bodily experiences [19]. Changes caused by treatments can have profound bodily [5, 16, 20] and functional effects [9, 17, 18]. The involvement of sexual organs can cause emotional problems because of their symbolic meaning associated with femininity [19]. A positive body image is a predictor of sexual activity resumption in cancer survivors [14].

Most studies on cancer survivors included non-Hispanic white women who were married and had a high educational level [21, 22]. Moreover, women with advanced or metastatic cancer may undergo chemotherapy or endocrine therapy for an indefinite period, thus affecting their sexual function [7, 8, 14]. Therefore, the objective of this study was to examine sexual dysfunction, quality of life (QOL), and body image in patients with stage III-IV breast, colorectal, and gynecologic cancer.

Methods

Study design and participants

This cross-sectional study was part of a quantitative and qualitative cohort analysis of women with stage III and IV breast, gynecologic, and colorectal cancer, or cancer that had been diagnosed or recurred over the 12 months preceding the beginning of the study. From August 2017 to April 2018, 60 women were identified in the Oncologic Clinic and invited to participate. To be included in the study, all participants should have a Palliative Performance Scale score ≥ 70 [23].

Measures

Sociodemographic and clinical data were retrieved from medical records and interviews. Reproductive status was classified using the stages of Reproductive Aging Workshop Cri-

teria [24]. Sexual function was assessed using the Female Sexual Function Index (FSFI) [8], a 19-item self administered questionnaire [22, 25]. Consisting of six domains: desire, arousal, lubrication, orgasm, satisfaction and pain [8]. Higher scores indicate better sexual function [8]. FSFI modifications proposed by Meyer-Balhbarg and Dolezal were used to include women without a sexual partner [26]. The answers to question 16 (overall satisfaction with sex life) and the domain desire, which are independent of sexual intercourse, were analyzed for all women. A question assessing the practice of masturbation was included [26]. For women not engaging in sexual intercourse, an open-ended question was included to assess their reasons for sexual inactivity. In addition, the participants were asked to indicate whether they, at any point, had been informed about sexual changes that they might experience after treatment.

QOL was assessed using the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-30) [27], which is a 30-item measure of QOL in cancer patients. It consists of three subscales: functional (physical, social, cognitive, emotional, and social functioning), global QOL, and symptoms. Higher scores on the functional and global QOL subscales indicate better function, whereas high scores on the symptom scale indicate higher symptom burden.

Body image was assessed using the ten-item Body Image Scale (BIS), which assesses the perceptions of body changes due to cancer or cancer treatment [28, 29]. It includes items that assess the affective, behavioral, and cognitive components of the construct. Higher scores indicate self-image difficulties and a more negative body image [28].

The 21-item Beck Depression Inventory was used to assess the presence and severity of depressive symptoms [30].

Statistical Analysis

FSFI scores ≤ 26 indicate sexual dysfunction [8]. Responses to the 19 FSFI questions were analyzed only when the patient reported engaging in sexual intercourse during the four weeks preceding the administration of the questionnaire. Quantitative variables were examined as means and standard deviations or medians and interquartile ranges. Categorical variables were examined as absolute and relative frequencies. The Shapiro-Wilk test was used for data normality analysis. Nonparametric tests were used due to scale asymmetry. A Mann-Whitney test was conducted to compare the scores of sexually active and inactive women. A Spearman correlation test was conducted to examine the association between scale scores. The significance level was set as 5%, and all analyses were conducted using the Statistical Package for the Social Sciences software version 21.0.

Results

Nine women had an initial diagnosis of stage I or II cancer, which had progressed to metastatic disease over the 12 months preceding the beginning of this study (Table 1). Most women (83%) were receiving chemotherapy or endocrine therapy at the beginning of the study, with 21 women presenting with metastatic disease. Of the women who were sexually active (Table 2) and completed the FSFI, eight (36.4%) had sexual dysfunction.

Table 1 Patient characteristics

Variables	N=60
Age (years), mean (SD)	56.3±11.1
Educational level (years), mean (SD)	9.1±3.6
Retired	25 (41.7)
Unemployed	10 (16.7)
Receiving benefits	22 (36.7)
Employed	1 (1.7)
Self-employed	2 (3.3)
Sexual partner - n (%)	
Yes	37 (61.7)
No	23 (38.3)
Number of children (median, P25–P75)	2 (1–3)
Reproductive period - n (%)	
Menarche	11 (18.3)
Natural menopause	34 (57.6)
Menopause caused by other factors ^a	14 (23.7)
Clinical staging - n (%)	
I	3 (5.0)
II	6 (10.0)
III	39 (65.0)
IV	12 (20.0)
Time since diagnosis (months), median (P25–P75)	17.1 (5.8–58.4)
Type of tumor - n(%)	
Colorectal	21 (35.0)
Breast	27 (45.0)
Ovary and uterine tube	7 (11.7)
Cervical	2 (3.3)
Endometrial	3 (5.0)
Treatment status - n (%)	
Chemotherapy	44 (73.3)
Endocrine therapy ^b	6 (10.0)
Stoma - n (%)	
Colostomy/Ileostomy - n (%)	14 (23.3)
Nephrostomy/Urostomy - n (%)	4 (6.7)

^aMenopause caused by surgery, radiotherapy, or chemotherapy.

^bTamoxifen, letrozole, anastrozol.

Discussion

In this study, body image was associated with the global QOL, functionality, and severity of neoplastic symptoms in a sample of women with stage III-IV cancer. Body image difficulties were associated with lower overall satisfaction with sexual life in women who did or did not engage in sexual activity. Body image problems was associated with lower sexual functionality (Table 3). There was no statistically significant association between sexual functionality and global QOL (Table 4).

Studies wherein the FSFI was administered women with low level of sexual activity showed sexual dysfunction rates above 70% [9, 16, 20, 21]. This value far exceeds the rate

Table 2 Sexual Activity

Variables	Total sample	With a sexual partner	Without a sexual partner
Sexual status: n (%)			
Sexually active	23 (38.3)	23 (62.2)	0 (0.0)
Reason for sexual inactivity: n (%)			
Colostomy	3 (5.0)	1 (2.7)	2 (8.7)
Pain	2 (3.3)	2 (5.4)	0 (0.0)
Due to cancer	3 (5.03)	2 (5.4)	1 (4.3)
Physical inability	1 (1.7)	0 (0.0)	1 (4.3)
Partner's health	3 (5.0)	3 (8.1)	0 (0.0)
Because I do not want to	3 (5.0)	1 (2.7)	2 (8.7)
Because I do not have a partner	15 (25.0)	0 (0.0)	15 (65.2)
The sole purpose of sex is reproduction	1 (1.7)	1 (2.7)	0 (0.0)
Because I do not feel like it	6 (10.0)	4 (10.8)	2 (8.7)
Stoma			
Nephrostomy: n(%)	4 (6.7)	2 (5.4)	2(8.7)
Colostomy: n(%)	14 (23.3)	10 (27.0)	4 (16.4)

Table 3 Correlation between body image (BIS) and the study scales

Variables	(BIS)
Beck Depression Inventory	$r_s = 0.413 (p = 0.003)$ (50) [#]
European Organization for Research and Treatment of Cancer Quality of Life Questionnaire	(n = 59) ^{**}
Global quality of life	$r_s = -0.357 (p = 0.006)^*$
Function scales	$r_s = -0.489 (p < 0.001)^*$
Symptom scales	$r_s = 0.394 (p = 0.002)^*$
Female Sexual Function Index: Sexually inactive	(n = 37)
Q1: Overall satisfaction [#]	$r_s = -0.377 (p = 0.023)^*$
Desire	$r_s = -0.044 (p = 0.798)$
Female Sexual Function Index: Sexually active	(n = 22 ^{&})
Q1: Overall satisfaction [#]	$r_s = -0.576 (p = 0.005)^*$
Desire	$r_s = -0.622 (p = 0.002)^*$
Arousal	$r_s = -0.461 (p = 0.031)^*$
Lubrication	$r_s = -0.456 (p = 0.033)^*$
Orgasm	$r_s = -0.301 (p = 0.173)$
Satisfaction	$r_s = -0.512 (p = 0.015)^*$
Pain	$r_s = -0.185 (p = 0.410)$
Total	$r_s = -0.544 (p = 0.009)^*$

* $p < 0.05$.[#] Fewer patients completed the Beck scale.[#]Question 1: During the past 4 weeks, how satisfied have you been with your sex life in general?[&]One sexually active patient died before responding to the questionnaires.

found in our study (36.4%). The FSFI classifies women who had not engaged in sexual intercourse during the month preceding questionnaire administration as dysfunctional [8,

Table 4 Correlation between quality of life (EORTC-30) and sexual function (FSFI)

Scales	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire		
	Global QOL	Functionality	Symptoms
FSFI: Sexually inactive	n=37 ^{&}	n=37 ^{&}	n=37 ^{&}
Question 1 [#]	$r_s = 0.129$ ($p=0.453$)	$r_s = 0.175$ ($p=0.307$)	$r_s = -0.136$ ($p=0.429$)
Desire	$r_s = -0.158$ ($p=0.357$)	$r_s = 0.069$ ($p=0.687$)	$r_s = -0.031$ ($p=0.859$)
FSFI: Sexually active	n=22	n=22	n=22
Question 1 [#]	$r_s = 0.378$ ($p=0.091$)	$r_s = 0.544$ ($p=0.011$)*	$r_s = -0.603$ ($p=0.004$)*
Desire	$r_s = 0.260$ ($p=0.256$)	$r_s = 0.591$ ($p=0.005$)*	$r_s = -0.572$ ($p=0.007$)*
Arousal	$r_s = 0.255$ ($p=0.265$)	$r_s = 0.413$ ($p=0.063$)	$r_s = -0.555$ ($p=0.009$)*
Lubrication	$r_s = 0.428$ ($p=0.053$)	$r_s = 0.568$ ($p=0.007$)*	$r_s = -0.488$ ($p=0.025$)*
Orgasm	$r_s = 0.053$ ($p=0.820$)	$r_s = 0.218$ ($p=0.343$)	$r_s = -0.288$ ($p=0.206$)
Satisfaction	$r_s = 0.176$ ($p=0.444$)	$r_s = 0.308$ ($p=0.174$)	$r_s = -0.407$ ($p=0.067$)
Pain	$r_s = 0.161$ ($p=0.485$)	$r_s = 0.309$ ($p=0.173$)	$r_s = -0.478$ ($p=0.028$)*
Total	$r_s = 0.304$ ($p=0.181$)	$r_s = 0.523$ ($p=0.015$)*	$r_s = -0.533$ ($p=0.013$)*

* $p < 0.05$.[#]Question 1: During the past 4 weeks, how satisfied have you been with your sex life in general?[&]One sexually active patient died before responding to the questionnaires.

26, 31]. Studies wherein the FSFI was administered only on sexually active women reported lower rates of sexual dysfunction [8, 21]. In the study of validation of the FSFI on cancer patients (181 participants) has shown a sexual dysfunction rate of 52% [8].

The relationship between physical limitations or symptoms and impaired sexual function in women with cancer has already been documented in the literature [7, 8, 11, 14, 16]. This may be a particularly important issue in patients with advanced cancer. Twenty-nine women (48.3%) reported that it was moderately/very difficult to perform daily tasks, and 26 women (43.3%) reported feeling moderately/very tired. Although fatigue is assessed by functionality scales and described in the qualitative literature [12, 16] its role as a physical limitation in sexual function has not been thoroughly explored in research [32]. The absence of an association between global QOL and sexual function suggests that these constructs represent distinct experiences, and that QOL scales do not necessarily assess sexual difficulties [5, 20]. Previous studies reported that sexual dysfunction rates tend to be high in cancer patients with good QOL scores [16].

Body image was the only construct that had a significant correlation with overall satisfaction with sexual life (question 1), both for sexually active and inactive women. This finding emphasizes the importance of body image in female sexuality. Body image scores were also significantly correlated with global QOL sub-scale scores, which is corroborated by findings of previous research [5, 8, 14, 20]. This suggests that women in this study considered body image as more important for QOL than sexual function. Moreover, body image had significant correlations with the total FSFI score and all its domains except orgasm and pain, which were more related to physical well-being scales [8]. The relationship among body image, function, and symptoms indicate that, in addition to emotional factors, organic factors also affect body image perceptions. The presence of potentially modifiable adverse effects, such as diarrhea, is related to poor body image perception [20] and their severity is not always evaluated during routine oncologic care [33].

In this present study, eight women attributed their sexual inactivity to physical difficulties caused by cancer, whereas six other women cited decreased libido as the reason. These are potentially treatable conditions [14, 17, 31]. Although literature suggests that sexually active women with cancer are more likely to have a partner [5, 16, 20, 31], a proportion of women without a partner were also found to be sexually active [6, 14, 17, 31]. In this study, none of the women without a partner was sexually active at the time of the interview. Although a southern Brazilian study of a single hospital is not enough to make definite conclusions, it is possible that Brazilian gender norms hamper women from resuming sexual activity, since most studies come from industrialized countries. Some cultural aspects of this sample will be explored in the qualitative analysis of this study.

Previous findings indicate that cancer patients do not receive enough information regarding changes in sexuality [6, 11, 12, 18, 21]. In this study, only five women (8.33%) received some type of information or guidance about the changes they might experience after treatment. While health professionals make assumptions about the sexuality of their patients [34], unpartnered women with metastatic cancer may still be interested in finding a partner and achieving sexual satisfaction [11]. In this study, the 50 patients receiving endocrine therapy or chemotherapy were likely to benefit from the use of appropriate lubricants, but only 10 used them. Vaginal lubrication is one of the largest gaps in the information provided by doctors [11–13]. Women wish to receive detailed information about different types of lubricants [11, 12] nonpenetrative practices [11, 17] and pleasure-enhancing sex positions that accommodate their physical frailty [11].

Few studies explored the relationships between body image, sexuality and QOL, as well as explored sexual inactivity and its causes in women with different kinds of advanced cancer. However, this study also has some limitations. All the women reported having male partners; therefore, the present findings may not be generalizable to other populations. We did not assess the quality of affective relationships, which may have an impact on sexual function [4]. Fifty women were receiving chemotherapy or hormone therapy; therefore, the results may not be generalizable to other groups. Although the inclusion of different types of cancer may limit the generalization of conclusions, it probably reflects usual findings in advanced cancer women in an oncologic clinic. Finally, our study design cannot establish causality.

More than quantifying the rate of sexual dysfunction, it is important to understand the reasons for disruptions in sexual activity. Some studies reported that women with sexual problems do not actively seek relevant information even when they experience considerable side effects [18, 19]. Although there is insufficient time for the systematic evaluation of all patients during oncological care provision, self-administered questionnaires can be used to identify women who experience sexual difficulties [13]. Symptom management interventions may indirectly improve different functioning aspects related to body image. Interventions that promote the maintenance of physical function may contribute to the resumption or maintenance of sexual function in women with advanced cancer. Further research is needed to analyze causal relationships and address the existing knowledge gaps.

Conclusions

The associations between total FSFI, body image, and functional and symptom subscale scores highlight the existence of potentially treatable physical problems. The absence of an association between global QOL and sexual function suggests that assessing QOL is not enough to detect treatment-induced sexual changes, which are not addressed by health professionals.

Authors' contributions Dr. Luciana Campos is the primary author of the manuscript. She conceived the study, made the data curation and along with the co-authors, executed the study, analyzed and interpreted the data, wrote and edited the original draft. Dr. Simone de Nardi helped with the study execution, reviewed the original draft and contributed to key portions of the final manuscript. Dr. Leo Limberger helped in the study conception, data interpretation, reviewed and made key contributions to the final manuscript. Dr. Jose Manoel Caldas is an expert gender researcher and the senior author of the manuscript. He oversaw all portions of the study design and implementation, reviewed, edited the original manuscript and made key contributions to the final manuscript. All authors read and approved the final manuscript.

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Code Availability Not applicable.

Declarations

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Ethics approval This study was performed in line with the principles of the Declaration of Helsinki. Approval was obtained from the Research Ethics Committee of the hospital (IRB000105, number:17,102).

Consent to participate Written consent was obtained from all participants prior participation.

Consent for publication A consent for publication was obtained at the same time as the informed consent to participate.

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