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ASSESSMENT OF FEMALE SEXUAL FUNCTION AND QUALITY OF LIFE AMONG BREAST CANCER SURVIVORS WHO UNDERWENT HORMONE THERAPY

Avaliação da função sexual e da qualidade de vida de mulheres sobreviventes do câncer de mama submetidas a hormonioterapia

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ABSTRACT

Objective: The aim of this study was to investigate the sexual function and quality of life of breast cancer survival women. **Methods:** This is a cross-sectional study including 36 women who underwent breast cancer surgery (17 mastectomies and 19 quadrantectomies), sexually active, undergoing hormone therapy, aged 37 to 60 years old. Data were collected through the Female Sexual Function Index (FSFI) and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30). **Results:** In this study, 61.1% of the women had sexual dysfunction. Regarding quality of life, younger women were more impacted in their functional capacity (p=0,049). **Conclusion:** The prevalence of sexual dysfunction is higher in breast cancer survival women, with hypoactive desire and dyspareunia. Regarding quality of life, greater impairment of functional capacity was observed in young women.

KEYWORDS: Breast cancer; quality of life; sexuality; mastectomy.

RESUMO

Objetivo: O intuito deste trabalho foi investigar a função sexual e a qualidade de vida das mulheres sobreviventes do câncer de mama. **Métodos:** Trata-se de um estudo de corte transversal, incluindo 36 mulheres submetidas à cirurgia de câncer de mama (17 mastectomias e 19 quadrantectomias), sexualmente ativas, em tratamento hormonioterápico, com idade entre 37 e 60 anos. O instrumento utilizado para avaliar a função sexual foi o *Female Sexual Function Index* (FSFI) e, para a qualidade de vida, o *European Organization for Research and Treatment of Cancer Quality of Life Questionnaire* (EORTC QLQ-C30). **Resultados:** Neste estudo, 61,1% das mulheres apresentaram disfunção sexual. Em relação à qualidade de vida, mulheres mais jovens foram mais impactadas em sua capacidade funcional (p=0,049). **Conclusão:** A prevalência de disfunção sexual é elevada nas mulheres sobreviventes do câncer de mama, destacando-se o desejo hipoativo e a dispareunia. Em relação à qualidade de vida, foi observado mais prejuízo da capacidade funcional nas mulheres jovens.

PALAVRAS-CHAVE: Câncer de mama; qualidade de vida; sexualidade; mastectomia.

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INTRODUCTION

Breast cancer has a high incidence worldwide, being the second leading cause of cancer death in women. Approximately one in eight women over 35 years old will develop breast cancer during life. This fact makes the disease one of the most terrible among the female public[1-3].

Fortunately, advances in diagnosis and treatment have resulted in increased numbers of women surviving breast cancer. Consequently, it has led to disease-related research focusing on the analysis of quality of life, especially for female sexuality, which is a complex factor after cancer[4].

Most evidences show that women with cancer, in addition to changes in body function, suffer from fatigue and functional deficit in the upper limb homolateral to surgery. Also, due to the breast loss, women experience the feeling of not being physically attractive, generating low self-esteem and altered self-image, including on their own femininity, which can lead to depression[5]. In relation to sexuality, there are a variety of complaints. Dyspareunia, lack of vaginal lubrication, hypoactive desire and loss of breast tenderness have been reported as consequences of breast cancer treatment[6,7].

After the surgery (a physically and psychologically traumatizing experience), the women could be negatively affected in their sexuality. Therefore, this study aimed to investigate the sexual function of women surviving breast cancer, identifying possible factors that may interfere in the quality of patients who underwent modified radical mastectomy (MRM) or conservative surgery (CS) for breast cancer.

METHODS

This is a cross-sectional study, carried out at the Alfredo Abrão Cancer Hospital, located in Campo Grande, Mato Grosso do Sul, Brazil. The project was previously approved by the Research Ethics Committee of the Universidade Federal de Mato Grosso do Sul, under Protocol no. 44422915.70000.00.

The volunteers were recruited through a medical chart survey based on inclusion criteria and subsequent telephone contact, from January to November 2016. Prior to inclusion, they were clarified about the objectives, risks and benefits of the research, and those who wished to participate signed the Informed Consent Term (ICT), according to Resolution no. 466/2012.

Inclusion criteria were: age between 37 and 60 years old; fixed partner in the last six months; have undergone MRM or CS; and having been treated with adjuvant chemotherapy and radiation therapy using tamoxifen, for at least six months. The exclusion criteria were: cognitive impairment that made it impossible to understand the issues; illiteracy; sexual abstinence in the last six months; disease recurrence; metastasis; and breast reconstruction.

To collect data, three instruments were used: the first one was a form developed specifically for this research, which included sociodemographic data (age, occupation, marital status, religion and schooling) and personal background. The second instrument was the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30)[8]. The third instrument was the Female Sexual Function Index (FSFI)[9]. The last two questionnaires, in the public domain, were validated, translated and adapted to the Portuguese language. The EORTC QLQ-C30 was proposed by the European Organization for Research and Treatment of Cancer by Aaronson et al.[8], and validated and translated into Portuguese by Pais-Ribeiro et al.[10]. This questionnaire has the capacity to evaluate the quality of life of patients with cancer. It is composed of 30 questions, which are subdivided into three groups of scales:

1. The overall state of health and quality of life (QL2);
2. Functional scale, consisting of physical functioning (PF2), functional limitations (RF2), emotional functioning (EF), cognitive functioning (CF) and social functioning (SF);
3. The symptomatic scale, consisting of the subscales fatigue (FA), nausea and vomiting (NV), pain (PA), shortness of breath (DY), insomnia (SL), lack of appetite (AP), constipation diarrhea (DI) and financial difficulties (FI).

In this questionnaire, the scales follow the score ahead:

1. No;
2. Little;
3. Moderately;
4. Very.

With the exception of the global health scale, it consists of two questions that ask the patient to rate their general health and quality of life in the last week, using a score from 1 to 7, being: (1) very poor; and (7) great.

Scores are calculated separately for each scale, all ranging from 0 to 100. On the global health scale, the higher the score, the better the quality of life; for the functional scale, the higher the score, the better the function; and for the scale of symptoms, the higher the score, the worse the symptoms.

The FSFI questionnaire, constructed in the English language by Rosen et al.[9], was validated and translated into Portuguese by Thiel et al.[11]. The questionnaire is composed of 19 questions, which report on six domains of sexual response: desire and subjective stimulus; excitement; lubrication; orgasm; satisfaction; and pain or discomfort. Individual scores are obtained by summing the items that comprise each domain (simple score), which are multiplied by the factor of that domain and provide the weighted score. The final score (total score: minimum of 2 and maximum of 36) is obtained by the sum of the weighted scores of each domain. A total score lower than 26.5 is defined as sexual dysfunction[12].

Statistical analysis

The data were stored by the Microsoft Excel® program, for later analysis in the software SigmaPlot, version 12.5. The qualitative measures of the sample were described by absolute and relative percentage and frequencies; the quantitative ones, by mean and standard deviation. For the evaluation of linear correlation, the Spearman correlation was performed. The Mann-Whitney test was used when comparing the categorical variables (age, tamoxifen use and scores on the EORTC QLQ-C30 and FSFI scales). The significance level considered was 5%.

RESULTS

We evaluated 36 eutrophic, sedentary, postmenopausal women with a mean age of 52.03±1.07 years old (ranging from 37 to 60 years old), with active sexual life in the last six months, married (75%) or in a stable union (25%), 90% with at least one child, 75% of graduates in high school, 79% unemployed or a housewife, 55% with sufficient income for their expenses, 45% in the capital and 55% in the countryside of Mato Grosso do Sul. The mean age of the husbands/mates was 63.03±2.05 years old (ranging from 39 to 65 years old), 44% of them were high school graduates and 70% were employed at the time of evaluation. Regarding the type of breast cancer surgery, 47.2% (n=17) of the women had been submitted to MRM, and 52.8% (n=19) to the CS.

The clinical characteristics of the women evaluated are shown in Table 1. Women were classified into two groups according to the type of surgery, and analyzed regarding the variables: age, body mass index (BMI), period of tamoxifen use, and scores on EORTC QLQ-C30 and FSFI scales. Regarding these variables, there was no significant difference between mastectomized women and those ones who underwent CS.

Table 2 shows the results regarding the comparison between women who used tamoxifen for a period of up to three years and those who used the drug for more than three years, in relation to the variables age and scores on the EORTC QLQ-C30 and FSFI scales, including its scales and domains — it was observed that there was no significant difference in relation to these variables (Mann-Whitney test, p value varying between 0.154 and 0.986).

The results regarding the comparison between women aged 37 to 45 years old and those over 45 years old, in relation to the variables period of tamoxifen use and scores on the EORTC QLQ-C30 and FSFI scales, are presented in Table 3. In the analysis of the other variables, there was no significant difference.

In the analysis of quality of life (Figure 1), greater functional impairment was observed in young women (p<0.49) regardless of the type of surgery performed. Overall, 50.0% of the women reported incapacity to perform great efforts, 36.1% were worried, 33.3% were stressed, 30.5% were irritated, and 27.7% reported forgetting their memories or dates. In the analysis of symptoms, 41.6% of the women reported pain, and 27.7%, nausea (Table 4). In other questions, there was no significant percentage.

One study determined the cut grade to determine sexual dysfunction (SD) by means of the FSFI questionnaire, considering score ≤26,55[12]. Thus, SD was observed in women submitted to both surgeries, with no statistically significant difference between them (MRM=23.00±3.62 *versus* CS 20.58±1.51, p=0.472). Among the women evaluated, 66.60% presented some degree of SD, 73.68% of the women were submitted to CS, and 58.82% to MRM, according to the FSFI. The results are presented in Tables 3 and 5, including the scales, the domain and the questions that presented relevance in the study population.

In the "sexual desire" domain, the FSFI questionnaire classifies the first phase of the sexual response. A deficit at this stage results in hypoactive sexual desire disorders[13]. In this study, it was observed that 75% of the women never or few times felt sexual desire and 50% considered the degree of libido low.

Table 1. Results of the comparison between mastectomized and quadrantectomized women, regarding the variables age, period of tamoxifen use and scores in the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and in the Female Sexual Function Index (FSFI).

Variable	Type of surgery		P value
	Mastectomy	Quadrantectomy	
Age	52,71±1,34	51,42±1,66	0,715
Period of tamoxifen (months)	26,88±3,89	33,90±4,18	0,200
EORTC QLQ-C30			
Global Health Scale	81,86±4,81	78,95±4,95	0,734
Functional scale	78,17±4,47	79,53±4,45	0,799
Symptom Scale	18,85±5,26	19,70±5,03	0,824
FSFI			
Desire and subjective stimulation	2,89±0,25	2,78±0,23	0,846
Excitement	3,00±0,40	2,98±0,28	0,738
Lubrication	3,65±0,47	3,79±0,41	0,812
Orgasm	3,72±0,48	3,71±0,36	0,726
Satisfaction	4,35±0,48	3,92±0,39	0,370
Pain or discomfort	3,55±0,44	3,77±0,43	0,799
Total score	21,17±2,20	20,94±1,81	0,704

Results are presented as mean±standard error of the mean. P value in the Mann-Whitney test.

The second phase of the sexual response is classified by FSFI in the "excitation" and "lubrication" domains, and includes physiological and subjective sexual arousal as a response to vaginal engorgement and vaginal lubrication. In this study, 36.1% of the participants classified their degree of sexual arousal as low or absent during activity or sexual intercourse. And 27.7% reported never or seldom achieving proper vaginal lubrication, and they had difficulty in maintaining lubrication during intercourse.

In the "orgasm" domain, the third phase of the female sexual response, the climax (or maximum point of sexual tension), rhythmic contractions of the genital muscles and intense subjective involvement are evaluated. Disorders in these factors provide alterations in female orgasm[13]. In this study, 44.4% of the women never or rarely reached orgasm and 36.1% had difficulty reaching it during the sexual act.

The final phase of the sexual response includes the physical relaxation of tension and subjective feeling of well-being. A disturbance at this stage may lead to pelvic pain and vaginismus[14]. In this area, the questionnaire covers questions about pain during

Table 2. Results of the comparison among women who used tamoxifen for three years and those who used the drug for a longer period, in relation to the variables age and scores in the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and in the Female Sexual Function Index (FSFI).

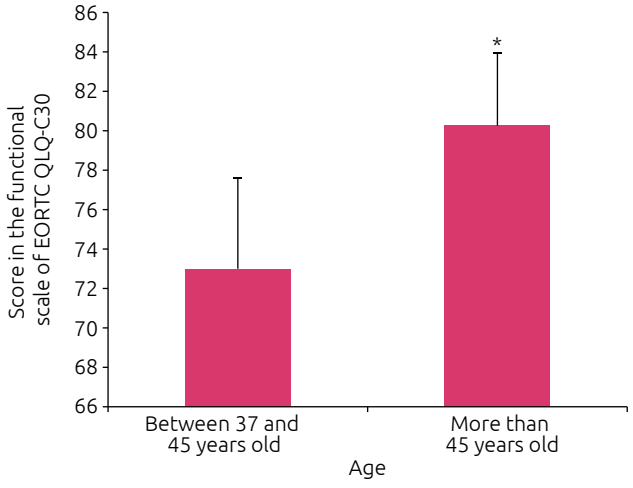
Variable	Period of tamoxifen use		P Value
	Up to 3 years	More than 3 years	
Age	51,92±1,22	52,30±2,28	0,873
EORTC QLQ-C30			
Global Health Scale	81,73±4,31	76,67±5,24	0,214
Functional scale	77,69±3,89	82,00±4,96	0,915
Symptom Scale	20,12±4,84	17,18±3,11	0,303
FSFI			
Desire and subjective stimulation	2,72±0,21	3,12±0,25	0,305
Excitement	2,80±0,30	3,48±0,34	0,347
Lubrication	3,76±0,39	3,63±0,44	0,658
Orgasm	3,49±0,36	4,28±0,45	0,312
Satisfaction	3,89±0,38	4,72±0,45	0,154
Pain or discomfort	3,61±0,39	3,80±0,46	0,986
Total score	20,29±1,77	23,03±1,97	0,572

Results are presented as mean±standard error of the mean. P value in the Mann-Whitney test.

Table 3. Results of the comparison among women aged between 37 and 45 years ols and those ones over 45 years old, regarding the variables period of tamoxifen use and scores in the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and in the Female Sexual Function Index (FSFI).

Variable	Age		P Value
	Between 37 and 45 years	More than 45 years	
Tamoxifen use (months)	31,00±7,74	30,48±3,14	0,903
EORTC QLQ-C30			
Global Health Scale	73,81±8,02	81,90±3,79	0,178
Functional scale	73,02±4,64	80,31±3,68	0,049
Symptom Scale	19,41±8,93	19,27±3,98	0,857
FSFI			
Desire and subjective stimulation	2,91±0,38	2,81±0,19	0,699
Excitement	3,56±0,65	2,86±0,25	0,138
Lubrication	3,73±0,74	3,72±0,34	0,952
Orgasm	4,11±0,73	3,61±0,32	0,399
Satisfaction	4,97±0,59	3,92±0,34	0,086
Pain or discomfort	3,71±0,81	3,66±0,33	0,904
Total score	23,00±3,62	20,58±1,51	0,472

Results are presented as mean±standard error of the mean. P value in the Mann-Whitney test.



*Significant difference in relation to the group and women aged between 37 and 45 years old (Mann-Whitney test, p=0.049).

Figure 1. Score in the functional scale of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30), among women aged between 37 and 45 years old and those ones over 45 years old. Each column represents the mean; the bar indicates the standard error of the mean.

Table 4. Characteristics of the women obtained by questionnaires in the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and in the Female Sexual Function Index (FSFI).

	Type of Surgery		%
	Mastectomy	Conservative surgery	
EORTC QLQ-C30			
Functional Scale			
Great effort	9	9	50.00
Concerned	8	5	36.11
Stressed	5	7	33.33
Irritated	5	6	30.55
Forgetfulness	3	7	27.77
Symptom Scale			
Pain	6	9	41.66
Nausea	6	4	27.77
FSFI			
Desire and subjective stimulation			
Frequency of sexual desire	13	14	75.00
Degree of sexual desire	11	7	50.00
Excitement			
Degree of sexual excitement	6	7	36.13
Lubrication			
Vaginal lubrication	5	9	38.88
Difficulty to lubricate	2	8	27.77
Maintaining lubrication-frequency	5	9	38.88
Difficulty to maintain lubrication	7	6	36.11
Orgasm			
Having an orgasm	7	9	44.44
Difficulty to have an orgasm	7	6	36.11
Pain or discomfort			
Pain during penetration	5	7	33.33
Pain after penetration	5	6	30.50

Results are presented as mean±standard error of the mean. P value in the Mann-Whitney test.

and after penetration, showing that 60.5% of women report discomfort always or most of the time.

DISCUSSION

Biopsychosocial problems associated with the diagnosis or treatment of cancer are complicated by the surgical removal of part or all of the breast. Breast loss is usually associated with problems and difficulties such as depression, affective disorders, loss of sexual interest, negative self-image, loss of femininity, and difficulties with clothing. These problems may persist for years after the treatment of breast cancer[15].

In the present study, 61.1% of women who survived breast cancer had SD. This number was well above those ones found by studies evaluating healthy women. A national study, with a sample of 1,219 women over the age of 18, showed that the prevalence of SD was 49%[16]. Another study, conducted in the State of Pernambuco, evaluated the prevalence of SD in women during the climacteric period, demonstrating a predominance of 46.2%[17].

In the present study, the occurrence of SD was elevated in women submitted to both surgical procedures, 68.4% of the women submitted to CS, and 52.9% of the mastectomized women. Corroborating this finding, a study that evaluated

Table 5. Results of the evaluation of the linear correlation between the period of tamoxifen use and age, with scores in the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and in the Female Sexual Function Index (FSFI).

Variable	Variable	
	Period of tamoxifen use	Age
EORTC QLQ-C30		
Global Health Scale	p=0,471; r=-0,123	p=0,810; r=0,041
Functional scale	p=0,852; r=-0,032	p=0,314; r=0,172
Symptom Scale	p=0,302; r=0,176	p=0,581; r=0,094
FSFI		
Desire and subjective stimulation	p=0,317; r=0,171	p=0,659; r=-0,076
Excitement	p=0,459; r=0,127	p=0,505; r=-0,114
Lubrication	p=0,706; r=0,065	p=0,415; r=0,140
Orgasm	p=0,090; r=0,286	p=0,846; r=0,033
Satisfaction	p=0,252; r=0,195	p=0,854; r=-0,031
Pain or discomfort	p=0,611; r=0,087	p=0,696; r=0,067
Total score	p=0,303; r=0,176	p=0,713; r=0,063

p: p value in the Spearman linear correlation test; r: linear correlation coefficient.

sexual function after breast cancer found that the type of surgical procedure (MRM and CS) did not interfere with sexual function[18]. However, some studies have shown that women who underwent CS reported less impact on their sex lives and fewer concerns about sexual attraction than women who had MRM[6], revealing a high prevalence of SD in mastectomized women[19,20].

One limitation of this study is the sample size, which was limited because many of the women contacted did not have an active sex life. However, the first meta-analysis in the literature on SD in cancer patients admitted as an inclusion criterion clinical research with a sample of at least 30 cancer survivors. This number is considered adequate, thus limiting the heterogeneity, characteristic of studies with few participants[21].

SD is highly prevalent in women after breast cancer. In the present study, the participants presented problems related to sexual desire, excitement, reduction of sexual pleasure, difficulty in reaching orgasm, pain during and after the sexual act, factors that make sex less pleasurable.

The most frequent complaints were hypoactive desire and pain during intercourse, present in 75.0 and 60.5% of the women, respectively. In healthy women, complaints about hypoactive desire and pain in sexual intercourse are much less frequent, around 43.0 and 36.8%, respectively[22]. With chemotherapy-induced menopause, side effects such as pain or discomfort during intercourse are common, due to lack of lubrication during penetration and during sexual intercourse[23,24].

In the present study, 47.2% of the women were mastectomized and 52.8% underwent CS. There was no significant statistical difference between the types of surgery in the quality of life analysis (global health, functional capacity or symptoms), by the EORTC QLQ-C30 questionnaire.

The relationship between the type of surgery and aspects associated with the quality of life of women with cancer presents conflicting results. Some authors report that women submitted to CS reported better quality of life than those ones who underwent MRM[25,26], while others described a better psychological adjustment among those ones submitted to MRM[27,28] despite observing similar quality of life results[29,30]. The conflicting results can be explained by some methodological differences. They differ in the studied sample, in the design and in the research instruments, besides being influenced by cultural differences. Some authors applied generic (Medical Outcomes Study 36 — SF-36) and specific (EORTC QLQ-30) questionnaires.

However, a study of literary revision proposed by Kiebert et al. reports that the types of surgical procedures do not interfere in the social aspect of the quality of life, but differ in relation to the body image[31].

In the present study, it was observed that younger women presented greater functional impairment when compared to older women (>45 years). The functional scale of the questionnaire used (EORTC QLQ-C30) evaluates the difficulty that women report when performing effort, walking, reading, watching TV, washing, dressing, and participating in social and family activities[8].

A study with cancer survivors found a decrease in muscle strength and range of motion (for abduction, flexion, and lateral rotation of the shoulder homolateral to surgery), as well as impairment of functional capacity assessed by the SF-36 questionnaire[32]. Demonstrating that, regardless of the type of surgery (conservative or radical), there is significant functional limitation especially in what involves tasks such as washing clothes, washing dishes, carrying objects, driving and preparing food. This may be due to tissue damage, surgical manipulation, or even the feeling of protecting the upper limb, avoiding possible complications[33].

It is speculated a higher prevalence of functional impairment in young women. An explanation for this influence is justified since the young woman realizes more about the impact of cancer treatment due to her being more socially active and having more functional independence with regard to driving, carrying objects and preparing food, than an elderly woman[34].

In addition, it is important to emphasize the importance given by these women to the breast as a symbol of femininity, sexuality, maternity and body image[34].

Unlike the present study, Dialla et al. reported that older women present more fatigue, functional losses and muscle weakness associated with symptoms such as emotional instability, loneliness, mental fragility and lack of social support when compared to young women[36].

However, the women of the present study classified, in their majority (88.8%), global health in a positive way. It shows that there are other variables that can affect the quality of life, such as personality, culture, support of the spouse and family, religious or spiritual aspects, among others[37]. In the present study, age, period of tamoxifen use, and type of surgery were not determinants of sexual function and quality of life. It should be emphasized that problems related to sexual function should be taken to the multidisciplinary team, in order to promote health education, and provide medical, psychological and physiotherapeutic support to patients. It is of great importance that the sexual life of cancer survivors is not ignored by the team, and taboos concerning sexuality should be broken in the communication between the woman and the health professional, including such matters as bodily changes, breast loss, age, libido, among others.

CONCLUSION

It is concluded that the prevalence of sexual dysfunction is high in women survivors of breast cancer, regardless of the type of surgical procedure performed. Regarding quality of life, functional capacity impairment was observed in young women.

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