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Investigation of Factors Affecting Sexual Disorders in Women with Breast Cancer

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Abstract:

Breast cancer is the most prevalent cancer and the second cause of death among women, affecting individuals' sexual function. Considering the effect of sexual function on various aspects of individuals' life. The present study aimed to investigate factors affecting sexual disorders among women with breast cancer. Across-sectional case-control study was conducted on 104 women with and without breast cancer referring to Hamadan Charity Health Assembly and Fatemiyeh Hospital in 2015. The data were collected through demographic characteristics questionnaire and FSFI (Female Sexual Function Index) questionnaire. Data analysis was performed using SPSS/V21, descriptive statistics, chi-square test, and t-test. The age average and standard deviation for the patients and non-patients were50.02±12.07 and 49.65±11.19, respectively. No statistically significant difference was observed between the groups. 100% (52) of the patients with breast cancer and 1.92% (1) of the healthy individuals had sexual dysfunction. The highest disorder in patients with breast cancer was decreased sexual desire (0.83±0.95) and the lowest was painful intercourse (1.43±0.703). A significant difference was observed between the individuals with and without sexual dysfunction in terms of exercise history, birth control (contraception) method, surgery history, and chemotherapy and radiotherapy history (P<0.0001). Sexual education of patients during treatment or holding sexual workshops in breast cancer clinics, oncology centers, and hospitals and performing aerobic and anaerobic exercises are recommended since the sexual function of patients with breast cancer is influenced by this disease and its relevant treatment.

Keywords: Breast cancer, Sexual function, Effective factors, Women.

1-INTRODUCTION

Breast cancer is the most prevalent cancer in women and the second cause of cancer-caused death among women[(1-3)]. In recent years, the increased incidence of breast cancer in Iran has shown that this disease is the most common malignancy among Iranian women; furthermore, the incidence of this disease in Iran is related to a decade before developed countries[(4-6)]. According to the report provided by Iran Cancer Research Center, 51000 new cases of breast cancer are annually diagnosed in Iran, and 35000 deaths occur due to this disease. The disease prevalence rate in different countries is 1-8%, while the annual morbidity rate of 20 cases per 100000 women has been reported in Iran[(7)]. The breast is an organ considered a feminine symbol, sexuality symbol, and sexual attractiveness in different cultures; therefore, under such social and cultural conditions, the loss or deformity of the breast can lead to negative changes in individuals' self-image. There are various methods for treatment of breast cancer; however, breast cancer is usually diagnosed in advanced stages, and furthermore, 81% of the surgeries performed are mastectomy[(8-10)]. Considering corrosion of physical power, reduction of the ability to do daily activities, the patient's hospitalization, chemotherapy, radiotherapy, and lumpectomy of the breast tissue and its complications, breast cancer can be a major cause of sexual problems. On the other hand, diagnosis of the disease has various psychological aspects and results in stress and depressive pressures in patients, all affecting the sexual response cycle[(11)]. According to the fourth edition of "Diagnostic and Statistical Manual of Mental Disorders", the sexual response cycle includes four stages of desire, arousal, orgasm, and subsidence. Sexual function can be influenced by the environment, hormonal factors, morbidity to diseases and cancers, psychological factors, medicines (drugs), personal stresses, and emotions[(12-14)]. Sexual dysfunction following the breast cancer is present more than a year after diagnosis, and in most cases, reduction of sexual desire and arousal, vaginal dryness, and dyspareunia occur after chemotherapy. According to a study, the shock caused by the diagnosis and treatment of breast cancer considerably affects mental and sexual function and marital relationships. Since this disease targets one of the most important female sexual organs and is directly related with sexual function and women's identity, it may considerably affect their quality of life[(15, 16)]. Therefore, investigation of sexual and marital relationships of patients is of special importance. Consequently, the present study aimed to investigate factors affecting sexual function in women with breast cancer.

2-MATERIALS AND METHODS

A cross-sectional case-control study was conducted on 104 women with and without breast cancer referring to Hamadan Charity Health Assembly and Fatemiyeh Hospital in 2015. Sample determination was done using

Stagl et al.[17] and the following equation: Considering the overall health factor before and after the intervention, α=0.05 and power=80%, 104 individuals were selected including 52 subjects with breast cancer as the case group and 52 subjects without breast cancer as the control group. The inclusion criteria included: 15-45 years of age, lack of mental disease, other physical diseases except for breast cancer approved by a physician, lack of diseases interfering with sexual function (multiple sclerosis, Alzheimer, hypo and hyperthyroidism), lack of genital trauma, and tumor and lump, lack of oophorectomy, and not using drugs such as antihypertensive and anti-psychotic drugs which interfere with sexual function. The samples were selected through convenient sampling method, so patients with breast cancer referring to the Charity Health Assembly and patients without breast cancer in the gynecologic clinic of Fatemiyeh hospital were selected. Data were collected through demographic questionnaire containing type of treatment, age, menarche age, exercise history, history of using the birth control (contraception) methods and type of the method, length of marriage, and FSFI questionnaire. This questionnaire contains 19 questions measuring sexual desire, orgasm, arousal, sexual pain, lubrication, and sexual satisfaction during the last 4 weeks. Higher scores indicate better sexual function. By equiponderating the aspects, the maximum scores for each aspect and for the whole scale were 6 and 36, respectively. The scores of sexual desire disorder, arousal disorder, lubrication disorder, orgasm disorder, and sexual satisfaction were below 4.28, below 5.08, below 5.45, below 5.05, and below 5.04, respectively. The reliability of the scale was measured through Cronbach's alpha coefficient, and the coefficients obtained for all aspects were higher than 0.70. The suitable cut-off point of the whole scale was determined 28 or lower for diagnosis of sexual dysfunction[18].

Ethical considerations

The research was conducted after receiving permission from Department of Research and code of Ethics Committee, i.e. "IR.UMSHA.REC.1394.497", from Hamedan University of Medical Sciences. Also, explanations regarding the research objectives were provided, and information confidentiality along with voluntary participation were ensured, and written consent forms were collected.

Statistical Methods

Data analysis was performed using SPSS/V21 software, descriptive statistics, chi-square test, and t-test. The significance level was assumed lower than 0.5[19-21].

3-RESULTS

The study was conducted on 104 women with and without breast cancer referring to Hamadan Charity Health Assembly and Fatemiyeh Hospital in 2015. The age mean and standard deviation of the patients and non-patients were 50.02±12.07 and 49.65±11.19, respectively, and no significant difference was observed between the groups. The chi-square test showed a significant difference between the groups in terms of other independent qualitative variables such as the exercise history, breast surgery history, chemotherapy and radiotherapy, and birth control method (Table 1).

Table 1. Demographic characteristics of individuals with and without breast cancer.

Variable		With Breast cancer N=52	Without Breast cancer N=52	P-Value
Sports History	**Yes**	7(13.5%)	37(71.2%)	<0.0001
	No	45(86.5%)	15(28.8%)	
Marital Status	**Single**	3(5.8%)	0(0%)	0.079
	Married	49(94.2%)	52(100.0%)	
Education	**Illiterate**	10(19.2%)	20(38.5%)	0.143
	Third grade middle school	24(46.2%)	17(32.7%)	
	Diploma	16(30.8%)	13(25.0%)	
	Associate Degree	1(1.9%)	2(3.8%0	
	license	1(1.9%)	0(0%)	
Job	**Housewife**	51(98.1%)	52(100.0%)	0.999
	Employee	1(1.9%)	0(0%)	
Prevention History	**Yes**	40(76.9%)	47(90.4%)	0.063
	No	12(23.1%)	5(9.6%)	
Type of Prevention	**No**	5(9.6%)	5(9.6%)	<0.0001
	Withdrawal	5(9.6%)	17(32.7%)	
	Tablet	26(50.0%)	24(46.2%)	
	Candom	2(3.8%)	3(5.8%)	
	IUD	1(1.9%)	3(5.8%)	
	Sterilization	13(25.0%)	0(0%)	
Menopause	**Yes**	16(30.8%)	23(44.2%)	0.156
	No	36(69.2%)	29(55.8%)	
Surgery	**Yes**	52(100.0%)	1(1.9%)	<0.0001
	No	0(0%)	51(98.1%)	
Chemotherapy	**1**	44(84.6%)	0(0%)	<0.0001
	2	8(15.4%)	52(100.0%)	
Radiotherapy	**3**	11(21.2%)	0(0%)	<0.0001
	Yes	41(78.8%)	52(100.0%)	

Table 2. Mean and standard deviation dimensions of sexual function in women with and without breast cancer

Aspects of sexual function.	With breast cancer N=52	Without breast cancer N=52	P-Value
Libido	0.83±0.70	5.16±.78	<0.0001
Sexual arousal	0.87±1.04	5.35±.56	<0.0001
Lubrication	0.91±1.07	5.25±.61	<0.0001
Orgasms	0.94±1.19	5.32±.56	<0.0001
Sexual Satisfaction	0.82±0.97	5.60±.48	<0.0001
Pain	1.43±0.95	5.79±.37	<0.0001
Sexual Function	5.83±5.44	32.48±1.90	<0.0001

Table 3. Relationship total sexual function scores, demographic characteristics of women with and without breast cancer

Variable		Without sexual dysfunction N=52	With sexual dysfunction N=52	P-Value
Sports history	**Yes**	36(70.6%)	8(15.09%)	<0.0001
	No	15(29.4%)	45(84.91%)	
Marital status	**Single**	0(0%)	3(5.66%)	0.091
	Married	51(100.0%)	50(94.34%)	
Education	**illiterate**	20(39.2%)	11(20.75%)	0.165
	third grade middle school	16(31.4%)	24(45.28%)	
	Diploma	13(25.5%)	16(30.18%)	
	Associate Degree	2(3.9%)	1(1.88%)	
	license	0(0%)	1(1.88%)	
Job	**housewife**	51(100.0%)	52(98.11%)	0.333
	Employee	0(0%)	1(1.88%)	
Prevention history	**Yes**	46(90.2%)	41(77.35%)	0.092
	No	5(9.8%)	12(22.64%)	
Type of prevention	**No**	5(9.8%)	5(9.43%)	<0.0001
	withdrawal	17(33.3%)	5(9.43%)	
	Tablet	23(45.1%)	25(47.16%)	
	Candom	3(5.9%)	2(3.77%)	
	IUD	3(5.9%)	1(1.88%)	
	Sterilization	0(0%)	15(28.30%)	
Menopause	**Yes**	23(45.1%)	24(45.28%)	0.088
	No	28(54.9%)	29(54.71%)	
Surgery	**Yes**	1(2.0%)	52(100%)	<0.0001
	No	50(98.0%)	1(1.88%)	
Grade of cancer	**1**	6(11.8%)	10(18.86%)	0.257
	2	11(21.6%)	16(30.18%)	
	3	34(66.7%)	27(50.94%)	
Chemotherapy	**Yes**	0(0%)	43(81.13%)	<0.0001
	No	51(100%)	10(18.86%)	
Radiotherapy	**Yes**	0(0%)	12(22.64%)	<0.0001
	No	51(100%)	41(77.35%)	
Variable	**With Breast Cancer**		**Without Breast Cancer**	**p-value**
Number of Children	1.14±1.09		1.15±1.10	0.143
Age of Menarche	12±0.11		13±1.19	0.124

Regular exercise history over the week was 71.2% and 13.5% in the non-patients and patients, respectively. Also, 90.4% of the non-patients and 76.9% of the patients reported birth control history, so the majority of these individuals, especially the patients, had used combined contraceptive pills. The patients reported their cancer grade below 3. The chemotherapy and radiotherapy history of the patients was 84.6% and 21.2%, respectively; furthermore, all the patients had undergone mastectomy. Regarding the total sexual dysfunction score, the cut-off point was 28 or lower. 100% (52) of the subjects with breast cancer and 1.92% (1) of the subjects without breast cancer had sexual dysfunction. The t-test revealed a significant difference between the groups (P<0.0001). The maximum and minimum disorders among the patients with breast cancer were decreased sexual desire (0.83±0.95) and painful intercourse (1.43±0.703)(Table 2). The chi-square test showed significant difference between the subjects with and without sexual dysfunction in terms of exercise history, birth control method, surgery history, and chemotherapy and radiotherapy history (P<0.0001). The majority of the individuals with dysfunction did not report exercise history, and 47.1% had used combined contraceptive pills and had undergone chemotherapy and radiotherapy; moreover, 98.1% of these individuals had history of mastectomy surgery (Table 3).

4-DISCUSSION

The present study investigated the factors affecting sexual dysfunction of women with breast cancer. A significant difference was observed between the two groups in terms of exercise history, breast surgery history, chemotherapy and radiotherapy, and birth control method. The regular exercise history over the week in the non-patients and

patients was 71.2% and 13.5%, respectively, and 90.4% of the non-patients and 76.9% of the patients reported birth control history, and majority of these individuals, especially the patients, had used combined contraceptive pills. The patients with breast cancer reported their cancer grade below 3. The history of chemotherapy and radiotherapy of the patients was 84.6% and 21.2%, respectively; furthermore, all the patients had undergone mastectomy. The cut-off point was 28 or lower regarding the total sexual dysfunction score. And, 100% (52) of the subjects with breast cancer and 1.92% (1) of the subjects without breast cancer had sexual dysfunction. The t-test analysis showed a significant difference between the two groups. The maximum and minimum disorders among the patients with breast cancer were reported to be lack of sexual desire (0.83±0.95) and painful intercourse (1.43±0.703). The main causes of these disorders in the patients with breast cancer can be attributed to the effect of chemotherapy and radiotherapy on the sexual hormones, mental occupation due to the defect, and the mastectomy surgery and breast tissue removal[22]. Horlens et al. showed that women with breast cancer had sexual dysfunction, which is in agreement with the present findings[23]. Wang also revealed that half of the women had only one or two sexual intercourses in a year, and 90% reported a significant decrease in their sexual intercourse[24]. In the present study, all of the subjects with breast cancer and one individual without breast cancer had sexual dysfunction, having a direct relationship with exercise history, use of condom, chemotherapy and radiotherapy history, and mastectomy. The type of treatment, chemotherapy, hormone therapy, and mastectomy lead to vaginal atrophy and moisture loss and decreased sexual desire which eventually affect the sexual function of individuals through affecting estrogen, testosterone, and ovarian functions. Mastectomy affects sexual satisfaction and psychological and mental aspects and increases sexual disorders[11]. Studies have shown that breast cancer and its common treatments cause lack of sexual desire, body image changes, effects on sexual and marital intercourse, misconceptions of sexual intercourse, premature menopause, decreased androgen and estrogen levels, vaginal atrophy, and reduction of sexual desire and arousal[24-26]. Beckwel et al. showed that all breast cancer therapies reduce sexual desire[27]. Physical inactivity leads to obesity, diabetes, and hypertension, followed by the lack of sexual desire and sexual disorders[28]. It was also shown that subjects who exercised 2-3 times a week had higher sexual desire compared with the average level[29, 30]. Since testosterone level decreases in individuals with breast cancer after chemotherapy and mastectomy, the exercise reduces the testosterone concentration and temporarily increases the concentration of this hormone, and thereby leads to increased sexual desire. Exercise can also increase happiness and freshness and reduce depression and mental pressures caused by cancer, thereby, enhancing sexual desire. Besides, exercise can also improve the pelvic floor muscles, and subsequently, the sexual function[3, 31]. The findings indicated that the use of combined contraceptive pills was correlated with the highest sexual dysfunction, while the use of condoms was correlated with the lowest dysfunction. Since the birth control methods are divided into two types of hormonal and non-hormonal methods, they have direct effects on the sexual systems, and some lead to sexual dysfunction[32]. Condom causes no physical or mental complications and has no interference with sexual response; it is effective in improving physical health and preventing venereal diseases, hence causing the lowest sexual dysfunction. Another study demonstrated that combined contraceptive pills increased sexual desire and reduced sexual energy, which is in line with the current findings. However, in another study in Italy, the use of hormonal contraceptive pills increased sexual satisfaction, pain, and orgasm, while the sexual desire remained unchanged[33], which contradicts the findings of the present study. In another work, sexual desire decreased by reduction of androgen levels due to the consumption of oral contraceptive pills[34-36]. A complex process of biological, physiological, and social effects caused by the use of hormonal methods contributed to the reduction of sexual desire[37-40]. Regarding the conflicting results on the mechanism of the effects of birth control methods on sexual function, further studies are recommended. Since sexual function has a great impact on the quality of life of people, paying attention to this aspect of life is crucial, especially in women with breast cancer who are under high mental and neurological pressure. With regard to the increasing rate of breast cancer among women, bringing into consideration the problems of women with breast cancer, especially the sexual aspect, was the focus of the present study. As a limitation of the present study, the modesty and culture of Iranian society influenced the individuals' responses to sexual problems. Considering the significance of the effects of the type of birth control methods on sexual function and on treatment of breast cancer, further studies are recommended on the effects of these methods on sexual function of individuals.

5-CONCLUSION

The type of the birth control method, use of chemotherapy and radiotherapy, mastectomy surgery, and exercise history affect sexual function in women with breast cancer. Thus, it is recommended to provide sexual trainings for patients during the course of treatment, hold sex-related workshops in breast cancer clinics, oncology centers, and hospitals, and encourage patients to do aerobic and anaerobic exercises to reduce psychological pressure via improving sexual function. It is also recommended to provide these individuals with more specialized consultations on choosing the birth control method.

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