Evaluation of Sexual Function of Turkish Women With Breast Cancer Receiving Systemic Treatment

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Purpose/Objectives: To describe the sexual lives and factors affecting the sexuality of women with breast cancer receiving systemic treatment.

Design: Descriptive, correlational, cross-sectional study.

Setting: A breast cancer outpatient clinic.

Sample: 40 sexually active patients with breast cancer who received systemic treatment and 40 healthy women.

Methods: Participants completed an individual identification form, the Beck Depression Inventory, and the Female Sexual Function Index. Descriptive statistics and nonparametric tests were used to evaluate data.

Main Research Variables: Factors affecting the sexuality of patients with breast cancer.

Findings: Study participants had great difficulty discussing their sexual lives because of Turkish culture, but patients with breast cancer receiving systemic therapy had poorer sexual lives than healthy women. Depression level was the most significant variable for patients who stopped having sex; as the level of depression increased, so did the negative effect on sexual function. Women with breast cancer also experienced dyspareunia during treatment from decreased vaginal lubrication. As dyspareunia decreased, sexual function improved.

Conclusions: Addressing depression, a significant factor in the sexual lives of patients receiving systemic treatment, will increase the sexual function of patients with breast cancer receiving treatment.

Implications for Nursing: Holistic care should be given to patients diagnosed with breast cancer, including psychological support, an evaluation of patients' previous sexual lives, and information and coping strategies about the effect of the treatment regimen on sexuality.

According to the research literature, about 50% of patients receiving treatment for breast cancer experience long-term sexual issues attributed to the physical and psychological impact of breast cancer diagnosis and treatment (Huber, Ramnarace, & McCaffrey, 2006). Previous studies about the impact generally focused on the period after treatment was completed, with little or no information reported on sexual issues during treatment. Beckjord and Campas (2007) recently reported that younger women who had received chemotherapy, had mastectomies, and were depressed had decreased sexual quality of life. The focus of the current study is to describe sexuality and factors affecting the sexuality of patients receiving systemic treatment for breast cancer.

Background

Although the prevalence of sexual dysfunction in women with breast cancer receiving treatment is not known, it is estimated to range from 40%–100%. Sexual issues experienced by patients occur as a direct or indirect effect of prior negative attitudes about sexuality and changes in their lives, psychological state, and treatment methods used (Burke, 1997; Ganz, Litwin, & Meyerowitz, 2001; Ganz, Rowland, Desmond, Meyerowitz, & Wyatt, 1998; Knobf, 1998; Lamb, 1996; Schover, 1991; Shell, 2002). Systemic treatment used in patients with breast cancer affects the ovaries, leading to ovarian insufficiency, and the vaginal epithelium, leading to vaginal dryness, causing symptoms similar to menopause, such as hot flashes and pain during sexual intercourse (Goodwin, Ennis, Pritchard, Trudeau, & Hood, 1999; Mortimer et al., 1999; Schag et al., 1993). As a result, patients with sexual desire have difficulty achieving arousal and orgasm (Carpenter, Johnson, Wagner, & Andrykowski, 2002; Shell). A study conducted by Barni and Mondin (1997) found that of 50 patients with breast cancer who had been surgically treated one year previously and were sexually active (96%), 64% had decreased sexual function after treatment. Common complaints were a loss of sexual desire (64%), decreased sexual desire (48%), difficulty in achieving orgasm (44%), vaginal dryness (42%), dyspareunia (38%), and vaginismus (30%). Researchers also reported that patients with breast cancer encounter sexual issues years after treatment, with most resolving after 10 years (Broeckel, Thors, Jacobsen, Small, & Cox, 2002; Ganz et al., 1998; Joly, Espie, Marty, Heron, & Henry-Amar, 2000; Young-McCaughan, 1996). Some studies (Berglund, Nystedt, Bolund, Sjoden, & Rutquist, 2001; Ganz et al., 1998; Onen, Elbi Mete, Noyan, Alper, & Kapkac, 2004; Wilmoth, Coleman, Smith, & Davis, 2004) emphasized individual and illness-related differences in sexual dysfunction, but others reported no significant difference in these variables. Speer et al. (2005) reported that, according to measurements in the **Female Sexual Function Index (FSFI)**, chemotherapy, radiation therapy, mastectomy, lumpectomy, and tamoxifen

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Quick Facts: Turkey

Geography, history, and political organization: Three percent of the total area lies in southeastern Europe, and the remainder is in southwestern Asia. The total area is 780,580 km^2, slightly larger than the size of Texas.

Social and cultural features: Turkey has a highly heterogeneous social and cultural structure, with sharp contrasts among population groups. The modern and traditional exist simultaneously within the society. Family ties are strong and influence the formation of values, attitudes, aspirations, and goals.

Economy: Turkey can be classified as a middle-income country. The rate of economic growth has been comparatively high in recent years, and the economy has undergone a radical transformation from an agricultural base to an industrial one, particularly since the 1980s.

Population: Turkey is the most populous country of the Middle East. The population was 72 million in 2005 and is expected to reach 76 million by 2010 and 88 million by 2025. Approximately 35% of the total population live in rural areas. Twenty-six percent of the total population are younger than 15; only 7% are older than 65.

Healthcare system priorities and programs: The Ministry of Health is officially responsible for designing and implementing nationwide health policies and delivering healthcare services. The ministry also regulates prices of medical drugs and controls drug production and pharmacy operations. Health institutions that provide medical care and preventive health services include inpatient institutions (hospitals and health centers) and outpatient institutions (health units, health houses, infirmaries, mother and child health centers, and dispensaries). Services provided by the institutions include personal health cards, which are sent to the ministry monthly together with information on health status. Mean life expectancies for women and men are 74.0 years and 69.1 years, respectively, with an overall mean of 71.5 years.

Education: Formal education includes preschool, primary school, secondary school, and higher education institutions. Eighty-seven percent of the population are literate.

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use did not affect sexual function. However, an increase in depression level and age had a negative effect on total FSFI. Schag et al. reported that when psychological stress increased, an increase in complaints, such as decreased sexual desire, sexual arousal, and difficulty achieving orgasm, was seen. A study by Bukovic et al. (2005) determined that satisfaction with sex in women with breast cancer before treatment was 70%, dropping to 56% after treatment. The impact of breast cancer on patients' sexual lives lasts years after diagnosis and treatment and generally is not addressed by healthcare providers.

Methods

Setting and Sample

This descriptive, correlational, cross-sectional study was conducted from June to October 2003 in the Breast Cancer Outpatient Clinic in the Institute of Oncology at Istanbul University in Turkey. The sample size was statistically computed according to annual number of patients, inclusion criteria, and literature on the prevalence of sexual issues in patients with breast cancer who have received systemic therapy.

The sample group consisted of 40 women with breast cancer who had received chemotherapy or hormonal therapy but had not received radiation therapy in the prior six months; were sexually active; had at least a primary school education; could read, write, and speak Turkish; could communicate; and agreed to participate in the study. The control group consisted of 40 healthy women who were relatives of patients and who had similar personal characteristics, were sexually active, did not have any psychological issues, and provided informed consent to participate in the study.

Procedures

Data for the study were obtained through an interview that lasted approximately 40 minutes. Subjects were asked to complete three study tools so that the researchers could collect demographic information and evaluate sexual function and depression. In addition, information about the cancer (e.g., stage, whether the patient had surgery, type of systemic therapy used, Eastern Cooperative Oncology Group [ECOG] score, depression level) also was documented. Patients were assured that their information would remain confidential and that refusal to take part in the study would not affect their care and treatment.

Instruments

The **Individual Identification Form** was used to assess both groups' individual characteristics affecting sexuality. The demographic profile developed by the researchers contained 28 items that addressed the usual demographic data (e.g., age, income level, employment status) and disease and treatment characteristics at the time of the initial diagnosis (e.g., surgical therapy, radiation therapy, chemotherapy).

The FSFI was developed by Rosen et al. (2000) to evaluate the sexual function of women within a four-week window. The FSFI contains 19 items that measure six subscales (sexual desire, arousal, lubrication, orgasm, satisfaction, and pain). The maximum score of each subscale is 6, and the maximum total score is 36. Higher scores represent a better sexual quality of life. The validity and reliability of the tool's Turkish version were verified by the Turkish Society of Andrology. Cronbach alpha values ranged from 0.86–0.99 for the subscales and 0.99 for the general tool during evaluation, and the tool was found to be valid and reliable.

The **Beck Depression Inventory (BDI)** (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was used to evaluate vegetative, emotional, cognitive, and motivational symptoms of depression. The tool is widely used.

Data Analyses

The SPSS® 11.5 (SPSS Inc.) program was used for data analysis. Descriptive statistics and nonparametric tests (chi square, Mann-Whitney U, Kruskal Wallis, and Spearman correlation) were used.

Results

Distribution of Individual and Illness-Related Characteristics

Forty-three percent of patients in the breast cancer group were aged 40–49 years, 60% were housewives, 48% were primary school graduates, 80% had a moderate to good

income level, and the mean body mass index was 28.86 (SD = 4.65). The age range in the control group was the same, but 70% were housewives, 50% were primary school graduates, and 65% had a moderate to good income level, and the mean body mass index was 29.48 (SD = 3.48). The two groups were statistically similar for personal characteristics (see Table 1). In the evaluation of illness-related characteristics, 42% had stage IV disease, 58% had an ECOG score of 0, 88% had surgical treatment, 60% were receiving chemotherapy, and 40% were receiving hormonal therapy. The mean BDI score was 12.05 (SD = 7.40; range = 1–28) (see Table 2).

Comparison of the Sexual Function of Women With Breast Cancer and Healthy Women

The control group had higher scores on all of the FSFI subscales and higher total FSFI scores (see Figure 1). Although no difference was found in sexual desire between the two groups ($p > 0.05$), the breast cancer group experienced issues with arousal, vaginal lubrication, achieving orgasm, and sexual satisfaction; and because they were more likely to experience pain during sexual intercourse, they experienced more difficulty in maintaining or avoided having a sexual life compared to the control group ($p < 0.05$) (see Table 3).

Sexuality and Factors Affecting Sexuality in Patients With Breast Cancer

Interviews with the breast cancer group determined that 17% of the women's sexual lives had not been affected by treatment, 50% had not had any sexual activity in the prior four weeks, and 40% had stopped having sexual intercourse at the beginning of their treatment; however, 45% stated that they did not have decreased sexual desire. Additionally, 68% of the patients had FSFI scores below the cutoff of 26.55, demonstrating that sexual function was affected and that the issues experienced the most by the women were difficulties with arousal, achieving orgasm, and satisfaction.

Table 1. Patient Characteristics

	Breast Cancer Group (N = 40)		Control Group (N = 40)			
Characteristic	**n**	**%**	**n**	**%**	χ^2	**p**
Age (years)					0.80	0.67
30–39	9	23	12	30		
40–49	17	43	17	43		
50–59	14	35	11	28		
Education					1.49	0.68
Primary school	19	48	20	50		
Middle school	4	10	6	15		
High school	7	18	8	20		
University	10	25	6	15		
Occupation					1.01	0.60
Housewife	24	60	28	70		
Civil servant	5	13	3	8		
Retired	11	28	9	23		
Income level					2.25	0.13
Poor	8	20	14	35		
Moderate to good	32	80	26	65		

Note. Because of rounding, percentages may not total 100.

Table 2. Illness-Related Characteristics of Women With Breast Cancer

Characteristic	n	%
Stage		
I	11	28
II	8	20
III	4	10
IV	17	42
Surgical status		
Had surgery	35	88
Did not have surgery	5	12
Type of surgery		
Lumpectomy	9	23
Mastectomy	20	50
Unknown or did not have surgery	11	28
Systemic therapy		
Chemotherapy	24	60
Hormonal therapy	16	40
Eastern Cooperative Oncology Group score		
0	23	58
1	10	25
2	4	10
3	3	8
Beck Depression Inventory		
Normal	19	48
Mild emotional or state disorder	10	25
Borderline clinical depression	4	10
Moderate level of depression	7	18

N = 40

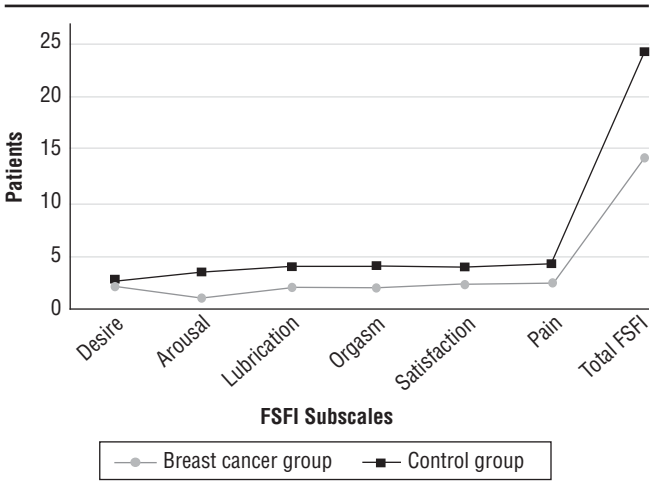
Note. Because of rounding, percentages may not total 100.

Individual characteristics did not affect sexual lives of women, but the depression level from the illness-related characteristics were correlated. As patients' levels of depression increased, sexual desire, arousal, the ability to reach orgasm, and level of satisfaction decreased. Pain levels during sexual intercourse increased as well, and a general negative effect on sexuality was indicated. Patients suffering from depression had a lower sexual satisfaction rate (1.68, confidence interval = 1.23–2.31) (see Table 4).

As complaints of pain during sexual intercourse decreased in patients receiving treatment for breast cancer, their desire, arousal, vaginal lubrication, orgasm, and satisfaction scores increased. Pain did not affect sexual function in the control group (see Table 5).

Discussion

Patients face many issues during breast cancer diagnosis and treatment, including accepting the diagnosis and treatment, coping with psychosocial issues, and continuing to fulfill family responsibilities. The physical and psychological results of a breast cancer diagnosis and treatment alter human sexuality (Huber et al., 2006). Patients who are in constant communication with healthcare professionals during treatment and receive support and counseling from the healthcare team about treatment-related issues still rarely talk about sexuality issues, which often is a taboo topic in Turkish society. In general, patients do not verbalize their sexual lives, and healthcare professionals do not evaluate



Note. The six subscales (sexual desire, arousal, lubrication, orgasm, satisfaction, and pain) each contain a maximum score of 6, and the maximum total score of the scale is 36. Higher scores represent a better sexual quality of life.

Figure 1. Breast Cancer and Control Groups' Female Sexual Function Index (FSFI) Subscale and General Scores

patients on the issue; as a result, if sexual difficulties arise, they remain untreated.

Although some patients in this study stated that treatment did not affect their sexual lives, about 50% of the breast cancer group ended sexual activity at the beginning of treatment and a large percentage reported that, while in the treatment phase, they experienced difficulty with arousal, achieving orgasm, and satisfaction. In studies examining the sexual lives of patients with breast cancer (although generally studying patients after the treatment period), researchers have reported that patients' sexual function continues to be affected years later by psychological status or from treatment side effects (Berglund et al., 2001; Broeckel et al., 2002; Bukovic et al., 2005; Ganz et al., 1998; Joly et al., 2000; Wilmoth et al., 2004; Young-McCaughan, 1996). Compared to chemotherapy, the negative effect of hormonal therapy on sexuality lasts for a shorter period of time (Berglund et al.; Ganz et al., 1998; Joly et al.; Schover, 1991).

A literature review evaluating sexual dysfunction of patients diagnosed with breast cancer found that patients frequently experienced a decrease in sexual desire and arousal, difficulty achieving orgasm, pain during sexual intercourse, and a decrease in sexual satisfaction (Barni & Mondin, 1997; Broeckel et al., 2002; Mortimer et al., 1999; Speer et al., 2005; Wilmoth et al., 2004). Although participants in the current study had similar sexual desire, those with breast cancer did not maintain or avoided having a sexual life because of treatment-related issues with arousal, vaginal lubrication, achieving orgasm, and sexual satisfaction, or because they experienced pain during sexual intercourse. Avis, Crawford, and Manuel (2004) also reported that inadequacy in many sexual functions without a decrease in sexual interest was an important health issue in patients with breast cancer. Speer et al. found that, compared to healthy individuals, patients with breast cancer have lower sexual desire; decreased arousal, lubrication, orgasm achievement, and satisfaction scores; and increased pain scores. Onen et al. (2004) also reported that, compared to healthy individuals, patients with breast cancer avoid sexual relationships and have difficulty communicating their sexual issues.

Patients with breast cancer receiving systemic treatment experience disturbances in sexual function (e.g., ovarian insufficiency, vaginal dryness, hot flashes) as a direct or indirect effect of that treatment, which make arousal and orgasm difficult (Carpenter et al., 2002; Shell, 2002). Sexual quality of life among women with breast cancer was significantly more disrupted in those who received chemotherapy, were younger, had a later disease stage, reported more depressive symptoms near the time of diagnosis, underwent a total mastectomy (Beckjord & Campas, 2007), and had recurrent disease (Andersen, Carpenter, Yang, & Shapiro, 2007). In the current study, no differences were seen in the patients' sexual function according to individual characteristics, and depression level was the only illness-related characteristic connected to sexuality. As patients' depression levels increased, sexual desire, arousal, orgasm achievement, and satisfaction levels decreased. They also had more pain during sexual intercourse and their sexual lives were more negatively affected in general than the control group. Schag et al. (1993) evaluated 227 patients newly diagnosed with breast cancer one month and one year after surgical treatment and reported that, as psychological stress levels increased, sexual desire decreased and patients had more complaints about sexual arousal and difficulty in achieving orgasm. Speer et al. (2005) reported similar findings; although only 10% of patients had clinical depression, an increase in depression level had a negative effect on sexual

Table 3. Female Sexual Function Index (FSFI) Scores

	Breast Cancer Group (N = 40)					Control Group (N = 40)						
Subscale	$\bar{X}$	SD	Median	Minimum	Maximum	$\bar{X}$	SD	Median	Minimum	Maximum	Z_{MWU}	p
Desire	2.67	1.24	2.70	1.20	6.00	3.00	1.18	3.30	1.20	4.80	–1.46	0.147
Arousal	1.82	2.04	0.90	0.00	6.00	3.71	1.47	3.90	1.20	6.00	–4.16	0.000
Lubrication	2.50	2.62	1.20	0.00	6.00	4.39	1.40	4.35	1.20	6.00	–2.97	0.003
Orgasm	2.34	2.62	0.60	0.00	6.00	4.48	1.31	4.80	1.20	6.00	–3.15	0.002
Satisfaction	2.74	2.18	1.40	0.80	6.00	4.44	1.60	4.80	1.20	6.00	–3.63	0.000
Pain	2.48	2.68	1.00	0.00	6.00	4.53	1.26	4.40	1.20	6.00	–3.10	0.002
Total FSFI	14.55	12.75	6.80	2.00	36.00	24.54	6.54	26.20	7.20	33.60	–3.28	0.001

MWU—Mann-Whitney U test

Table 4. Correlation Between the Female Sexual Function Index (FSFI) and Beck Depression Inventory (BDI) Scores of the Breast Cancer Group

FSFI Subscale	r_s	p
Desire	–0.59	0.0001
Arousal	–0.34	0.03
Lubrication	–0.29	0.07
Orgasm	–0.36	0.03
Satisfaction	–0.35	0.03
Pain	–0.31	0.04
Total FSFI	–0.42	0.007

r_s—Spearman's rho correlation

desire. Schag et al. also noted that, according to FSFI measurements, chemotherapy, radiation therapy, tamoxifen use, and mastectomy or lumpectomy did not affect sexual function; those results are consistent with the current study. Speer et al. reported that increased age affected sexuality, but, in contrast, Ganz et al. (1998) found that patients receiving chemotherapy and younger patients have more sexual dysfunction and that tamoxifen use did not affect the sexual function of patients 50 and older. In addition, chemotherapy treatment before hormonal therapy reportedly has a negative effect on sexuality (Berglund et al., 2001), and fatigue and weight gain can cause changes in sexual function (Wilmoth et al., 2004). Individual characteristics and treatment-related symptoms in the current study did not affect the sexual lives of the participants with breast cancer.

As pain during sexual intercourse decreased in patients being treated for breast cancer, desire, arousal, lubrication, orgasm, and satisfaction scores increased. Broeckel et al. (2002) also found that increased severity of vaginal dryness worsened sexual function.

When caring for patients diagnosed with breast cancer, nurses strive to provide holistic care through psychological support, through evaluations of sexual history, and by providing information and coping strategies to deal with the effect of the treatment regimen on sexual function. Sexuality is important at every stage of life, but patients and healthcare professionals may be reluctant to discuss sexual issues in a clinical environment.

Limitations

Although the study recruited women from a single oncology hospital, the hospital receives patients from all areas of Turkey and the study is a representative sample of Turkish cultural characteristics. The study revealed that depression level is an important factor in sexual quality of life for patients with breast cancer, but depression levels for the control group participants were not assessed. Further research could determine the relationship between depression and sexuality in patients with breast cancer and healthy women.

Implications for Research and Practice

Although nurses can play a pivotal role in improving the sexual health of women with breast cancer (Bakewell & Volker, 2005) and may believe that education about sexuality is a legitimate and important aspect of their role, many nurses avoid discussing sexuality with patients or encounter structural obstacles because they are not adequately prepared to incorporate sexuality as a dimension of patient care (Lavin & Hyde, 2006). The healthcare teams in Turkey and elsewhere need to break the silence about sexuality, be active leaders, create a comfortable atmosphere, and provide support. Evaluating and treating sexual concerns of patients with breast cancer will have a positive effect on their quality of life.

Conclusion

Women receiving systemic treatment for breast cancer have poorer sexual lives than a comparable group of healthy women. Depression levels play an important role in the sexual lives of Turkish women with breast cancer, and a decrease in pain during sexual intercourse improves sexual function. Dealing with depression likely will increase sexual function in women receiving treatment for breast cancer and improve quality of life.

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Table 5. Correlation Between the Female Sexual Function Index (FSFI) Scores for the Breast Cancer Group and Control Group

Control Group (N = 40)	Breast Cancer Group (N = 40)													
	Desire		Arousal		Lubrication		Orgasm		Satisfaction		Pain		Total FSFI	
Variables	r	p	r	p	r	p	r	p	r	p	r	p	r_s	p
Desire	–	–	0.69	0.0001	0.64	0.001	0.67	0.0001	0.65	0.0001	0.65	0.0001	0.83	0.0001
Arousal	0.63	0.0001	–	–	0.95	0.0001	0.97	0.0001	0.95	0.0001	0.92	0.0001	0.93	0.0001
Lubrication	0.51	0.001	0.72	0.0001	–	–	0.95	0.0001	0.95	0.0001	0.93	0.0001	0.92	0.0001
Orgasm	0.51	0.001	0.77	0.0001	0.59	0.0001	–	–	0.98	0.0001	0.89	0.0001	0.92	0.0001
Satisfaction	0.46	0.003	0.81	0.000	0.59	0.0001	0.83	0.0001	–	–	0.88	0.0001	0.92	0.0001
Pain	0.26	0.10	0.26	0.10	0.21	0.18	0.26	0.10	0.26	0.10	–	–	0.88	0.0001
Total FSFI	0.72	0.0001	0.90	0.0001	0.79	0.0001	0.86	0.0001	0.86	0.0001	0.43	0.006	–	–

r_s—Spearman rho correlation

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