RESEARCH ARTICLE

Effects of Sexual Rehabilitation Using the PLISSIT Model on Quality of Sexual Life and Sexual Functioning in Post-Mastectomy Breast Cancer Survivors

Safieh Faghani, Fatemeh Ghaffari*

Abstract

Background and Objectives: As one of the most common treatments for breast cancer, mastectomy has adverse effects on the quality of sexual life and sexual functioning in the impacted women. Various strategies have therefore been proposed to resolve their sexual problems. The present study was conducted to determine the effect of sexual rehabilitation using the PLISSIT model in post-mastectomy breast cancer survivors. **Materials and Methods:** The present quasi-experimental study was conducted on a population of post-mastectomy breast cancer survivors and their husbands. Sample size was calculated as 50 each for intervention and non-intervention groups. The former received sexual counseling based on the PLISSIT model consisting of four levels of intervention: permission, limited information, specific suggestion and intensive therapy, presented in four 90-minute sessions. Data were collected using the Sexual Quality of Life-Female (SQOL-F) questionnaire and the Female Sexual Function Index (FSFI). **Results:** No significant differences were observed in the mean quality of sexual life scores between the intervention and control groups ($P>0.05$) before the intervention; however, a significant difference emerged between the groups after the intervention ($P<0.01$). Thus the mean score for sexual functioning in the intervention group was 26.3±3.76 before and30.0±4.38 after the intervention ($P<0.0001$). In the control group, however, the difference between the pre- and post-intervention mean scores was not statistically significant ($P=0.713$). **Conclusion:** The present study showed that nurses can use the PLISSIT model in conjunction with chemotherapy and radiotherapy to teach coping and problem-solving skills to women with breast cancer and their husbands and to encourage their participation in group programs for expressing their feelings and attitudes about their current sex life and thus help enhance quality of sexual life and sexual functioning in this group.

Keywords: Sexual rehabilitation- the quality of sexual life- sexual functioning- breast cancer- mastectomy

Asian Pac J Cancer Prev, **17 (11)**, 4845-4851

Introduction

Breast cancer is the most common type of cancer in women throughout the world, comprising 25% of all the cases of cancer. About 1.7 million new cases of breast cancer were diagnosed in 2012 (Torre et al., 2015). With a prevalence of 18.24%, breast cancer is also the most common type of cancer among women in Iran (Amori et al., 2016).

Several treatment options are available for breast cancer based on the degree and severity of the disease, generally including surgery, chemotherapy, radiotherapy and hormone therapy. There are two types of breast cancer surgery: breast-conserving surgery and mastectomy) Maughan et al., 2010.(In Iran, 81% of breast cancer patients receive mastectomy (Akbari et al., 2012).

Recent advances in the screening, early diagnosis and treatment of breast cancer have led to a significant increase from 48% to 84% in the 5-year survival rate of this cancer in different regions of Iran (Akbari et al., 2012).. Nevertheless, these patients are faced with a wide range of psychological and physical symptoms associated with cancer and its specific treatment, such as sexual problems (Vaziri and Lotfi Kashani, 2012). The treatment of cancer and its associated complications and the damage caused by the experience of cancer have a dramatic effect on many aspects of sexual functioning (Gilbert et al., 2010; Goldfarb et al., 2009; Raggio et al., 2014) and a significant number of cancer patients continue to experience the deterioration of sexual function with time (Harirchi et al., 2012).

Recent studies on sexual dysfunction among women of all ages with breast cancer have shown that 68% to 70% of them experience at least one sexual problem (Alder et al., 2008; Panjari et al., 2011).In Iran, the rate has been reported as up to 84% after treatment (Harirchi et al., 2012)

The sexual dysfunctions often observed in women with breast cancer include the loss of libido, Dyspareunia, vaginal atrophy and dryness, reduced breast sensitivity and reduced sexual pleasure (DeSimone et al., 2014;

*Babol University of Medical Sciences, Babol, Iran. *For Correspondence: ghafarifateme@yahoo.com*

Gilbert et al., 2010; Ussher et al., 2012). Mastectomy is one of the cancer treatment methods that can cause a sense of defect or weakness, impaired body image, loss of attractiveness, and sexual dysfunction in the affected women and thus encourage mood disorders among them (Speck et al., 2010).

As a symbol of beauty, motherhood and sexual attraction, the breast is an organ whose loss or deformation is likely to lead to adverse effects on sexual life, a negative body image, a feeling of lost attraction and beauty, a low self-esteem and the avoidance of social interactions (Arroyo and Lopez, 2011). The results of a study conducted by Montazeri et al (2008) 18 months after breast cancer surgery showed persisting impaired body image, sexual dysfunction and impaired sexual pleasure with time in the patients and concluded that follow-up care should further emphasize this aspect of life in order to improve the overall quality of life in survivors (Montazeri et al., 2008). Previous studies have shown that the quantity and quality of sex, Sexual Desire, sexual arousal and sexual satisfaction reduce and pain during intercourse increases in women after mastectomy) Bakht and Najafi, 2010, Khajehaminian et al., 2014).

Despite the great challenges in the diagnosis and treatment of breast cancer, most survivors express an interest in receiving sexual health care (Hill et al., 2011).

Nurses and healthcare staff can help women with breast cancer by way of assessing their sexual needs and choosing the best strategy to meet those needs; for example, by teaching relevant skills and increasing their sexual knowledge (Latini et al., 2009). Currently, patients with sexual problems tend to complain about the poor quality of the training they receive and the special personal needs that their therapists leave unmet (Robinson et al., 2011).

A model that integrates information about sexual desires and behaviors with general care can help nurses acquire and assess information about sexual health and thus examine the potential concerns and problems faced by this group of patients (Alvandi Jam A et al., 2015).

In recent decades, various strategies have been proposed for improving sexual problems, including models such as the Activity, Libido / desire, Arousal / orgasm, Resolution, Medical information (ALARM) (Andersen, 1990) and the Bringing up the topic of sexuality, Explaining, Telling, Timing, Recording (Better) (Cohen, 2004). The most common model is the PLISSIT model of sex therapy Annon (1974), consisting of four different levels of intervention: Permission, Limited Information, Specific Suggestion and Intensive Therapy (Annone, 1981). Annon (1981) believes that 70% of sexual problems can be solved at the first level of intervention and 80% to 90% at the first three levels proposed by the model (Annone, 1981).

Several studies have confirmed the effectiveness of this model in resolving sexual problems (Ayaz and Kubilay, 2009; Chun, 2011; Farnam et al., 2014; Rostamkhani et al., 2015; Rostamkhani et al., 2012; Rutte et al., 2015) and consider it a beneficial intervention to be used by nurses in nursing research, education and practice (Van Meijel et al., 2004). Concerns about the effect of invasive breast cancer treatments such as mastectomy on the quality of sexual life and sexual functioning are increasing in patients and the routine performance of mastectomy as a surgical treatment of breast cancer in Iran with no regard for its postoperative sexual consequences and rehabilitation have increased the need for the continuing study of the sexual consequences faced by these patients. The present study was therefore conducted to determine the effect of sexual rehabilitation using the PLISSIT model on the quality of sexual life and sexual functioning in post-mastectomy breast cancer survivors.

Materials and Methods

The population examined in the present quasi-experimental study consisted of post-mastectomy breast cancer survivors and their husbands. The researchers gained access to the study participants through their health records in healthcare centers, hospitals and specialist surgeries in west Mazandaran cities in Iran. The intervention was conducted in the patient education room in the select health centers at a time most convenient to the majority of the participants. Sample size was calculated as 50 per group.

A list was prepared based on the demographic data of women with breast cancer undergone mastectomy as per their health records. Using a table of random numbers, the participants were divided into an intervention and a control group with equal sizes (n=50 per each). They were contacted by the phone numbers provided in their health records and were given brief explanations about the study objectives and methods and their eligibility to enter the study was assessed by the researcher. All the eligible candidates were invited to visit the select health centers along with their husbands on a specific date and time to receive further introduction and explanation about the time and place of the intervention. During this meeting, the participants signed informed consent forms and their initial measurements (the pretest) and demographic information were also taken. Regular telephone follow-up was maintained to minimize sample withdrawals and to remind the participants of the next meetings and to also collect the posttest data.

The study inclusion criteria: Women of reproductive age (18 to 45 years old), living with their legal husband, the permanent presence of the spouse at home, married for at least six months, reading and writing literacy, having at least one sexual problem, a history of mastectomy over the past year, no physical diseases affecting sexual function such as cardiovascular diseases, diabetes and MS, no scar or any type of lesion in the genital tract, no history of medications affecting sexual response in the woman or her husband (antihypertensives, thiazide diuretics, antidepressants, antihistamines, barbiturates, narcotics, diazepines, amphetamines and cocaine), no history of tragic accidents over the past month and no mobility limitations or skeletal disorders in the woman or her husband.

The study exclusion criteria: A history of trauma or genital abnormalities that prevent intercourse, severe psychological disorders such as depression (based on

the health records), advanced disability or handicap and absence from two sessions of the intervention.

Intervention

The intervention group received sexual counseling based on the PLISSIT model on four levels, including Permission, Limited Information, Specific Suggestion and Intensive Therapy (Annone, 1981(, presented over four 90-minute sessions held by a female researcher for the post-mastectomy women and by a male researcher for their husbands (Table 1). The control group received no interventions. To avoid bias, arrangements were made between the researchers before the intervention regarding the program and the content of the sessions.

Data were collected using the following questionnaires:

1- A checklist of personal-social and disease-related details: This checklist inquires about participants' personal-social details, including age, level of education, occupation, place of residence, socioeconomic status, husband's education, number of children and husband's occupation, as well as their disease-related details, including knowledge about the disease, the type of therapy received, the medications used and time since the last treatment.

2- Brief Sexual Symptom Checklist for Women (BSSC-W): This 5-item tool assesses women's sexual problems, if any. The validity and reliability of this tool have been confirmed by Hatzichristou et al (2004) (Hatzichristou et al., 2004). In this study, Cronbach's α coefficients were determined for total scores, of BSSC-W, which were significantly high, (0.87) for the entire sample of 20 participants, indicating that BSSC-W has good internal consistency reliability.

3- The Sexual Quality of Life-Female (SQOL-F): The validity and reliability of this 18-item questionnaire have been confirmed in Iran (α = 0 .73) (Maasoumi et al., 2013).

4- The Female Sexual Function Index (FSFI): This index assesses sexual function over the preceding four weeks and contains 19 items in six different sexual function domains, including sexual desire, sexual arousal, vaginal lubrication, orgasm, sexual satisfaction and pain. The addition of the nineteen items provides the total FSFI score. The validity and reliability of this index have been confirmed by Rosen et al (2000) in a study conducted on a group of women with sexual arousal disorder (Cronbach's alpha=0.89)(Rosen et al., 2000). The validity and reliability of this index have also been confirmed in Iran by Mohammadi et al (2008). The reliability of the entire index as well as of its subscales was confirmed with a Cronbach's alpha of 0.7 (Mohammadi Kh et al., 2008).

The SQOL-F and FSFI were completed by both groups

Table 1. Sexual Health Enhancement Program

Content	Duration (min)	Participant	PLISSIT	Session
Introduction and explanation on the study objectives	90	Couple	Permission	Week One
Completing the checklist of personal-social and disease-related details and the quality of sexual life and sexual function questionnaires			(discussion, lecture and interview)	
Opportunity for the participants to talk and the assessment of the couples' sexual problems				
Expressing mutual goals and agreeing to achieve them				
Review of goals	90	Couple	Limited Information	Week Two
Presenting Information on:			(lecture and pamphlet distribution	
Sexual problems related to breast cancer and its treatment, including mastectomy				
Physical changes (in the breast, fatigue, pain, etc.)				
Sexual changes (in desire, arousal, orgasm, natural lubrication, satisfaction and pain)				
Psychological changes (in body image, the sexual attitude toward oneself, depression, etc.)				
The husbands' reactions to these changes				
Sharing sexual experiences over the past weeks	90	Women	Intensive Therapy	Week Four
Expressing positive experiences			(discussion and lecture)	
Expressing sexual problems and ways of overcoming them				
Referral and resources for sexual specialists Wrap-up and review				
Completing the questionnaires	30			Four Weeks after the Intervention

before and four weeks after the intervention (35).

Data analysis

All data were analyzed using SPSS software version 18.0 (SPSS Inc., Chicago, IL, USA). Using the Kolmogorov-Smirnov test, the Chi-square test, Wilcoxon's test and Mann-Whitney's U-Test. P-value less than 0.05 was considered as significant.

Ethical considerations

Obtaining the approval of the Research Ethics Committee of Babol University of Medical Sciences, briefing the participants on the study objectives and taking into account their willingness to participate, ensuring the participants of the confidentiality and anonymity of their data and obtaining written consents from the participants.

Results

The results obtained showed no significant differences between the control and intervention groups in terms of demographic variables such as age, level of education and place of residence or disease-related details including the type of therapy and the types of medication used (P>0.05). Nevertheless, there were significant differences between the two groups in terms of occupation, the number of children, husband's education and occupation, time since learning about the disease and time since the last treatment (P<0.05). The effects of these variables on the quality of sexual life and sexual functioning were assessed in the two groups.

Participants' mean age was 43.2±4.6 years, time since learning about the disease was 4.2±1.2 years and time since the last treatment was 2.1±1.1 years. The majority of the participants had a high school diploma (Table 2), 74% had poor sexual functioning, 87% had a poor quality of sexual life, and 79% were dissatisfied with their sexual functioning. The most common sexual problems faced by the participants included reduced or loss of sexual desire or libido (53%) and inability to orgasm (23%), by order of prevalence. A total of 41% of the participants were willing to talk to a nurse about

Table2. Demographic Characteristics of the Study Sample

	control group	intervention group
Level of education	N (%)	
Illiterate	8 (16)	6 (12)
Under diploma	12 (24)	14 (28)
Diploma	20 (40)	19 (38)
University degree	10 (20)	11 (22)
Employment status		
Housewife	36 (72)	38 (76)
Self-employed	4 (8)	2 (4)
Employee	8 (16)	7 (14)
Farmer	2 (4)	3 (6)
Economic		
Earn equal pay	33 (66)	34 (68)
Earn more money	13 (26)	12 (24)
Earn less money	4 (8)	4 (8)
Spouse education		
Illiterate	2 (4)	3 (6)
Under diploma	10 (20)	8 (16)
Diploma	29 (58)	25 (50
University degree	9 (18)	14 (28
Spouse Employment status		
Self-employed	45 (90)	38 (76)
Employee	5 (10)	12 (10)
Type of treatment		
Chemotrapy	28 (56)	34 (68)
Chemotrapy and radiotrapy	22 (44)	16 (32)
Lodging		
City	29 (58)	36 (72
Village	21 (42)	14 (28)
Age		
31-40	18 (36)	17 (34)
41-50	32 (64)	33 (66)

Table 3. The Quality of Sexual Life in the Two Groups before and after Sexual Rehabilitation

Group	pre test M(SD)	post test M(SD)	χ^{2}/ t	p
Control group	31.6±12.36	31.1±13.2	0.713	1.84
intervention group	21.3±6.6	24.5±8.0	0.001	5.45
Total	32.6±20.4	46.7±21.8	0.003	6.89

their physical problems and 25% were willing to consult with a psychologist. The results showed that the quality of sexual life had a significant relationship with time since learning about the disease (P<0.001) and time since the last treatment (P<0.01). A significant relationship was also observed between time since the last treatment and sexual functioning (P<0.001). Occupation, the number of children and husband's education and occupation showed no significant relationships with the quality of sexual life and sexual functioning (P>0.05).

The mean quality of sexual life was 41.8±5.0 in the intervention group before sexual rehabilitation, but reached 53.1±5.8 after the rehabilitation. Before the intervention, no significant differences were observed between the two groups in the mean overall quality of sexual life (P>0.05); however, the two groups differed significantly in this regard after the intervention (P<0.01; Table 3).

According to the results obtained, the mean score of sexual functioning was 26.3±3.8 in the intervention group before the intervention and reached 30.3±4.4 after the intervention, suggesting a significant difference (P<0.001). No significant differences were observed in the mean score of sexual functioning before and after the intervention in the control group (P=0.713). No significant differences were observed between the two groups in terms of their score of sexual functioning before the intervention (P=0.246); however, a significant difference was observed between them after the intervention (P<0.001; Table 4).

Discussion

The results of the present study showed poor sexual functioning in the majority of the post-mastectomy women. Wang et al (2013) also noted the high prevalence of poor sexual functioning among women with breast cancer and found that nearly half of the women avoided sexual intercourse and limited it to only once or twice a year. Moreover, 90% of the participants reported a significant decline in sexual activity.

The present findings showed an increase in the mean quality of sexual life in post-mastectomy women following the PLISSIT-based intervention. This finding can be explained by how the survivors were accompanied by their husbands in the sexual rehabilitation sessions held, and the husbands may have thus exerted positive effects and helped improve their psychological stresses, marital satisfaction, quality of sexual life and even survival in their role as sexual partner and major source of support (Aizer et al., 2013; Li et al., 2015). Given the great psychological needs of cancer survivors (Faghani et al., 2015; Pumo et al., 2012) and the effects of these needs on the various aspects of their life, and the absence of public centers for periodical psychological counseling in conjunction with physical follow-ups, the presence of a psychologist along with a nurse in the research team appears to have helped improve the quality of sexual life in the survivors. These findings are consistent with those obtained in other studies (Hazrati et al., 2008; Nosrait et al., 2007; Poorkiani et al., 2010). In a study of the effect of a sexual rehabilitation intervention using the PLISSIT model on the quality of sexual life in hemodialysis patients, Alvandijam et al (2014) found a significant difference in the mean quality of sexual life in the intervention group following the intervention.

The present findings also confirmed the effectiveness of a PLISSIT-based intervention in improving sexual functioning; in other words, this model can have positive effects on problem-solving skills pertaining to sexual issues in mastectomized women and thus improve their sexual functioning. This finding can be explained by how this model incorporates four levels; for problems of the first level, the participants are allowed to talk about their sexual problems; and since Iranian women feel ashamed when talking about such issues (Maasoumi et al., 2013) this intervention gave them the opportunity to express their sexual problems by way of boosting their confidence in conveying their feelings and experiences to their peer group and counsellors in a safe environment and facilitated the recognition of their sexual problems and helped develop their problem-solving strategies, improve their sexual

Table 4. The Mean Score of Sexual Functioning in the Two Groups Before and after Sexual Rehabilitation

FSFI sub scales and total	intervention group		Control Group		Significance	
	before M(SD)	after M(SD)	before M(SD)	after M(SD)	χ2/ t	P-valu
Desire	3.4±1.0	4.5±0.9	3.6±1.2	3.4±1.1	0.64	0.001
Arousal	3.9±0.9	4.6±1.0	3.5±1.1	3.5±1.1	0.01	0.001
Lubrication	4.3±0.8	5.2±0.7	4.3±0.9	4.4±0.9	0.18	0.007
Orgasm	4.3±0.6	4.8±1.0	4.4±1.1	4.5±1.1	3.49	0.01
Satisfaction	5.0±0.5	5.6±0.5	4.6±1.2	4.6±1.0	2.42	0.01
Pain	3.5±1.0	4.7±1.1	3.8±1.1	3.9±1.0	3.38	0.038
FSFI total	26.3±3.8	30.0±4.4	24.1±4.7	24.2±4.6	4.38	0.01

functioning and increase their well-being (Fouladi et al., 2013). Studies have also shown that the greatest need of a cancer patient or survivor tends to revolve around health system and information domain (Abdollahzadeh et al., 2014; Faghani et al., 2015). Nevertheless, the healthcare system in Iran performs inefficiently in the area of sexual problem-solving and people often have to take advantage of informal sexual training (Maasoumi et al., 2013). To overcome this gap, the present study used the PLISSIT model in the second and third sessions to present specific information on physical, sexual and psychological changes and the means of enhancing sexual functioning and sexual skills, etc., to improve sexual functioning among the survivors (Farah et al., 2014). In the fourth session, the cancer survivors shared their different experiences of the past few weeks, including positive experiences of sexual contact with their husband or negative sexual incidences and their strategies for overcoming them. This exercise may have been effective in improving their body image, changing their attitude toward the future and improving their sexual functioning (Sharif et al., 2012). Other studies have also emphasized the effect of the PLISSIT model on sexual functioning in women with breast cancer. The results obtained by Sayed Saboula et al (2015) revealed a post-intervention improvement in all the dimensions of sexual functioning, including desire, arousal, lubrication, orgasm, satisfaction and pain (with the exception of sexual desire), as well as in the score of body image (Nabila El and Marwa, 2015). Through improving body image and enhancing sexual satisfaction, the PLISSIT model can improve sexual functioning (Ayaz and Kubilay, 2009; Chun, 2011).The results of a study conducted by Nho (2013) showed a significant difference between the pre- and post-intervention scores of sexual functioning in women with gynecological cancer (Nho, 2013). Yildiz and Tutuncu (2012) also showed a better sexual functioning three and six months after mastectomy in women who had received PLISSIT-based training (Tutuncu and Yildiz, 2012). The results of a study conducted by Mansour et al (2011) in Iran also showed a significant difference in the SFI score and the degree of pain before and after a sexual rehabilitation intervention program ($P<0.001$).

The present study showed that the PLISSIT model can help improve the quality of sexual life and sexual functioning in breast cancer survivors. Nurses and other medical staff can use this model in clinical centers to assess the sexual needs, weaknesses and strengths of the affected couples. By teaching coping and problem-solving skills and encouraging participation in group programs for expressing feelings and attitudes about one's current sex life, the PLISSIT model can be used in conjunction with chemotherapy and radiotherapy to help improve the quality of sexual life and sexual functioning in women with breast cancer and their husbands.

Acknowledgements

The present study was conducted after obtaining the permission of the Research Ethics Committee of Babol University of Medical Sciences under the code 3,277.

References

Abdollahzadeh F, Moradi N, Pakpour V, et al (2014). Un-met Supportive Care Needs of Iranian Breast Cancer Patients. *Asian Pac J Cancer Prev*, **15**, 3933-38.

Aizer AA, Chen MH, Mccarth EP, et al (2013). Marital status and survival in patients with cancer. *J Clin Oncol*, **31**, 3869-76.

Akbari ME, Khayamzadeh M, Khoshnevis S, Nafisi N, Akbari A (2012). Five and ten years survival in breast cancer patients mastectomies vs. breast conserving surgeries personal experience. *Iran J Cancer Prev*, **1**, 53-6.

Alder J, Zanetti R, Wight E, et al (2008). Sexual dysfunction after premenopausal stage I and II breast cancer: do androgens play a role? *J Sex Med*, **5**, 1898-906.

Alvandi Jam A, Afshari A, Talebi M, Abbasi R (2015). The effect of Sexual rehabilitation on (Sexual) quality of life for hemodialysis patients referred to dialysis center in Labafinejad Hospital. *Sci J Hamdan Univ Med Sci*, **22**, 45-52.

Amori N, Aghajani M, Asgarian FS, Jazayeri M (2016). Epidemiology and trend of common cancers in Iran (2004-2008). *Eur J Cancer Care (Engl)*, doi: 10.1111/ecc.12449.

Andersen B (1990). How cancer affects sexual functioning. *Oncol*, **4**, 81-8.

Arroyo JM, Lopez ML (2011). Psychological problems derived from mastectomy: a qualitative study. *Int J Surg Oncol*, **10**, 1-8.

Ayaz S, Kubilay G (2009). Effectiveness of the PLISSIT model for solving the sexual problems of patients with stoma. *J Clin Nurs*, **18**, 89-98.

Bakht S, Najafi S (2010). Body image and sexual dysfunctions: comparison between breast cancer patients and healthy women. *Procedia Soc Behav Sci*, **5**, 1493-97.

Chun N (2011). Effectiveness of PLISSIT model sexual program on female sexual function for women with gynecologic cancer. *J Korean Acad Nurs*, **41**, 471-80.

Cohen MZ (2004). Using the BETTER model to assess sexuality. *Clin J Oncol Nurs*, **8**, 84-6.

Desimone M, Spriggs E, Gass JS (2014). Sexual dysfunction in female cancer survivors. *Am J Clin Oncol*, **37**, 101-6.

Faghani S, Mohammadian R, Rahmani A, et al (2015). Supportive Care Needs of Iranian Cancer Survivors and Relationships with Social Support. *Asian Pac J Cancer Prev*, **16**, 6339-45.

Lotfi Kashani F, Vaziri SH, Hajizadeh Z (2014). Sexual skills training, body image and sexual function in breast cancer. *Procedia Soc Behav Sci*, **159**, 288-92.

Farnam F, Janghorbani M, Raisi F, Merghati-Khoei E (2014). Compare the effectiveness of PLISSIT and sexual health models on women's sexual problems in Tehran, Iran: a randomized controlled trial. *J Sex Med*, **11**, 2679-89.

Fouladi N, Pourfarzi F, Ali-Mohammadi H, et al (2013). Process of coping with mastectomy: A qualitative study in Iran. *Asian Pac J Cancer Prev*, **14**, 2079-84.

Gilbert E, Ussher JM, Perz J (2010). Sexuality after breast cancer: a review. *Maturitas*, **66**, 397-407.

Goldfarb S, Dickler M, Sit L, et al (2009). Sexual dysfunction in women with breast cancer: prevalence and severity. ASCO *Annual Meeting Proceedings*, **27**, 9558.

Harirchi I, Montazeri A, Zamani Bidokhti F, Mamishi N, Zendehdel K (2012). Sexual function in breast cancer patients: a prospective study from Iran. *J Exp Clin Cancer Res*, **31**, 20.

Hatzichristou D, Rosen RC, Broderick G, et al (2004). Clinical evaluation and management strategy for sexual dysfunction in men and women. *J Sex Med*, **1**, 49-57.

Hazrati M, Poor Keiani M, Abaszade A, Jaafari P(2008). The effect of rehabilitation in quality of life in women after

mastectomy. *Armaghane danesh*, **12**, 89-99.
Hill EK, Sandbo S, Abramsohn E (2011). Assessing gynecologic and breast cancer survivors' sexual health care needs. *Cancer*, **117**, 2643-51.
Annone JS (1981). PLISSIT therapy.In: Corsini RJ,Hand book of Innovative Psychotherapies, New York, Wiley.
Khajehaminian F, Ebrahimi M, Kamali M, Dolatshahi B, Younesi SJ (2014). Sexual functioning after mastectomy surgery-A qualitative study. *Iran J Breast Dis*, **7**, 50-8.
Latini DM, Hart SL, Coon DW, Knight SJ (2009). Sexual rehabilitation after localized prostate cancer: current interventions and future directions. *Cancer J*, **15**, 34-40.
Li Q, Gan L, Liang L, Li X, Cai S (2015). The influence of marital status on stage at diagnosis and survival of patients with colorectal cancer. *Oncotarget*, **6**, 7339-47.
Maasoumi R, Lamyian M, Khalaj Abadi Farahani F, Montazeri A (2013). Women's perception of sexual socialization in Iran: A qualitative study. *J Qualitative Res Health Sci*, **2**, 221-33.
Maasoumi R, Lamyian M, Montazeri A (2013). The sexual quality of life-female (SQOL-F) questionnaire: translation and psychometric properties of the Iranian version. *Reprod Health*, **10**, 1-6.
Mansour SE, Shebl AM, Waheda SM. (2014). The effect of sexual counseling program on pain level and sexual function among women with dyspareunia. *Nurse Educ Pract*, **5**, 208-20.
Maughan KL, Lutterbie MA, Ham PS (2010). Treatment of breast cancer. *Am Fam Physician*, **81**, 1339-46.
Mohammadi Kh, Heydari M, Faghihzadeh S (2008). The Female Sexual Function Index (Fsfi): Validation Of The Iranian Version. *Payesh*, **7**, 269-78.
Montazeri A, Vahdaninia M, Harirchi I, et al (2008). Quality of life in patients with breast cancer before and after diagnosis: an eighteen months follow-up study. *BMC Cancer*, **8**, 1-6.
Nabila-El S, Marwa A Sh (2015). Effectiveness of application of PLISSIT counseling model on sexuality for breast cancer's women undergoing treatment. *American J Nurs Sci*, **4**, 218-30.
Nabila-El SS, Nho JH (2013). Effect of PLISSIT model sexual health enhancement program for women with gynecologic cancer and their husbands. *J Korean Acad Nurs*, **43**, 681-9.
Nosrait M, Rahmani A, Naghibi F, Razavi A (2007). A study on the effects of education on marital life satisfaction of women undergone hysterectomy in urmia chosen hospitals, 2008. *J Urmia Nurs Midwifery Fac*, **5**, 129-36.
Panjari M, Bell RJ, Davis SR (2011). Sexual function after breast cancer. *J Sex Med*, **8**, 294-302.
Poorkiani M, Abbaszadeh A , Hazrati M, et al (2010). The effect of rehabilitation on quality of life in female breast cancer survivors in Iran. *Indian J Med Paediatr Oncol*, **31**, 105-9.
Pumo V, Milone G, Iacono , et al (2012). Psychological and sexual disorders in long-term breast cancer survivors. *Cancer Manag Res*, **4**, 61-5.
Raggio GA, Butryn ML, Arigo D, Mikorski R, Palmer SC (2014). Prevalence and correlates of sexual morbidity in long-term breast cancer survivors. *Psychol Health*, **29**, 632-50.
Robinson J, Forrest A, Pope-Ellis C, Hargreaves AT (2011). A pilot study on sexuality in rehabilitation of the spinal cord injured: Exploring the woman's perspective. *S Afr J Occup Ther*, **41**, 13-17.
Rosen R, Brown C, Heiman J (2000). The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther*, **26**, 191-208.
Rostamkhani F, Ozgoli G, Khoei EM, Jafari F, Majd HA (2012). Effectiveness of the PLISSIT-based counseling on sexual function of women. *J Nurs Midwifery Shahid Beheshti Univ Med Sci*, **22**, 1-9.
Rostamkhani F, Jafari F, Ozgoli G, Shakeri M (2015). Addressing the sexual problems of Iranian women in a primary health care setting: A quasi-experimental study. *Iran J Nurs Midwifery Res*, **20**, 139-46.
Rutte A, Van Oppen P, Nijpels G (2015). Effectiveness of a PLISSIT model intervention in patients with type 2 diabetes mellitus in primary care: design of a cluster-randomised controlled trial. *BMC Fam Pract*, **16**, 1-9.
Sharif F, Abshorshori N, Hazrati M, Tahmasebi S, Zare N (2012). Effect of peer-lead education on quality of life of mastectomy patients. H*ealth Qual Life Outcomes*, **11**, 703-10.
Speck RM, Gross CR, Hormes JM, et al (2010). Changes in the body image and relationship scale following a one-year strength training trial for breast cancer survivors with or at risk for lymphedema. B*reast Cancer Res Treat*, **121**, 421-30.
Torre La, Bray F, Siegel RL, et al (2015). Global cancer statistics, 2012. *CA Cancer J Clin*, **65**, 87-108.
Tutuncu B, Yildiz H (2012). The influence on women's sexual functions of education given according to the PLISSIT model after hysterectomy. *Procedia Soc Behav Sci*, **47**, 2000-4.
Ussher JM, Perz J, Gilbert E (2012). Changes to sexual well-being and intimacy after breast cancer. *Cancer Nurs*, **35**, 456-65.
Van Meijel B, Gamel C, Van Swieten-Duijfjes B, Grypdonck MH (2004). The development of evidence-based nursing interventions: methodological considerations. *J Adv Nurs*, **48**, 84-92.
Vaziri S, Lotfi Kashani F (2012). Sexuality after breast cancer: need for guideline. *Iran J Cancer Prev*, **5**, 10-5.
Wang F, Chen F, Huo X , et al (2013). A neglected issue on sexual well-being following breast cancer diagnosis and treatment among Chinese women. *PLoS One*, **8**, 1-7.