IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 9, Issue 5 Ser. II (Sep. – Oct. 2020), PP 42-52
www.iosrjournals.org

Effect of PLISSIT Counseling Model on Sexual life for Women with Breast Cancer

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Abstract: *Breast cancer is the most common cancer in women both in the developed and less developed world and can bring changes related to women's body image and sexuality.* ***Aim of the study****: to evaluate the effect of PLISSIT counseling model on sexual life for women with breast cancer.* ***Study design:*** *A quasi experimental research design was used.* ***Subject and settings:*** *This study was conducted at Oncology Outpatient Clinics of Tanta University Hospital. Total study subjects were (60) married women diagnosed with breast cancer and undergoing treatment.* ***Tools****: Four tools were used by the researcher in order to obtain the necessary data for the study as follows:* ***Tool I****: A structured interview schedule which composed of four parts part I: sociodemographic characteristics of the women. Part II: Menstrual and obstetrical history: - It was consisted of three parts (Menstrual history, Obstetrical history and history of contraceptive methods). Part III: medical history about breast cancer. Part IV: Women's knowledge about the sexual life* ***Tool II****: Female Sexual Function Index (FSFI).* ***Tool III:*** *Body Image Scale (BIS).* ***Tool IV.*** *The Revised Dyadic Adjustment Scale (RDAS)*. ***Results****: The age of studied group ranged between 22-46 with a mean±SD (36.03±5.86) years There were statistically significant difference among all domains (desire, arousal, lubrication, orgasm, satisfaction and pain) of FSFI (P<0.05) pre and post 3 months of PLISSIT counseling model intervention There was significant positive correlation between revised dynamic adjustment scale and female sexual function index post 3 months after PLISSIT intervention,.* ***Conclusion:*** *application of PLISSIT model was effective in enhancing sexual functioning, body image and couple satisfaction for breast cancer women under treatment.* ***Recommendations****: Appropriate training for health personnel especially nurses about adopting PLISSIT counseling sexual model in addressing sexual dysfunction in breast cancer treatment institutions as provide ongoing in-service education to them.*

Key words: *- Breast Cancer, Sexuality, Couple Satisfaction, PLISSIT Model.*

Date of Submission: 08-09-2020 Date of Acceptance: 23-09-2020

I. Introduction

Breast cancer (BC) is one of the biggest problems related to women's health and the second most common malignant disease for women also its leading cause of death worldwide both in developed and in developing countries [(1-3)]. It can bring changes related to women's body image and sexuality [(4, 5)]. Risk factors are family history, medical history, genetics, obesity and the use of hormone therapy are risk factors for both sexes [(6)]. According to American Institute for Cancer Research there were over 2 million new cases in 2018 [(7)]. According to National Population-Based Cancer Registry Program (NCRP) in Egypt (2014) age standardized the incidence rates per 100,000 were 166.6 (both sexes), 175.9 (males), and 157.0 (females), Breast cancer occupied the second rank in females represent (38.8%). During the period 2013–2050 the number of incident breast cancer cases would increase due to population growth and aging of the population [(6)].

In Egypt, due to cultural reasons, breast cancer women may suffer in silence struggling with their sexual problems [(8)]. Sexuality is an important part of normal human functioning [(9)]. Sexual health is the integrity of somatic, intellectual, mental, emotional and social aspects of any individual. Cancer causes higher rates of sexuality- related problems than other chronic diseases. Both diagnosis and methods of treatment of cancer such as; organ excision, radiotherapy, chemotherapy and the usage of hormones negatively affect the women's sexuality [(10)]. The most common complaint relates to sexual dysfunction, with more than 50% of breast cancer survivors reporting mild to severe sexual dysfunction following treatment [(11)].

The risk of sexual dysfunction is of a greater importance among young cancer patients and survivors. The reasons for that are related to the growing number of BC among premenopausal women all over the world, who already comprise 25% of all diagnosis of breast cancer; a higher fragility of young women regarding their

sexual self-conception and body image (versus their older counterparts*);* then the closely related comorbidities of premature menopause and infertility, caused by the disease and its treatments, and the developmental and relational period in these women's lives, where they are struggling to form stable peer and intimate partner relationships, highly engaged in studies or early professional careers, gaining/reinforcing their personal and financial independence, and having to manage and integrate all this with BC diagnosis and treatment[12-19]. Breast cancer treatment may result in changes related to women's body image and sexuality, which can have a devastating impact on intimate relationships and sexuality [20]. Also bring major alterations of body image through loss of a body part, disfigurement, scars or skin changes. Early detection and treatment are very important in reducing mortality rates among the women [21].

Egypt is a country where sexuality is not talking about within the family; sexual education is not included in the curriculum of schools. Sexuality is regarded as shameful and guilty in this community that is becoming more and more conservative [22-24]. The community health nurse can help the women with breast cancer by a way of assessing their sexual needs and choosing the best strategy to meet those needs. Nurses have important duties as counselor and guide in determining the factors affecting sexual functions of breast cancer patients, problems that may be experienced in sexual matters, and providing help to these individuals in order to overcome these problems [25, 26].

Aim of the study

The aim of this study was to: - Evaluate the effect of PLISSIT counseling model on sexual life for women with breast cancer**.**

Research Hypothesis: - Sexual life of breast cancer women expected to be improved after application of PLISSIT counseling model.

Subjects and method

II. Subjects And Method

Study design: - A quasi experimental research design was used to carry out this study.

Study setting: This study was conducted at Oncology Outpatient Clinics of Tanta University Hospital.

Study subjects: A random sample of (60) married women diagnosed with breast cancer and undergoing treatment were included in the study at reproductive age and who are willing to participate and complete the study. The sample size was estimated with test of power analysis (95% confidence limit, 80% power of the study).

Tools of the study: Four tools were used by the researcher in order to obtain the necessary data for the study as follow:-

Tool I: A structured interviewing schedule developed by the researcher depending on the literature review [20] and included the following parts:

Part 1:- Socio-demographic data of the studied women: included age, residence, education, occupation, duration of marriage and family income.

Part 2:- Menstrual and obstetrical history: which included the following:-

A) **Menstrual history such as:** age at monarch, characteristic of menstruation (duration of menses, regularity and frequency of the cycle)

B) **Obstetrical history such as:** age at first pregnancy, number of pregnancies, number of deliveries, number of abortions as well as types of their infants feeding.

C) **History of contraceptive methods used included:** previous use of contraceptives includes (types used, duration of use, complications due to using these methods), presence of vaginal discharge and-or bleeding

Part 3:- Present medical history about breast cancer:- included how woman discovered breast cancer, women's complains, date of diagnosis, stage of disease at diagnose, location and size of tumor, date of hospital admission, onset of the treatment, type of treatment received and its side effect.

Part 4:- Women's knowledge about the sexual life: This part included data regarding the women's knowledge as definition of sexual life, factors affecting on it, marital relationship, sexual frequency, sexual interest, causes which decrease sexual desire, sexual well-being and breast cancer effect on sexual relation.

Assessment of women sexual life as: - if the disease affects on the women sexual need or desire or terminates it, sexual satisfaction and its number after diagnose and also negative effect of the breast cancer treatment on the sexual relation.

Scoring system related to women's knowledge:-

- Poor knowledge less than 50% of the total knowledge score (less than 7.5 grades).
- Fair knowledge from 50%-70% of the total knowledge score (from 7.5-10.5 grades).
- Good knowledge more than 70% of the total knowledge score (more than 10.5 grades).

Tool II. Female Sexual Function Index (FSFI):

Adapted multidimensional self - report instrument for the assessment of female sexual function. The FSFI consists of a 19-items (5-point Likert-type) scale for measuring of female sexual dysfunction. Individual items are designed to be summed into six subscales included (sexual desire, arousal, lubrication, orgasm, satisfaction, and pain during coitus), which can then be combined to produce a total score (range 0–95), with higher scores indicating better sexual functioning[(27)].

Scoring system related to FSFI:-

- Unsatisfactory ≤ 50 points.
- Satisfactory > 50 points

Tool III. Body Image Scale:

It is adapted self - report measure of the women body image. This scale consists of 10-items; The four options for rating body image changes were selected to be consistent with current quality of life (QL) measures, namely ``not at all" (score 0), ``a little" (score 1), ``quite a bit" (score 2) and ``very much" (score 3). The 10 item scores were then summed to produce the overall summary score for each patient, ranging from 0 to 30. Zero scores represented no symptom/distress and higher scores represented increasing symptoms/distress[(28)].

Scoring system related to body image scale:-

- No distress ranged from 0.0 to <10.
- Moderate distress ranged from 10 to < 20.
- Severe distress ranged from 20-30.

Tool IV. The Revised Dyadic Adjustment Scale (RDAS):

It was adapted self-report questionnaire about women and her husband's adjustment and satisfaction (it taken from women opinion). It assessed seven dimensions of couple relationships quality and satisfaction within three overarching categories including consensus in decision making, religion values and affection, satisfaction in the relationship with respect to stability, separation or divorce and conflict regulation, and Cohesion. It included only 14 items, each of which asks the women to rate certain aspects of her relationship on a 4 or 5 point. All questions had five points except question No, (11) had four points. Scores on the RDAS range from (1 to 69) degree. The higher scores, it indicating greater relationship satisfaction and lower scores indicating greater relationship distress. The cut-off score for the RDAS is 48 [(29)].

Scoring system related to (RDAS):-

- No marital distress equal or more than 48.
- Marital distress less than 48.
-

III. Method

The operation of this study was carried out as follows:

1- An official permission was obtained from the Dean of Faculty of Nursing Tanta University and the responsible authorities.

2- **Ethical and legal considerations** were considered all over the study phases as the following:-

- An approval from the ethical committee in the faculty of nursing was obtained on the proposal of the study.
- An informed consent was obtained from all study women.
- The right to abstain or terminate participation at any time was respected.
- Nature of the study wasn't cause any harm or pain to the entire sample.
- Assuring the women's about the privacy and confidentiality of collecting data and explain that it was used only for study purpose

3- Developing of the tools: - Tool (1) was developed based on review of the related literature [(20),] Tools II, III and IV adapted by the researcher and translated into Arabic.

4- A pilot study was carried out on 12 women's to ensure the clarity, applicability and comprehension of the tools and identify obstacles that may be encountered during data collection.

5-**The study tools** were tested for its face and content validity by a jury of five professor's expertise in the field of Community Health Nursing before conducting the study. The reliability test was applied to the previous tools.

- **Cronbach's Alpha** for **Tool 1 is 0.912** for 48 items applied on 6 married women.
- **Cronbach's Alpha** for **Tool 2 is 0.894** for 19 items applied on 6 married women.
- **Cronbach's Alpha** for **Tool 3 is 0.855** for 10 items applied on 6 married women.
- **Cronbach's Alpha** for **Tool 4 is 0.691** for 14 items applied on 6 married women.

- **Cronbach's Alpha** for **the sheet in total is 0.873** for 91 items applied on 6 married women.

6- The actual study:

- The collection of the data of the present study was done by structured interview schedule administered individually to each woman to assess her knowledge (Tool I)
- The field work of this study done in six months starting from October (2018) to April (2019).
- The researcher was met the women at Oncology Unit three days per week (Saturday, Monday and Tuesday) after obtaining the oral consent.
- The program divided into six sessions. The average time spent of each session was 40-60 minutes.

7- Developing and implementing the program:-

The actual study includes four phases which were as followed:-

A) **Assessment phase**: Before running the program, women were interviewed individually to initiate good rapport, the data collected by the previously mentioned tools through interviewing each woman individually in pre-determined setting to collect the baseline data as a pre-intervention assessment.

B) **Planning phase**: An educational program was developed according to the women's needs and literature review to carry out the program,

The goal of the program: examine the effectiveness of PLISSIT counseling model on sexuality including (sexual functioning, body image and couple satisfaction) for women with breast cancer undergoing treatment.

Preparing and organizing the program content:

The theoretical contents of the program were planned and organized based on the women identified needs, the stated learning objectives and readiness of the women.

Teaching methods and instructional material:-

Several teaching methods were used in this study, which include:-

- ***Computer and power point*:** Power point presentation, pictures, assistive devices, videos
- ***Lecture/discussion*:** were presented in a concise manner and simple language.
- ***Group discussion:*** Discussions enable the women to consider various viewpoints on a topic. Through the discussion, the researcher might explore small aspects and details that might get ignored with other teaching approaches.
- ***The booklet was designed*** by the researcher and given to the women to use it as a source of information in the future.

C) **Implementation phase**: this phase included the implementation of the planned teaching program, an educational intervention was developed and implemented by the researcher based on women's needs and literature review, the content of the program was carried six teaching sessions

- Teaching was carried out in small groups, women were divided into twelve groups and each group consists of five women, the duration of each session ranged from 40-60 minutes and the content of the session according to women needs and her permission. The total sessions of the program were (72) session.

The program included six sessions as followed:-

Session I: Program orientation and expectation. (Time 30 minutes) The aim of this session was to orient the mothers about the importance of the program, its sessions and expectation of each session.

Session II: A general idea of breast cancer. (Time 40 minutes)

The aim of this session was to increase women's knowledge about disease, oriented the mothers about definition, the prevalence of breast cancer, causes and risk factors.

Session III: Methods of prevention, treatment methods and complications and of breast cancer. (Time, 40 minutes)

The aim of this session was to increase women's knowledge about methods of prevention breast cancer, treatment methods and complications and describe the link between breast cancer and intimacy.

Session IV: breast cancer and sexuality. (Time 40 minutes)

The aim of this session was to increase women's knowledge about sexuality, factors affecting the sexual life, changes in women appearance due to illness and sexual problems presented by breast cancer.

Session V: Psychological changes due to breast cancer. (Time, 30 minutes)

- The aim of this session was to increase women's knowledge about psychological changes related to breast cancer, importance of marital relationship for women at this stage and Explain some facts about intimacy and its association with breast cancer

Session VI: Improving intimacy. (Time, 60 minutes)

- The aim of this session was to increase women's knowledge about the positive experiences to increase the resolve and overcome the disease and describe the intimate relationship after treatment

Steps of implementing the PLISSIT counseling model:-

The program implementing using PLISSIT counseling model consisted of the following steps

I. Permission (P): The researchers talk about cancer and sexuality with women. Women of breast cancer provided a permission to think and talk about the sexual issues, sexual feelings /relationships and normalize this concern in a safe and comfortable environment. At this step, the researchers asked an open-ended and general question such as: what has your experience been with sexual issues since your diagnosis of cancer.

II. Limited Information (LI): The researchers offered brief information to the patient about the effect of cancer and related treatments on sexual function. In this stage, the researchers focused on addressing and correcting myths e.g. (I can spread cancer through intercourse).

III. Specific Suggestion (SS): The researchers used problem-solving approach to addressing patient's issues that experienced personally.

IV. Intensive Therapy (IT), which has the nurses refer the women's to other mental and medical health professionals that can help the women's deal with the deeper, underlying issues and concerns being expressed.

D) Evaluation phase: the aim of this phase is to evaluate the effectiveness of the PLISSIT counseling model on women's knowledge and sexuality.

- Evaluation was conducted three times:

1. ***First time:*** Before implementation of PLISSIT counseling model by using tools (I,II,III,IV)
2. ***Second time:*** Immediately after the implementation of PLISSIT counseling model (post-test) by using tool (I part 4).
3. ***Third time:*** 3 month after the implementation of the PLISSIT counseling model (follow-up evaluation) by using tool (I) part (4) and tools (II, III, IV).

III. Results

Table (I): Distribution of the studied women according to their socio–demographic characteristics

Characteristics	The studied women (n=60)	
	N	%
Age (in years)		
<25	2	3.3
25-<35	22	36.7
35-<45	31	51.7
≥45	5	8.3
Range **Mean ± SD**	**(22-46.0)** **36.03±5.86**	
Residence		
▪ Rural	27	45.0
▪ Urban	33	55.0
Occupation		
▪ Worked	19	31.7
▪ House wife	41	68.3
Educational level		
▪ Illiterate	3	5.0
▪ Read and write	10	16.7
▪ Secondary/technical education	26	43.3
▪ University/Post education	21	35.0
Family income		
▪ Not enough	18	30.0
▪ Enough	36	60.0
▪ Enough and save	6	10.0

Time period for marriage (in years) ▪ <10 ▪ 10-<20 ▪ ≥20	 23 25 12	 38.3 41.7 20
Range **Mean ± SD**	**(1.5-30.0)** **12.43±6.89**	

Table (I): Distribution of the studied women according to their socio-demographic characteristics. Regarding the residence and the age distribution of the studied women, more than half (55.0%) of studied women resided in urban area with age ranged from 35 - 45 years with a mean ± SD (36**.**03±5.86) years. Regarding the occupational status more than two thirds (68.3%) of studied women were housewife compared to about one third (31.7%) of them worked. Regarding the educational level, more than two fifths (43.3%) of studied women had secondary or technical education compared to only 5.0% of them were illiterate.

Concerning the family income three fifths (60.0%) of studied women had enough income compared to about one third (30%) of them hadn't enough income. Regarding the period for marriage of studied women ranged between 1.5-30 years with a mean±SD (12.43±6.89) years more than two thirds (41.7%) of studied women had 10-<20 years period of marriage compared to less than one quarter (20%) had ≥20 years period of marriage.

Table (II): Distribution of the studied women according to their total knowledge level scores about sexual life pre and post PLISSIT counseling model (throughout periods of study)

Total Knowledge level	**The studied women (n=60)**						**χ^2 P**
	Pre		**Immediately**		**Post 3 months**		
	N	**%**	**N**	**%**	**N**	**%**	
▪ Poor ▪ Fair ▪ Good	45 15 0	75.0 25.0 0.0	0 2 58	0.0 3.3 96.7	0 13 47	0.0 21.7 78.3	**154.03** **0.000***
Range **Mean ± SD**	**(1-10)** **6.28±1.860**		**(10-15)** **13.25±1.297**		**(9-14)** **11.70±1.522**		**F=322.9** **t=0.000***

* Significant at level P<0.05.

Table (II): Distribution of the studied women according to their total knowledge level scores about sexual life pre and post PLISSIT counseling model. The total knowledge level ranged (1-10) with Mean ± SD (6.28±1.860) pre PLLISSIT intervention to (10-15) with Mean ± SD (13.25±1.297) immediately PLLISSIT intervention and ranged from (9-14) with Mean ± SD (11.70±1.522), the difference was statistically significant (P<0.05).

The table shows that three quarters (75.0%) of studied women had poor knowledge in pre PLISSIT model intervention, while immediately after PLISSIT model intervention, the majority (96.7%) of them had good knowledge, but post 3 months PLISSIT model intervention it was slightly decreased to (78.3%). There was significant difference between the women knowledge by difference values of ANOVA mean F-test (F=322.9 and t=0.000).

Table (111): Distribution of the studied women according to their total level of Female Sexual Function Index (FSFI) pre and post PLISSIT intervention

Total FSFI level	**The studied women (n=60)**				**ANOVA P**
	Pre		**Post 3 months**		
	N	**%**	**N**	**%**	
▪ Unsatisfactory ▪ Satisfactory	51 9	85.0 15.0	7 53	11.7 88.3	**FE** **0.000***
Range **Mean ± SD**	**(19-58)** **35.88±11.897**		**(38-95)** **62.37±12.126**		**t=12.076** **P=0.000***

* Significant at level P<0.05.

Table (11I): Distribution of the studied women according to their total level of Female Sexual Function Index (FSFI) pre and post 3 months after PLISSIT intervention. The table shows that the total FSFI level ranged from (19-58) with mean ± SD (35.88±11.897) in pre PLISSIT intervention increased to (38-95) with mean ± SD (62.37±12.126). The majority (85.0%) of studied women who were unsatisfied regarding sexual function in pre PLISSIT intervention, it changed to (88.3%) of them were became satisfied of sexual function post 3 months after PLISSIT intervention. The difference was statistically significant (P=0.000).

Table 1V: Distribution of the studied women according to their total level of Body Image Scale (BIS) pre and post PLISSIT intervention

Total BIS level	The studied women(n=60)				χ^2 P
	Pre		Post 3 months		
	N	%	N	%	
• No distress	2	3.3	21	35.0	**78.692 0.000***
• Moderate distress	8	13.3	37	61.7	
• Severe distress	50	83.3	2	3.3	
Range	**(7-30)**		**(0-20)**		**t=14.328**
Mean ± SD	**24.13±6.680**		**18.37±5.295**		**P=0.000***

* Significant at level P<0.05.

Table (1V): Distribution of the studied women according to their total level of Body Image Scale (BIS) pre and post PLISSIT intervention the total body image score level ranged from (7-30) with Mean ± SD (24.13±6.680) pre PLISSIT intervention, the majority (83.3%) of studied women had severe distress pre PLISSIT intervention and changed to about two thirds (61.7%) of them had moderate distress and more than one third (35.0%) of them with no distress post 3 months after PLISSIT intervention. There were statistically significant between BIS levels pre and post 3 months after PLISSIT intervention (x^2= 78.692 and P=0.000).

Table (V): Correlation between total knowledge, Female Sexual Function Index (FSFI), Body Image Scale (BIS), and RDAS levels of the studied women pre and post 3 months after PLISSIT intervention

	Total FSFI level									
	Pre					Post 3 months				
	Unsatisfactory (n=51)		Satisfactory (n=9)		χ^2 P	Unsatisfactory (n=7)		Satisfactory (n=53)		χ^2 P
	N	%	N	%		N	%	N	%	
Total knowledge level										
▪ Poor	41	68.3	4	6.7	**FE 0.036***	0	0.0	0	0.0	FE 0.639
▪ Fair	10	16.7	5	8.3		2	3.3	11	18.3	
▪ Good	0	0.0	0	0.0		5	8.3	42	70.0	
r , P	0.144 , 0.272					0.056 , 0.673				
Total BIS level										
▪ No distress	0	0.0	2	3.3	**16.431 0.000***	0	0.0	21	35.0	**6.368 0.041***
▪ Moderate distress	5	8.3	3	5.0		6	10.0	31	51.7	
▪ Severe distress	46	76.7	4	6.7		1	1.7	1	1.7	
r , P	**-0.576 , 0.000****					**-0.352 , 0.006****				
Total RDAS level										
▪ Marital distress	47	78.3	9	15.0	FE 1.00	7	11.7	29	48.3	**FE 0.035***
▪ No marital distress	4	6.7	0	0.0		0	0.0	24	40.0	
r , P	0.179 , 0.172					**0.405 , 0.001****				

FE: Fisher's Exact Test
* Significant at level P < 0.05.
* Highly significant at level P < 0.01.

Table (V): Correlation between total knowledge, Female Sexual Function Index (FSFI),Women total knowledge score, Body Image Scale (BIS), and RDAS levels of the studied women pre and post PLISSIT intervention, It was observed that more than two thirds (68.3%) of studied women had poor knowledge and

unsatisfied regarding to total knowledge level in pre PLISSIT intervention, while post 3 months after PLISSIT intervention, the majority (70.0%) of studied women became satisfied and had good knowledge score (r and p= 0.144, 0.272 and 0.50, 0.673) respectively.

Regarding the BIS level, it was observed that about three quarters (76.7%) of women were severe distressed and unsatisfied in pre PLISSIT intervention, and it improved to more than half (51.7%) of them were satisfied and had moderate distress post 3 months after PLISSIT intervention. There was negative statistically correlation between BIS level and total FSFI pre and post 3 months after PLISSIT intervention (r and p= -0.576 , 0.000 and -0.352 , 0.006) respectively.

As regard to RDAS level, more than three quarters (78.3%) of studied women had marital distress and unsatisfied in pre PLISSIT intervention while, about half (48.3%) of them had marital distress but were satisfied, while 40.0% of them had no marital distress and were satisfied post 3 months after PLISSIT intervention. There was statistically significant positive correlation between RDAS level and FSFI level post 3 months after PLISSIT intervention (r and p= 0.179, 0.172 and 0.405, 0.001) respectively.

IV. Discussion

Sexuality is one of the most important components of health and well-being and a vital part of the quality of life [(13)]. Sexual health concerns are distressing complications for the women during the breast cancer diagnosis, treatment, its complications and recovery phases. Perceived stigma and embarrassment make people reluctant to discuss and address sexual health issues [(30, 31)].

The current study showed that the highest percentage women with breast cancer were younger as more than half of studied women their age ranged from 35 - 45 years of age with a mean ± SD (36**.**03±5.86) (**Table I).** The present study findings were matched with **Castelo et al., (2017)** [(32)], who studied the impact of breast cancer on female sexuality found that the mean age was 36, 4 years. Also study done by **Saboula et al., (2018)** [(20)], who found that the highest of women with the disease were younger (30-<40) years. The current study findings with the congruent with **Gauri et al., (2014)** [(33)], who studied the impact of breast cancer diagnosis and treatment on sexual dysfunction and reported that the age of women of their study was ranged between 33- 73 years. This variation of age in my research may be due to women included in the study were at reproductive age.

The present findings reveals that three quarters of studied women had poor knowledge in pre PLISSIT model intervention, while immediately after PLISSIT model intervention, the majority of them had good knowledge, but post 3 months PLISSIT model intervention it was slightly decreased to 78.3% as the total knowledge level with Mean ± SD (6.28±1.860) pre PLLISSIT intervention to (10-15) with Mean ± SD (13.25±1.297) immediately PLLISSIT intervention and ranged from (9-14) with Mean ± SD (11.70±1.522), the difference was statistically significant, **(Tables VII and VIII)**. These results agreed with study done by **Yılmaz et al., (2017)** [(34)], who studied the effects of training on knowledge and beliefs about breast cancer and early diagnosis methods among Turkish women found that the intervention was effective on increasing women knowledge and beliefs about BC the total mean knowledge score increased significantly from 9.05 in the pre-test to 16.5 in the post-test and the percentage of correct answers increased at a statistically significant rate.

The majority of studied women become well sexually functioning after 3 months PLISSIT model application compared to only 15.0% of women before its application **(Table III)**. Study done by **Saboula et al., (2015)** [(20)], who examined the effectiveness of PLISSIT Counseling Model on female sexuality, body image and couple satisfaction for (66) breast cancer women undergoing treatment showed that 27.0 % of women become well sexually functioning after application of model compared to only 9.0% of women before its application. Likewise, study done by **Ayaz and Kubilay (2009)** [(35)], studied patients with a stoma (i.e., ileostomy or colostomy due to colon cancer or ulcerative colitis) based on the PLISSIT model by conducting eight home visits and administering sexual satisfaction questionnaire 6 weeks and 4 months after the intervention. The results of the study revealed that the mean scores of female sexual satisfaction improved by using this model. Moreover, the sexual function and its dimensions except for sexual pain significantly differed in the intervention group in comparison with the control group. The results of their study confirm the findings of the present study on the promotion of female sexual function after PLISSIT-based counseling. However, in the present study, the change in the mean scores of the pain was similar to that of the other variables, which was not in agreement with the results of the study by **Ayaz and Kubilay (2009)** in the intervention group.

According to total level of Body Image Scale (BIS) pre and post 3 months PLISSIT intervention, the majority of studied women had severe distress pre PLISSIT intervention and changed to about two thirds of them had moderate distress and more than one third of them with no distress post 3 months PLISSIT intervention **(Table IV).** These results come in line with **Saboula et al., (2015)** [(20)], who showed statistically significant difference between body image scale level before and after application of PLISSIT counseling model. The higher percent of body image level were bad (48.5%) pre intervention; it improved to become good (54.5%) post intervention. Study done by **Shankar et al., (2017)** [(36)], who studied the impact of chemotherapy-induced menopause on the sexual functioning of women with breast cancer, they also ascertain that, numerous

studies have identified a greater frequency of body image alterations after mastectomy .Furthermore, these findings were also consistent with **Fingeret et al., (2014)** [37], who stated that; altered body image seems to be more pronounced if chemotherapy or hormonal therapy is added to the treatment regimen. Likewise, **Paterson et al., (2016)** [38], found that, mastectomy resulted in changes in body image. On the other hand, the results of this study contradict the results of the study conducted in Iran by **Rezaei et al., (2016)** [39], found that, body image was not influenced by type of surgical treatment a woman underwent but rather her mood impacted how she felt about her own body as well as how she perceived her partner felt about her body.

The present study indicated that, altered body image had an effect on sexuality and couple satisfaction **(Table XXIII).** This study findings was matching with studies conducted by **Lindau et al., (2015)** [40], who reported that a growing body of evidence suggests that changes in body image after breast cancer and its treatment may have direct effects on sexuality, sexual response, sexual roles, and relationships. The alterations in body image occur when there is a discrepancy between the ways someone formerly perceived herself and how she now sees herself as a result of cancer and its treatment.

The present study showed an improvement of sexual functioning, body image, couple satisfaction after 3 months of PLISST model application. This finding can be explained by how the survivors were accompanied by their husbands in the sexual rehabilitation sessions held. This is in accordance with study conducted by **Nami C, (2015)** [41], who studied effectiveness of PLISSIT model program on female sexual function for women with gynecologic cancer, and reported that the results indicated that the application of PLISSIT model sexual program was effective in increasing sexual function for women with gynecologic cancer. Nurses may contribute to improving women's sexual function by utilizing the PLISSIT counseling model. Also **Saboula et al., (2018)** [20], who displayed levels of body image scores, satisfaction and total Female Sexual Function Index (FSFI) post PLISSIT model application among studied women with breast cancer. It showed that, more than one quarter of studied women become well sexually functioning after application of model compared to 9% of women before its application. Regarding couple satisfaction it showed that more than two thirds of women had a satisfied couple relation after counseling model application compared to (32.0%) of women before.

Sexual dysfunction in people with cancer is a significant problem. Thus, the use of guidelines that address issues within the sphere of sexuality improves the sexual function of these individuals. This includes issues such as body image, sexual response, intimacy and relationship, altered sexual function, sexual satisfaction and vasomotor and genital symptoms in women. Sexual dysfunction interventions are organized in pharmacological approaches, psychosocial counseling and sexual response mechanisms. PLISSIT counseling model has an important therapeutic role, and the risks related to its use are low [22].

V. Conclusion

Based on the findings of the present study, it can be concluded that PLISSIT counseling intervention play an important role in alleviating side effects related to cancer breast treatment. Furthermore the majority of studied women became satisfied and had good knowledge score. There was significant positive correlation between RDAS level and FSFI level post 3 months after PLISSIT intervention.

VI. Recommendations

In the light of the study results it's recommended that:-

1. Appropriate training for health personnel especially nurses about adopting PLISSIT counseling sexual model in addressing sexual dysfunction in breast cancer treatment institutions as provide ongoing in-service education to them.
2. Support breast cancer women in the hospital outpatients units through which they have opportunity to share their struggles and emotions freely about their sexual problems related to breast cancer as well as increasing the number of specialized trained counselor nurses for sex therapy in secure environment.
3. Educate and appropriate training of their husbands to be aware about women emotions about their sexual problems and body image that help in manage the women stress and helping them to change their behavior and find solutions and support the potential impact of treatment related to breast cancer on women.
4. Educational programs for all community to increase their awareness about sexual problems related to breast cancer
5. Provide ongoing in-service education for nurses who dealing with breast cancer women about sexual counseling.

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