Effect of PLISSIT Model Based Counseling on Pain, Sexual Function, Quality of Life in fertile Women with Cyclic Mastalgia

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Abstract

Background: Because of hormonal fluctuations, cyclic mastalgia is a discomfort associated with menstruation**. Aim:** to assess the effect of PLISSIT model _based counseling on pain, sexual function, and quality of life (QOL) in fertile women with cyclic mastalgia. **Research design:** a quasi-experimental pretest/posttest research design was conducted. **Setting**: This study was conducted at the gynecological outpatient clinics at Minia Maternity and Children University Hospital in Minia City. **Subjects:** a purposive sample of eighty married, fertile women who met the mastalgia criteria, defined as having a pain scale score of at least four. **Tools:** data were collected via five tools: the structured interview questionnaire, Cardiff pain chart, the Pain Rating Index-scale value (VAS), the Female Sexual Function Index (FSFI), and the World Health Organization Quality of Life-BREF questionnaire**. Results:** there is a statistically significant difference in relation to the impact of the PLISSIT model-based counseling as the number of days with no pain increased from 15.39±1.68 pretest to 27.71±1.25 posttest, and the number of days with severe pain decreased from 8.14±1.96 pretest to 0.40±0.52 posttest(p=0.000**). Additionally, the percentage of women with low sexual activity decreased from (66.3%) pretest, to (0.0%) posttest, and the percentage of women who had high sexual activity increased from (0.0%) pretest to (65.0%) posttest (p <0.001). Furthermore, (67.50%) of the study women had poor quality of life pretest as compared with (97.70%) of them having good quality of life posttest. **Conclusion:** the PLISSIT model_ based counseling reduced pain, had a curative effect on sexual function, and was effective in correcting these conditions, significantly increasing the overall life quality scores. **Recommendation:** it's recommended to compare the efficacy of PLISSIT model-based counseling with other counseling and therapeutic models in managing cyclic mastalgia and improving sexual function and quality of life.

Key words: PLISSIT Model, Counseling, Sexual Function, Quality of Life, Fertile Women, Cyclic Mastalgia.

Introduction

Mastalgia, another name for breast pain, is a prevalent illness that affects up to 70% of women in their lifetime **(Dolan & Walsh, 2023).** Based on differences in beginning time and location, it can be further classified as cyclic, non-cyclic, and extra-mammary pain; the first two are known to be true mastalgia **(Cornell et al., 2020).** The most frequent form of breast pain, known as cyclic mastalgia, is described as discomfort that is worse during the luteal stage of ovulation and becomes better with menstruation. Non-cyclical mastalgia is common in the fourth and / or fifth decade of women's lives and is unrelated to the menstrual cycle **(Dolan& Walsh, 2023).**

Cyclic mastalgia is a diffuse and bilateral discomfort linked to menstruation or to hormonal therapies that are provided cyclically, including menopausal hormone therapy or contraceptives. On the other hand, noncyclical mastalgia varies in location and can affect one or both breasts. It can also be intermittent or constant. Extra-mammary mastalgia often

causes chest wall discomfort, which usually results in unilateral, intense pain that can be either localized or widespread **(Dolan & Walsh, 2023).**

Cyclic mastalgia originates in the upper outer quadrant of the breast, and it occasionally radiates to the ipsilateral arm. The intensity of the breast discomfort varies from minor to severe, and it may affect the woman's quality of life (QOL) intermittently or continuously throughout the day **(Mohammed, 2020).** Each person will experience the symptoms differently, but acute, shooting, stabbing, heavy, aching, and throbbing pain is common descriptions of the pain's nature. In addition to the discomfort, other possible signs include tenderness, swelling, dull heaviness, lumps, and/or nodules, as well as intense anxiety and worry about possible cancer **(Hafiz et al., 2018**).

The cycle of sexual responses includes arousal, orgasm, and desire. Libido, or sexual desire, is influenced by a variety of factors, including the patient's physical and mental health, previous sexual experiences, sex awareness, sexual relationship problems, individual sex beliefs, and lots of other topics. Remarkably, arousal and orgasm are only possible when the nipple-areolar sensation is present **(Lindau& Bensmaia, 2020).**

The phrase "quality of life" describes how people view their function in society, their cultural background, the values they uphold, as well as their objectives, standards, expectations, and priorities **(World Health Organization WHOQOL, 2020).** According to earlier research, pain in general may be linked to low quality of life in all domains (physical, mental, and social). Additionally, it has been shown that reducing thresholds for pain may improve quality of life **(Dueñas et al., 2016).** Consequently, women's sexual enjoyment might be impacted by severe and cyclical pain, which in turn can decrease sexual function **(Vaziri et al., 2016).**

Chemical therapies with numerous negative effects are frequently used in medical treatments for cyclic mastalgia. These kinds of therapies frequently don't work **(Nirhale et al., 2018).** Reassuring women that they do not have breast cancer can alleviate pain episodes in up to 85% of women with cyclic mastalgia. A side from reassurance, the other 15% will need treatment because of the detrimental effects on their sexual and physical activity, as well as their quality of life at work and in social situations. Prior to switching to second-line therapy, the first-line pain relief treatment should be conservative and administered for at least six months **(Bonilla et al., 2019).**

Counseling has the potential to raise a person's pain threshold by lowering anxiety, fear, and concern; boosting self-esteem; and encouraging knowledge of the illness. Additionally, counseling can be a useful non-pharmacological strategy to enhance quality of life and lessen pain by changing the patient's lifestyle, i.e., by assisting them in managing their weight, stress, and anxiety in addition to increasing their activities **(Hafiz et al., 2018).**

The PLISSIT model is among the most popular sexual health models for diagnosing and treating sexual issues. Four steps make up the approach for handling sexual concerns: allowing permission, providing limited information, guiding specific suggestions, and referring to intensive therapy **(Boa, 2014, Saboula&Shahin, 2015).** Health care professionals can use this model as a framework for incorporating appropriate and successful solutions to manage sexual issues into practice **(Torkzahrani et al., 2016; Almeida et al., 2019)**.

The study's significance:-

Research carried out in medical settings has demonstrated that from 67 to 75% of women below the age of 55 consistently feel discomfort in their breasts prior to menstruation, while 11–30% report medium or serious breast pain that lasts for 5 days or more every month **(Tahir & Shamsudeen, 2022)** It usually starts two weeks before menstruation and goes away when it does **(Scurr et al., 2014; Hubbard et al., 2020).** Cyclic mastalgia is usually caused by elevated hormone levels during the luteal phase of the menstrual cycle, leading to increased

water retention and swelling of the breast tissue **(Barbieri, 2014).**

Due to the breast's crucial role in shaping a woman's sexual identity and representation of femininity, anxiety, sadness, and depression are possible responses to breast disorders that may result in issues such as sexual dysfunction and sexual anxiety **(Taira et al., 2011, Ghaemi et al., 2019).** Interpersonal relationships and quality of life can be adversely impacted by sexual dysfunction. Therefore, enhancing sexual function can benefit their overall health, quality of life, and interpersonal relationships **(Khoei et al., 2020).**

Given the lack of research on sexual issues, sexual pain, and the quality of life for those with premenstrual cyclic mastalgia using the PLISSIT model, the present study aimed to assess the effect of PLISSIT model-based counseling on pain, sexual function, and quality of life in fertile women with cyclic mastalgia**.**

Aim of the study:

To assess the effect of PLISSIT model-based counseling on pain, sexual function, and quality of life in fertile women with cyclic mastalgia through:

- Assessment of women's pain, sexual function, and quality of life due to cyclic mastalgia.
- Developing, implementing and evaluating effect of PLISSIT model-based counseling on pain, sexual function, and quality of life in fertile women with cyclic mastalgia.

Research Hypothesis:

Counseling based on the PLISSIT model is anticipated to be a successful approach for relieving pain, improving sexual function, and quality of life in fertile women who have cyclic mastalgia.

Operational definitions:

Counseling:

A professional and collaborative process through which a trained counselor assists individuals or groups to inquire about and address various concerns those are societal, psychological, or personal. The aim of counseling is to provide support, develop insights, and facilitate change to improve the individual's mental health, well-being, and quality of life.

PLISSIT model:

PLISSIT model is a structure used for addressing sexual health concerns and providing sexual counseling. Jack Annon created it in 1976. It indicates allowing permission, providing limited information, guiding specific suggestions, and referring to intensive therapy.

Cyclic mastalgia:

Is a form of breast discomfort that occurs in a predictable pattern corresponding to menstruation. It begins typically in the luteal stage of the second half of the cycle and subsides with the onset of menstruation.

Fertile women:

Are women who have the biological capability to become pregnant and bring a child to term. Fertility in women is determined by several factors, including: ovulation, hormonal balance, healthy and functional reproductive organs, regular menstrual cycles, and overall physical health.

Sexual function;

Refers to the physiological and psychological processes that enable an individual to experience arousal, orgasm, fulfillment, and sexual desire (libido).

Quality of life (QOL);

Is a broad and multidimensional term that includes a person's general state of well-

being, including physical health, psychological state, independence level, relations with others, individual values, and connection to prominent aspects of their surroundings. It reflects the general perception of satisfaction and contentment with life.

Subjects and methods

Research design:

A quasi-experimental pretest/posttest design was used to carry out this study.

Research setting:

This study was carried out at gynecological outpatient clinic at Maternity and Children University Hospital in Minia from June 2023 to January 2024. The hospital serves all of Minia, which includes the eight outlying cities, in addition to the private service. Apart from the individual rooms and operating rooms; the hospital's first floor contains an imaging and diagnostics center, a pediatric clinic, an antenatal care clinic, gynecological clinic, and suites on the upper levels. The second floor contains the obstetrics and gynecology services. The third level contains the critical care unit, pediatric department, and rooms for prenatal, high-risk pregnancy, delivery, and postpartum care. While the outpatient clinics are only open from 9 a.m. to 1 p.m., the inpatient ward is open at all times.

Sampling and sample size estimation:

Purposive sampling included 80 women was recruited to the study according to the following criteria: married women with a mastalgia level equal or greater than four on the pain scale; those with pain that lasts for more than 5 days each month based on Cardiff's breast pain score; women between the ages of 20 and pre-menopause; and not pregnant or lactating. The total number of fertile women with premenstrual cyclic mastalgia in one year began in May 2022 and ended in April 2023 were 100 fertile women in the previously mentioned setting. So, the target population of this study is 80 fertile women with premenstrual cyclic mastalgia. The following formula was used to determine the sample size:

n= N/ {1+N (e) 2} **(Chandrasekharan et al., 2019)**

Where n is the sample size and N is the population size, it is 100.

e = 0.05 is the level of population.

n = 100/ {1+100(0.0025)} = 80

Tools of the study

The following five tools were used to collect the data:

Tool I:-Structured interviewing questionnaire developed by the researcher based on review of literature. It's divided into five parts:

Part 1: Socio-demographic characteristics such as age, residence, educational level, occupation, body weight (self-estimate), if gain weight, and if suffer from chronic diseases.

Part 2: Gynecological history: history of breast feeding, regularity of the menstrual cycle, oral contraceptive use, duration of menstruation, premenstrual syndrome, and presence of menstrual pain.

Part 3: Questions related to lifestyle include: at least 30 minutes of daily exercises, eating excess carbohydrates, drinking tea and coffee, drinking alcohol, excessive salt intake, etc.

Part 4: History of Breast Problems is defined as: previous history of; breast-feeding problems, mastitis, breast injury or trauma, surgery or sampling of the breast, discharge from the nipple, and presence of breast pain in first-degree relatives.

Part 5: Localization of Breast Pain.

Location of pain and the quarter of the breast where breast pain is encountered as if in

the lower inner quadrant, the lower outer quadrant, or the upper inner quadrant.

Tool II: The Cardiff pain chart (Kataria et al., 2014; Gautam et al., 2016): According to the level of pain each day, the Cardiff pain chart records the **pain** severity as follows: a triangle represents mild to moderate pain, and a square represents severe pain. Furthermore, because the patient must enter the letter "P" in the box, the Cardiff pain chart prevents the patient from recording the degree of pain on menstruation days. Each of the 31 squares represents a single day of a month which provides a number of days with pain with variant degrees of severity throughout the month from 1 to 31.

Tool III: The Visual Analogue Scale (VAS):

"Pain Rating Index—Scale Value (VAS)": In the earlier studies, the intensity of pain for each descriptor was measured on a numerical scale **(Phan et al., 2012; Rezvani et al., 2012).** It is also acceptable to consider the assigned rating as the pain description score. Scores of 1–3 represent mild, 4–6 represent moderate, 7–9 represent severe, and 10 represent intolerable pain, respectively.

Tool IV: The Female Sexual Function Index (FSFI; Rosen et al., 2000). Nineteen items were used to evaluate sexual functioning during the past four weeks. The index includes sexual desire, arousal, lubrication, orgasm, satisfaction, and pain, which are the six subscales of FSFI. Each item is scored on a Likert scale of six- points (e.g., how often did you sense desire or interest in sexual relations over the last four weeks?). Score 4 for most of the time [more than half of the time], and score 5 for nearly always or always.

Scoring system:

Adding the Likert answers together, then multiplying the sum by using a domain factor to calculate subscale scores **(Rosen et al., 2000).** Accordingly, the total FSFI score is the sum of scores obtained for each subscale. The total score ranges from 2 to 36, with a lower degree of dysfunctional sexual relation being correlated with a higher score. The sexual activity was categorized as high if FSFI was 30 or more, moderate if FSFI was 23–29, low if FSFI was <23, and absent if there was no sexual function at all **(Wiegel et al., 2005).**

Tool V: The WHOQOL-BREF, or World Health Organization Quality of Life-BREF questionnaire (THE WHOQOL GROUP, 1998):

Two auxiliary questions evaluating the overall health state and level of quality of life, Moreover, there are 24 questions (7 questions for the physical aspect, 6 for the psychological aspect, 3 for the social aspect, and 8 questions for the environmental health aspect).

Each quality-of-life aspect was given a unique score (range: 4–20). A score of 4 indicated a low quality of life, while a score of 20 indicated good condition.

Validity and Reliability of the tools:

Five experts from the Women Health and Obstetrics Nursing Department examined and assessed the tools to ensure their content validity, correctness and comprehensiveness. Repeated testing was used to determine reliability. The Cronbach's alpha coefficients allowed us to evaluate the instrument's reliability.

Total Cardiff chart	0.783
Visual analogue scale (VAS	0.851
Female Sexual Function Index (FSFI)	0.846
World Health Organization Quality of Life-BREF questionnaire	0.901

Ethical consideration

Ethical approval was maintained by obtaining the agreement of Minia Faculty of Nursing's Research Ethics Committee prior to

starting the study. Women gave their informed consent after being informed of the study's objectives. Every woman was free to leave the study at any moment. Additionally, their anonymity and privacy were maintained.

Pilot Study:

To test if the data collection tools are understandable, clear, valid, and feasible, the researcher selected eight women randomly to participate in the pilot study.

Field Work:

The data was gathered from June 2023 to January 2024. The following stages were adhered to by the researchers in order to fulfill the study's objective:

Firstly, in the preparatory phase, the researchers reviewed the recent advanced literature related to the study topic and designed the study tools. Additionally, the researchers created a variety of instructional resources, including a guidebooklet, images, and presentations using PowerPoint during this phase.

The content of instructional resources;

Part I: The breast anatomy and physiology and sex hormones effect on breast function. Sexual response cycle. The physiology and anatomy of the sexual organs.

Part II: Definition of premenstrual cyclic mastalgia, causes, types, treatment, and complications. Cyclic mastalgia and its effect on sexuality and quality of life.

Part III: Strategies for managing cyclic mastalgia, such as diet (that is low in fat and caffeine-free) and exercise (aerobic exercise), and how they impact the reduction of this illness's symptoms. Stress and the ways it can be managed as relaxation strategies, sensate attention technique, marital skills, and Kegel exercise.

The researchers went to the gynecological outpatient clinic on the first floor of Minia Maternity and Children University Hospital in Minia before conducting the study to evaluate the environments and note how many women with cyclic mastalgia were there, then attended the study setting three days per week after that from 9 a.m. to 1 p.m. After the researchers gave each woman who met the criteria a description of the study's objective and got her written consent, the interviews lasted around 30 minutes to gather information about each woman's socio-demographic data, gynecological history, and questions related to lifestyle, history of breast problems, and localization of breast pain (tool I). To achieve the program's objectives and goals, the researchers asked women with mastalgia to complete the pain visual scale and evaluate their female sexual function levels (tool IV) and quality of life levels (tool V). Furthermore, the researchers asked women to complete Cardiff's table for mastalgia at home to records the pain severity (tool II).

A second phase was the **implementation** phase. The intervention was a counseling program using the PLISSIT model. Counseling sessions were created and put into practice according to the PLISSIT model's four basic phases (including allowing permission, providing limited information, guiding specific suggestions, and referring to intensive therapy). The program composed of 5 separate main sessions at maximum. Thus, counseling was provided to 30 women over the course of three 60–90 minute sessions, 15 women over the course of four 45-minute sessions, and 35 women over the course of two 30-minute sessions.

PLISSIT model intervention plan

1-Permission: the researchers got the participant's consent to talk about cyclic mastalgia and its effect on sexuality and quality of life. In this phase, researchers used skills of counseling such as good listening, awareness of nonverbal cues, and developing therapeutic rapport. First, the researchers asked open-ended questions related to sexual function, such as, 'when you endure breast pain, how does it affect your sexual relationship?' They talked about breast pain, its effect on quality of life,

beliefs, concerns, and misconceptions. The researchers with women stated shared objectives, and a decision to accomplish them was made.

2. Limited **knowledge:** The researcher addressed the participant's concerns and offered guidance on how to handle these issues. During these sessions, the researchers provided women with brief information about sexual problems and issues due to breast pain and its management. An overview of the structure and physiology of the breasts, the impact of sex hormones and other hormones on breast function, the causes and symptoms of mastalgia, how it affects different elements of life, and how various factors affect cyclic mastalgia. The anatomy and function of the sexual organs, physiological changes and their effect on sexual satisfaction, as well as the sexual response cycle using colored images and simple language, At this point, the researchers concentrated on dispelling myths like "having sex makes my symptoms worse; mastalgia is cancerous."

3. Specific **suggestion:** The women were given advice on how to handle their sexual issues. For instance, if a woman said she was afraid of pain or discomfort during sexual relations, the researchers advise doing kegel exercises, sensate attention techniques, sexual relations skills, applying lubricants, and methods of relaxation. And, if experiencing orgasm, refrain from sexual activity when fatigued and use appropriate treatment (as per doctor order). Strategies for managing cyclic mastalgia, such as diet (which is low in fat and caffeine-free) and exercise (aerobic exercise), and how they impact the reduction of this illness's symptoms**.**

4. Intensive therapy: In the last session, a woman with cyclic mastalgia was knowledgeable about stress management techniques and how stress may be connected to cyclic mastalgia. More complex cases were referred to specialists for diagnosis and treatment, as: two women with cyclic mastalgia exhibit signs of depression and anxiety, possibly exacerbated by a palpable mass; and one woman with an enlarged axillary lymph node was referred to a psychiatrist and oncologist. One woman with unilateral pain in one breast only and associated with breast tenderness was referred to (a gynecologist); three women who were interested in exploring dietary changes to manage symptoms but were unsure of how to proceed were referred to (a nutritionist). Moreover, no woman needed to be referred to a sex therapist.

Researchers addressed women's questions, clarified instructional resource content, and obtained their phone numbers for follow-up. They allowed women to discuss concerns in counseling sessions.

The third phase: evaluation phase:

The final session was implemented after two months following the third session in the follow up visit in the same study setting. The women filled out questionnaires (tools II, III, IV, and V). A feedback questionnaire was completed by women at the conclusion of the study period regarding the usefulness of the counseling sessions in managing cyclic mastalgia.

Limitation of the Study:

The researchers had to spend additional time gathering the required sample size since several women rejected taking part in the current study because they wouldn't talk about such sensitive information.

To encourage women to talk about sexual concerns associated with cyclic mastalgia and to overcome this barrier, the researchers started with general, less sensitive questions to build trust before approaching more personal topics, used empathetic and non-judgmental language, allowed women to provide information anonymously through questionnaires, created a supportive environment, were of the same gender, and finally framed questions indirectly to reduce discomfort.

Statistical design:

Version 26 of the Statistical Package for Social Sciences (SPSS) was used to code, sort,

tabulate, and analyze the obtained data. Data were shown as tables, charts, and graphs using numbers, percentages, averages, standard deviations, and chi-square tests.

Results:

With regard to the socio-demographic characteristics of the studied women, table 1 illustrates that the age range of the studied women was from 18 to 50 years. The mean± SD of age was 30.95±5.37, (33.7%) of them had university education, (61.3%) were housewives, and (95%) had no history of chronic diseases.

Regarding **gynecological history**, table 2 reveals that 62.5%, 62.5%, and 61.3% of the studied women's had a previous history of breast feeding, the duration of menstruation was 3-5 days, and they did not use oral contraception. (75%) reported a regular menstrual cycle, and (90%) had painful menstruation.

Related to lifestyle and habits, Table 3 illustrates that none of the women under study were smokers or alcohol users, (81.3%, 72.5%, and 80%, respectively) were eating excess carbohydrates, drinking tea and coffee, and having excessive salt in their diet, (93.7%) wearing a small bra, and (53.7% and 67.5%, respectively) were eating fast foods and excessive sweets.

Regarding **history of breast problems and localization of breast pain, Table 4** illustrates that (91.3%, 96.3%, (91.3%, 96.3%, 86.3%, respectively) had neither a history of breast injury nor abnormal nipple discharge or mastitis. (85%) had no history of first-degree relative breast pain, and all of them had no history of breast surgery or biopsy. Currently, (65% and 51.1%, respectively) reported the presence of pain in both breasts that was felt in the whole breast.

Table 5 shows highly statistically significant differences regarding the effect of PLISSIT model-based counseling on **severity of pain** as the number of days with no pain increased from 15.39±1.68 pretest to 27.71±1.25 posttest. Also, the number of days with severe pain decreased from 8.14±1.96 pretest to 0.40±0.52 posttest. (p=0.000**).

The pain intensity of mastalgia improved significantly post-implementation of PLISSIT model-based counseling, as shown in Table 6. There were no women reported absence of pain pretest, while 67.5% of them reported absence of pain posttest. Furthermore, (78.7%) of them reported severe pain pretest, while no women reported severe pain posttest ($p \leq 0.05$). The mean (±SD) of VAS changed as it was 7.71 (±1.62) pretest, while posttest; the mean (±SD) of VAS was.712 (±1.12). With a statistically significant difference, $t (29) = p < 0.01$.

Concerning sexual function**, Figure 1** demonstrates a statistically significant difference observed with respect to the effect of PLISSIT model-based counseling on **sexual function**, as the percentage of women who engage in little sexual activity fell from 66.3 percent pretest to 0.0 posttest and the percentage of women who had high sexual activity increased from 0.0 pretest to 65.0 percent posttest.

There was a clear effect of the PLISSIT model-based counseling on **quality of life.** This is clear in **Figure 2,** as (67.50%) of the studied women had poor quality of life pretest, while (97.70%) of them having very good quality of life posttest.

Table 7 shows a highly statistically significant positive correlation between the total Cardiff chart for severity of pain and the total visual analog scale for intensity of mastalgia, the female sexual function index, and the total quality of life posttest ($P \leq 0.001$).

Table 1: Distribution of the studied women regarding their socio-demographic characteristics (n = 80)

Items	N	%
Women's age		
From 18 to30 years	44	**55.0**
From 31 to 40 years	34	42.5
From 41 to 50 years	2	2.5
Mean±SD	30.95±5.37	
level of education		
Unable to read and write	15	18.8
Primary education	22	27.5
Intermediate education	16	20.0
University education	27	**33.7**
Occupation		
Housewife	49	**61.3**
Worker	31	38.7
History of Chronic diseases		
No	76	**95.0**
Yes	4	5.0

Table 2: Distribution of the studied women regarding their gynecological history (n = 80)

Items	N	%
History Breast feeding		
Yes	50	**62.5**
No	30	37.5
Regularity of menstrual cycle		
Regular	60	**75.0**
Irregular	20	25.0
Oral contraception use		
No	49	**61.3**
Yes	31	38.7
Duration of menstruation		
< 3 days	5	6.3
3-5days	50	**62.5**
6-8 days	18	22.5
> 8 days	77	8.7
Mean±SD	5.24±1.94	
Premenstrual Fatigue		
No	26	32.5
Yes	54	**67.5**
Menstrual Pain		
No	8	10.0
Yes	72	**90.0**

Table 3: Distribution of the studied women regarding their lifestyle and habits (n = 80)

Items	N	%
Smoking		
Non smoker	80	**100.0**
Alcohol use		
No	80	**100.0**
30 minutes of exercise daily		
No	54	**67.5**
Yes	26	32.5
Over intake of carbohydrates		
No	15	18.7
Yes	65	**81.3**
Tea and coffee intake		
No	22	27.5
Yes	58	**72.5**
Over intake of salts		
No	16	20.0
Yes	64	**80.0**
Fast food		
No	54	**67.5**
Yes	26	32.5
Excess sweets		
No	37	46.3
Yes	43	**53.7**

Table 4: Distribution of the studied women regarding their history of breast problems and localization of breast pain (n = 80)

Items	N	%
History of Breast-feeding problems		
Yes	46	**57.5**
No	34	42.5
History for breast injury		
No	73	**91.3**
Yes	7	8.7
History of breast surgery or biopsy		
No	80	**100**
History of discharges from nipple		
No	77	**96.3**
Yes	3	3.7
History of Mastitis		
No	69	**86.3**
Yes	11	13.7
History of first degree relative (her mother) breast pain		
No	68	85.0
Yes	12	15.0
Localization of mastalgia		
Location of pain		
Both breasts	52	65.0
Right breast only	13	16.3
Left breast only	15	18.7
The quarter of the breast where breast pain is felt		
In lower inner quadrant	5	**6.3**
In upper inner quadrant	5	6.3
In upper outer quadrant	11	13.7
In lower outer quadrant	9	11.3
In the nipple	9	11.3
Whole breast	41	51.1

Table 5: Distribution of studied women regarding the severity of pain from cyclic mastalgia according to the Cardiff pain chart pre- and post-test (n = 80)

Items	Pretest		Posttest		X^2	p- value
	N	%	N	%		
Number of days with no pain						
11 < 15 days	53	**66.3**	0	0.0	2.508	0.643
15- 20 days	27	33.7	80	**100.0**		
Mean±SD	**15.39±1.68**		**27.71±1.25**		t test	
					53.974	0.000**
Number of days with mild pain						
< 5 days	35	43.7	79	**98.7**	2.255	0.636
5 – 10 days	45	**56.3**	1	1.3		
Mean±SD	**5.00±2.15**		**1.89±1.13**		t test	
					10.810	0.000**
Number of days with severe pain						
No severe pain	0	0.0	49	**61.3**		
Less than 5 days	32	40.0	31	38.7	1.716	0.788
From 5 to 10 days	38	**47.5**	0	0.0		
From 11 to 15 days	10	12.5	0	0.0		
Mean±SD	**8.14±1.96**		**0.40±0.518**		t test	
					34.095	0.000**

* Statistically significant at p≤0.05
** Highly statistical significant at p≤0.01

Table 6: Distribution of the studied women according to the pain intensity of mastalgia pre- and post-test (n = 80)

Items	Pretest		Posttest		X^2	p-value
	N	%	N	%		
Visual analog scale						
No pain	0	0.0	54	67.5		
Mild pain	0	0.0	26	32.5		
Moderate pain	17	21.3	0	0.0	.741	0.020*
Severe pain	63	78.7	0	0.0		
Items	**Pretest Mean±SD**		**Posttest Mean±SD**		**t test**	**p-value**
Mean and SD of VAS	7.71±1.62		.712±1.12		29.00	0.000**

* Statistically significant at p≤0.05
** Highly statistical significant at p≤0.01

Figure1: Distribution of the studied women regarding their sexual function pre and posttest (n = 80)

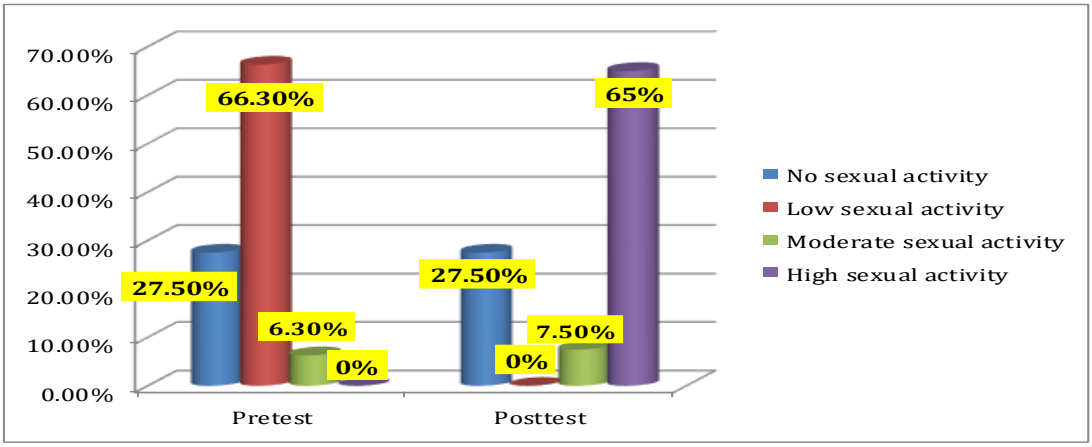

Figure2: Distribution of the studied women regarding the total quality of life pre and posttest (n = 80)

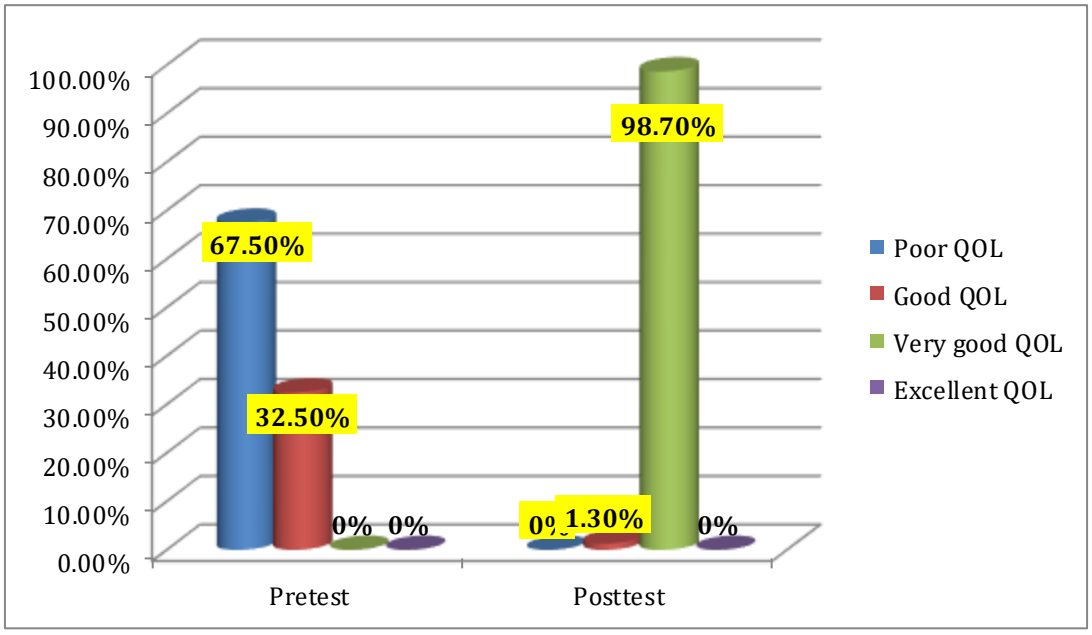

Table 7: Correlation between study variables posttest (n=80).

		Total Cardiff chart	Total Visual analog scale	Female Sexual Function Index (FSFI)
Total Cardiff chart	r			
	p			
Total Visual analog scale	r	0.939		
	P	0.013*		
Female Sexual Function Index (FSFI)	r	0.523	0.451	
	p	0.000**	0.002**	
Total quality of life	r	0.594	0.734	0.866
	p	0.000**	0.001**	0.001**

r Pearson Correlation
* Statistically significant at p≤0.05
** Highly statistical significant at p≤0.01

Discussion

The PLISSIT model is a framework that aids healthcare professionals in managing and treating pain, sexual problems, and quality of life issues. The four stages of the model are referred to as PLISSIT: permission is the first stage, limited information is the second stage, precise suggestions are the third stage, and intensive therapy is the fourth step. Caregivers can improve quality of life by discussing and addressing pain-related sexual difficulties with the support of this four-step framework. Increasing caregiver knowledge and abilities is necessary for each level **(Karimi et al., 2019).** For that, to achieve the aim, the current study hypothesized that PLISSIT model-based counseling may be helpful in relieving pain, improving sexual function, and improving quality of life in fertile women with cyclic mastalgia. Fortunately, the findings of the present study accepted the three hypotheses.

With regard to the socio-demographic characteristics of the studied fertile women, the age range of the studied women was from 18 to 50 years. The mean± SD of age was 30.95±5.37. A third of them had university education, and about two-thirds of them were housewives. Findings of the present study are consistent with the study of **Ozenli et al. (2014)** in Adana, Turkey, who assessed if psycho-education has an effect on pain and quality of life in women with mastalgia and found that the mean age of the study group was 29.2 and that of the control group was 30.5 ($p > 0.05$).These results aren't in the same line with those of **Fakhravar et al. (2021)** in Karaj, Iran, who investigated the effect of healthy lifestyle promotion interventions on the quality of life of women with cyclic mastalgia and showed that the mean intervention group age was 37.65, while the control group mean age was 36. ($P = 0.433$). The differences in findings explained **by Tahir& Shamsudeen, 2023** who stated that, the 20–40 age range is the peak incidence period for cyclic mastalgia. The frequency is less common in postmenopausal women and declines with older age as well as early gestation.

Furthermore, Siddique et al., (2023) in Bangladesh who looked at the frequency and contributing variables to mastalgia in childbearing women and found that graduates from universities are more likely to get mastalgia, which affects 33.1% of university students. In addition to **Barton et al., (1999)** in Washington, who tried to find out how frequently women experience breast symptoms, how these symptoms are assessed, and how frequently cancer is identified. Also, **Koçoglu et al.,(2017)** in Turkey, and **Makumbi et al.,(2014)** in sub-Saharan Africa, who ascertained the frequency and list of the factors that contribute to mastalgia. All revealed that women with greater incomes and educational levels had a higher prevalence of mastalgia. Accordingly, the association between mastalgia and educational attainment is unclear. To determine the underlying etiology of mastalgia among higher education professionals, more studies are required.

Regarding **lifestyle and habits**, none of the women under study were smokers or alcohol users. Three quarters and more were eating excess carbohydrates, drinking tea and coffee, and having excessive salt in their diet, majority of them wearing a small bra, and near to two thirds, were eating fast foods and excessive sweets. These findings are consistent with **Koçoglu et al.,(2017)** in Turkey, who ascertained the frequency of breast pain, its features, and its contributing factors, especially those that are modifiable, and found the factors linked to mastalgia include being older, having completed college, having a BMI of more than 30, using excessive amounts of salt, wearing tiny or large bras, and using salt.

Many sexual issues and cyclical breast pains are mostly caused by an imbalance in the appropriate lifestyle; therefore, the quality of pain can be affected by the combination of education-based counseling and lifestyle modifications, such as changes in activity, diet, and weight control **(Dueñas et al., 2016).** Also, reassurance that they do not have breast cancer can alleviate pain episodes in women with cyclic mastalgia **(Bonilla et al., 2019).**

This study showed highly statistically significant differences regarding the effect of PLISSIT model-based counseling on **severity of pain**, as the number of days with no pain increased from 15.39±1.68 pretest to 27.71±1.25 posttest. Furthermore, the number of days with severe pain decreased from 8.14±1.96 pretest to 0.40±0.52 posttest (p = 0.000**).

These results are in line with **Fakhravar et al., (2021)** in Karaj, Iran, who discovered that changes in lifestyle appeared to have a beneficial impact on lessening the intensity of mastalgia and, as a result, improving the individuals' quality of life. Therefore, this improvement in pain severity could be explained by making every woman aware of breast pain, its causes, effects on quality of life, considering beliefs, concerns and misconceptions associated with mastalgia, and illustrating the lifestyle modifications that might be made to lessen pain and improve quality of life. This is the first line of management for pain related to cyclic mastalgia. This explanation and reassurance produce mental balance and subsequently increase pain tolerance.

The pain intensity of mastalgia improved significantly post-implementation of the PLISSIT model-based counseling, as no women reported absence of pain pretest, while two-thirds reported absence of pain posttest. Furthermore, more than three-quarters reported severe pain pretest, while no women reported severe pain posttest ($p \leq 0.05$). The mean (±SD) of visual analogue scale changed as it was 7.71 (±1.62) pretest, while posttest; the mean (±SD) of VAS was.712 (±1.12). With a statistically significant difference, t (29) = $p < 0.01$.

The findings of the present study are consistent with the study of **Ozenli et al., (2014)** in Adana, Turkey, who found that prior to psycho-education, the pain visual analogue scale scores for the study group and control group were 5.9±1.2 and 5.1±1.5, respectively ($p>0.05$). After psycho-education, the pain visual analogue scale level did not alter in the control group (5.4±1.7). However, it did decrease considerably in the study group (1.7±1.4). **Smith and colleagues (2004)** emphasized the significance of exercising greater caution when disseminating scientific findings to the public. Accordingly, a problem-solving approach was used by the researchers to address issues the woman had experienced, focusing attention on lifestyle modifications that might be made to lessen pain and improve quality of life, such as relaxation strategies, kegel exercise, diet, physical activity, and other ways of dealing with cyclic mastalgia.

Recent research has demonstrated the positive effects of the PLISSIT model on people in a variety of situations and at different phases of life **(Yörük & Karaçam, 2016).** Regarding the sexual function, there was a statistically significant difference in relation to the effect of PLISSIT model-based counseling on the sexual function, as the percentage of women who engage in little sexual activity dropped from 66.3% pretest to 0.01% posttest and the percentage of women who engage in high sexual activity increased from 0.01% Pretest, to 65.05% posttest ($p <0.001$).

These findings are consistent with the study of **Ghodsi et al., (2021)** in Iran, who evaluated the sexual counseling effect on sexual satisfaction in women with cyclic mastalgia and found individual PLISSIT counseling increased the overall sexual satisfaction score significantly in the study group in contrast to the control group. Additionally, **Rutte et al., (2015)** in Amsterdam, who tested the impact of PLISSIT sexual counseling model on individuals with type 2 diabetes's sexual satisfaction and performance, and found that it significantly increased female sexual pleasure. Moreover, **Rostamkhani et al., (2012)** in Zanjan examined how the PLISSIT sexual counseling approach affected women's sexual behavior. The application of the PLISSIT sex therapy model was found to have a positive impact on married women's sexual function.

Since the breast is a woman's second sexual organ, severe, cyclical pain can have an impact on sexual function. A significant portion of the sexual issues and the cyclic mastalgia can be resolved with education and counseling through a scientific approach and establishing a

therapeutic rapport, as marital relationships are extremely private and personal in Egyptian society. On the other hand, the mean age of women in this study was 30.95±5.37 years, so sexual relationships were an issue of concern or a prospect for them. By lowering fear, anxiety, and concern, boosting self-confidence, and advancing knowledge of the concepts of mastalgia, its causes, how it affects various aspects of life, and how different life events affect cyclic mastalgia.

Counseling services have the potential to raise a person's pain threshold **(Hafiz et al., 2018).** According to the present study, there was a clear effect of PLISSIT model-based counseling on quality of life. As two thirds of the studied women had poor quality of life pretest, while posttest majority of them had very good quality of life.

These findings are consistent with the study findings of **Fakhravar et al., (2021)** in Karaj, Iran, who found that an intervention which promoting a healthy lifestyle may enhance the quality of life of women suffering from cyclic mastalgia. Training-based therapy, which involves changing the patient's diet and activities in addition to helping them manage their weight, anxiety, and stress, can be a useful non-pharmacological way to enhance life quality and lessen pain. Perhaps due to the individualised counseling session regarding stress reduction and using relaxation techniques.

The findings of the present study aren't in line with **Ozenli et al.** (2014) in Adana, Turkey, who found that differences in the quality of life of all subscales occur except for the physical function subscale with a statistically significant difference. This difference may be due to presence of underlying health condition or psychological stressors affecting the quality of life. Consequently, bra fitting guidance, explanation, and reassurance should be the primary lines of treatment for breast pain. To reassure patients and prevent them from being afraid of cancer, reassurance gives them mental stability, which in turn raises their pain threshold **(Hafiz et al., 2018).**

In the current study, women underwent a thorough clinical examination before the counseling session began. Following this, an attempt was made to reassure them that mastalgia is not as carcinogenic as conveyed in the media and in their surroundings, leading to more doctor visits and exposure to unnecessary medical investigations, and to explain the potential causes of their discomfort. Additionally, the PLISSIT model-based counseling was successful in lowering pain, improving the person's capacity to make wise health decisions, and teaching them the behaviors and skills required to support mastalgia self-care. So, individual awareness has grown resulting in healthier lifestyles and appropriate health practices.

The present study findings illustrated that a highly statistically significant positive correlation was found between the total Cardiff chart for severity of pain and the total visual analog scale for intensity of mastalgia, the female sexual function index, and the total quality of life posttest ($P \leq 0.001$). Improvement in pain, particularly chronic or cyclic pain such as cyclic mastalgia, is often strongly associated with sexual function and quality of life improvements. Here's an explanation of this correlation: By reducing pain, individuals often experience a reduction in these psychological burdens, such as stress and anxiety, leading to improved mental health that positively impacts sexual function and overall quality of life. Also, reduced pain improves the ability to perform daily activities, which directly enhances quality of life. Being more active and engaged in life's routines can improve mood and overall well-being.

Conclusion

We are of the opinion that the PLISSIT model-based counseling reduced pain, had a curative effect on sexual function, and was effective in correcting these conditions, significantly increasing the overall life quality scores. We discovered that women's level of pain decreased, and consequently, sexual function was enhanced, their relationships with their husbands improved, and practical solutions to their problems were provided when they

received the PLISSIT model-based counseling and relevant knowledge about the disease and its issues.

Recommendation:

Considering the present study results, it is recommended to:

1.Compare the efficacy of PLISSIT model-based counseling with other counseling and therapeutic models in managing cyclic mastalgia and improving sexual function and quality of life.

2.Conduct more research on the effect of counseling based on the PLISSIT model on the sexual satisfaction of the affected women's husbands.

3.Assess the effectiveness of training programs for healthcare providers on the PLISSIT model, ensuring they can effectively implement this approach in clinical practice.

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