

Effect of Sexual Counseling Based on Better Model on Sexual Function of Pregnant Women

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Abstract

Background: Pregnancy is one of the important factors affecting sexual function. Female sexual dysfunction is an important public health issue. **Aim:** This study aimed to assess the effect of sexual counseling based on BETTER model on sexual function of pregnant women. **Design:** A quasi-experimental design was used in this study. **Setting:** This study was carried out at the antenatal outpatient clinics of Mansoura University Hospitals, Egypt. **Study subjects:** A non-probability purposive sample of 80 pregnant women was assigned either to the control group who received routine antenatal care or the intervention group who received sexual counseling based on the BETTER model (n=40 per group). **Tools:** Two tools were used, a structured interview schedule to cover data related to women's general characteristics & obstetric history and the FSFI to assess the sexual function of pregnant women. **Results:** The present study results showed that there was a highly statistically significant increase in total female sexual function index score at post-intervention and follow-up evaluation in the intervention compared to the control group ($p < 0.001$). There was a significant association between the sexual function of the pregnant women and their age & educational level in both groups post-intervention ($p < 0.05$), there was a statistically significant association between the sexual function and gestational age & parity in both groups ($p < 0.05$). **Conclusion:** The current study hypothesis was accepted where sexual counseling based on BETTER model was effective in increasing pregnant women's sexual function at post-intervention and follow-up evaluation in the intervention group compared to the control group. **Recommendation:** The current study recommended adopting the BETTER sexual model of counseling for the management of sexual dysfunction of women in maternity hospitals.

Keywords: BETTER model, pregnant women, sexual counseling, sexual function

Introduction

Sexual function is a basic human need and an important aspect of health that has a favorable association with both physical and social aspects of quality of life. It is the way a woman's body reacts at various stages of the sexual cycle (Hashem, Fatouh, & Ghonemy, 2020; Lohman, Byers-Connon, & Padilla, 2019). Pregnancy, which is characterized by physical, psychological, and hormonal changes has a significant impact on her sexual function (Hajimirzaie et al., 2021). Around one in two pregnant women experienced sexual problems (Aksoy Derya, Gok Ugur, & Ozsahin, 2020).

Pregnancy affects all organs of the woman's body, especially the genital tract and

the resulting changes may cause sexual problems. Anxiety, common fears, concerns, stress, and negative attitudes toward sex during pregnancy such as blaming to have sexual intercourse, changes in body image and fear of harming the fetus, pain, infection, abortion, and rupture of membranes are the key factors that affect women's sexual activity while pregnant. Age, place of residence, pregnancy trimester, number of pregnancies, and mental & physical well-being are also important factors affecting sexual function (Hajnasiri, Moafi, Nami, & Safaralinezhad, 2020; Nezamnia, Iravani, Bargard, & Latify, 2020). Lack of sexual knowledge among women is another factor that causes vulnerability to sexual problems (Aksoy Derya et al., 2020).

Sexual function deteriorates considerably during pregnancy. This decline can be noticed not just in the sexual relation frequency, but also in the six dimensions of sexuality (desire, arousal, lubrication, orgasm, satisfaction, and sexual pain). Sexual function deterioration is most common in the third trimester. This can result in unsatisfying sexual relations, low self-esteem, interpersonal issues, marital difficulties, and divorce, all of which lower quality of life (Samutri, Nisman, & Lismidiati, 2020; Guendler, Katz, Flamini, Lemos, & Amorim, 2019; Banaei, Safarzadeh, & Shahrahmani, 2017). On the other hand, sexual satisfaction can increase closeness, warmth, trust, intimacy, support, and emotional communication between couples. It is significantly associated with sexual information in many aspects. However, the sexual life of women during pregnancy is getting less attention and this could be due to sensitivity of the topic, misconceptions, decreased knowledge, and cultural, personal, or religious beliefs (Rokach & Patel, 2021; Hashem et al., 2020).

Sexual counseling during pregnancy should be offered by the maternity nurse to improve women's sexual function and health which are the mainstream of care during pregnancy (Hashem et al., 2020). This can be achieved through the BETTER model, one of the sexual intervention models developed by Mick, Hughes, & Cohen, (2004) to assist oncology nurses to assess sexual health. The BETTER model is a tool that provides a framework for discussing sexual issues associated with medical conditions. It has been found to improve sexual function at six phases: Bring up, Explain, Tell, Timing, Educate, and Record. This model can help health workers improve their knowledge and skills while also providing a comfortable way to talk about sexuality and increase sexual satisfaction (Karimi et al., 2021; Mohammadzadeh, Lotfi, Karimzadeh, & Kabir, 2021).

At the first stage (Bring-up), the nurse raises the issue of sexual health with the women encouraging them to discuss what sexuality means and identify current or potential alterations in sexual health. In the second stage (Explain), the nurse explains the importance of

sexual health and sex as a vital part of the women's life. This stage helps the women to feel less embarrassed or alone. In the third stage (Tell), the nurse tells the women about the available resources and how to access them as well as provides them with specific sexuality information according to their needs. At this stage, the nurse provides them with a referral to an appropriate clinician or service. The fourth stage is (Time), in which the nurse reassures the women that they can discuss their sexual concerns with them at any time they have a question or want more information. This is crucial for the formation of a therapeutic relationship with the women that is based on rapport and trust. The fifth stage is (Educate), where the nurse educates the women on the normal sexual changes of pregnancy and what to anticipate. The final stage is (Record). The nurse records their assessment and findings and incorporates them into clinical practice which can help to verify the women's experiences and improve their quality of life (Quinn, Cert, Dip & Happell, 2013). Although the components of this model were created for a specific population and profession, they can be used by all health professionals when working with clients who have a variety of disabilities (Shahin, Gaafar, & Alqersh. 2021). As a result, this study was carried out to evaluate the effect of sexual counseling based on BETTER model on sexual function of pregnant women.

Significance of the study

Female sexual function is one of the main vital aspects of life. Biological, psychological, cultural, and social variables, as well as religious beliefs, all influence it. Healthy sexual function and proper marital intercourse are one of the pillars of a lasting and intimate relationship, and they are considered important factors in couples' physical and mental well-being (Gutzeit, Levy, & Lowenstein, 2020; Hajnasiri et al., 2020). According to Egyptian studies conducted in 2014, 2019, and 2020, the sexual dysfunction prevalence among pregnant women was 68.8%, 63.3%, and 62% respectively (Ahmed, Madny, & Ahmed, 2014; Mobasher et al., 2019; Hashem et al., 2020).

Women feel uncomfortable discussing their sexual problems with the physician or other healthcare providers. Understanding women's sexual activity during pregnancy helps the healthcare provider to realize the change of women's sexual function and direct health professionals to provide comprehensive care according to their needs. Sexual counseling based on the BETTER model as well as providing scientific information regarding sexuality has a favorable impact on sexual function (Shahin et al., 2021; Samutri et al., 2020). Some studies concluded that adopting the BETTER model to solve sexual difficulties was effective in women with infertility, breast cancer, and mental illness (Karakas & Aslan, 2019; Mohammadzadeh et al., 2021; Shahin et al., 2021) but there is a need to explore its effectiveness among pregnant women. This stimulates the present study to evaluate the effect of sexual counseling based on BETTER model on sexual function of pregnant women.

Aim of the study

This study aimed to assess the effect of sexual counseling based on BETTER model on sexual function of pregnant women.

Hypothesis of the study

To accomplish the present study aim, the current hypothesis was tested "pregnant women who receive sexual counseling based on BETTER model, have higher total female sexual function index score than those who don't".

Subjects and Method

Study design

A quasi-experimental design was utilized in this study.

Study setting

This study was carried out in the antenatal outpatient clinics of Mansoura University Hospitals, Egypt which consist of six rooms for sonar, antenatal examination, gynecological examination, vesicular mole, lab, and nursing staff. Also, a reception area, waiting area for women, and lecture hall with an adequate number of seats where the researcher interviewed the recruited women to conduct this study. The antenatal clinics provide diagnostic and therapeutic services for pregnant women

from Saturday to Wednesday, from 9 a.m. to 2 p.m.

Sample type: A non-probability purposive sample was used.

Study subjects: Eighty pregnant women were recruited from the previously mentioned setting to share in this study according to the following

Inclusion criteria:

- Age from 18 to 35 years.
- Gestational age of 24 to 28 weeks.
- Having a sexual function score below 28.
- Can read and write.

Exclusion criteria:

- Women with sexual activity problems for medical reasons.
- The incidence of a dreadful event (e.g., a close relative's death or acute disease) within 3 months before the study.
- The incidence of any pregnancy complications such as abortion, placental abruption, abnormal fetal position, hemorrhage, D.M, hypertension, preterm labor, abnormal fetal heart rate, and reduced fetal movements during the study.

Sample size calculation

Based on data from a previous study by Karimi et al., (2021) to investigate the effectiveness of applying the BETTER model compared to the PLISSIT model in postpartum women with sexual problems, the sample size was estimated using a level of significance of 5% and a power of study of 80%. According to the following formula: $n = [2(Z\alpha/2 + Z\beta)^2 \times p(1-p)] / (p_1 - p_2)^2$ where n = sample size required in each group, p = pooled proportion (proportion of event in group 1 + proportion of event in group 2)/2 $p_1 - p_2$ = difference in proportion of events in two groups $Z\alpha/2$: This depends on level of significance, for 5% this is 1.96 $Z\beta$: This depends on power, for 80% this is 0.84 $n = [2(1.96 + 0.84)^2 \times 0.607(1 - 0.607)] / (0.3058)^2 = 39.9$. Based on the given

formula, the sample size required is 40 for each group.

Groups' allocation

This study involved a total sample of 80 eligible pregnant women divided into two groups. To recruit the total sample of 80 pregnant women, 88 eligible pregnant women were invited to participate in the current study, eight of them refused the participation. The

remaining 80 pregnant women were assigned to one of two groups: control or intervention ($n=40$ in each group). Data of the control group were collected first, then sexual counseling based on the BETTER model was provided and data were collected from the intervention group. The withdrawn pregnant women (5 in the control group and 3 in the intervention group) were replaced and the statistical analysis was done on 80 participants. A flowchart of the study participants is shown in **Figure 1**.

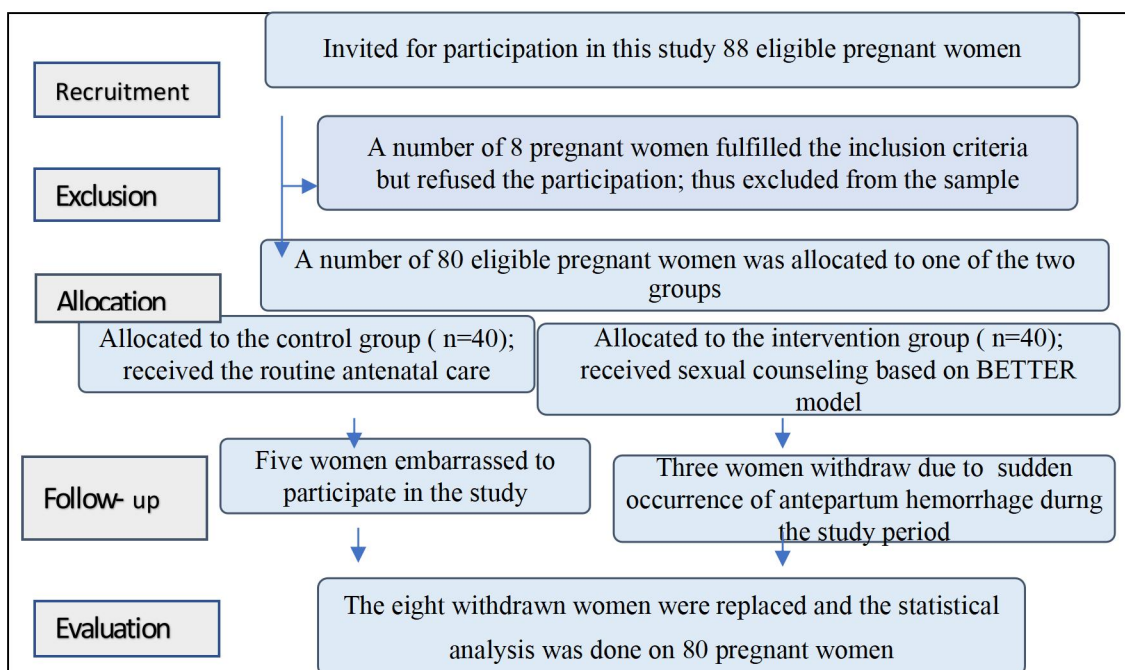


Figure 1. Flowchart of the participation in the study

Tools of data collection

To accomplish the study aim, two tools were utilized for collecting data; a structured interview schedule and the Female Sexual Function Index

Tool I. A structured interview schedule

It was developed by the researchers and constituted 2 parts. **Part I:** encompassed sociodemographics data as age, telephone number, educational level, and occupation. **Part II:** included the obstetric history as the duration

of marriage, gravidity, parity, type of pregnancy, and gestational age.

Tool II. Female Sexual Function Index (FSFI)

It is a self-report questionnaire to assess the sexual function of pregnant women adopted from **Rosen et al., (2000)**. It has nineteen question that include six variables: desire (questions 1, 2), arousal (questions 3, 4, 5, 6), lubrication (questions 7, 8, 9, 10), orgasm (questions 11, 12, 13), satisfaction (questions 14, 15, 16), and sexual pain (questions 17, 18 and 19). Sexual arousal, vaginal lubrication, orgasm, and pain were all rated on a scale of 0 to 5,

while desire was rated on a scale of 1 to 5. Finally, a score of 0 or 1-5 was assigned to sexual satisfaction. A score of zero indicated that the woman had not engaged in any sexual activity in the preceding four weeks. The overall score was determined by adding the scores in each of the six variables. As a result, a higher score indicated better sexual function. The maximum score for each variable and the overall scale was 6 and 36, respectively, based on the weights of the variables. Sexual desire, on the other hand, obtained a minimum score of 1.2, while sexual arousal, vaginal lubrication, orgasm, and pain all received zero. Furthermore, satisfaction had a minimum score of 0.8, and the lowest and maximum scores for the entire scale were two and thirty-six, respectively.

Validity of the tools

In this study, the questionnaire was translated into the Arabic language before introducing it to pregnant women. The content validity of the developed structured interview schedule was confirmed by a panel of three experts in the maternity nursing specialty before introducing it to pregnant women. Validation was done to ensure that the questions were consistently conveyed and carried the intended meaning. Their opinions on the tools' consistency, accuracy, and relevancy were elicited. No modifications were suggested.

Reliability of the tools

Cronbach alpha coefficients for internal consistency of FSFI was 0.874, hence the questionnaires were found to be highly reliable.

Pilot study

A pilot study was conducted on 10% (8 pregnant women) of the total study sample to assess the objectivity and applicability of the study tools as well as the practicality of the research procedure and the time required to answer them. Women in the pilot study were excluded from the study.

Ethical considerations

Before implementing the intervention, official approval was taken from the research ethics committee of the Faculty of Nursing, Mansoura University. Approval was obtained from the director of the antenatal outpatient clinics of Mansoura University Hospitals to perform the current research. After a thorough explanation of the study's purpose and approach, every woman who participated in it signed a consent form. During the study and afterward, the women's privacy was preserved. The pregnant women had the option to withdraw from the study at any time without affecting their care. The control group also received corporate counseling after the study was completed to assist them to deal with their problems.

Research process

This study was conducted in the period from the beginning of August 2021 to December 2021. The researcher attended the previously mentioned setting 3 days per week, (Saturday, Monday, and Wednesday), from 9 a.m. to 2 p.m. until the calculated sample size of women was obtained. The study was performed through 4 phases; preparatory, assessment, implementation, and outcome evaluation.

▪ Preparatory phase

1.Once eligibility for participation was confirmed, the study aim and method were explained to each potential woman. Informed written consent was taken from each eligible pregnant woman. Thereafter, one by one met the inclusion criteria were assigned for the assigned group with the control group data being collected first followed by the intervention group data.

2.Contents of the sexual counseling based on the BETTER model were designed, methods of teaching were determined and the educational media (an Arabic brochure) was prepared. The brochure covered all contents of the sessions.

▪ Assessment phase

1. The researcher interviewed the pregnant women, introduced herself to them, clarified the study purpose, and took their consent to participate in the study. Data regarding women's basic demographics and obstetric history were collected by using a structured interview schedule.

2. The female sexual function index was filled by each pregnant woman on the day of admission. Women with sexual function scores equal to or below 28 were involved in the study (the maximum score for each domain is 6 and for the total index is 36, and the appropriate cut-off point for the diagnosis of sexual dysfunction was determined as equal to or less than 28). Eligible women were allocated to two groups (control and intervention groups).

▪ Implementation phase

1.The control group

Women in the control group received routine antenatal care (measuring height, weight & blood pressure, testing urine, ultrasound scanning, and screening for infections or other conditions).

2.The intervention group

- In addition to routine care, women allocated to this group received sexual counseling based on the BETTER model. The individual counseling sessions were conducted in the lecture hall. The researcher ensured that the meeting environment was comfortable. Four counseling sessions based on the BETTER model were provided, one every week with each session lasting 2 hrs.

- The first session consisted of introducing the researcher and the women to each other, discussing the contents of the counseling sessions and their objectives, and familiarizing the women with the BETTER model. The researcher raised sexual issues with women at ease and encouraged them to talk more about their problems. The women were also inquired about intimacy and relationships with their husbands during pregnancy **Stage (1) Bring up** and through open discussion with the women, the researcher informed them that sexuality is a vital and meaningful component

of their life. This relieves the women's embarrassment and also teaches them that sexual difficulties can affect women's psychological well-being and marital satisfaction **Stage (2) Explain**.

- At the second session, the researcher informed the women that if the intervention was not effective, they would be referred to another professional who could help them **Stage (3) Tell** and assured that the previously selected scheduled time is appropriate for them if not, the session can be rescheduled for a later time **Stage (4) Time**.

- During the third session, the researcher educated the women on the following topics based on their needs:

- Female reproductive system and the sexual response cycle components.

- Kegel exercise for enhancing sexual fitness and use of lubricants to improve sexuality.

- Relaxation techniques such as breathing exercises, guided imagery, and recreation for managing and lowering anxiety and stress. In addition to instructions on the importance of regular exercise/walking for at least 30 minutes per day, food therapy such as a high-fruit diet and mouth care **Stage (5) Educate**.

- In the fourth session, sexual satisfaction in pregnancy was explained. The counseling process was completed after the researcher responded to the questions concerning the effective components of sexual satisfaction. The researcher recorded the gathered data and the intervention delivered to each woman at the end of each session **Stage (6) Record**. It should be noted that the content of the training sessions was presented to the women in a brochure.

- During the intervention, women were remembered by the researcher for performing the exercises, relaxation techniques, and mouth care as well as having a healthy diet by phone call.

▪ Outcome evaluation

Both groups (intervention and control) completed the questionnaire two and four weeks after completion of the sessions by a phone call and face-to-face interview respectively (follow up).

Data analysis

SPSS version 20.0 was used for all statistical analyses (SPSS, Chicago, IL). All continuous data were normally distributed and were expressed in mean \pm standard deviation (SD). Categorical data were expressed in number and percentage. When comparing two variables with continuous data, the student's t-test was utilized. Chi-square test was used to compare the variables with categorical data. The reliability (internal consistency) test for the Female Sexual Function Index questionnaire used in this study was calculated. The statistical significance was established at $p < 0.05$ and the high significance at $p < 0.001$.

Results

Table (1) shows that less than half of the pregnant women aged > 30 years in both control and intervention groups (45.0% & 47.5% respectively) with mean \pm SD 27.9 ± 5.3 & 26.5 ± 4.9 in the control and intervention groups respectively. More than half of them had secondary education in the control and intervention groups (57.5% & 62.5% respectively). Around three-quarters of them in the control and intervention groups were housewives (77.5% & 72.5% respectively). There was no statistically significant difference among both groups ($p > 0.05$).

Table (2) illustrates that nearly two-thirds (65.0%) of the pregnant women in the control group and three-quarters (75.0%) in the intervention group were primigravidas. More than two-thirds (67.5%) and three-quarters (75.0%) of the control and intervention groups respectively were nullipara. Less than two-thirds had no previous abortion in the control and intervention groups (64.3% & 60% respectively). More than half of the control and

intervention groups had unplanned pregnancies (57.5% & 65.0% respectively). The mean duration of marriage and mean gestational age were nearly similar among both groups. There was no statistically significant difference regarding obstetric history among both groups ($p > 0.05$).

Table (3) clarifies that the pregnant women's sexual desire, arousal, lubrication, orgasm, satisfaction, and pain were matched at the baseline but were significantly higher at 2 weeks post-intervention and follow-up evaluation in the intervention group compared to the control group ($p < 0.05$).

Figure (2) describes that the total female sexual function index score at baseline didn't differ significantly between the two groups. Post-intervention, there was a statistically significant difference among both groups ($p < 0.001$) It was 26.9 ± 5.7 in the intervention group compared to 21.0 ± 5.6 in the control group. Also, the total FSFI score was 27.1 ± 6.2 in the intervention group compared to 20.4 ± 5.4 in the control group at follow-up evaluation. This difference was also statistically significant ($p < 0.001$).

Table (4) displays that there was a significant association between sexual function of the pregnant women and their age & educational level in both groups post-intervention ($p < 0.05$), women aged more than 30 years old and with secondary education had more sexual dysfunction than others. As regards the occupational status, there was no significant association with sexual function in both groups ($p > 0.05$).

Table (5) shows that there was a statistically significant association between pregnant women's sexual function and their gestational age in both groups ($p < 0.001$). Women with gestational age 27-28 weeks had more sexual dysfunction than those with 24-26 weeks. As for parity, it was found that the majority (84.4%) of nulliparous women in the control group and most of them (91.3%) in the intervention group were more likely to have sexual dysfunction with a statistically significant difference ($p < 0.05$). There was no

significant association between sexual function and duration of marriage, gravidity, abortion, and type of pregnancy ($p > 0.05$).

Table 1. The sociodemographic data of both groups

	Control group		Intervention group		Significance test	
	No. (40)	%	No. (40)	%	X ²	p
Age (years)						
<25	10	25.0	11	27.5		
25 – 30	12	30.0	10	25.0		
>30	18	45.0	19	47.5	0.256	0.880
Mean \pm SD	27.9 \pm 5.3		26.5 \pm 4.9		1.272	0.207
Education						
Basic	11	27.5	8	20.0		
Secondary	23	57.5	25	62.5		
Higher	6	15.0	7	17.5	0.634	0.728
Occupation						
Working	9	22.5	11	27.5		
Housewife	31	77.5	29	72.5	0.457	0.499

Table 2. The obstetric history of both groups

	Control group		Intervention group		Significance test	
	No. (40)	%	No. (40)	%	X ²	P
Duration of marriage (years)						
<3	9	22.5	7	17.5		
3 – 5	16	40.0	19	47.5		
>5	15	37.5	14	35.0	0.542	0.763
Mean \pm SD	5.5 \pm 2.9		5.6 \pm 2.3		0.042	0.966
Gravidity						
Primigravida	26	65.0	30	75.0		
Multigravida	14	35.0	10	25.0	0.952	0.329
Parity						
Nullipara	27	67.5	30	75.0		
Primipara	7	17.5	6	15.0		
Multipara	6	15.0	4	10.0	0.635	0.728
Abortion						
No	9	64.3	6	60.0		
One	3	21.4	2	20.0		
More than one	2	14.3	2	20.0	0.137	0.934
Type of pregnancy						
Unplanned	23	57.5	26	65.0		
Planned	17	42.5	14	35.0	0.474	0.491
Gestational age (weeks)						
24-26	13	32.5	17	42.5		
27-28	27	67.5	23	57.5	0.853	0.356
Mean \pm SD	27.7 \pm 2.7		27.5 \pm 2.5		0.172	0.864

Table 3. Female sexual function index domains at baseline, 2 weeks post-intervention, and follow-up among both groups

	Control group No. (40)	Intervention group No. (40)	Mean difference		
	Mean \pm SD	Mean \pm SD	[95% CI]	T	p
Baseline					
Desire	3.5 \pm 1.7	4.0 \pm 2.0	0.50 [-0.33 to 1.33]	1.205	0.232
Arousal	3.4 \pm 1.7	3.5 \pm 1.7	0.10 [-0.66 to 0.86]	0.263	0.793
Lubrication	3.5 \pm 1.7	3.2 \pm 1.6	0.3 [-0.44 to 1.04]	0.813	0.419
Orgasm	3.3 \pm 1.6	4.0 \pm 2.0	0.70 [-0.11 to 1.51]	1.729	0.088
Satisfaction	3.6 \pm 1.8	3.8 \pm 1.9	0.20 [-0.62 to 1.02]	0.483	0.630
Pain	4.2 \pm 2.0	3.6 \pm 1.8	0.60 [-0.25 to 1.42]	1.410	0.162
Post-intervention					
Desire	3.8 \pm 1.7	3.0 \pm 1.5	0.80 [0.09 to 1.51]	2.232	0.029*
Arousal	5.0 \pm 2.1	3.7 \pm 1.8	1.30 [0.43 to 2.17]	2.973	0.004*
Lubrication	4.7 \pm 2.2	3.6 \pm 1.8	1.10 [0.21 to 1.99]	2.447	0.017*
Orgasm	4.5 \pm 2.2	3.5 \pm 1.7	1.00 [0.13 to 1.88]	2.275	0.026*
Satisfaction	4.7 \pm 2.3	3.7 \pm 1.7	1.00 [0.10 to 1.90]	2.211	0.030*
Pain	4.4 \pm 2.1	3.5 \pm 1.7	0.90 [0.05 to 1.75]	2.107	0.038*
Follow- up					
Desire	3.8 \pm 1.7	2.9 \pm 1.4	0.90 [0.21 to 1.59]	2.585	0.012*
Arousal	4.9 \pm 2.3	3.5 \pm 1.6	1.40 [0.52 to 2.28]	3.160	0.002*
Lubrication	4.8 \pm 2.3	3.6 \pm 1.8	1.20 [0.28 to 2.12]	2.599	0.011*
Orgasm	4.4 \pm 2.2	3.2 \pm 1.6	1.20 [0.34 to 2.06]	2.790	0.007*
Satisfaction	4.8 \pm 2.3	3.5 \pm 1.7	1.30 [0.40 to 2.20]	2.875	0.005*
Pain	4.4 \pm 1.8	3.6 \pm 1.4	0.80 [0.08 to 1.52]	2.219	0.029*

* Statistically Significant at P<0.05

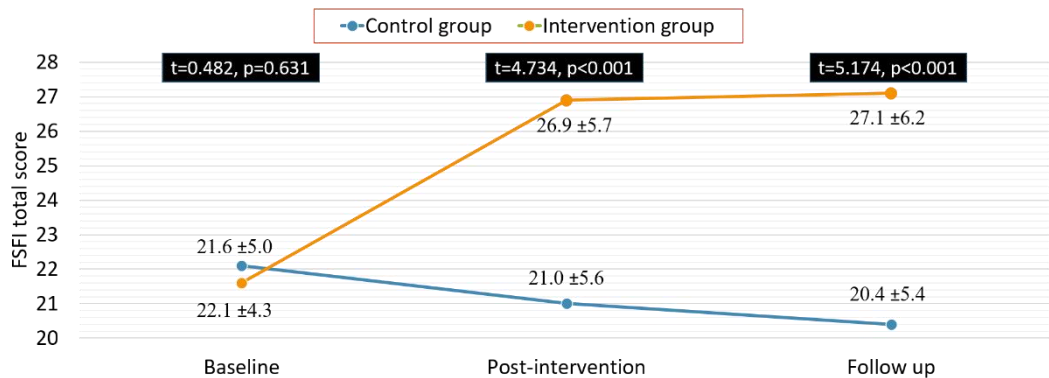


Figure 2. Total female sexual function index score at baseline, 2 weeks post-intervention, and follow-up among both groups

Table 4. Association between sexual function and sociodemographic data of the pregnant women among both groups post-intervention

	Control group						Intervention group					
	Dysfunction		Normal		Significance test		Dysfunction		Normal		Significance test	
	No. (32)		No. (8)		X ²	P	No. (23)		No. (17)		X ²	P
Age (years)	N	%	N	%			N	%	N	%		
<25	4	12.5	6	75.0	13.368	<0.001**	2	8.7	9	52.9	12.736	0.002**
25 – 30	11	34.4	1	12.5			5	21.7	5	29.4		
>30	17	53.1	1	12.5			16	69.6	3	17.6		
Educational level												
Basic	10	31.3	1	12.5	9.681	0.008*	6	26.1	2	11.8	11.601	0.003*
Secondary	20	62.5	3	37.5			15	65.2	10	58.8		
Higher	2	6.3	4	50.0			2	8.7	5	29.4		
Occupational status												
Working	6	18.8	3	37.5	1.290	0.256	4	17.4	7	41.2	2.774	0.960
Housewife	26	81.3	5	62.5			19	82.6	10	58.8		

* Statistical Significant at $P<0.05$

**Highly Statistical Significant at $P<0.001$

Table 5. Association between sexual function and obstetric history of the pregnant women among both groups post-intervention

	Control group						Intervention group					
	Dysfunction				Normal		Dysfunction				Normal	
	No. (32)		No. (8)		Significance test		No. (23)		No. (17)		Significance test	
	N	%	N	%	X ²	P	N	%	N	%	X ²	P
Duration of marriage (years)												
<3	7	21.9	2	25.0			3	13.0	4	23.5		
3 – 5	13	40.6	3	37.5			12	52.2	7	41.2		
>5	12	37.5	3	37.5	0.043	0.979	8	34.8	6	35.3	0.864	0.649
Gravidity												
Primigravida	20	62.5	6	75.0			17	73.9	13	76.5		
Multigravida	12	37.5	2	25.0	0.440	0.507	6	26.1	4	23.5	0.034	0.854
Parity												
Nullipara	27	84.4	0	0.0			21	91.3	9	52.9		
Primipara	3	9.4	4	50.0			2	8.7	4	23.5		
Multipara	2	6.3	4	50.0	20.952	<0.001**	0	0.0	4	23.5	8.764	0.013*
Abortion												
No	7	70.0	2	50.0			4	66.7	2	50.0		
One	2	20.0	1	25.0	0.661	0.717	1	16.7	1	25.0	0.278	0.870
More than one	1	10.0	1	25.0			1	16.7	1	25.0		
Type of pregnancy												
Unplanned	18	56.3	5	62.5			16	69.6	10	58.8		
Planned	14	43.8	3	37.5	0.102	0.749	7	30.4	7	41.2	0.496	0.481
Gestational age (weeks)												
24-26	6	18.8	7	87.5			2	8.7	15	55.6		
27-28	26	81.3	1	12.5	13.789	<0.001**	21	91.3	2	11.8	25.306	<0.001**

* Statistically Significant at P<0.05

**Highly Statistical Significant at P<0.001

Discussion

This study aimed to assess the effect of sexual counseling based on BETTER model on sexual function of pregnant women. This aim was accomplished through the present study findings which revealed that after application of sexual counseling based on BETTER model on the pregnant women, there was a statistically significant increase in total female sexual function index score at 2 weeks post-intervention and follow-up evaluation in the intervention group compared to the control group. Therefore, the hypothesis of the current study “pregnant women who receive sexual counseling based on BETTER model, have a higher total female sexual function index score than those who don’t” was reinforced.

The present study findings showed that the pregnant women's sexual desire, arousal, lubrication, orgasm, satisfaction, and pain were matched at the baseline but were significantly higher at 2 weeks post-intervention and follow-up evaluation in the intervention group

compared to the control group. This could be because, in the BETTER model, the researcher initiated the conversation, clarified the importance of the sexual issues for women, encouraged them to talk more about their problems, and attempted to break the taboo of discussing sexual concerns with their husbands, all of which can encourage self-expression and sexual self-disclosure. As a result, removing barriers to communication about sex between couples has a positive impact on sexual satisfaction. The BETTER model, on the other hand, is used to question sexual life and helps health professionals enhance the quality and effectiveness of sexual counseling services.

Parallel with the present study findings, **Shahin et al., (2021)** in an Egyptian study to assess the efficacy of nursing counseling based on a BETTER model on sexual function, marital satisfaction, and mental health among women with breast cancer revealed that there was a significant statistical difference in FSFI sub-domains such as sexual desire, arousal, lubrication, orgasm, pain and satisfaction, and this model improved sexual function of women.

Karakas & Aslan., (2019) agreed with the current study findings. They used counseling guided by the BETTER model to assess sexual problems in women with primary infertility and reported that using the BETTER model helped the study subjects reduce their sexual problems and their satisfaction was improved. They mentioned that the BETTER model aids them in addressing their sexual concerns and providing an appropriate therapeutic environment for them. A quasi-experimental study conducted on Iranian women in a primary health care center by **Rostamkhani et al., (2015)** to address the sexual difficulties reported that the study group who received sexual therapy based on the BETTER showed a significant improvement in the FSFI scores. This agreement suggests that BETTER-based nursing counseling has a positive effect on sexual function.

Parallel with the present study findings, **Quinn et al., (2013)** study entitled "Discussing sexuality with customers of mental health services,". They found that after receiving sexual counseling using the BETTER model from health care professionals in an Australian rehabilitation center, fourteen patients (eight women and six men) between the ages of twenty-four and sixty reported lower anxiety levels, as well as improved sexual function.

Moreover, **Demir & Aslan., (2018)** assessed the impact of implementing the BETTER model in sexual counseling with women who had primary infertility and sexual dysfunction. They found that when the experimental group was given counseling, there was a significant decline in sexual problems confirming the effectiveness of the BETTER model.

Sexual counseling during pregnancy may be useful in boosting the sexual satisfaction of pregnant women. **Masoumi et al., (2017)** conducted an educational randomized controlled study in Malayer, Iran to assess the impact of sexual therapy on marital satisfaction among women during the antenatal period. They found that sexual counseling improved family health, decreased sexual violence in the home, avoided STDs, reduced family inequity,

boosted sexual satisfaction, and provided a positive attitude toward sexual relations and sexual pleasure. **Shoushtari et al., (2015)** conducted a study on reproductive-aged women in Iran to evaluate the effectiveness of face-to-face with telephone-based counseling on sexual satisfaction. They found that following counseling, sexual satisfaction raised emphasizing the efficacy of counseling. Similarly, **Alidost et al., (2017)** investigated the relation of sexual problems with antenatal stress and quality of life. They found that the mean score of sexual pleasure in the posttest and 6 months follow-up was significantly greater than the pre-test score following sexual counseling.

Furthermore, **Banaei et al., (2017)** analyzed the influence of counseling on lactating women's sexual intimacy. They stated that counseling had a growing impact on sexual satisfaction. Similarly, **Parva et al., (2018)** analyzed the effectiveness of sexual counseling on married women's sexual assertiveness. Couples in the intervention group attended sessions twice a week for four weeks. Before and after the training sessions, the groups were evaluated. Their results revealed the overall sexual satisfaction of participants in the sexual enhancement program was improved. **Sabeti et al., (2018)** assessed the effect of educational intervention on women's sexual function. The intervention group had two training sessions, and the findings showed that sexual health education improved women's sexual function.

Furthermore, a study conducted by **Saboula and Shahin., (2015)** to assess the efficacy of the PLISSIT counseling model on sexual function for breast cancer women found that all dimensions of sexual functioning improved after the intervention. **Hosseini et al., (2016)** also evaluated how the PRECEDE model could help women with hysterectomy enhance their sexual function. They investigated 48 hysterectomized women over the course of five 45-60 minute sessions. According to their findings, in the intervention group, this model dramatically improved female sexual function and its six sub-scales. **Rostamkhani et al., (2015)** conducted a study in a primary health care setting to assess the sexual problems of Iranian women. They found a statistically

significant difference between the intervention and control groups when they compared the mean scores of the six sexual function sub-scales pre-and post-intervention.

The present study findings showed that there was a significant association between the sexual function of pregnant women and their age and educational level in both groups post-intervention as women aged more than 30 years old and who had secondary education had more sexual dysfunction than others. This might be due to the fact that a woman's sexual function declines with age. As well as education increases their awareness and makes them more likely to seek advice to manage their sexual dysfunction during pregnancy. In contrary to this finding, **Aydin et al., (2015)** compared the sexual function of pregnant and non-pregnant women and found no significant differences in the study subjects' socio-demographic data and sexual function.

The present study findings revealed that there was a significant association between the sexual function of pregnant women and their gestational age and parity. Women with gestational age 27-28 weeks had more sexual dysfunction than those with 24-26 weeks. As for parity, it was found that the majority of nulliparous women in the control group and most of them in the intervention group were more likely to have sexual dysfunction with a statistically significant difference. This could be explained by the fact that as a woman's pregnancy progresses, major changes in her body occur, which could be the cause of her decreased libido and sexual activity. Another element that contributes to a decrease in the woman's sexual function is the husband's loss of sexual interest due to concerns about the woman and the baby. Nulliparous women may be more prone to emotional factors due to lack of experiences, fears, and anxiety related to the first pregnancy which possibly may have contributed to lower averages of sexual function. Parallel with the present study findings, **Hashem et al., 2020** study to assess female sexual function during pregnancy. They showed that there was a statistically significant correlation between the duration of pregnancy and the total FSFI scores of pregnant women.

Health care providers must have a greater awareness of the influence of sexual function on a woman's life and give more comprehensive care of sexual problems in their daily work **Dyer & Das Nair., (2013)**. Therefore, the BETTER model, which is client-centered and stresses the formation of an acceptable atmosphere between the client and the counselor, allows women to better disclose their sexual issues, which might alter the treatment process, particularly during pregnancy.

Limitations of the study

There were two limitations for the current study work; the first one was the lack of the necessary national and international references in applying the BETTER model during pregnancy so, the researchers had difficulties in discussing the research topic. The second one was in taking the women's consent before recruiting them in the study for the sensitivity of such issues from their point of view as sexual issues in society are taboo.

Conclusion

Based on the present study results, the tested hypothesis was accepted where sexual counseling based on the BETTER model was effective in increasing pregnant women's sexual function at 2 weeks post-intervention and follow-up evaluation in the intervention group compared to the control group.

Recommendations

Findings incite the following recommendations:

1. Adopting the BETTER sexual model of counseling for management of sexual dysfunction in maternity hospitals.
2. Replication of the study with a large sample size to further settings.
3. Implementing in-service counseling programs for pregnant women to manage their sexual problems.

Further studies

- Ongoing education for maternity nurses on strategies to address women's sexual problems.

- More researches are needed to compare sexual counseling based on different models and to reveal their long-term outcomes.

Conflicts of interest disclosure

The authors declare that there is no conflict of interest.

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