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# The effect of counseling based on ex-PLISSIT model on sexual function and marital satisfaction of postpartum women: A randomized controlled clinical trial

Jamileh Malakouti, Robab Golizadeh<sup>1</sup>, Mojgan Mirghafourvand<sup>2</sup>, Azizeh Farshbaf-Khalili<sup>3</sup>

Department of Midwifery, Nursing and Midwifery School, Tabriz University of Medical Sciences, Tabriz, Iran, <sup>1</sup>Student Research Center, Nursing and Midwifery School, Tabriz University of Medical Sciences, Tabriz, Iran, <sup>2</sup>Social Determinants of Health Research Center, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran, <sup>3</sup>Physical Medicine and Rehabilitation Research Center, Aging Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran

**Address for correspondence:**

Dr. Azizeh Farshbaf-Khalili, Physical Medicine and Rehabilitation Research Center, Aging Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran.  
E-mail: [farshbafa@tbzmed.ac.ir](mailto:farshbafa@tbzmed.ac.ir)

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## Abstract:

**INTRODUCTION:** Since routine counseling does not suffice to resolve the sexual problems at postpartum period, the present study aimed to investigate the effect of counseling based on the Ex-PLISSIT model on sexual function and marital satisfaction of postpartum women.

**METHODS:** This was a randomized controlled clinical trial that was conducted on 68 postpartum women (within 3–6 months after childbirth) who obtained a score <28 on the Female Sexual Function Index (FSFI). The participants were randomly assigned to the intervention and control groups. Participants in the intervention group received counseling based on the Ex-PLISSIT model and those in the control group received the routine postpartum care. The required data were collected using a demographics form, the FSFI, and the ENRICH Marital Satisfaction Scale. The primary outcomes were the mean function and marital satisfaction score of participants 4 and 8 weeks after the intervention.

**RESULTS:** There was no statistically significant difference between the two groups in terms of sexual function at baseline ( $P = 0.381$ ), but it was significantly higher in the intervention group than control group after intervention (the adjusted MD: 4.24, 95% confidence interval [CI]: 3.18–5.29,  $P < 0.001$ ). There was no statistically significant difference between the two groups in marital satisfaction before the intervention ( $P = 0.433$ ), but it increased significantly in the intervention group in comparison to control after intervention (adjusted MD: 23.17, 95% CI: 15.10–31.24,  $P < 0.001$ ).

**CONCLUSIONS:** The study findings suggested that sexual counseling based on the Ex-PLISSIT model can improve the sexual function and increase marital satisfaction of postpartum women.

## Keywords:

Counseling, Ex-PLISSIT model, marital satisfaction, postpartum women, sexual function

## Introduction

Sexual function and marital relationships substantially decline during pregnancy and childbirth.<sup>[1]</sup> During the postpartum period, breastfeeding and dyspareunia cause the pelvic floor dysfunction, reduce estrogen level, and finally decrease sexual function.<sup>[2]</sup>

Khajehei *et al.* reported that about two-thirds (64.3%) and three-fourths (70.5%) of participants experienced sexual dysfunction and sexual dissatisfaction, respectively, in the 1<sup>st</sup> year after childbirth.<sup>[3]</sup> The postpartum period is marked with increasing marital conflicts and reducing marital satisfaction.<sup>[4]</sup> Marital satisfaction reduces the risk of postpartum depression, as women with marital satisfaction are less

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likely to develop the postpartum depression.<sup>[5]</sup> Since routine care does not suffice to resolve the sexual problems during the postpartum period, it is essential that health-care providers offer sexuality training to couples.<sup>[6]</sup>

The PLISSIT model was first developed by Jack S. Anon in 1976. PLISSIT stands for permission (P), limited information (LI), specific suggestions (SS), and intensive therapy (IT).<sup>[7]</sup> This model is highly recommended as a framework for supporting and providing sexual information and discussing sexual changes at different levels.<sup>[8]</sup>

One of the limitations of the PLISSIT model is that patients are allowed to speak only at first, and then, they are not given the opportunity to talk about their concerns. Hence, with an emphasis on the role of permission-giving and active listening in all stages, the Ex-PLISSIT model was later developed as an extension of the frequently used PLISSIT model.<sup>[9]</sup>

Although the Ex-PLISSIT model has been found beneficial as a framework for solving sexual problems in many illnesses, few studies in Iran have used it to investigate women during the breastfeeding period.<sup>[10]</sup> Hence, the present study aims to investigate the effect of counseling based on the Ex-PLISSIT model on sexual function and marital satisfaction of postpartum women.

## Methods

The present study was a randomized controlled trial that was carried out in Ardebil from August 2018 to January 2019. The study population consisted of postpartum women visiting health centers of Ardebil. The inclusion criteria were obtaining a score <28 on the female sexual function index (FSFI), breastfeeding to only one infant, being in the postpartum period (3–6 months after childbirth). The exclusion criteria were experiencing stressful events or any other complication during or after childbirth, the history of depression before, during, or after pregnancy, the history of chronic physical and mental illnesses, taking any drug that affects sexual responses, having a preterm infant or one with known anomalies, marital separation, neonatal death for any reason, mother's or husband's addiction, and the history of sexual dysfunctions in mother or her husband before pregnancy.

The sample size was calculated using the G-Power software and based on the findings of Sehhatie *et al.*<sup>[11]</sup> Considering  $m_1 = 24.3$ ,  $m_2 = 29.16$ ,  $sd_1 = sd_2 = 507$ ,  $\alpha = 0.05$ , statistical power of 95%, and an attrition rate of 10%, the final sample size for each group was determined to be 34.

Based on marital satisfaction,<sup>[12]</sup> considering  $m_1 = 128.41$ , a 20% increase in the mean score of marital satisfaction caused by the intervention ( $m_2 = 154.1$ ),  $sd_1 = sd_2 = 20$ ,  $\alpha = 0.05$ , and statistical power of 95%, the sample size for each group was determined to be 14. Since the sample size determined based on the sexual function score was greater, the final sample size based on marital status was decided to be 34 for each group.

The present study was approved by the Ethics Committee of Tabriz University of Medical Sciences (code: IR.TBZMED.REC.1396.1131) and was registered on the Iranian Registry of Clinical Trials (IRCT) (IRCT20111122008170N12). There are a total of 71 health centers in Ardebil Province, one-fourth of which were selected for sampling in accordance with socioeconomic levels. The number of participants selected from each health center was calculated in proportion to the number of postpartum mothers with a health record in each center. The participants were equally assigned to the control and intervention groups based on randomized blocking with blocks of 4 and 6. In order to observe allocation concealment, the name of groups was put in numbered closed matte envelopes. Random allocation and allocation concealment were done by an author who was not involved in data collection. Finally, 34 participants were assigned to the intervention group and 34 participants to the control group. After explaining the purpose of the research to the eligible women, all of them were asked to provide the research team with a written consent form and their contact information. Participants were free to leave the study if they were unwillingness to continue the research. The consultation took place in a secluded room, and all the participants were assured that all personal information would be confidential. The results of the study were provided to them upon request

All participants completed the FSFI and those who obtained a score of <28 on this index were allowed to enter the study. In the next step, the participants were asked to fill out a demographic and midwifery form, the FSFI, and the ENRICH Marital Satisfaction (EMS) Scale. Four and eight weeks after the end of the intervention, the participants of both groups were asked to fill out the FSFI and the EMS Scale once again.

The midwife researcher participated in a training workshop on sexual problems management based on the Ex-PLISSIT model taught by a sexologist. Women in the intervention group individually received sexual counseling based on the Ex-PLISSIT model in a session of 60–90 min. In this session, the midwife researcher started the discussion about sexual problems by asking some open questions and allowing the participant to talk about her own sexual problems. While talking to the participant, the researcher tried to notice her false thoughts and

misbeliefs, wrong or inadequate information, and sexual concerns. Then, her main sexual problem was detected by taking the participant's sexual and midwifery medical history, performing clinical examinations, and completing the FSFI. In the next step, the participant was briefed on the reproductive system anatomy, sexual cycle physiology, postpartum and breastfeeding changes and their impact on sexual cycle, and her sexual problem. The participant was provided with a pamphlet on the above-mentioned subjects. For the convenience of the participants, the counseling intervention was presented to them at the same health center they visited. Participants in the control group received routine training.

The required data were collected using a demographic and midwifery form, FSFI, and EMS Scale. FSFI is a valid and reliable 19-item questionnaire that measures sexual functioning of women in 6 subscales, namely sexual desire, sexual arousal, vaginal moisture, orgasm, sexual satisfaction, and sexual pain. Scores <28 indicate an undesirable sexual function.<sup>[13]</sup>

EMS Scale (Olson, 1998) as a valid and reliable tool consists of 47 items in 12 subscales as follows: Idealistic distortion, children and parenting, leisure activities, conflict resolution, personality issues, equalitarian roles, family and friends, sexual relationship, religious orientation, communication, financial management, and marital satisfaction. Higher scores on this scale indicate a higher level of marital satisfaction.<sup>[14-16]</sup>

### Statistical analysis

The data were statistically analyzed in SPSS 23 (IBM SPSS Statistics, IBM Corporation, Chicago, IL). The normal distribution of data was assessed based on skewness and kurtosis. The homogeneity of experimental groups in terms of demographics was evaluated using the Chi-square test, rounded Chi-square, Fisher's exact test, and the independent *t*-test. In addition, the independent *t*-test and the repeated measures ANOVA were employed to compare the mean scores of sexual function and marital satisfaction before and after the intervention. All statistical analyses were performed based on intention-to-treat.

## Results

A total of 340 postpartum women visiting health centers of Ardebil were evaluated during the sampling, 68 of whom who met the inclusion criteria were selected for the study and randomly assigned to the control and intervention groups. It is noteworthy that the attrition rate was equal to zero in both groups [Figure 1].

The mean (standard deviation [SD]) age of women was equal to 26.6 (6.1) in the intervention group and 27.4 (5.5)

in the control group. In addition, the mean (SD) body mass index of participants was 26.1 (5.5) and 25.5 (4.1) in the intervention and control groups, respectively. Most participants in the intervention group (91.2%) and the control group (91.2%) were a homemaker. In addition, most of their husband in the intervention group (70.6%) and the control group (64.7%) were self-employed. The results also showed that most women in the intervention group (70.6%) and the control group (82.4%) had enough family income. Almost half of the participants in the intervention group (47.1%) and more than half of them in the control group (55.9%) had a high school diploma. About half the women in the intervention group (61.8%) and the control group (47.1%) were primiparous. Most women in both groups (88.2%) had a wanted pregnancy. The results also demonstrated that two-thirds of participants in both groups (64.7%) had no prior knowledge about sexual relations. Based on the results, there was no significant difference between the two groups in terms of demographic and midwifery information [Table 1].

The mean (SD) sexual score in the intervention groups was equal to 19.74 (5.80) before the intervention, 27.65 (2.23) 4 weeks after the intervention, and 30.02 (1.53) 8 weeks after the intervention. In the control group, this value was 20.81 (4.01) before the intervention, 23.95 (2.29) 4 weeks after the intervention, and 25.31 (3.26) 8 weeks after the intervention. The data indicated that there was no statistically significant difference between the two groups in terms of sexual function before the intervention ( $P = 0.381$ ), but the mean sexual function score in the intervention group was significantly higher than the control group 8 weeks after intervention (the adjusted mean difference 4.24, 95% confidence interval [CI]: 3.18–5.29,  $P < 0.001$ ).

There was no significant difference between the intervention and control groups before the intervention in the mean score of the six subscales of sexual function. However, a significant difference was observed between them 4 and 8 weeks after the intervention [Table 2].

In addition, the mean (SD) marital satisfaction score in the intervention group was equal to 164.76 (35.28) before the intervention, 202.20 (16.14) 4 weeks after the intervention, and 210.32 (14.03) 8 weeks after the intervention. In the control group, this value was 171.00 (29.30) before the intervention, 182.00 (24.17) 4 weeks after the intervention, and 188.17 (24.62) 8 weeks after the intervention. The results showed that there was no significant difference between the two groups in marital satisfaction before the intervention ( $P = 0.433$ ), but the mean marital satisfaction score in the intervention group was significantly higher than the control group 8 weeks after intervention (the

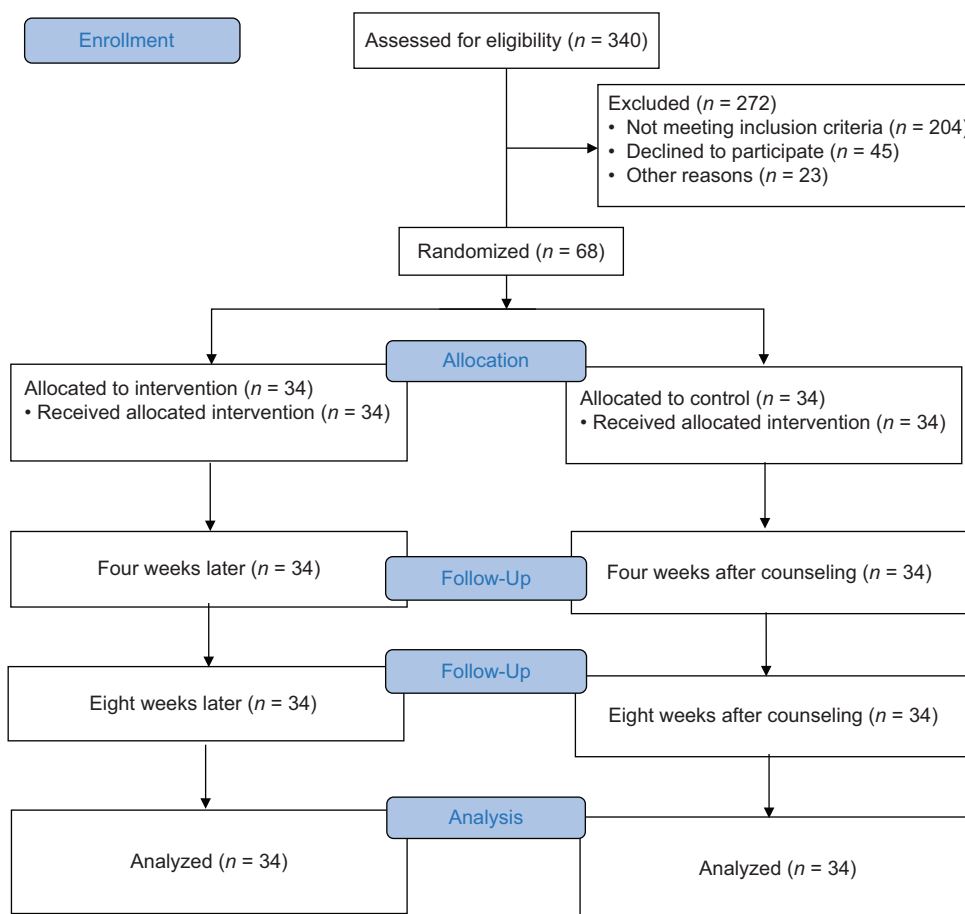


Figure 1: Flow diagram of the study

adjusted mean difference: 23.17, 95% CI: 15.10–31.24,  $P < 0.001$ ) [Table 3].

## Discussion

The study findings suggested that sexual counseling based on the Ex-PLISSIT model improved sexual function and its subscales and increased marital satisfaction score of postpartum women.

The results of the present study are consistent with the findings of Rostamkhani *et al.* who reported that the use of the PLISSIT model caused a substantial increase in the FSFI total score and the mean score of its subscales (sexual desire, sexual arousal, orgasm, sexual satisfaction, and sexual pain) in newly-wed women.<sup>[17]</sup> In a study by Khakbazan *et al.*, the PLISSIT model was employed as a framework for sexual counseling in women with MS and it managed to increase the mean score of sexual function and its subscales, except for dyspareunia.<sup>[18]</sup> Faghani and Ghaffari showed that the PLISSIT model can effectively improve the quality of sexual life and sexual function in women with breast cancer and their husbands.<sup>[19]</sup> The findings of Banaei *et al.* demonstrated that sexual counseling based

on the PLISSIT model improves sexual function of breast-feeders.<sup>[10]</sup> The results of Navidian *et al.* also indicated that counseling can lead to positive changes in perceptions and traditional attitudes of pregnant women about the sexual issues during pregnancy.<sup>[20]</sup> Based on the literature review, it can be stated that the PLISSIT model can greatly affect the treatment of female sexual concerns. In all above-mentioned studies, there was a significant difference between the test and control groups in terms of the six areas of sexual function. However, only one study on women with gynecologic cancer and their husbands showed that there was a significant difference between the intervention and control groups in all areas of sexual function, except for dyspareunia.<sup>[21]</sup> This difference was attributed to the complications of chemotherapy and strategies used to relieve pain in women with gynecologic cancer.

The present study showed that counseling can increase marital satisfaction in postpartum women. This is consistent with the findings of Masoumi *et al.* who reported that sexual counseling during pregnancy can be effective in increasing marital satisfaction of pregnant women.<sup>[22]</sup> Khazaei *et al.* showed that there is a significant relationship between sexual disorders

**Table 1: Sociodemographic characteristics of participants in counseling and control groups**

Variable	Control (n=34), n (%)	Intervention (n=34), n (%)	P
Age (years) <sup>†</sup>	27.4 (5.5)	26.6 (6.1)	0.579*
BMI (kg/m <sup>2</sup> ) <sup>†</sup>	25.5 (4.1)	26.1 (5.5)	0.644*
Job			
Homemaker	31 (91.2)	31 (91.2)	1.000 <sup>‡</sup>
Employed	3 (8.8)	3 (8.8)	
Wife's job			
Worker	6 (17.6)	6 (17.6)	0.757 <sup>§</sup>
Employed	6 (17.6)	4 (11.8)	
Self-employed	22 (64.7)	24 (70.6)	
Wife working hours per day			
8	31 (91.2)	31 (91.2)	1.000 <sup>‡</sup>
10	1 (2.9)	1 (2.9)	
12	2 (5.9)	2 (5.9)	
Household income			
Enough	28 (82.4)	24 (70.6)	0.256 <sup>ε</sup>
Less than enough	6 (17.6)	10 (29.4)	
Education			
Guidance school	7 (20.6)	9 (26.5)	0.863 <sup>ε</sup>
Diploma	19 (55.9)	16 (47.1)	
Bachelor	8 (23.5)	9 (26.5)	
Wife's education			
Unadulterated	0 (0.0)	1 (2.9)	0.321 <sup>ε</sup>
Elementary	0 (0.0)	2 (5.9)	
Guidance school	10 (29.4)	8 (23.5)	
Diploma	12 (35.3)	12 (35.3)	
Bachelor	10 (29.4)	11 (32.4)	
Masters and higher	2 (5.9)	0 (0.0)	
Gravid			
First pregnancy	14 (41.2)	17 (50.0)	0.109 <sup>§</sup>
Second pregnancy	7 (20.6)	12 (35.3)	
Third pregnancy and higher	13 (38.2)	5 (14.7)	
Distance of recent pregnancy with previous pregnancy (months)	30.5 (39.2)	32.3 (46.9)	0.863*
Number of live children			
One	16 (47.1)	21 (61.8)	0.493 <sup>‡</sup>
Two	13 (38.2)	9 (26.5)	
Three and higher	5 (14.7)	4 (11.8)	
The type of pregnancy			
Wanted	30 (88.2)	30 (88.2)	0.645 <sup>‡</sup>
No wanted	4 (11.8)	4 (11.8)	
Methods of contraception			
Oral pill	11 (32.4)	10 (29.4)	0.514 <sup>§</sup>
Condom	11 (32.4)	9 (26.5)	
IUD	1 (2.9)	2 (5.9)	
Withdrawal	1 (2.9)	1 (2.9)	
Rhythmic method	1 (2.9)	0 (0.0)	
Unprotected	3 (8.8)	4 (11.8)	
Other <sup>§</sup>	6 (17.6)	8 (23.5)	
Previous sex education			
Yes	12 (35.3)	12 (35.3)	1.000 <sup>‡</sup>
No	22 (64.7)	22 (64.7)	
Previous sexual training method			
Book	5 (14.7)	3 (25.0)	0.266 <sup>§</sup>
Family doctor	2 (16.7)	2 (16.7)	
Consulting class	4 (33.3)	3 (25.0)	
Other <sup>ε</sup>	1 (8.3)	4 (33.3)	

<sup>†</sup>Numbers are reported in terms of mean (SD), <sup>\*</sup>Fisher's exact test, <sup>‡</sup>Independent t-test, <sup>§</sup>Chi-square test, <sup>ε</sup>Chi-square-trend test, <sup>§</sup>Tubectomy, vasectomy, contraceptive glue, diaphragm, contraceptive sponge, cervical cap, emergency prevention method, pull out the penis, spermicidal method, <sup>ε</sup>Using the internet, referring to a sexologist, referring to a psychologist and a psychiatrist. BMI=Body mass index, SD=Standard deviation, IUD=Intra uterine device



**Table 2: Comparison of the mean total score of sexual function and its sub-domains among the groups at different times**

Variable	Mean (SD)		Mean difference (95%CI)	P
	Intervention group	Control group		
Overall sexual function score (score range: 2-36)				
Before intervention	19.74 (5.80)	20.81 (4.01)	1.06 (-1.34-3.48)	0.381
4 weeks after intervention	27.65 (2.23)	23.95 (2.29)		
8 weeks after intervention	30.02 (1.53)	25.31 (3.26)	4.24 (-3.18-5.29)*	<0.001
Desire (score range: 1.2-6)				
Before intervention	3.35 (0.75)	3.38 (0.75)	0.03 (-0.33-0.40)	0.847
4 weeks after intervention	4.48 (0.49)	3.97 (0.57)		
8 weeks after intervention	4.97 (0.45)	4.27 (0.63)	0.61 (0.39-0.84)*	<0.001
Arousal (score range: 0-6)				
Before intervention	3.42 (1.41)	3.69 (1.09)	0.26 (-0.35-0.88)	0.391
4 weeks after intervention	4.63 (0.60)	4.14 (0.63)		
8 weeks after intervention	5.18 (0.42)	4.20 (0.66)	0.76 (0.51-1.00)*	<0.001
Lubrication (score range: 0-6)				
Before intervention	2.66 (0.94)	2.72 (0.77)	0.06 (-0.35-0.48)	0.768
4 weeks after intervention	4.44 (0.49)	3.60 (0.71)		
8 weeks after intervention	4.76 (0.55)	3.92 (0.74)	0.84 (0.56-1.12)*	<0.001
Orgasm (score range: 0-6)				
Before intervention	3.37 (1.11)	3.55 (0.85)	0.17 (-0.30-0.65)	0.466
4 weeks after intervention	4.79 (0.53)	4.05 (0.61)		
8 weeks after intervention	5.17 (0.45)	4.27 (0.71)	0.81 (0.56-1.06)*	<0.001
Satisfaction (score range: 0.8-6)				
Before intervention	4.38 (1.65)	4.76 (1.38)	0.37 (-0.36-1.11)	0.313
4 weeks after intervention	5.57 (0.43)	5.00 (0.69)		
8 weeks after intervention	5.79 (0.24)	5.17 (0.76)	0.63 (0.40-0.86)*	<0.001
Pain (score range: 0-6)				
Before intervention	2.54 (1.19)	2.69 (1.44)	0.15 (-0.49-0.80)	0.636
4 weeks after intervention	3.72 (0.67)	3.17 (0.70)		
8 weeks after intervention	4.12 (0.44)	3.47 (0.78)	0.64 (0.40-0.88)*	<0.001

To compare the mean of total sexual function and its sub-domains before the intervention, independent t-test was used and after intervention, repeated measurement ANOVA test was used with control the baseline values. \*Adjusted mean difference (95% CI). CI=Confidence interval, SD=Standard deviation

**Table 3: Comparison of the average marital satisfaction score among the groups at different times**

Variable	Mean (SD)		Mean difference (95% CI)	P
	Intervention group	Control group		
Overall marital satisfaction score (score range: 47-235)				
Before intervention	164.76 (35.28)	171.00 (29.30)	6.20 (-9.50-21.90)	0.433
4 weeks after intervention	202.20 (16.14)	182.00 (24.17)		
8 weeks after intervention	210.32 (14.03)	188.17 (24.62)	23.17 (15.10-31.24)*	<0.001

To compare the mean of total marital satisfaction score before the intervention, independent t-test was used and after intervention, repeated measure ANOVA test was used with control the baseline values. \*Adjusted mean difference (95% CI). CI=Confidence interval, SD=Standard deviation

and low marital satisfaction.<sup>[23]</sup> In another study, it was shown that marital dissatisfaction is five times higher in individuals who are sexually dissatisfied with their lives.<sup>[24]</sup> The finding of Ziaee *et al.* demonstrated that marital satisfaction is significantly related to sexual satisfaction.<sup>[25]</sup> Mortazavi *et al.* reported a significant relationship between frigidity and marital conflict, as marital conflicts increase with the increase in frigidity.<sup>[26]</sup> The findings of Mirghafourvand *et al.* demonstrated that the elimination of sexual problems and dysfunctions and improvement of marital satisfaction can increase women's quality of life of and help to create a strong and long-lasting family life.<sup>[27]</sup>

The strengths of this randomized controlled trial were: No any follow-up of samples during the study, the presence of only one observer in assessing the eligibility criteria and the follow-up of intervention to prevent bias, and individual counseling that made it easier for people to raise their concerns.

The limitations of this study were the large number of questions that would tire the participants and the short follow-up period, and impossibility of blinding due to the nature of the study. Therefore, future studies are recommended to employ shorter questionnaires and longer follow-up of participants.

## Conclusions

Female sexual function declines during the postnatal period, especially in the first 6 months, for several reasons. This can affect marital relationships and reduce marital satisfaction. The study findings suggest that sexual counseling based on the Ex-PLISSIT model can improve sexual function and increase marital satisfaction of postpartum women. Hence, gynecologists, midwives, and all health-care providers are recommended to employ sexual counseling based on the Ex-PLIS.

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## Conflicts of interest

There are no conflicts of interest.

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