The Effectiveness of Counseling using PLISSIT Model on Depression, Anxiety and Stress, among Postpartum Women with Sexual Dysfunction: A Randomized Trial

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A R T I C L E I N F O	A B S T R A C T
Article type: Original article 	***Background & aim:*** Sexual dysfunction is common among women after childbirth, which could be associated with depression, anxiety and stress. The majority of these problems can be treated in early stages with different counseling approaches. The aim of this study was to assess the effect of counselling based on the PLISSIT model on depression, anxiety and stress among postpartum women with sexual dysfunction. ***Methods:*** This clinical trial was carried out on 80 women referred to urban healthcare centers of Mashhad, Iran in 2017, who had a score ≤ 28 based on the female sexual function index, with no history of sexual dysfunction before and during the pregnancy. They were randomly assigned to two groups of PLISSIT and control group. The subjects in the PLISSIT group attended two counseling sessions in two consecutive weeks and those in the control group received routine care. A demographic questionnaire, FSFI, as well as DASS-21 were used to measure female sexual function as well as depression, anxiety and stress before and 4 weeks after the last session in both groups. Data was analyzed using independent t-test, analysis of covariance, and Mann-Whitney U test. ***Results:*** The mean scores of DASS-21 total score were 9.6±7.5 and 3.3±2.9 in the PLISSIT group and 9.2±9.5 and 8.7±4.3 in the control group at the baseline and 4 weeks after the last session, respectively. The difference between means in two groups was significant (P=0.026). By controlling the intervening variables, the DASS-21 score in the intervention group decreased, compared to that in the control group. ***Conclusion:*** The PLISSIT model decreases the DASS-21 total score in women with sexual dysfunction after childbirth.

Introduction

Depression and sexual dysfunction are major postpartum health concerns. The prevalence of postpartum depression has been reported from 0-60% in many Eastern and Western countries (1). Childbirth is a known risk factor for increasing depression risk in women. In total, 35% to 40% of women experience depressive symptoms after childbirth (2). The prevalence rate of postpartum depression in Iran is reported as 25% (3).

The prevalence rate of anxiety after childbirth has been reported to be 25-45%. Anxiety is a common problem during the postpartum period. Stress after childbirth is a distinct negative emotional condition. Many women experience postpartum anxiety, which is

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associated with a high prevalence of depression. (4). Difficulty in the relationship between the spouses is a risk factor for postnatal depression (PND). Loss of sexual desire after childbirth and a decrease in intercourse at 3 months postpartum are reported in women with PND. According to Elliott and Watson (1985), a relationship was detected between PND and women's decreased sexual interest, enjoyment, frequency, and satisfaction during 6 months after childbirth, which reached significantly by 9 and 12 months after delivery (5).

Tiredness and weakness are among the reasons for the loss of sexual desire during late pregnancy and after the childbirth (2). Sexual dysfunction is a risk factor for depression during the first 24 months after childbirth. During the entire 24 months after childbirth, sexual dysfunction is reported by 14.9-66.7% of women. Sexual dysfunction causes the risk of postpartum depression. The prevalence rate of sexual dysfunction in women has been also globally estimated at 30-50%, and this value is reported as 31.5% in Iran (6, 7). The women with reported sexual dysfunction and decreased sexual satisfaction have an elevated risk of depression during the entire 24 months after childbirth (1). Depression, anxiety, and sexual dysfunction constitute a continuous cycle in which sexual dysfunction can lead to anxiety and ultimately depression and vice versa (8).

Despite the prevalence of sexual dysfunction, both physicians and women may delay talking about sexual concerns after pregnancy that is due to having a sense of discomfort in terms of starting conversations about sex or absence of appropriate training by healthcare providers to provide a proper sexual history from clients. In this regard, according to the literature, only 19% of 67 women with postpartum sexual dysfunction shared their sexual problems with healthcare providers (9).

Numerous approaches have been proposed for sexual counseling, including PLISSIT, known as one of the most commonly used models (10). The PLISSIT model comprises 4 levels, namely 1-*Permission*, 2-*Limited Information*, 3-*Specific Suggestions*, and 4-*Intensive Therapy* (11). It should be noted that ruling religious and cultural values in Iran make women not share their sexual dysfunction with counselors.

Furthermore, considering the fact that the results of studies in this domain have suggested the use of different counseling approaches to reduce women's postpartum sexual dysfunction (11-13) and due to lack of investigations conducted on comparing counseling approaches for the reduction of female postpartum sexual dysfunction up to now, the present study aimed to assess the effectiveness of the PLISSIT model on depression, anxiety, and stress in women with sexual dysfunction after childbirth.

Materials and Methods

This two-group randomized clinical trial was conducted on 80 women referring to eight selected healthcare centers with a sexual complaint within 4 weeks to 6 months after childbirth in Mashhad, Iran, from August to March 2017. The eight health centers were selected by the simple random lottery method. There was no similar study in this regard; accordingly, the sample size was calculated at 38 individuals with 80% test power and 95% confidence interval to produce an effect size equal to 65%; however, the sample size was determined as 45 patients in each group due to 20% sample loss.

The inclusion criteria in this study were being married within the age range of 18-45 years, obtaining a score equal to or lower than 28 based on the female sexual function index (FSFI), being able to speak, read, and understand the Persian language, giving birth to a healthy term neonate in recent pregnancy, in the 4th weeks to the 6th months of the postpartum period, starting to have sexual intercourse after childbirth, having a stable relationship with husband, with no infection, chronic diseases, or epilepsy, no alcohol abuse and addiction to opioids and other psychoactive substances, no infliction with chronic psychological illnesses, such as anxiety, and no sexual dysfunction before and

$$\frac{2\left(Z_1 - \frac{\alpha}{2} + Z_1 - \beta\right)^2}{F^2}$$

during pregnancy.

The Depression, Anxiety, and Stress Scale-21 (DASS-21) was completed by eligible candidates to rule out the women affected with severe-to-moderate depression, anxiety, and stress to refer to a psychologist. The

exclusion criteria were attending courses on sexuality training during this study, alcohol or drug abuse, and consumption of medications affecting their sexual functioning or that of their husband, prostate problems, schizophrenia, and sexual disorders in their spouse.

At the baseline, a total of 90 women were eligible for the participation, and 10 women were excluded from the study (Figure 1). Written informed consent was obtained prior to randomization, and the demographic and sexual characteristics questionnaire and FSFI were completed by the subjects. The participants were randomized into one of the two study groups, namely PLISSIT or control. According to a preexisting list produced by a computer program, 80 women were assigned randomly to each group. The first author enrolled participants and consulted with the women, and the second author assigned the cases to the intervention or control group.

The subjects in the PLISSIT group attended two sessions and received one-on-one weekly consultation for 2 weeks in the counseling room of the centers (each session lasted 60-90 min). The consultation time was equal for all women. The subjects in the control group received routine care in health centers.

The data collection instruments included a demographic and sexual characteristics questionnaire, FSFI, and DASS-21. The demographic and sexual characteristics questionnaire contained 30 items developed after reviewing the latest international books and articles on the topic of study validity of which was also determined by content validity. Therefore, after the preparation of the questionnaire, it was submitted to seven faculty members and professors of Mashhad University of Medical Sciences for validity. The FSFI included 19 items evaluating female sexual functioning in six domains of sexual desire, sexual arousal, vaginal lubrication, orgasm, sexual satisfaction, and pain during intercourse (14).

The reliability of the index has also been confirmed in Iran by Mohammadi et al. (2008), and its subscales were confirmed rendering a Cronbach's alpha coefficient of 0.7 (15). In the present study, the reliability of the given questionnaire calculated by Cronbach's alpha coefficient was determined as 0.82. The DASS-21 items are scored based on a 4-point Likert scale from 0 (*not applied to me at all*) to 3 (*applied to me very much or most of the time*). Higher scores indicate more frequent symptomatology. Seven items comprise each of the three scales, including depression, anxiety, and stress (16).

In another study, Antony et al. (1998) analyzed the scale. The results of the aforementioned study showed that 68% of the total scale variance was assessed by these three factors. The special value of the stressors, depression, and anxiety factors in this study were equal to 9.07, 89.2, and 23.1, and Cronbach's alpha coefficients for these three factors were 0.97, 0.92, and 0.95, respectively (17).

In a study conducted by Sahebi et al. (2005), the internal consistency of DASS-21 was calculated using Cronbach's alpha coefficient obtained at 0.77, 0.79, and 0.7 for depression, anxiety, and stress scales, respectively. The validity of this form has been confirmed according to a structural narrative study conducted by Sahebi et al. in Iran in 2005 (18). In the aforementioned study, the reliability of the DASS-21 questionnaire was determined using a Cronbach's alpha coefficient of 0.80 for the whole questionnaire.

It should be noted that the researcher (first author) had obtained the certificates of participation in a sex therapy training course, dyspareunia and vaginismus workshops, as well as medication therapy in sexual disorders, and a course of sexual counseling with a psychologist. The PLISSIT counseling model included a 4-level process in which the first and the second levels could be conducted within the first counseling session and the third and fourth levels could be performed in the second session.

First session: The purpose was to create a sense of security and relaxation for the patient and allow the individual to speak about her sexual function, which may sometimes be contrary to the counselor's beliefs (i.e., *Permission).* The counselor began by asking a few open questions about sexual

issues and while respecting values, beliefs, feelings, and attitudes, the researcher allowed the subject to talk about sexual problem. Then the counselor provided the client who was directly concerned with her problem with limited information (i.e., *Limited Information)*. Information was also provided for the client about the genital anatomy and physiology, and the changes that were made after the delivery, and sexual function. In addition, sexual concerns in the postpartum period were answered.

Second session: The purpose of this session was to increase the subject's ability to handle her sexual problems. Firstly, the subject was asked to express the result of the action taken on the solutions presented in the previous session and to express her sexual problems again. Then the counselor offers specific suggestions to enable the woman to manage her sexual problems, such as the emphasis on increasing the time for more

vaginal lubrication, developing sexual imagination in case of decreased libido, setting the baby's sleeping hours to spend more time with the spouse (i.e., *Specific Suggestions).* Furthermore*, Intensive Therapy* is performed for women who still needed more intervention (11).

In order to prevent sample attrition, the researcher contacted the participants to remind them of counseling sessions. Finally, in the PLISSIT (4 weeks after the last session) and control (4 weeks after receiving routine care) groups, the FSFI and DASS-21 were completed by another person blinded to study. After data collection and coding, data analysis was conducted using SPSS software (version 24) by the Kolmogorov-Smirnov test, Mann-Whitney U test, independent t-test, Chi-square test, analysis of covariance (ANCOVA), and Fisher's exact test. P-value less than 0.05 was considered statistically significant in these tests.

Figure 1. Flow diagram of women's selection process
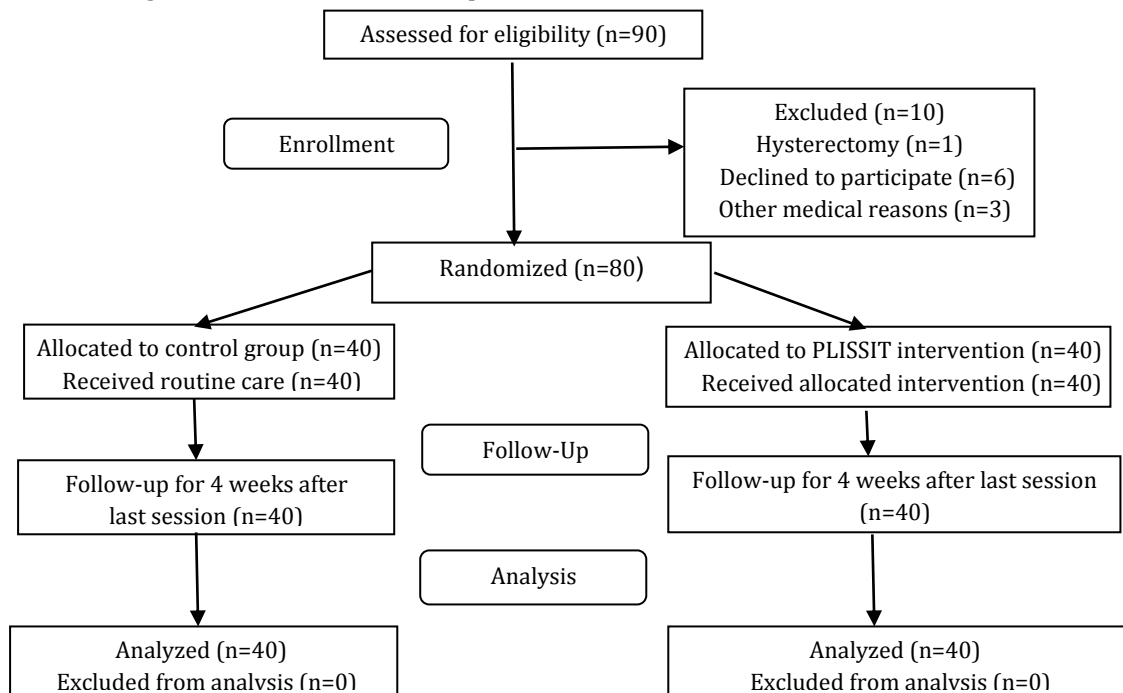
Results

Demographic and sexual characteristics examined and compared before the intervention between the two study groups were observed to be homogenous in all cases (Tables 1, 2, 3).

Table 1. Mean and standard deviation of age, spouse's age, and marriage age among studied women in PLISSIT and control groups

Variable	Group		Test result
	Control (n=40)	**PLISSIT (n=40)**	
	Mean±standard deviation	**Mean±standard deviation**	
Age (year)	29.7±5.5	31.7±5.4	t=1.6 P=0.103 Independent t-test
Spouse's age (year)	34.7±5.8	35.6±5.4	t=0.7 P=0.499 Independent t-test
Marriage age (year)	23.8±4.6	22.9±4.9	t=-0.9 P=0.395 Independent t-test

Table 2. Frequency distribution of studied women according to demographic characteristics in PLISSIT and control groups

Variable	Control	PLISSIT	Test result
	N (%)	**N (%)**	
Education level			
Elementary	4 (10.0)	1 (2.5)	z=-0.6
Middle school	5 (12.5)	3 (7.5)	P=0.544
High school	17 (42.5)	14 (35.0)	Mann-Whitney U test
University education	14 (35.0)	22 (55.0)	
Spouse's education			
Elementary	1 (2.5)	2 (5.0)	z=-1.5
Middle school	7 (17.5)	1 (2.5)	P=0.113
High school	16 (40.0)	14 (35.0)	Mann-Whitney U test
University education	16 (40.0)	23 (57.5)	
Occupation			χ^2=1.2
Housewife	35 (87.5)	30 (75.0)	P=0.407
Student	1 (2.5)	2 (5.0)	Chi-square test
Employed	4 (10.0)	8 (20.0)	
Spouse's occupation			
Self-employed	26 (65.0)	20 (50.0)	χ^2=2.7
Worker	4 (10.0)	3 (7.5)	P=0.265
Employee	10 (25.0)	17 (42.5)	Chi-square test
Address			
City	25 (62.5)	29 (72.5)	Chi=0.9
			P=0.340
Countryside	15 (37.5)	11 (27.5)	Chi-square test
Baby feeding method			
Breastfeeding	31 (77.5)	37 (92.5)	χ^2=3.9
Formula feeding	5 (12.5)	1(2.5)	P=0.157
Both	4 (10.0)	2 (5.0)	Chi-square test
Total	40 (100)	40 (100)	

Table 3. Frequency distribution of studied women based on marital characteristics in PLISSIT and control groups

Test result	Control N (%)	PLISSIT N (%)	Variable
Kind of recent delivery			
Normal vaginal delivery	22 (55.0)	27 (67.5)	χ^2=1.3
Caesarean section	18 (45.0)	13 (32.5)	P=0.251
Total	40 (100)	40 (100)	Chi-square test
Type of contraception method			
Condom	22 (5.5.0)	23 (57.5)	
Natural method	9 (22.5)	5 (12.5)	
Intrauterine device	3 (7.5)	2 (5.0)	χ^2=2.9
Oral contraceptive pill	2 (5.0)	2 (5.0)	P=0.754
Injectable	2 (5.0)	3 (7.5)	Chi-square test
Mini pill	2 (5.0)	5 (12.5)	
Total	40 (100)	40 (100)	
Fear of unwanted pregnancy			
Yes	34 (85.0)	37 (92.5)	P=0.481
No	6 (15.0)	3 (7.5)	Fisher's exact test
Total	40 (100)	40 (100)	
Separate room for sex			
Yes	39 (97.5)	39 (97.5)	P=1.000
No	1 (2.5)	1 (2.5)	Fisher's exact test
Total	40 (100)	40 (100)	

Table 4. Mean and standard deviation of Depression, Anxiety, and Stress Scale-21 (DASS-21) score and its domains before and after intervention and changes in two groups after intervention

	Control			PLISSIT			
	Baseline ±Mean standard deviation	After experimental Mean±standard deviation	Changes before and after intervention standard±Mean deviation	Baseline ±Mean standard deviation	After experimental Mean±standard deviation	Changes before and after intervention ±Mean standard deviation	P-value••
DASS-21	9.5±9.2	4.3±8.7	5/2±-0/5	7.5±9.6	2.9±3.3	4.7±-6.3	Z=-0.2 P=0.026
Anxiety	2.8±2.3	1.1±2.2	1.5±-0.1	2.3±2.4	0.9±0.6	1.7±-1.8	Z=-0.8 P=0.030
Depression	0.9±2.5	0.8±2.4	0.2±-0.1	2.6±2.6	1.2±1.0	1.8±-1.5	Z=-0.0 P=0.789
Stress	2.5±4.4	1.2±4.1	1.3±-0.3	3.9±4.6	1.7±1.6	-2.5±2.9	Z=-0.1 P=0.078

* Changes before and after intervention in two groups

· Mann-Whitney U test

The educational levels of the women were reported as 10% (n=4), 5% (n=2), 3% (n=12), and 50.5% (n=7) in the control group and 2.5% (n=1), 7.5% (n=3), 35% (n=14), and 55% (n=22) in the PLISSIT group for elementary, middle school, high school, and university education, respectively. Moreover, 87.5% and 75% of the cases were housewives in the control and PLISSIT groups, respectively.

As shown in Table 4, the P-value of DASS-21 total score and domain of anxiety were significant before and after the intervention in the control and PLISSIT groups, respectively (P=0.026, P=0.030).

The changes in sexual function had a significant effect on depression. By means of sexual counseling, -0.2 decrease was observed in the sexual function score. In addition, the results of ANCOVA indicated that by controlling the intervening variables, such as DASS-21 total score before the intervention and sexual function changes, DASS-21 score in the intervention group decreased, compared to that in the control group (Table 5).

Table 5. Results of analysis of covariance regarding effect of sexual function on total score of Depression, Anxiety, and Stress Scale-21 (DASS-21) with control of intervening variable

Variable	B	SE	t	P-value
PLISSIT group	-14.62	1.711	8.5	<0.001
Control group	0	-	-	-
DASS-21 score before intervention	0.514	0.66	7.756	<0.001
Female sexual function index changes	-0.20	0.52	0.381	0.034

Discussion

The results of this randomized control trial (RCT) demonstrated that after the intervention, the total score of DASS-21 and its domains anxiety and stress were significantly lower in the PLISSIT group and statistically significant. However, despite a decrease in the domain of depression in the PLISSIT group, this difference was not statistically significant in comparison with the control group. The changes in sexual function were statistically significant in DASS-21. Through sexual counseling, a decrease was observed in DASS-21 score, and the results of ANCOVA indicated that by controlling the intervening variables before the intervention and sexual function changes, the DASS-21 score in the intervention group decreased, compared to that in the control group.

The result of this study in the domain of anxiety is consistent with the findings of a study by Zamani et al. (2017) titled "Effect of sexual counseling on stress, anxiety, and depression in women during postpartum period". Zamani concluded that women's stress score, 8 weeks after counseling based on the women's postpartum sexual health program model could improve sexual dysfunction, and consequently, reduce the amount of anxiety, stress, and postpartum depression.

The results of the present study in the domains of depression and stress are different from the findings of the aforementioned study because the measured interval was between 3 months to 1 year after delivery, and there was a difference regarding sexual consult method (4). Postpartum depression usually begins during the first trimester after childbirth; however, it can even be postponed up to 6 months later (19). In a study carried out by Gamble et al. (2005) titled "A review of the literature on debriefing or non-directive counseling to prevent postpartum emotional distress", it was observed that the stress level in the intervention group was lower than that in the control group during 3 months after delivery (20). This finding is in line with the results of the present study and showed that the provision of counseling by the midwives also reduced stress and depression using an intervention.

The results of a study conducted by Azizi et al. (2010) titled "The effect of counseling on anxiety after traumatic childbirth in nulliparous women: A single-blind randomized clinical trial" showed a significant difference in the reduction of stress, anxiety, and depression 3 months after delivery (21). This finding is consistent with the results of the present study in the domain of depression because the measured interval was between 3 months.

In a review study carried out by Denis et al. (2004) with the purpose of examining

preventive interventions in postpartum depression, it was revealed that there is no clear and robust approach to clinical performance, and offering an approach for the prevention of depression after childbirth is very important (22) because the role of two items was not considered, including sexual dysfunction and sexual consultation in postpartum depression.

In another study conducted by Hulk et al. (2006), it was reported that variability in the relationship between sexual function, depression, and postpartum depression is dependent on culture and may differ in countries. However, there is a very strong connection between poor relationship with spouse and depression after childbirth (23).

Conclusion

The PLISSIT model decreases the DASS-21 total score by the improvement of sexual dysfunction in women with sexual dysfunction after childbirth. The PLISSIT model can be used as a framework by healthcare providers, particularly midwives as a counseling approach with ease of implementation to decrease mild postpartum depression, anxiety, and stress. Among the strengths of the present study were holding one-on-one counseling sessions and a good sample size. One of the limitations of this study was the impossibility to assess the sexual problems of women' spouses; therefore, the women's self-reports were included in this study regarding the absence of sexual problems with their husbands.

Acknowledgements

Conflicts of interest

The authors declare no conflicts of interest.

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