Journal of Midwifery & Reproductive Health

JMRH.mums.ac.ir

The Effect of Counseling based on PLISSIT Model Focused on Dysfunctional Sexual Beliefs among Women with Sexual Dysfunction: A Randomized Clinical Trial

Malihe Mohamadzadeh Moghadam (MSc)[1], Maryam Moradi (PhD)[2,3*], Khadijeh Mirzaii Najmabadi (PhD)[4], Mohammad Arash Ramezani (PhD)[5], Mohammad Taghi Shakeri (PhD)[6]

[1] MSc of Counselling in Midwifery, Research Student Committee, Mashhad University of Medical Sciences, Mashhad, Iran
[2] PhD of Reproductive Health, Global and Women's Health, School of Public Health and Preventive Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia
[3] Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
[4] Professor, Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
[5] Assistant Professor, Family Research Institute, Shahid Beheshti University, Tehran, Iran
[6] Professor, Department of Epidemiology and Biostatistics, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Article type:
Original article

Article History:
Received: 10-Aug-2022
Accepted: 07-Jan-2023

Key words:
Women
Sexual Counseling
PLISSIT Model
Sexual Dysfunction

ABSTRACT

Background & aim: Sexual beliefs play a tremendous role in sexual dysfunction. Previous studies have not adequately addressed dysfunctional sexual beliefs. Given the recognizing of the PLISSIT model as an effective sexual counseling method, this study aimed to evaluate the effect of counseling based on PLISSIT Model focused on dysfunctional sexual beliefs among women with sexual dysfunction.

Methods: This parallel randomized clinical trial was performed in comprehensive Health Centers in Mashhad, Iran, in 2019. Sixty-one eligible women with sexual dysfunction were selected through convenience sampling and randomly assigned to control and intervention groups using a simple lottery method. Data were collected by the Female Sexual Function Index and the Sexual Dysfunctional Beliefs questionnaire. The intervention group received four weekly sexual counseling sessions based on the PLISSIT model focused on dysfunctional sexual beliefs. The control group received routine care of the health centers. Data were analyzed by SPSS (version 24) using Paired t-test and Wilcoxon tests.

Results: The mean overall sexual function scores immediately after the intervention and one month later were 30.5 ± 2.2 and 30.5 ± 2.4, respectively, in the intervention group, while in the control group; the scores were 23.4 ± 3.6 and 23.4 ± 3.2, respectively. The differences between the groups were significant (P<0.001).

Conclusion: PLISSIT model counseling focused on dysfunctional sexual beliefs improved the sexual function of women with sexual dysfunction. It is recommended that this intervention be included in the agenda of sexual counseling clinics to improve sexual function in the women with sexual dysfunction.

► *Please cite this paper as*:
Mohamadzadeh Moghadam M, Moradi M, Mirzaii Najmabadi Kh, Ramezani MA, Shakeri MT. The Effect of Counseling based on PLISSIT Model Focused on Dysfunctional Sexual Beliefs among Women with Sexual Dysfunction: A Randomized Clinical Trial. Journal of Midwifery and Reproductive Health. 2024; 12(4): 4414-4423. DOI: 10.22038/JMRH.2024.63053.1846

Introduction

Sexual beliefs, including the rules which a person sets for himself or herself about sexual events, play a decisive role in a person's sexual dysfunction (1). Sexual beliefs and attitudes are related to various aspects of sexual behavior, function, satisfaction and health (2). Carvalho and Nobre (2010) examined the cognitive dimensions of female sexual desire and concluded that unconscious thoughts and

* *Corresponding author*: Maryam Moradi, PhD of Reproductive Health, Global and Women's Health, School of Public Health and Preventive Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia. Tel: 05138591511, Email: maryam.moradi.fu@gmail.com

dysfunctional sexual beliefs have a significant effect on female sexual desire (3). Silva et al. (2016) also showed the role of body image beliefs and cognitive disorders in predicting sexual function (4). Nobre et al. (2006) & (2008) showed that women with sexual dysfunction had higher scores of dysfunctional sexual beliefs, especially “age and body image beliefs”, “conservative beliefs”, “sexual desire”, and “pleasure as a sin” are associated with low libido. However, the age and body image beliefs, in addition to sexual desire, are associated with orgasmic disorders and sexual pain (5-6).

The rate of sexual dysfunction in Iran is approximately the same as worldwide except orgasmic disorder, which is two times higher than the worldwide average (7). The higher sexual dysfunction in Iranian women can be due to insufficient information and misconceptions about sexual issues and sexual life (7). In many cultures, parents feel uncomfortable to discuss about sexual issues with their children, so lack of effective education causes children to rely on invalid sources of knowledge and misconceptions and misinformation (8-9). Counseling and psychotherapy are the core interventions in sexual medicine and clinical sexology (10).

Sexual disorders can negatively affect sexual satisfaction (10). Sexual counseling is effective on achieving optimal sexual health and promoting sexual function and satisfaction (10-11). PLISSIT model, Permission, Limited Information, Specific Suggestions, and Intensive Therapy, is one of the common methods in sex therapy which has been used to treat sexual problems for more than thirty years; it helps the counselor identify any beliefs and attitudes of the patient which are effective in the treatment (12). Studies have shown that the PLISSIT model compared to the sexual health model is more effective in reducing sexual stress and problems (13) and has the same effectiveness as the cognitive-behavioral model (14). PLISSIT model has four levels, including; Permission: the patients are given the opportunity to express their thoughts, beliefs and attitudes toward sexual issues; Limited information: attempts are made to correct the patient's misinformation by providing general information to address false information and beliefs, myths and inadequate sexual skills; Specific suggestion: may include patients' training or retraining on specific attitudes and practices; and Intensive therapy: clients are referred (12, 15-16).

According to the literature review, previous studies were performed to treat sexual dysfunction through counseling and have not focused on dysfunctional sexual beliefs. Accordingly, the present study was performed to evaluate the effect of counseling based on PLISSIT Model focused on dysfunctional sexual beliefs among women with sexual dysfunction.

Materials and Methods

This parallel randomized Clinical trial was performed on married women with sexual dysfunction who referred to the Comprehensive Health Centers of Mashhad, Iran during 2019, and was registered in the Iranian registry of Clinical Trials (IRCT20180710040407N1).

The sample size was estimated as 18 women in each group according to the study by Rostamkhani et al. (2012) (17) and using the formula of comparing means and considering to the mean score of sexual function in intervention group (29.4±4.28) and control group (23.74±4.40) with 95% confidence interval and 80% test power. Considering the possibility of 10% sample attrition and in order to increase the accuracy of the study, the sample size was considered as 33 women in each group.

$$n = \frac{(s_1^2 + s_2^2)(z_{1-\alpha/2} + z_{1-\beta})^2}{[(\bar{x}_1 - \bar{x}_2)]^2}$$

The inclusion criteria were: Being Iranian and living in Mashhad, age of fertility (above 18 years), having usual sexual intercourse during the last month, living with husband, being in first marriage, having sexual dysfunction based on the Female Sexual Function Index (FSFI), and having at least three dysfunctional sexual beliefsbased on the Sexual Dysfunctional Beliefs Questionnaire (SDBQ) (Nobre & Pinto-Gouveia).

Exclusion criteria were: depression, stress, or anxiety based on the DASS-21 scale, a medical or mental illness affecting sexual function, consumption of a drug affecting sexual function, participation in an educational or counseling course yet, experiencing burdensome or severe incidents in the last 6 months, being in pregnancy or lactation period (having child

younger than two years old), having mental or physical disability in the woman or spouse, and infertility.

Sampling was performed using a convenience sampling method. The two comprehensive Health Centers of Mashhad, Iran (Fadaeian Eslam and Kargaran centers) were selected due to the large number of clients, moderate socio-economic level of population, geographical and cultural similarity of the two centers, and cooperation between personnel and authorities. To prevent the dissemination of information, one center was randomly assigned to the control group and another to the intervention group using a simple lottery method. In this way, the names of the two comprehensive health centers were written on a small sheet of paper, folded and placed in a container. The first sheet was assigned to the intervention group and the second sheet to the control group. Due to the nature of the intervention, blinding of the participants and the researcher was not possible.

Data collection tools were the questionnaires of demographic characteristics, FSFI and SDBQ. The FSFI included 19 five-point questions that its validity and reliability have been confirmed in several national and international studies (3). SDBQ has 40 questions in six domains, each of which is scored on a Likert scale from 1 to 5 (strongly disagree to strongly agree), and a higher score indicates more dysfunctional sexual beliefs. Due to cultural issues, one question (No. 27) was deleted in accordance with the opinion of the supervisors and advisors. Abdolmanafi et al. (2015) confirmed the validity and reliability of the Persian version of this questionnaire (18). Five counselors and psychologists presented to determine the content and face validity of the questionnaire. The items disproportionate to the culture of the society were corrected or removed. Cronbach's alpha coefficient of 0.96 was reported to determine homogeneity and validity.

Table 1. Summary and content of counseling sessions based on the PLISSIT model

Session	Time	Aim	Counseling Content
Counseling focused on sexual dysfunctional beliefs based on the first level of the PLISSIT model	45-60- min individual sessions by the researcher	Allowing and accepting participants	The subjects were allowed to talk about their attitude, beliefs, and thoughts on the sexual relationship in a safe and private environment using counseling techniques, such as active listening and raising open questions.
The second level of the PLISSIT model	90- min group sessions with 5-8 members by the researcher	Providing general information Giving a speech, Raising questions and answer using whiteboard, slideshows, and posters	Providing general information on: Anatomy and physiology of male and female sex organs, the importance of sex, sex cycle, normal and abnormal sexual behaviors, true and false beliefs about sex, reasonable and unreasonable expectations of men and women in sex, the role of age and body image in sex and common sex myths.
The third level of the PLISSIT model	45-60- min individual sessions by the researcher	Offering specific suggestions	Counseling and providing information on sexual dysfunctional beliefs and proposing specific suggestions regarding the sexual dysfunctional beliefs.
The third and fourth level of the PLISSIT model	45-60- min individual sessions by the researcher	Offering specific suggestions and referral, if necessary	Reexamination of sexual beliefs of subjects and counseling on unmodified sexual dysfunctional beliefs and experience of participants from the former session and at the end of the assessment session on sexual function and referral to more specialized levels if needed.

The consistency of this questionnaire was also assessed through a retest. IRCT20180710040407N1).

To collect data, a written letter of introduction was presented to the authorities of the selected healthcare centers, then the researcher started sampling. Thus, the researcher presented in the comprehensive health centers every other day, and after introducing herself, asked the participants about their sexual status. In case of existence of any sexual dissatisfaction, the study objectives and methods were explained. Written informed consent was obtained from the participants, assuring them that their information would remain confidential and the overall results would be published. The subjects willing to participate in the study were directed to a calm and quiet room to complete the questionnaires in the presence of the researcher. Then, the researcher reviewed and scored the questionnaires, and if the subjects met the inclusion criteria, they were selected as the study subjects, and then informed consent was signed, and the telephone number of the researcher was given to them.

After selecting the research subjects in the intervention group, the necessary coordination was performed for the consultation sessions. Four counseling sessions were held at intervals of one week based on PLISSIT model (Table 1).

The first, third and fourth sessions were held individually for 60 minutes and the second session was held in groups of five to eight women for 90 minutes. The informed consent was obtained from the spouses of the research subjects to observe the ethical considerations before holding group meetings. Counseling sessions were held in a quiet and safe room. The first session was based on the first level of the PLISSIT model (permission), so that the researcher, by asking open-ended questions and using the counseling techniques, especially active listening, allowed clients to freely discuss about their sexual function, beliefs and attitudes without being judged by the counselor. During counseling, the dysfunctional sexual beliefs of clients were noted by the counselor. At the end of the session, the researcher adjusted the content of subsequent sessions based on the questionnaires completed by the research subjects and notes.

The second session as group meetings was held based on the second level of the PLISSIT model (limited information). General information was given including sexual anatomy and physiology, sexual cycle, normal and abnormal sexual behaviors, myths and dysfunctional sexual beliefs in the form of educational slides and posters.

The third session was held based on the third level of the PLISSIT model (specific suggestions). The person was advised in accordance with dysfunctional sexual beliefs and then practical suggestions were provided. For example, in the case of the dysfunctional belief such as "sex should happen only if a man initiates", the woman was taught to start sex. The fourth session was based on the third and fourth levels of the PLISSIT model. At the beginning of the session, the clients were asked to talk about their experiences in the last week and to express their feelings and feedback from their spouses. Then, the women's' sexual beliefs were re-examined, and further advice was provided to modify the dysfunctional sexual beliefs. None of the research subjects required the implementation of the fourth level of the PLISSIT model (intensive therapy). The research subjects again completed the questionnaires immediately after the counseling sessions, which lasted one month, and one month after the sessions. The control group received only routine care of the Comprehensive Health Center, including training by the healthcare provider and if necessary, referral to the physician and psychologist. The research subjects were invited to complete the questionnaires before intervention, immediately after and one month after the intervention. Upon completion of the study, the booklet containing general information about sexual function and beliefs was delivered to the control group.

Data were analyzed by SPSS software (version 24). The Shapiro-Wilk test was used to examine the normality of data. Independent t-test and Mann-Whitney U test were used to compare the groups in terms of quantitative variables. Chi-square and Fisher's exact tests were used for nominal variables. Paired t-test and Wilcoxon tests were applied for intergroup comparison. $P < 0.05$ was considered statistically significant.

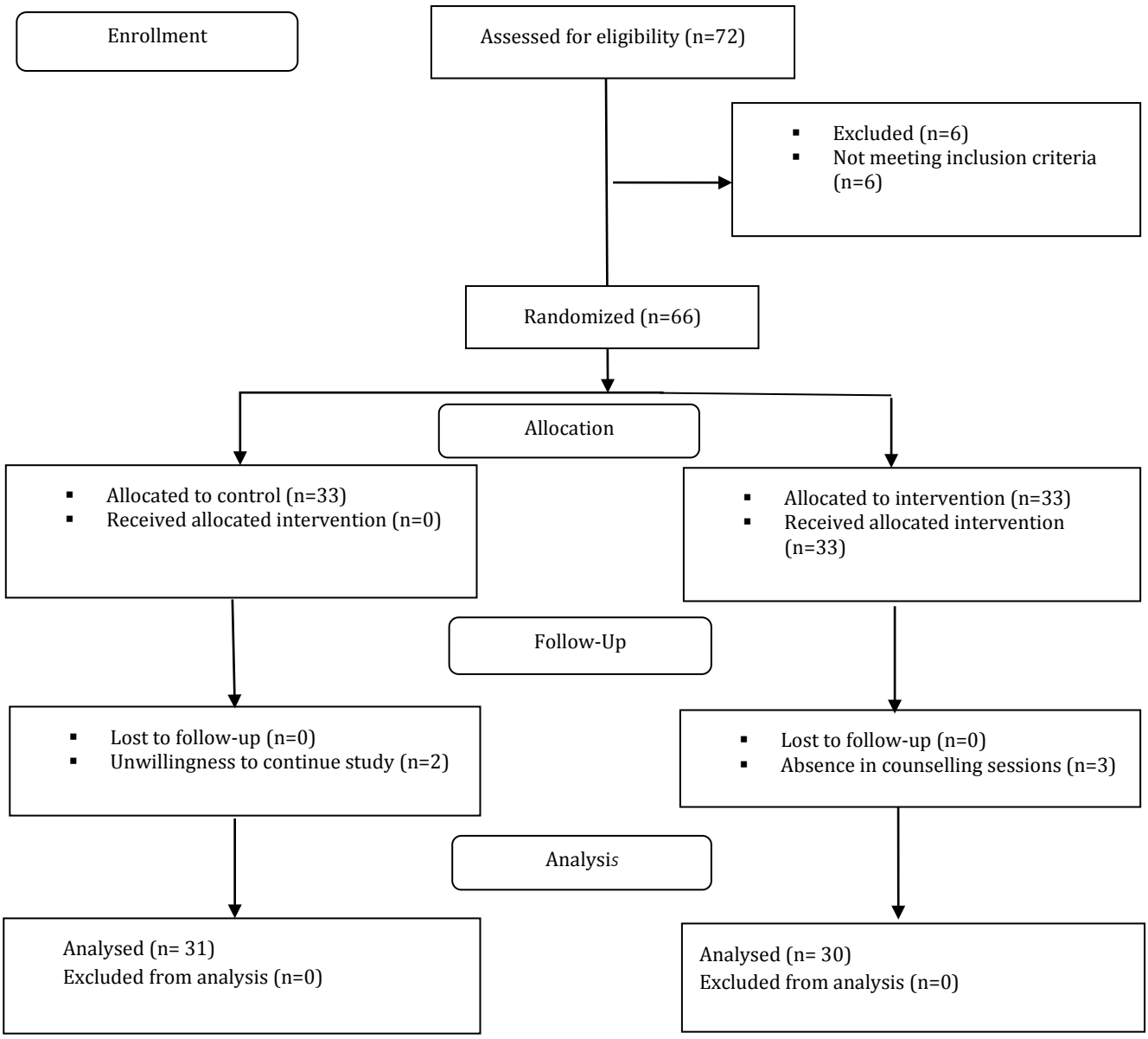

Figure 1. The CONSORT flow diagram of intervention in the two groups

Results

The initial research subjects consisted of 72 people, in which 6 of whom were excluded from the study due to exclusion criteria and 66 participants were allocated to the intervention (n=33) and control group (n=33); finally with 5 lost from the trial (3 people due to absence in counselling sessions in the intervention group and 2 people due to unwillingness to continue study in the control group), data from 61 individuals were analyzed (Figure 1).

The mean age of women was 35.5±5.6 years in the intervention group and 36.7±6.7 years in the control group; the two groups were homogeneous in this regard (P=0.436). Most women in the intervention (73.3%) and the control (80.6%) groups were housekeepers; there was no significant difference between thetwo groups in this regard (P=0.497).

There were no significant differences between the two groups regarding other demographic characteristics and the two groups were homogeneous (Table 2).

Table 2. Demographic characteristics in the intervention and control groups

Variables	Groups		Test results
	Intervention (n=30)	Control (n=31)	
	Mean± SD	Mean± SD	
Age (year)	35.5±5.6	36.7±6.7	T=-0.8 P*=0.436
Age of spouse (year)	39.0±6.4	41.4±7.4	T=-1.4 P*=0.173
Education			
Educational levels of primary and secondary school	8(26.7)	7(22.6)	z=-0.8 P**=0.449
Educational level of high school	11(36.7)	17(54.8)	
Educational level of associate degree and higher	11(36.7)	7(22.6)	
Occupation Housekeepers	22(73.3)	25(80.6)	z=-0.5 P**=0.497
Income			
Income less than living expenses	9(30.0)	7(22.6)	z=-0.1 P**=0.922
Income enough for living expenses	15(50.0)	21(67.7)	
Income more than living expenses	6(20.0)	3(9.7)	
Menstrual status Regular menstruation	24(80.0)	23(74.2)	Chi²: 0.3 P***=0.590
Irregular menstruation	6(20.0)	8(25.8)	
Body Mass Index (kg / m²)	26.1±3.1	24±4.0	Z: -1.9 P**=0.060
Duration of marriage (year)	13.8±6.7	15.0±7.9	T=-0.7 P*=0.503
Age at marriage (year)	21.1±4.9	21.4±0.810	T=-0.2 P*=0.810
Good emotional relationship with spouse			
Yes	14(46.7)	18(58.1)	z=-0.2 P**=0.825
No	16(53.3)	13(41.9)	
Number of children			
Zero	0 (0.0)	3 (9.7)	z=-0.3 P**= 0.731
One	8 (26.7)	4 (12.9)	
Two children	15 (50.0)	15(48.4)	
Three	7 (23.3)	9 (29.0)	
Having a private bedroom			
Yes	19(63.3)	20(64.5)	Chi²: 0.0 P***=0.923
No	11(36.7)	11(35.5)	
Level of sexual information			
Very low	2 (6/7)	0 (0/0)	z=-1.3 P**=0.184
Low	7 (23/3)	5 (16/1)	
Moderate	17(56.7)	20(64.5)	
High	4 (13/3)	6 (19/4)	
Very high	0 (0/0)	0 (0/0)	
Mean stress score	6.4±4.0	5.1±2.7	z=-0.9 P**=0.380
Mean anxiety score	3.4±3.2	2.9±1.8	z=-0.1 P**= 0.925
Mean depression score	5.2±3.5	5.3±2.9	T=0.1 P*=0.883

*t-test, **Mann-Whitney test, *** Chi-square

The mean of overall sexual function score before the intervention was 24.0±2.7 in the intervention group and 23.5±3.5 in the control group. The independent t-test indicated no significant difference between the two groups regarding total score of sexual function before the intervention (P =0.552). The mean of the total score of sexual function immediately after the intervention and one month after the intervention

Table 3. Comparison of the mean score of overall sexual function before and after the intervention in the two groups

Overall sexual function score	Groups		Intergroup test results
	Intervention (n=30)	Control (n=31)	
	Mean± SD	Mean± SD	
Before intervention	24.0±2.7	23.5±3.5	t=0.6, P*=0.522
After intervention	30.5±2.2	23.4±3.6	Z=-6.5, P**<0.001
Difference between before and after intervention	6.5±2.8	-0.1±0.6	Z=-6.5, P**<0.001
One month after intervention	30.5±2.4	23.4±3.2	Z=-6.5, P**<0.001
Difference between before and one month after intervention	6.5±2.8	-0.2±1.4	Z=-6.6, P**<0.001
Intragroup test results in before and after intervention	t=-12.7, , P<0.001	Z=-1.2, P=0.219	

*t-test, **Mann-Whitney test

Table 4. Comparison of the mean scores of sexual function domains before and after intervention in the intervention and control groups

Sexual function domains	Sexual Desire	Sexual Arousal	Lubrication	Orgasm	Dyspareunia	Sexual Satisfaction
Intervention (N=30)						
Before intervention	3.1±0.8	3.5±0.7	4.5±0.7	4.0±0.8	4.5±0.9	4.6±1.0
Immediately after intervention	4.4±0.5	4.9±0.5	5.4±0.4	5.2±0.5	5.4±0.6	5.3±0.6
One month after intervention	4.4±0.6	4.8±0.5	5.4±0.4	5.2±0.5	5.4±0.6	5.3±0.7
Control (N=31)						
Before intervention	3.3±0.7	4.8±0.5	4.2±0.8	4.1±1.1	4.3±1.0	4.0±1.2
Immediately after intervention	3.3±0.7	3.6±0.8	4.2±0.9	4.0±1.1	4.2±1.2	4.0±1.2
One month after intervention	3.3±0.7	3.6±0.7	4.2±0.8	4.1±0.9	4.2±1.0	4.0±1.1
Difference between groups before intervention	P**=0.140	P*=0.495	P*=0.217	P**=0.322	P**=0.631	P**=0.089
Difference between groups immediately after intervention	P**<0.001	P**<0.001	P**<0.001	P**<0.001	P**<0.001	P**<0.001
Difference between groups one month after intervention	P**<0.001	P**<0.001	P**<0.001	P**<0.001	P**<0.001	P**<0.001

*Independent t-test, **Mann-Whitney test

were 30.5±2.2 and 30.5±2.4, respectively in the intervention group and 23.4±3.6 and 23.4±3.2, respectively in the control group. The Mann-Whitney U test indicated significant differences between the two groups regarding total score of sexual function immediately after the intervention and one month after the intervention (P<0.001 in both) and these scores were higher in the intervention group. The difference in total score of sexual function after the intervention compared to before the intervention was 6.5 ± 2.8 increase in the intervention group and 0.1 ± 0.6 decreases in the control group. The Mann-Whitney U test found this difference to be significant (P<0.001). In the intragroup comparison, the paired t-test in the intervention group indicated significant difference in the total score of sexual function immediately and one month after the intervention compared to before the intervention (P<0.001). The Wilcoxon test results in the control group indicated that the difference in the total score of sexual function did not significantly differ immediately and one month after the intervention compared to before the intervention (P = 0.219) (Table 3).

The mean scores of sexual desire, sexual arousal, lubrication, orgasm, sexual satisfaction and dyspareunia before the intervention did not significantly differ between the two groups, but after the intervention, there was a statistically significant difference in all domains between the two groups (P<0.001), so that all sexual function scores after the intervention were significantly increased in the intervention group compared to the control group (P<0.001) (Table 4).

Two groups were homogeneous regarding mean total score of dysfunctional sexual beliefs before the intervention (P =0.284). After the intervention, the score of dysfunctional sexual beliefs significantly decreased in the intervention group compared to the control group (P<0.001).

Discussion

The complex nature of female sexual function requires a comprehensive therapeutic approach. A wide range of methods such as psychological counseling, behavioral therapy, sexual counseling and education can be useful in this regard (19). The aim of the current study was to evaluate the impact of improving dysfunctional sexual beliefs through counseling on female sexual function. The findings of the current study indicated that the PLISSIT-

based counseling focused on dysfunctional sexual beliefs significantly reduced the dysfunctional sexual beliefs in women with sexual dysfunction and improved female sexual function in all six domains of sexual desire, sexual arousal, lubrication, orgasm, sexual satisfaction and dyspareunia as well as total score of sexual function.

The positive effect of PLISSIT-based counseling on female sexual function has also been shown in some previous studies, so that PLISSIT-based counseling improved the female sexual function in different groups of women (14,17,20). However, these studies didn't specifically consider sexual beliefs and modification of clients' dysfunctional sexual beliefs, but the present studyused the PLISSIT counseling focused on modifying the clients' dysfunctional sexual beliefs among the target group of married women with sexual dysfunction based on FSFI. In the studies of Khakbazan et al. (2007) (14) and Ayaz & Kubilay (2009) (20), the samples were people with multiple sclerosis and stoma, while in the present study, the samples were women who had sexual dysfunction based on the FSFI with no specific disease.

Prior studies indicated that people have a set of misconceptions about sexual relationships, behavior, and sexual intimacy that led to unrealistic expectations, and the modification of those misconceptions leads to greater sexual intimacy between couples and an increase in overall sexual satisfaction (21). The results of the current research indicated that the modification of dysfunctional sexual beliefs improved six domains of sexual conservatism, sexual desire and pleasure as a sin, age-related beliefs, body image beliefs, affection and motherhood primacy, female sexual function in the domains of sexual desire, sexual arousal, lubrication, orgasm and sexual satisfaction.

In line with these results, the study of Nobre & Pinto-Gouveia (2006) showed that dysfunctional sexual beliefs negatively affect sexual dysfunction and women with sexual dysfunction scored higher on dysfunctional sexual beliefs, especially in the field of age and body image beliefs (6). Also, the study of Silva et al. (2016) showed that body image beliefs played an important role in the female sexual function (4).

Moreover, Amanelahi et al. (2017) showed that dysfunctional sexual beliefs can predict sexual dysfunction (1). These studies indicate a close link between a person's beliefs and sexual dysfunctions and incorrect information and beliefs are more likely to be associated with sexual dysfunction, while the present study actually showed that modifying dysfunctional sexual beliefs could lead to improved sexual function in women with sexual dysfunction.

The limitations of the present study include lack of consulting with the spouses of the research subjects due to cultural issues and time constraints and project facilities. Accuracy of the answers given by the research subjects due to the sensitivity and privacy of the study topic was another limitation of the study, which tried to ensure participants about maintaining confidentiality. Finally, this study was carried on Iranian women and generalizability of the results should be cautioned for using in other countries. Future studies are suggested to examine the impact of modifying male dysfunctional sexual beliefs on couples' sexual function and the impact of counseling on female dysfunctional sexual beliefs with long-term follow-up (3-6 months).

counseling, behavioral therapy, sexual counseling and education can be useful in this regard (19). The aim of the current study was to evaluate the impact of improving dysfunctional sexual beliefs through counseling on female sexual function. The findings of the current study indicated that the PLISSIT-based counseling focused on dysfunctional sexual beliefs significantly reduced the dysfunctional sexual beliefs in women with sexual dysfunction and improved female sexual function in all six domains of sexual desire, sexual arousal, lubrication, orgasm, sexual satisfaction and dyspareunia as well as total score of sexual function.

The positive effect of PLISSIT-based counseling on female sexual function has also been shown in some previous studies, so that PLISSIT-based counseling improved the female sexual function in different groups of women (14,17,20). However, these studies didn't specifically considered sexual beliefs and modification of clients' dysfunctional sexual beliefs, but the present study used the PLISSIT counseling focused on modifying the clients' dysfunctional sexual beliefs among the target group of married women with sexual dysfunction based on FSFI. In the studies of Khakbazan (14) and Ayaz &Kubilay (20), the samples were people with multiple sclerosis and stoma, while in the present study, the samples were women who had sexual dysfunction based on the FSFI with no specific disease.

Prior studies indicated that people have a set of misconceptions about sexual relationships, behavior, and sexual intimacy that lead to unrealistic expectations, and the modification of those misconceptions leads to greater sexual intimacy between couples and an increase in overall sexual satisfaction (21). The results of the current research indicated that the modification of dysfunctional sexual beliefs improved six domains of sexual conservatism, sexual desire and pleasure as a sin, age-related beliefs, body image beliefs, affection and motherhood primacy, female sexual function in the domains of sexual desire, sexual arousal, lubrication, orgasm and sexual satisfaction. In line with these results, the study of Nobre & Pinto-Gouveia (2006) showed that dysfunctional sexual beliefs negatively affect sexual dysfunction and women with sexual dysfunction scored higher on dysfunctional sexual beliefs, especially in the field of age and body image beliefs (6). Also, the study of Silva and colleague (2016) showed that body image beliefs played an important role in the female sexual

function (4). Moreover, Amanelahi and colleague (2017) showed that dysfunctional sexual beliefs can predict sexual dysfunction (1). These studies indicate a close link between a person's beliefs and sexual dysfunctions and incorrect information and beliefs are more likely to be associated with sexual dysfunction, while the present study actually showed that modifying dysfunctional sexual beliefs can lead to improved sexual function in women with sexual dysfunction.

The limitations of the present study include lack of consulting with the spouses of the research units due to cultural issues and time constraints and project facilities. Accuracy of the answers given by the research units due to the sensitivity and privacy of the study topic was another limitation of the study, which tried to ensure participants about maintaining confidentiality. Finally, this study was carried on Iranian women and generalizability of the results should be cautioned for using in other countries. Future studies are suggested to examine the impact of modifying male dysfunctional sexual beliefs on couples' sexual function and the impact of counseling on female dysfunctional sexual beliefs with long-term follow-up (3-6 months).

Conclusion

The results of this study showed that counseling based on PLISSIT Model focused on dysfunctional sexual beliefs improved the sexual dysfunction. Therefore, it is recommended that this intervention be included in the agenda of sexual counseling clinics to improve sexual function in the women with sexual dysfunction.

Acknowledgements

The authors would like to thank the participants in this research, the staff of the Comprehensive Health Centers and others who helped us in this research. The current article has been derived from the master's thesis of Counselling in Midwifery. The authors appreciate the Deputy of Research, Mashhad University of Medical Sciences for financial support (with grant of 970386).

Conflicts of interest

The authors declared no conflicts of interest.

Ethical considerations

Participation was voluntary. The confidentiality of research subjects' information was guaranteed.

The informed consent was obtained from the research subjects and their spouses.

Ethical approval

The study was approved by the Ethics Committee of the University (IR.MUMS.NURSE.REC.1397.052).

Funding

The present paper is result of a research project that it was ratified by the vice-Chancellor for Research of Mashhad University of Medical Sciences.

Authors' contribution

M. M. M. was a MSc student, supervised by M.M. M. M., M.M., K. M. N, and M. A. R. contributed substantially in the study design. M. M. M. and M.M. carried out the data collection. M. M. M., and M.M., and M. T. S. conducted data analysis and interpretation. M. M. M. and M.M. provided the first draft of the work. All authors have reviewed the manuscript critically. All authors have read and approved the final version of the manuscript.

References

1. Amanelahi A, Jazini S, Rajabi G. Prediction of sexual dysfunctions based on sexual beliefs among married female students in Ahvaz, Iran. Journal of Research in Behavioural Sciences. 2017; 15(1): 6-12.
2. Rahmanian SA, Khadivzadeh T, Esmaily H. Comparison of the effect of group counseling and integrated counseling (group and individual) on sexual knowledge and attitude in women on the verge of marriage. The Iranian Journal of Obstetrics, Gynecology and Infertility. 2017; 20(3): 77-88.
3. Carvalho J, Nobre P. PSYCHOLOGY: Sexual Desire in Women: An Integrative Approach Regarding Psychological, Medical, and Relationship Dimensions. The Journal of Sexual Medicine. 2010; 7(5): 1807-1815.
4. Silva E, Pascoal PM, Nobre P. Beliefs about appearance, cognitive distraction and sexual functioning in men and women: A mediation model based on cognitive theory. The Journal of Sexual Medicine. 2016; 13(9): 1387-1894.
5. Nobre PJ, Pinto-Gouveia J. Cognitions, emotions, and sexual response: Analysis of the relationship among automatic thoughts, emotional responses, and sexual arousal. Archives of Sexual Behavior. 2008; 37(4): 652-661.
6. Nobre PJ, Pinto-Gouveia J. Dysfunctional sexual beliefs as vulnerability factors for sexual dysfunction. Journal of Sex Research. 2006; 43(1): 68-75.
7. Ramezani MA, Ahmadi K, Ghaemmaghami A, Marzabadi EA, Pardakhti F. Epidemiology of sexual dysfunction in Iran: A systematic review and meta-analysis. International Journal of Preventive Medicine. 2015; 6: 43.
8. Bostani Khalesi Z, Ghanbari Khanghah A. Perception and experience of married women of reproductive age about the importance of sexual health education: A content analysis study. The Iranian Journal of Obstetrics, Gynecology and Infertility. 2015; 18(172): 7-17.
9. Goldman JD. Sexuality education for young people: a theoretically integrated approach from Australia. Educational Research. 2010; 52(1): 81-99.
10. Zamani M, Roudsari RL, Moradi M, Esmaily H. The effect of sexual health counseling on women's sexual satisfaction in postpartum period: A randomized clinical trial. International Journal of Reproductive BioMedicine. 2019; 17(1):41-50.

11. Zamani M, Latifnejad Roudsari R, Moradi M, Esmaily H. Effect of sexual counseling on stress, anxiety, and depression in women during postpartum period. Evidence Based Care. 2017; 7(2): 17-26.
12. Evans DT. Promoting sexual health and wellbeing: the role of the nurse. Nursing Standard. 2013; 28(10): 53-57.
13. Farnam F, Janghorbani M, Raisi F, Merghati-Khoei E. Compare the effectiveness of PLISSIT and sexual health models on Women's sexual problems in Tehran, Iran: a randomized controlled trial. The Journal of Sexual Medicine. 2014; 11(11): 2679-2689.
14. Khakbazan Z, Daneshfar F, Behboodi-Moghadam Z, Nabavi SM, Ghasemzadeh S, Mehran A. The effectiveness of the Permission, Limited Information, Specific suggestions, Intensive Therapy (PLISSIT) model based sexual counseling on the sexual function of women with Multiple Sclerosis who are sexually active. Multiple Sclerosis and Related Disorders. 2016; 113-119.
15. Berek JS. . Berek &novaks Gynecology. 16th edition, Wolters Kluwer Health; 2019.
16. Taylor B, Davis S. The extended PLISSIT model for addressing the sexual wellbeing of individuals with an acquired disability or chronic illness. Sexuality and Disability. 2007; 25(3): 135-139.
17. Rostamkhani F, Ozgoli G, Merghati KE, Jafari F, Alavi MH. Effectiveness of the PLISSIT-based Counseling on sexual function of women. Faculty of Nursing & Midwifery Quarterly. Journal of Nursing and Midwifery Quarterly-Shaheed Beheshti University of Medical Sciences and Health Services. 2012; 22(76): 1-9.
18. Abdolmanafi A, Azadfallah P, Fata L, Roosta M, Peixoto MM, Nobre P. Sexual dysfunctional beliefs questionnaire (SDBQ): translation and psychometric properties of the Iranian version. The Journal of Sexual Medicine. 2015; 12(8): 1820-1827.
19. Kaviani M, Rahnavard T, Azima S, Emamghoreishi M, Asadi N, Sayadi M. The effect of education on sexual health of women with hypoactive sexual desire disorder: A randomized controlled trial. International Journal of Community based Nursing and Midwifery. 2014; 2(2): 94.
20. Ayaz S, Kubilay G. Effectiveness of the PLISSIT model for solving the sexual problems of patients with stoma. Journal of Clinical Nursing. 2009; 18(1): 89-98.
21. Mohammadzadeh Moghaddam M, Moradi M, Mirzaii Najmabadi K, Ramezani MA, Shakeri MT. Effect of Counseling on the Sexual Satisfaction Level of Women with Sexual Dysfunction using PLISSIT Model Focused on Dysfunctional Sexual Beliefs. Evidence Based Care. 2019; 9(3): 49-57.