



Effect of Sexual Education on Sexual Function of Primigravid Women: A Clinical Trial study

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Abstract

Background: Sexual function is particularly important aspect of pregnant women's lives that can affect mental health and family cohesion. The present study aimed to determine the effect of sex education on sexual function of primigravid pregnant women.

Methods: This randomized clinical trial study with four parallel groups (two intervention and two control groups) was conducted on 100 primigravid women in 2019. The Two intervention groups (n=50) received three sessions of sex education, once a week and two control groups (n=50) didn't received sex education. The Female Sexual Function Index was completed at the beginning of the study and after eight weeks. Data were analyzed with SPSS (version 18) and One-way analysis of variance (ANOVA), paired t-test, Fisher's exact test were used for analysis and significance was set at 0.05.

Results: The Given that the mean sexual function in the groups before the intervention was significantly different (P=0.0004), the Mean difference rate of change (Mean DRC) was used for inter-group comparisons. Mean DRC of sexual function in the first intervention group (sex education and prenatal education) was 0.173±0.563 (17% increase) and the second intervention group (only sex education), was 0.106±0.209 (10% increase). However, Mean DRC of sexual function decreased significantly in the two control groups (-0.0364±0.205) (-0.009±0.132) (P<0.05).

Conclusion: The results confirm the positive effects of sex education on sexual function during pregnancy. In addition, combination of sex education with conventional prenatal education can have a greater impact on the overall sexual function than each intervention separately.

Highlights:

What is current knowledge?

Due to the lack of comparison between conventional or specific educational program on sexual function during pregnancy this study can be done in this population.

What is new here?

Combination of sex education with conventional prenatal education can have a greater impact on the sexual function of pregnant women.

Introduction

Sexual behavior is one of the most important issues in human mental health that changes during pregnancy (1). Physiological and psychological changes in pregnancy affect women's sexual function (2). In addition, a pregnant woman's desire for sexual activity may be affected by changes in her appearance e.g. formation of chloasma and striae gravidarum in the body, which would change her mental image in relation to sexual function (3).

Although decreased sexual function is common in pregnancy and may worsen drastically as the pregnancy progresses (4, 5), abandoning sexual activity during pregnancy sometimes occurs due to guilt about sexual activity in this period or the fear of harm to the fetus (2). One study found that 93% of women experience sexual dysfunction during pregnancy, and in one-third of cases, sexual intimacy ceases altogether, possibly due to cultural beliefs, insufficient knowledge, and high anxiety (6). Indeed, sex education has a positive influence on women's beliefs about sexual activity (7), but common misconceptions and incorrect viewpoints in the society about intercourse during pregnancy have a great impact on the sexual function of pregnant women (4, 6, 8). In fact, it is not yet clear if such ancient beliefs can be changed with education. Studies on the effects of sex education during pregnancy have reported conflicting results (7, 9-11), and it is unclear whether sex education during pregnancy improves women's sexual function. For instance, Bahadoran et al. (2015) reported that sex education is effective in preventing sexual dysfunction during pregnancy (12), while Wannakosit (2010) claimed that sexual function during pregnancy does not change significantly following sex education (13). According to Gazafroodi et al.

(2012), by controlling the confounding factors, primiparous women have a higher score of sexual function than multiparous counterparts (14). Indeed, in order to promote family health and ultimately community health, sexual health during pregnancy and after childbirth should be particularly emphasized (15).

Considering that the low level of awareness of couples about how to have sex in pregnancy (1), sometimes sexual intercourse is completely cut off during pregnancy (6) and it may have consequences, such as extramarital relationship, may affect their family's cohesion (16). Prevalence of normal sexual function among Iranian pregnant women was 20.8% (17), which may be reduced even more during pregnancy (18), efforts to improve sexual function in pregnancy seem necessary. Given that midwives play an important role in raising awareness about safe sex during pregnancy (6). Therefore, the present study aimed to evaluate sexual function changes in pregnant women after sex education.

Methods

This randomized clinical trial study with four parallel groups was performed on 100 primigravid pregnant women referred to prenatal centers, health centers, and the Sayad Shirazi prenatal training center in Gorgan (Iran) between April and June 2019. The sample size was calculated as 50 for each group using the following formula and based on the study of Riaz et al. (7) considering $\alpha=0.05$, $\beta=0.2$, $p_1=0.133$, $p_2=0.000$, and 10% drop-out rate:

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (P_1(1-P_1) + P_2(1-P_2))}{(P_1 - P_2)^2}$$

Inclusion criteria were primigravidity, age of 18-35 years, having a healthy single fetus, gestational age of 20-24 weeks, and lack of chronic diseases (such as diabetes, heart disease, and kidney disease) or history of genital surgery. Exclusion criteria were preterm delivery before the end of the training sessions and unwillingness to continue participating in the study. Given the undeniable effect of gestational age on sexual function, the study groups were matched in terms of gestational age at the beginning and end of the study.

The intervention group received sex education training, while the control group did not participate in the training sessions (Figure 1).

In the first group, 50 out of 63 pregnant women referred to the prenatal training center of Sayad Shirazi Hospital in Gorgan, were enrolled via simple random sampling. The subjects were then randomly assigned into the following intervention and control subgroups:

The first intervention group [sexual education + prenatal education (SEPE)] participated in eight sessions of conventional prenatal training and three sessions of sex education simultaneously with sessions 3, 5 and 7 of conventional pregnancy training.

Subjects in the first control group [prenatal education (PE)] only received eight sessions of conventional prenatal training according to the curriculum approved by the Ministry of Health.

In the second group, 50 out of 102 pregnant women who had visited the prenatal health centers of Gorgan and had not participated in the conventional prenatal education training, were randomly selected and divided into two subgroups of intervention and control by coin tossing:

The second intervention group [sex education (SE)] received three session of sex education training every two weeks, and the second control group [lack of education (LE)] did not attend any training classes.

The contents of the sex education intervention were prepared using the textbooks of Sex Education Debates by Nancy Kendall (19) and Sexual Skills book (20). The contents were later sent to ten professors in the field of reproductive health and corrected accordingly (Table 1). All three sessions of sex education training in the intervention groups were performed by a senior counseling student in midwifery, under the supervision of a research member with a PhD in reproductive health. The conventional prenatal training was performed by the pregnancy class instructor of the Shahid Sayad Shirazi Medical Center in Gorgan, Iran.

Sexual function was assessed before the intervention and after eight weeks. Since SEPE and PE groups underwent prenatal training for eight weeks, sexual function of all participants was re-evaluated after eight weeks.

Data were collected using the Female Sexual Function Index (FSFI) and a questionnaire of demographic and fertility information including maternal age, education level, ethnicity, and gestational age. The 19-item FSFI is a self-report inventory commonly used for assessment of female sexual function in six domains of desire, arousal, lubrication, orgasm, satisfaction, and pain over the last four weeks. Scores for the desire and satisfaction domains range from 1 to 5, scores for the domains of arousal, lubrication, orgasm, and pain range from 0 to 5, and the total sum score varies between 2 and 36 (21). A score of less than 26.55 with a sensitivity of 0.889 and a specificity of 0.733 indicates sexual dysfunction (22). The Persian version of FSFI has been validated in a study by Mohammadi et al. (23). The internal consistency of this tool has been verified by obtaining Cronbach's alpha coefficient scores of 0.70 and higher for each domain (22, 24). This tool has been used for assessment of sexual function in pregnancy in various studies (4, 9, 11, 17, 25).

Data were analyzed with SPSS software (version 18). Mean and standard deviation were used to describe quantitative variables, and the frequency distribution table was used for qualitative variables. One-way analysis of variance (ANOVA) and paired t-test were used to compare quantitative variables, and the Kruskal-Wallis and Wilcoxon signed-rank tests were used for non-normal data. The Fisher's exact test was used for analysis of qualitative variables. All statistical tests were carried out at the significance level of 0.05. In order to compare the scores of sexual function before and after the intervention, the average rate of change was calculated by subtracting the pretest scores from the posttest scores, divided by the previous score.

Table 1: The content of sex education sessions for each session

Session	Content
First	Introduction, statement of rules and objectives of the sessions
	Overview of the importance of sex and its role in family strength. A brief description of the male and female reproductive system and the phases of sexual response cycle.
Second	Pregnancy-related changes and their impact on sexual intercourse. Important points about sex during pregnancy and its contraindications. Communication and emotional intimacy skills in sex from the perspective of Islam.
Third	Sexually transmitted diseases and sexual health in pregnancy

Results

The mean age of the subjects was 27.73±4.94 years, and there was no statistically significant difference between the groups in terms of age (P<0.39), education level (P<0.8), and ethnicity (P<0.49) (Table 2).

Given that the mean sexual function in the groups before the intervention was significantly different (P=0.0004), the average rate of change was used for inter-group comparisons. According to results of the Kruskal-Wallis test, there was a significant difference between the four groups. The largest change in the mean score of sexual function was observed in the first intervention group (17% increase). In the second intervention group, the mean sexual function increased by 10% increase in score. However, the mean scores of sexual function decreased significantly in the control groups (P<0.026) (Table 3).

The four groups were compared in terms of changes in sexual function domains. There were significant differences between the study groups in domains of orgasm (P<0.028) and sexual satisfaction (P<0.031). The most profound change

was seen in the first intervention group, indicating that the sex education and prenatal education caused the highest increase in mean scores of orgasm and sexual satisfaction. There was no significant difference between the study groups in the domains of sexual desire, arousal, and lubrication (P>0.05). Findings show that pain during sex decreased in the intervention groups (P>0.05) and increased in the control groups. In addition, vaginal lubrication was lower in the group that did not receive any training than in the other groups (Table 4).

In the intra-group comparison, results of the paired t-test showed that the mean total score of sexual function changed significantly in the group of sexual education alone (P<0.006). There were significant differences in the domains of sexual satisfaction (P<0.018) and pain during sex (P<0.015). This indicates that sex education improved sexual satisfaction and reduced pain during intercourse (Table 4).

Table 2: Comparison of demographic characteristics between groups

Groups Variables	Intervention		Control		P-Value
	1	2	1	2	
AGE Mean±SD	28.44±4.317	26.52±4.851	27.25±5.310	28.65±5.262	0.399*
Literacy N (%)					0.802**
Under Diploma	4 (14.8)	4 (17.4)	3 (11.1)	1 (4.3)	
Diploma	8 (29.6)	9 (39.1)	9 (33.3)	10 (43.5)	
License and Higher	15 (55.6)	10 (43.5)	15 (55.6)	12 (52.2)	
Ethnicity N (%)					0.498**
Persian	24 (88.9)	18 (78.3)	23 (85.2)	21 (91.3)	
Non Persian	3 (11.1)	5 (21.7)	4 (14.8)	2 (8.7)	

*ANOVA: Analysis of variance

** Fisher's exact test

Table 3: Comparison of mean sexual function scores between groups

Groups	Mean DRC Mean±SD	P-Value	Sexual Function Mean±SD	
			Before	After
Intervention	1- SEPE	**0.365	23.333±5.165	22.239±6.039
	2- SE	*0.009	26.126±4.142	24.050±4.266
Control	1-PE	**0.091	25.888±6.741	26.995±5.632
	2-LE	*0.657	25.844±5.347	26.137±4.749
P-Value	***0.026	-	***0.124	***0.0004

Discussion

The present study showed that the mean sexual function score increased after the intervention. In other words, pregnant women who received sex education had higher sexual function scores compared to those who did not receive any sex education. In addition, pregnant women who received sex education in the form of conventional prenatal education had higher sexual function scores than those who received only sex education.

Considering that the same content was presented by the same instructor in the two intervention group, it seems that the positive changes in the mean score of sexual function in the first intervention group (SEPE) compared to the second intervention group (SE) were related to the group dynamics of the first intervention group. In fact, in prenatal training center if the midwife acts as an effective facilitator and create a good interaction by forming a support group and using the group dynamics, the pregnant women pregnant women believe in her and are more affected (26, 27). During prenatal classes and following continuous training sessions, a close relationship and mutual trust are established between the instructor and pregnant mothers, which increases the effectiveness of instructor's speech (26). Heidari et al. (2018) also emphasized the need for sexual behavior training in order to improve sexual function during pregnancy (10).

In a study by Nejati et al. (2017), sex therapy using the PLISSIT model (Permission, Limited Information, Specific Suggestions, Intensive Therapy) significantly increased mean scores of sexual function and most of its domains compared to conventional prenatal counseling (11), which is consistent with the results of the present study. In another study, sex education through an education package improved sexual function of pregnant women (9), which is similar to the results of the present study.

Another important finding of this study was the decrease in the mean score of sexual function in the two control groups. This indicates that in the absence of specific training, pregnant women will experience a decrease in sexual function with increasing gestational age, which has been confirmed by previous studies (8, 28). A cohort study of 271 pregnant women in 2009 showed that sexual function in all domains decreases significantly in the third trimester compared to the first and second trimesters (5). A study assessed sexual function of pregnant women with FSFI instrument, and reported that sexual function is further reduced in the third trimester of pregnancy, and suggested that sexual counseling should be part of conventional prenatal care (29).

In the present study, the educational intervention significantly improved the domains of orgasm and satisfaction but had no effect on the domains of desire, arousal, lubrication, and pain during intercourse. These findings are somewhat similar to the results of a study by Riazi et al. (2013), which showed that sex education increased sexual function in terms of libido, orgasm, frequency of intercourse, and pain during sex. It is well demonstrated that reaching orgasm can increase sexual satisfaction (7).

In a study conducted by Senobari et al. (2019), the prevalence of complete lack of or reduced sexual desire was 37.9% among pregnant women (30). Prado et al. (2013) also reported that pregnant women have reduced sexual function, particular sexual desire and arousal, compared to their non-pregnant counterparts (31). Most pregnant women consider the decrease in sexual desire during pregnancy to be a normal phenomenon, due to the risk of harm to the fetus. In a study in Thailand, the average score of sexual function in Thai pregnant women was 15.49 in the FSFI instrument, and 93.4% of these women had a mean sexual function score of less than 26.5, which indicates sexual dysfunction. However, these women had no worries about the decreased sexual desire. In fact, 47% of them believed that sex may be harmful to the fetus, and 19% of them have not had sex in the last four weeks (32). Therefore, decreased libido is common in pregnancy, and it seems that educational intervention in this aspect might be ineffective.

In our study, the mean scores of sexual satisfaction increased in the intervention groups. In a previous study in Tehran (Iran), sexual skills training increased women's sexual knowledge, which will eventually lead to increased sexual satisfaction and intimacy of couples (33).

Conclusion

The results showed that combination of sex education with conventional pregnancy education can have a greater impact on the overall sexual function than each intervention separately. Therefore, in order to maintain and improve the sexual function of pregnant women, there is no need for complex educational content. Due to the sensitivity of this period, information must be provided to the mother by a reliable person to improve applicability. It is recommended to include sex education in routine pregnancy education programs to help promote sexual function and ultimately family cohesion during the critical period of pregnancy. It is also suggested to evaluate the effects of such sex education on multiparous pregnant women.

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Ethical statement

This study was approved by the Deputy of Research and Technology of Golestan University of Medical Sciences (code: 251881693102128) and has been registered in the Iranian Registry of Clinical Trials (code: IRCT20180520039735N1). All ethical considerations have been taken into account based on the Helsinki Declaration and the 26 codes of the country's research ethics, such as obtaining informed written consent and maintaining confidentiality of personal information.

Conflict of interest

The authors declare that there is no conflict of interest regarding publication of this article.

Author contributions

Narjes sadat Borghei, supervisor and holding training sessions; Fatemeh Reisian and Fatemeh Seifi, data collection and consultant. Naser Behnampour statistical consultant.

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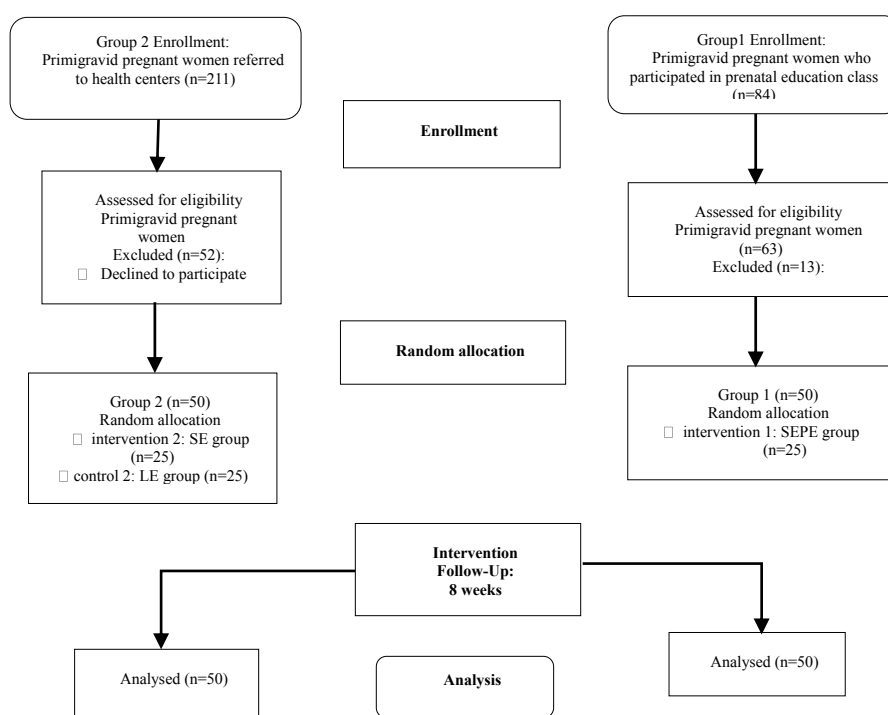


Figure 1: The CONSORT flow diagram

Table 4: Comparison of sub scale sexual function and Mean between groups

Variables	Groups	Mean DRC Mean±SD	P-Value	Sexual Function Mean±SD		P-Value
				Before	After	
Libido	Intervention	1-SEPE	0.0779±0.325	**0.645	3.289±0.976	3.400±0.926
		SE 2-	0.1905±0.394	**0.056	3.548±1.084	3.965±0.899
	Control	1-PE	0.0210±0.267	*0.894	3.844±0.900	3.822±0.958
		2-LE	0.0002±0.246	**0.861	3.496±0.934	3.417±1.030
Satisfaction	Intervention	1-SEPE	0.099±0.266	**0.232	4.651±1.017	4.933±0.837
		SE 2-	0.070±0.131	**0.018	4.782±0.898	5.060±0.805
	Control	1-PE	0.030±0.148	**0.080	5.274±1.126	5.495±0.605
		2-LE	0.025±0.114	*0.403	5.408±0.732	5.495±0.605
Orgasm	Intervention	1-SEPE	0.228±1.057	*0.954	3.807±1.360	3.807±1.360
		SE 2-	0.153±0.443	*0.166	3.982±1.012	4.278±1.004
	Control	1-PE	0.080±0.366	**0.101	4.488±1.447	4.251±1.505
		2-LE	0.066±0.169	**0.076	4.243±1.363	4.539±1.141
Dyspareunia	Intervention	1-SEPE	-0.036±0.435	**0.458	3.259±1.670	3.437±1.796
		SE 2-	-0.126±0.234	**0.015	3.843±0.325	4.382±0.930
	Control	1-PE	0.041±0.347	**0.534	4.325±1.649	4.103±1.861
		2-LE	0.040±0.334	**0.461	4.417±1.377	4.191±1.648
Excitements	Intervention	1-SEPE	0.0451±0.437	**0.526	3.367±1.319	3.667±1.145
		SE 2-	0.0425±0.192	**0.216	3.639±1.166	3.887±0.884
	Control	1-PE	0.0009±0.320	**0.178	4.200±1.150	4.056±1.181
		2-LE	0.0444±0.490	*0.909	3.926±1.200	3.900±1.263
Discharge	Intervention	1-SEPE	0.0094±0.304	**0.508	3.978±1.712	4.178±1.297
		SE 2-	0.0838±0.186	*0.058	4.356±0.931	4.630±0.852
	Control	1-PE	0.0115±0.617	**0.235	4.922±1.229	4.667±1.552
		2-LE	-0.0628±0.342	**0.271	4.696±0.981	4.343±1.608

Mean DRC: Mean difference rate of change
 * paired t-test **Wilcoxon ***Kruskal-Wallis

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