



Effect of Cognitive-Behavioral Sexual Counseling on Female Sexual Function During Pregnancy: An Interventional Study

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Abstract

Objectives: Pregnancy significantly affects sexual performance due to the occurrence of biological, psychological, and physiological changes in women. This study aimed to evaluate the effect of cognitive-behavioral approach to sexual counseling on the female sexual performance during pregnancy.

Materials and Methods: This randomized clinical trial was conducted on 100 pregnant women referred to the clinics of Arak, Iran. The participants were selected using single-stage cluster sampling technique. The data were collected using the standard sexual function questionnaire and a researcher-made questionnaire, which was related to the misbeliefs about sexual intercourse during pregnancy (MSIP). The subjects were randomly allocated to the intervention and control groups using randomized blocks. The intervention group was provided with seven 90-minute counseling sessions, whereas the control group only received the routine information provided by the healthcare staff. The data analysis was performed using the student's *t* test, chi-square test, and paired *t* test in the SPSS software version 16.0.

Results: According to the results, out of 100 subjects, 22 cases received the sexual function score of <26 and MSIP score of <72.

Conclusions: It seems that the cognitive-behavioral sexual counseling did not significantly improve the sexual function by teaching about misconceptions and facilitating behaviors to deal with the problems of pregnancy. In other words, consultation resulted in no biological or psychological changes and could not promote the sexual performance of the participants. However, the subjects reported increased sexual satisfaction after the counseling sessions.

Keywords: Cognitive-behavior, Counseling, Education, Pregnancy, Sexual function

Introduction

Significant biological, psychological, and physical changes during pregnancy can affect sexual performance in women (1,2). Hormonal changes during pregnancy cause vomiting, diarrhea, breast sensitivity, and fatigue, leading to decreased sexual desire (1). However, several studies have reported that these problems are not the only causes of sexual dysfunction (3). Many non-hormonal factors (e.g., social, economic, and cultural factors) can also change the sexual behaviors of women during pregnancy. The sexual behaviors of the couples during pregnancy are affected by their value systems, traditional and religious beliefs, and fear of hurting the fetus and mother (4).

According to the literature, culture plays an important role in the frequency of sexual intercourse during pregnancy, which ultimately leads to sexual dysfunction (5, 6). In addition, several studies conducted on the Iranian women indicated that the most common causes of sexual dysfunction were physical problems (e.g., backache, pain during intercourse, dyspnea, and weight gain) (7,8) and false beliefs about intercourse during pregnancy. These misbeliefs include injury to the fetus, premature delivery,

or lack of attractiveness for the spouse (7).

Sexual function is still regarded as a taboo subject in some societies due to the lack of sufficient knowledge as well as cultural and religious prejudices (9,10). Sexual dysfunction intervenes with women's reproductive health. This disorder is regarded as a major health problem, the negative effects of which include the reduction of self-confidence, emotional changes, stress, significant distress between spouses, and reduced quality of life (11). Different statistics have been reported about the rate of sexual dysfunction, varying from 40% (12) to 63% (8) and 79% (12).

It is noteworthy that more than half of the women receive no information about sexual intercourse during pregnancy (8). This could be either due to not asking about sexual coition during pregnancy on the part of the patient or the negligence of the healthcare providers. The lack of appropriate interaction between the patients and midwives leads to receiving inadequate information related to sexual function, which is a critical issue in communities (13,14).

The lack of knowledge about intercourse during



pregnancy and being concerned with its outcomes are mainly responsible for decreased sexual intercourse during this period. Therefore, the implementation of educational courses for the couples is a good opportunity to raise their awareness regarding changes during each stage of pregnancy. In addition, in these courses, the couples are allowed to share their experiences, concerns, and stress with the care providers (15).

Although education leads to improved sexual function during pregnancy in most cases (15,16), some studies demonstrated that training resulted in increased awareness regarding the risks of intercourse during pregnancy. However, it did not enhance the frequency of intercourse during this period (16). Therefore, it seems that the use of different techniques, such as education based on cognitive-behavioral method, can significantly improve the sexual function of the couples during pregnancy.

The cognitive-behavioral method teaches individuals how to detect their destructive or disturbing thought patterns, which have negative impacts on their behaviors, and change these thoughts (17). With this background in mind, this study aimed to evaluate the effect of cognitive-behavioral approach to sexual counseling on female sexual performance during pregnancy.

Materials and Methods

This randomized clinical trial was conducted on the pregnant women referred to the clinics of Arak, Iran. In total, 100 pregnant women ($n=20$ from each clinic) were randomly selected from 5 clinics through single-stage cluster sampling technique. The 5 clinics were randomly selected from the centers located in the north, south, east, west, and center of Arak. Subsequently, based on the mothers' medical records, the women who met the inclusion criteria were contacted by making phone calls.

The inclusion criteria were: 1) sexual function score of <26 (2,18), 2) lack of sexual intercourse for health reasons, 3) no history of unresolved sexual problems, 4) no addiction, 5) no use of medications affecting sexual responses, 6) lack of recognized physical or mental diseases, 7) lack of unfortunate events 3 months prior to the study, 8) living with the spouse, 9) education level of at least junior high school, 10) age range of 18-35 years, 11) number of parities 1-2, and 12) gestational age of <20 weeks. The participants were excluded from the study in case of the occurrence of any problem during the study or the lack of willingness to cooperate.

The data collection was performed using the standard sexual function questionnaire and a researcher-made questionnaire covering the misbeliefs about sexual intercourse during pregnancy (MSIP). The written informed consent was obtained from the pregnant women. Based on the two questionnaires, the women with MSIP score of <72 (i.e., less than 50% positive response to the items) and those with the sexual function score of <26 were entered in the study. In this regard, out of 100

women, 22 subjects were included in the study.

The validity of the MSIP questionnaire was confirmed by reviewing the previous studies and distributing the questionnaire among 10 experienced professors in the field of psychology, midwifery, and gynecology. The content validity ratio of $>62\%$ and content validity index of 79% were considered acceptable. The validity ratio of this questionnaire was estimated as 0.89, and its reliability was calculated at Cronbach α coefficient of 0.79. The women were randomly allocated to the counseling and control groups using randomized blocks.

In the counseling group, 11 women participated in seven 90-minute counseling sessions. During these sessions, the participants were provided with group discussions, questions and answers, videos and pictures of appropriate positions during pregnancy, relaxation training, and pamphlets for teaching the spouse. The contents of the sessions are presented in Table 1. The other 11 participants, who were in the control group, only received the routine information provided by healthcare staff.

One week after the last session, the standard sexual function questionnaire was completed by all the participants. This questionnaire was filled out once more 3 months later based on the sexual function over the recent 4 weeks. The data analysis was performed in the SPSS version 16.0, using the student's t test, chi-square test, and paired t test. P value less than 0.05 was considered statistically significant.

Results

The demographic characteristics of the participants and history of pregnancy are provided in Tables 2 and 3, respectively, according to which the intervention and control groups were homogeneous. Other main findings are presented in Table 4. Based on the findings, one week after the educational sessions, the mean sexual function index of the intervention group significantly increased, compared to that of the control group ($P=0.001$). The mean and median scores of 26.81 ± 3.57 and 26, respectively, indicated sexual dysfunction; However, it was within the cut-off score range (26) indicating impaired sexual function.

Scores higher than 26 were observed in 36.5% of the subjects after the counseling. Moreover, a significant difference was observed in the subcategories of sexual function, except for sexual desire (Table 4). Three months after the counseling sessions, a significant difference was observed between the 2 groups in terms of sexual function. Nonetheless, it was still within the cut-off score range (26), showing poor sexual function ($P=0.001$). Furthermore, the sexual function index did not significantly change one week and three months after the cognitive-behavioral training ($P=0.347$; Table 4).

The results indicated that after the educational sessions, the mean sexual function index of the intervention group significantly increased as compared to the control group

Table 1. Content of the Educational Sessions

Sessions	Content
First	1- Introduction; 2- cooperation and assurance; 3- importance of education; 4- goals of group education; 5- general guidelines of the sessions
Second	1- Familiarization with female anatomy; 2- familiarization with male anatomy; 3- familiarization with anatomy during pregnancy (i.e., fetus growth and factors protecting fetus)
Third	1- Familiarization with physiological changes during pregnancy
Fourth	1- Definition of psychological health; 2- learning about common psychological disorders during pregnancy; 3- role of intercourse for keeping and improving psychological health; 4- reduction of anxiety and stress due to intercourse during pregnancy; 5- increase of psychological and muscular relaxation after intercourse during pregnancy; 6- correction of misbeliefs about intercourse during pregnancy
Fifth	1- Familiarization with sexual response cycle; 2- familiarization with sexual dysfunction and its treatment; 3- description of sexual satisfaction; 4- familiarization with sensitive organs of the males and females; 5- mental image of pregnant women about their bodies
Sixth	1- Familiarization with common problems during pregnancy and their association with intercourse; 2- education about the type of appropriate positions during pregnancy
Seventh	1- Evaluation of progress in pregnant mothers and reevaluation of their beliefs 2. Recall and emphasis on the content and statements of the past seven sessions

($P=0.001$). However, it was within the cut-off score range (26) indicating impaired sexual function. Scores higher than 26 were observed in 36.5% of the subjects after the intervention. Moreover, a significant difference was found in the subcategories of sexual function, except for sexual desire (Table 2).

Table 2. Frequency of Demographic Variables in the Counseling and Control Groups

Variables	Counseling No. (%)	Control No. (%)	P Value
Education level of participant			0.244
Junior high school	3 (27.3)	2 (18.2)	
High school diploma	5 (45.4)	6 (54.6)	
Academic degree	3 (27.3)	3 (27.3)	
Education level of spouse			0.135
Junior high school	4 (36.4)	1 (9.1)	
High school diploma	4 (36.4)	9 (81.8)	
Academic degree	3 (27.3)	1 (9.1)	
Occupation of participant			0.001
Housewife	8 (72.7)	9 (81.8)	
Employee	3 (27.3)	2 (18.2)	
Occupation of spouse			0.201
Self -employed	3 (27.3)	5 (45.5)	
Employee-worker	8 (72.7)	6 (54.5)	

Table 3. Mean of the Characteristic Variables of the Participants in the Counseling and Control Groups

Variables	Counseling Mean± SD	Control Mean± SD	P value
Age of participants (y)	22.72±3.95	25.81±3.48	0.135
Duration of marriage (y)	3.54±3.23	5.36±3.41	0.215
Gravida	1.8±0.40	1.27±0.46	0.631
Live children	0.18±0.40	0.27±0.46	0.631
Gestational age (wk)	10.54±6.02	15.36±6.51	0.273

Three months after the training sessions, the sexual function of the two groups was evaluated, revealing a significant difference in this regard. Nonetheless, it was still within the cut-off score range (26) ($P=0.001$), showing poor sexual function in the intervention group. Furthermore, the sexual function index did not significantly change one week and three months after the cognitive-behavioral training ($P=0.347$; Table 3).

Discussion

In the current study, it was attempted to replace destructive thoughts about sexual function with useful ideas. In addition, we aimed to help the individuals learn more about their misbeliefs and wrong behaviors, which can be improved by practicing at home. The present study revealed that sexual function increased only in 36% of the women in the counseling group, and the rest obtained a score lower than 26, which was within the inappropriate range. However, no significant change was observed in their sexual performance after three months.

In line with this study, Wannakosit et al reported that the education during pregnancy did not promote the sexual behaviors of the intervention group, compared to those of the control group (19). Afshar et al carried out sex education in two 60-minute lecture sessions and group discussions for the participants. In the mentioned study, educational booklets were distributed among 88 pregnant women at the first session in the educational group and the couples' questions were answered by telephone. For the other group, the education was provided in a routine mode. Sexual function was evaluated using the Female Sexual Function Index before and four weeks after the education. In the mentioned study, the mean total score was significantly higher in the educational (26.6±4.3) group, compared to that in the routine education group (919.6±8.4; $P=0.001$).

The findings of the mentioned study are in line with

Table 4. Mean Subcategories of Sexual Function Index in the Counseling and Control Groups

Sexual Function Categories	Counseling Mean± SD	Control Mean± SD	P Value
Sexual desire	3.49±0.84	2.49±0.98	0.05
Arousal	3.72±0.95	2.17±1.70	0.01
Vaginal lubrication	3.36±1.01	2.18±1.58	0.001
Orgasm	3.44±1.09	2.36±1.69	0.02
Sexual satisfaction	4.57±0.86	3.08±1.30	0.008
Pain during intercourse	3.69±0.75	2.18±1.53	0.01
Total score 1 week after intervention	26.81±3.57*	17.40±9.83	0.001
Three months after counseling	26.59±2.13*	16.35±9.03	0.001

P value (between 1 week and 3 months): $P = 0.347$

*Paired t test.

those of our study despite the difference between the educational approaches of the two studies. In this regard, Afshar et al indicated that the increase of mean sexual function score was less than the favorable limit. In the present study, 36% of the participants achieved a score higher than 36; nevertheless, Afshar et al only reported the mean score of sexual function (15).

In a study carried out in Isfahan, Iran, Mofid et al evaluated the effect of cognitive-behavioral and solution-focused counseling on the sexual satisfaction of non-pregnant women. In total, 45 women were randomly divided into two groups of intervention and control ($n=15$ subjects per group). Moreover, 8 cognitive-behavioral and 6 solution-focused counseling sessions were held for the participants. The study tool was Larson's sexual satisfaction questionnaire. They demonstrated that both methods increased sexual satisfaction in the women; however, the cognitive-behavioral counseling was more effective in this regard (20). While the results of the mentioned study are in line with our findings, there were some differences between the two studies in terms of sample population and applied study tools. During the counseling sessions, the mothers' negative attitudes toward sexual intercourse during pregnancy, such as premature delivery and visual image of female body, were discussed and modified.

In another quasi-experimental study conducted in Isfahan, 64 pregnant couples were randomly allocated into two educational groups. One group received face to face education, and the other group was provided with group discussion. The mean total score of the women's sexual function in both educational groups increased at the post-intervention stage, compared to the pre-intervention stage (16).

In the mentioned study, the mean sexual functions were >26 and 26 in the discussion and face to face groups, respectively, which was inconsistent with the present study. This discrepancy could be due to the difference of the educational approaches employed by the two studies and the absence and presence of spouses in the training

sessions in the present and the mentioned studies, respectively.

The absence of spouses in the sessions and not receiving the printed handouts was one of the limitations of this study. Previous studies revealed that husbands' attitude toward intercourse during pregnancy had an impact on sexual function. Heydari et al evaluated the attitude of men toward sexual activity during pregnancy. They concluded that 54% of the participants had negative attitudes, and 60% of them had no awareness in this regard (21). It is recommended that the presence of spouses be considered in future counseling sessions.

Unlike our study, McCabe et al used the cognitive-behavioral method to train the women and their spouses. According to their results, education had satisfactory effects on the sexual function of the women. However, it is noteworthy that the mentioned study was not conducted on the pregnant women (22), who undergo biological or psychological changes caused by pregnancy. Therefore, this difference in the study population can explain the disagreement between our findings and those of the mentioned study.

The present study revealed that education could not completely influence the physical and biological factors affecting the sexual function in pregnancy. The physical and psychological changes during pregnancy vary in different trimesters; therefore, the sexual function can vary accordingly. In this regard, in the first trimester, fatigue, breast sensitivity, and hormonal variation affect the sexual function. These factors in the last trimester include fatigue, bigness of the belly, fear of premature delivery, negative body image, and injury to the fetus.

Erbil (23) showed that the women with 36 and 28 weeks of gestation had the lowest and highest total Female Sexual Function Index scores, respectively (12.18 ± 8.75 and 15.51 ± 8.49 , respectively), however sexual desire did not differ ($P=0.004$). In one study, Bartellas et al evaluated the sexual experience of 141 pregnant women. They demonstrated that more than half of the samples experienced low sexual tendency (24). Therefore, it could be concluded that some of the biological conditions during pregnancy lead to the inevitable reduction of sexual desire, which could not be improved by educational classes (25).

Conclusions

Education of the appropriate techniques of sexual activity and the investigation of sexual disorders during pregnancy are some of the standard cares required during this period. It seems that the implementation of the cognitive-behavioral counseling by the use of different methods to detect and modify misbeliefs and apply facilitating behaviors against the pregnancy problems resulted in no improvement in the sexual function of the pregnant women.

In other words, counseling failed to overcome the biological and psychological changes during pregnancy

and could not improve the sexual function of the participants. However, the sexual satisfaction of the subjects increased after the intervention. One of the major drawbacks of this study was the absence of participants' husbands. Future studies are recommended to implement training programs with the presence of the couples.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

This study approved by ethical committee of Arak University of Medical Sciences (ethic No. 93-174-14). Also, this study was registered in Iranian Registry of Clinical Trials website (identifier: [IRCT2015070423057N1](https://doi.org/10.1186/1745-7214-14-174))

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