

# The effectiveness of sexual skills training with a cognitive-behavioral approach on sexual dysfunction among infertile women

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## Abstract

**Background:** There is evidence that sexual dysfunction in infertile women is more common than fertile women. As there is a relation between infertility and sexual dysfunction, treatment of this disorder seems necessary. Therefore, the current study was done to determine the effectiveness of sexual skills training with a cognitive-behavioral approach on sexual dysfunction among infertile women.

**Methods:** This was a quasi-experimental pre-test and post-test study which lasted from June 2015 to February 2016. Study population consisted of infertile women aged 22 to 36 years with sexual dysfunction who presented to our academic infertility center. Considering the inclusion and exclusion criteria, 40 patients with informed consent were randomly assigned to experimental or control group. Subjects in the experimental group received sexual skills training for 10 weekly sessions. No intervention was done in control group. Sexual dysfunction scores were recorded using the Female Sexual Function Index (FSFI). The gathered data were analyzed using SPSS software and the Chi-square test and co-variance analysis.

**Results:** The results showed that sexual skills training had significant effect on sexual dysfunction scores. The scores increased significantly in the experimental group ( $P < 0.001$ ).

**Conclusion:** It is suggested that psychologists, psychotherapists, and obstetric and gynecologists use sexual skills training with cognitive-behavioral approach for infertile women who suffer from sexual dysfunction.

**Key words:** Sexual skills training; cognitive-behavioral; sexual dysfunction; infertile women

## Introduction

Infertility which is defined as pregnancy failure despite at least one year of unprotected sexual intercourse now has a prevalence of 20% and has become a public health issue (1). A previous study reported the prevalence of infertility as 24.9% in Iran (2). One of the concerns in infertility is sexual dysfunction (3) which is persistent or recurring disorders in four domains including sexual desire, sexual arousal, penetration disorder or inability to achieve orgasm according to DSM-IV. In DSM-V some modifications have been made and sexual desire and arousal have been combined and the item pain during intercourse has been removed. The latter has been combined with vaginismus under a new disorder in DSM-V (4).

An important aspect of infertility is the relationship of this condition with sexual health. It seems that this aspect of infertility has been overlooked in developing countries (5). In other words, sexual dysfunction is a silent partner of infertility treatments (6). Sexual satisfaction is among the most important issues among infertile couples, especially in women. This can affect all aspects of marital life and even treatment progress (7). It is likely that sexual dysfunction is the etiology of infertility or may be the result of another psychologic stress in one of the couples or both of them (8). Most experts believe that there is association between infertility and sexual dysfunction (9). One of the biggest objectives of sexual desire is to have children (10). We encounter decreased sexual desire in infertile persons which reduces the chance of fertility. This decreased sexual activity increases the persons who do not have children in such a group of patients (11). Pregnancy is an inseparable component of a sexual relationship and inability to get pregnant often results in sexual problems which causes anger and depression in the affected couples (12).

Previous studies have confirmed sexual dysfunction among infertile patients (13-17). All these studies showed higher rate of sexual dysfunction among infertile couples when compared to fertile couples. In a former study in 2013, Jamali et al. studied 502 infertile women and reported that 87% of the sample had sexual dysfunction. They noted that this high rate of sexual dysfunction was due to lack of knowledge about sexual skills and lack of pertinent training (18).

Another study in 2015 reported the prevalence of sexual dysfunction as 55.5% among 236 infertile women (19). The main reasons for sexual dysfunction in the mentioned study were similarly lack of knowledge about sexual skills and lack of pertinent training. Considering these findings, it seems necessary to resolve the problem of infertile women through providing knowledge. This requires more research studies. Miller believes that cognitive-behavioral therapy should always be the first step in the management of infertile couples (20). Various forms of sexual dysfunction can cause infertility such as intercourse-related problems, decreased incidence of intercourse (due to decreased sexual desire in 11% of cases, impaired erection or premature ejaculation which are the most common sexual dysfunctions in males (66%) and lack of ejaculation (8%) in infertile males. Also, vaginismus or painful intercourse (58% of cases) and reduced sexual desire (28% of cases) exist in infertile women. On the other hand, insufficient sexual excitement in women causes vaginal dryness which inhibits sperm migration in the vagina (21).

Andrews stated that if it is not possible to resolve infertility tension, at least efforts should be made to decrease its burden. Therefore, decreasing familial disputes and making the couples satisfied with regard to sexual and marital relationships are appropriate methods for infertile couples (22). The World Health Organization (WHO) requires its personnel to go beyond clinical diagnoses and medical interventions to address sexual dysfunction. This organization necessitates its personnel to consider the psychological aspects of sexual dysfunction and by addressing such issues they try to improve the quality of life of affected patients (23).

One of the methods that seem to be useful in addressing the infertility problem and treatment of sexual dysfunction is cognitive-behavioral therapy. In this approach, using behavioral methods, we try to change maladaptive cognitions of a person (24). This approach was introduced by Masters and Johnson in 1959. Before introduction of this approach, sexual disorders were tolerated in silence by the patients and professional help was rarely accessible. The approach defined by Masters and Johnson had a special schedule that was named a package approach. In this package, a set of special methods was used in a diagnosis (25). There are several studies which indicate the usefulness of sexual skills training. For example, a previous study reported the efficacy of sexual skills training on improving psychological arousal during sexual relations and orgasm in women (26). A previous study assessed the effect of cognitive-behavioral based training

on sexual satisfaction among women with reduced sexual desire. They reported that after training, a significant difference existed regarding sexual satisfaction scores between experimental and control groups which supports the effectiveness of cognitive-behavioral training (27). Another study used cognitive-behavioral therapy in couples with idiopathic infertility and reported this approach as a successful one in order to help infertile couples (28). Considering the literature, there is no study to investigate the effect of sexual skills training with cognitive-behavioral approach on infertile couples.

The requirement to address the psychological needs of infertile people especially women, lack of accurate research studies regarding infertility psychology, and the necessity to find a short-term and affordable method and the fact that there is no public or governmental place to train infertile couples shows the fact that such research studies should be done in countries like Iran. Considering the fact that more than half of sexual dysfunctions are due to lack of knowledge or insufficient knowledge and an incorrect belief about sexual relations (30), the current study was carried out.

## Research Hypotheses

**Hypothesis 1:** Sexual skills training improves sexual desire in infertile women

**Hypothesis 2:** Sexual skills training improves psychological arousal in infertile women

**Hypothesis 3:** Sexual skills training increases vaginal lubrication in infertile women

**Hypothesis 4:** Sexual skills training increases orgasm in infertile women

**Hypothesis 5:** Sexual skills training improves sexual satisfaction in infertile women

**Hypothesis 6:** Sexual skills training reduces sexual pain in infertile women

**Hypothesis 7:** Sexual skills training improves sexual function in infertile women

## Materials and Methods

This quasi-experimental study with pre-test and post-test design was approved by the ethics committee of our university. The study population consisted of infertile women who presented to our academic infertility center. The sampling method was convenience method. Considering the inclusion and exclusion criteria and response rate, 40 subjects were selected. They were randomly divided into experimental and control groups (20 subjects in each group). Subjects in the experimental group received sexual skills training for 10 weekly 2-hour sessions. The control group did not receive any intervention. After completing this period, both groups completed the Female Sexual Function Index (FSFI). For ethical considerations, after 10 weeks, sexual skills training was done for the control group. The personal data was kept confidential. Inclusion criteria were written informed consent, being a volunteer for the study, age range of 22 to 36 years, sexual dysfunction, one year passed from unsuccessful pregnancy, and primary

infertility (no children or step children). Exclusion criteria were having physical conditions (spinal cord injury, limb amputation, paralysis, and anatomic disturbances in the limbs), psychiatric disorders (receiving treatment for psychiatric disorder by a physician or a psychiatrist), medical disorder (cardiovascular diseases, pulmonary diseases, hypo- or hyperthyroidism, epilepsy or diabetes), having stressful experiences (death or acute illness of a close relative and major change in life in the preceding 3-month period), alcohol or drug addiction, male-factor infertility, plan for pregnancy-assisted methods such as intra-uterine insemination or intra-vitro fertilization in the next 6 months, and taking medications for sexual dysfunction. The data were analyzed using multi-variable ANCOVA (analysis of covariance) by SPSS software (ver. 19.0).

#### Tool

The Female Sexual Function Index (FSFI) was developed by Rosen et al in 2000 and is a self-report measure of sexual function that contains 19 items. This assesses sexual arousal, vaginal lubrication, orgasm, satisfaction, and pain. The score range is from 0 to 5 and higher scores indicate more satisfactory sexual function. This questionnaire's validity and reliability have been approved by Rosen et al. (31). Also in an Iranian study in 2009, reliability and validity of the Persian version of this questionnaire was confirmed (32). The authors declared that this questionnaire is a valid and reliable one to investigate female sexual function and as a useful screening method. Cronbach's alpha coefficient by split half and test-retest methods were respectively 78% and 75%. Subscales had coefficients of 63% to 75% by split half method and 70-81% by test-retest method. As this questionnaire covers all items of sexual dysfunction including pain, it was selected for this study.

#### Therapeutic protocol

The cognitive-behavioral protocol used here is the one described by Masters and Johnson in 1996 and modified by Azartash in 2011 (33) (Table 1).

**Table 1. Summary of sexual skills training with cognitive-behavioral approach**

Session 1	Review of common sexual beliefs and cultural as well as religious attitudes
Session 2	Training anatomy and physiology of male and female sexual behavior
Session 3	Introducing desires, preferences, and differences in male and female sexual behaviors
Session 4	Training relaxation, sexual imagery, and regular desensitization
Session 5	Training focused attention, training self-monitoring assignments
Session 6	Training sensory focus exercises (1) and reviewing self-monitoring items and restructuring them
Session 7	Training sensory focus exercises (2) and reviewing self-monitoring items and restructuring them
Session 8	Training perineal muscle exercises or Kegel exercises and reviewing self-monitoring items
Session 9	Training facilitating of orgasm, reviewing self-monitoring items, and getting familiar with benefits of sexual relations for humans
Session 10	Getting familiar with sexual dysfunctions and their causes



## Results

Table 2 shows Demographic data of experimental and control groups.

Table 2

Variable		Study	Control	P
		F (P <sub>d</sub> )	F (P <sub>d</sub> )	
Age	22- 25	6(30%)	4(20%)	0/938
	26-29	4(20%)	4(20%)	
	30-36	10(50%)	12(60%)	
Duration of marriage	1-3	8(40%)	2(10%)	0/055
	3-6	10(50%)	10(50%)	
	6-9	2(10%)	4(20%)	
	Over 9	-	4(20%)	
Time to pregnancy Proceeding	1-3	12(60%)	12(60%)	0/011
	3-6	8(40)	6(30%)	
	Over 6	-	2(10%)	

Considering the Chi-squared test results, the hypothesis of homogeneity between the groups is significant.

Table 3. Mean and standard deviation of sexual function and its items at pre-test and post-test states in experimental and control groups

Variable	Mean (SD) Study		Mean (SD) Control	
	Pretest	After test	Pretest	After test
Desire	2/70(0/823)	6/90(1/10)	3/50(1/26)	3(1/41)
Arousal	5/20(1/61)	13/50(2/75)	5/80(1/68)	2/60(2/01)
Lubrication	6/10(1/91)	14/10(1/75)	5/20(1/68)	4/30(2/21)
Orgasm	3/40(0/966)	10/70(1/49)	3/80(1/31)	3/10(1/66)
Satisfaction	4/70(1/88)	12/40(2/06)	4/80(1/47)	4/50(2/12)
Pain	6/60(2/36)	12/40(2/63)	9(3/82)	6/70(3/12)
Full Scale	28/70(6/65)	70(9/84)	32/10(7/27)	26/20(10/53)

Considering the data presented in Table 3, the experimental group achieved higher scores after the intervention. In order to assess the significance of the changes and determine the effect size of sexual training on sexual function improvement in the experimental group, first the pre-test scores were modified. Then, using the ANCOVA, the effect size of sexual skills training on sexual function improvement in infertile women was determined. Before using ANCOVA, its assumptions were reviewed. In order to determine normal distribution of data, the Shapiro-Wilk test was used. To address the assumptions, Leven's test was used. The Box test was not significant for any of the variables (BOX= 39.741, F= 1.191, P= 0.250). Other assumptions of ANCOVA were reviewed and all of them showed that assumptions have been addressed.

Table 4. Analysis of covariance to compare sexual function scores between experimental and control groups

	Variable	SS	DF	MS	F	Sig.	Eta squared
Group	Desire	50.272	12	50.272	54.416	< 0.001	0.819
	Psychological arousal	225.421	12	225.421	30.538	< 0.001	0.718
	Lubrication	226.661	12	226.661	50.684	< 0.001	0.808
	Orgasm	152.543	1	152.543	54.617	< 0.001	0.820
	Satisfaction	182.590	1	182.590	47.035	< 0.001	0.797
	Pain	58.059	1	58.059	5.274	0.040	0.305
	Sexual function	4990.382	1	4990.382	38.819	< 0.001	0.764

Table 4 shows that, after modifying pre-test scores, there was significant difference in post-test scores of desire ( $F(12, 1) = 54.416, P < 0.001$ ), psychologic arousal ( $F(12, 1) = 30.538, P < 0.001$ ), lubrication ( $F(12, 1) = 50.648, P < 0.001$ ), orgasm ( $F(12, 1) = 54.617, P < 0.001$ ), satisfaction ( $F(12, 1) = 47.035, P < 0.001$ ), and sexual function ( $F(12, 1) = 38.819, P < 0.001$ ) between experimental and control groups. In other words, it can be stated that with 9% confidence that sexual skills training improved sexual function of infertile women. Considering the Eta squared value, the effect size of this training was 76%. As seen in Table 4, sexual skills training was also effective on pain ( $F(12, 1) = 5.274, P < 0.05$ ). Considering Eta squared value of lower than 0.35, it shows that this training was not so effective on pain.

## Discussion

This study was done with the objective of determining the effect of training sexual skills with a cognitive-behavioral therapy on sexual dysfunction of infertile women. For the experimental group, 10 weekly sessions of training sexual skills were performed, while no intervention was done in the control group. Both groups completed the FSFI at baseline and again after 10 weeks. Considering the ANCOVA results, it can be concluded that sexual function scores were significant after 10 weeks between experimental and control groups. Post-test scores were higher in the experimental group which reflects the efficacy of the sexual skills training. Therefore, all the study hypotheses, except hypothesis 6 which relates to pain, are approved.

There are limited studies about the effect of training sexual skills on sexual dysfunction in Iran. The findings of the study are in agreement with some former studies (34-42). All the mentioned studies indicated the effectiveness of sexual skills training with cognitive-behavioral therapy on sexual function. The intervention used here had a significant effect on all items of sexual function, except for pain. Although the change in pain score was not statistically significant, when mean score at pre-test (6.60) is compared to post-test score (12.40), we observe improvement. However, this change was not statistically significant. It should be noted that the training used here lasted for 10 weeks and this time course is too short to resolve pain. According to a previous study (43), the required time to address vaginismus was 34 sessions in 12 months. During this long time, patients gradually achieved higher level of vaginal muscles control and non-painful intercourse. The lack of significance regarding effect on pain may be justified by the study period.

The current findings are compatible with a previous study (44) that studied a 6-month therapeutic plan to improve sexual function and satisfaction and marital life skills. In addition to relation between infertility and sexual function that always should be addressed in treatment of infertility, sexual desire is also an important factor (45). It can be stated that sexual relations by affecting couples' thoughts and feelings directly or indirectly can affect their life. The couples that have agreement with regard to sexual

relations are happier and can ignore many life problems (46). One of the main fundamental methods to achieve this healthy sexual behavior is providing appropriate education. Research in this field shows that sexual skills training is effective on health behaviors and can improve understanding of persons about sexual issues (47).

Perhaps the reason for significant effect of sexual skills training on sexual dysfunction in infertile women is that the need of such patients for such training to resolve problems in sexual function which existed long ago or developed after infertility was diagnosed, prepared them properly to implement this training. The training provided a basis that patients themselves see their relations beyond infertility and try to improve their sexual relations.

Another issue that is a strength in this study that spouses of the women were contacted and were advised regarding sexual dysfunction. They were notified that they should also collaborate in this study and as this study was done in a university center, they allowed their spouses to participate at the study. The sessions were held very regularly and this helped the effectiveness of the intervention.

There are some possibilities in terms of effectiveness of sexual skills training with cognitive-behavioral therapy approach on sexual dysfunction. First, exercises used were not merely physical ones. These sexual exercises can result in complex psychologic reactions. For example, with sensory-focus exercises not only pleasurable reactions are strengthened, but also prevent unwanted sexual tensions. By reducing unpredictable sexual tensions in couples, emotional relations are enhanced by such exercises and cause couples to be more kind towards each other. Secondly, the treatments used here allowed the subjects to state their excitement freely. This free relation usually resolves anxiety and facilitates subjects' feelings. Third, suppressing guilty feelings or unconscious fear of enjoyment and replacing prohibiting cognitions with correct cognitions can justify the effectiveness of the therapeutic intervention studied here. When pregnancy does not occur, infertile couples may think that they do not have effective sexual relation and gradually may forget that sexual relation is mainly to address a fundamental need and its ignorance can cause damage to their life (48).

In the current study, the sessions were held only for women in the absence of their spouses. It is suggested that in the future studies, such training be held in the presence of the spouses (couple therapy) and compare this with group therapy.

## Conclusion

The results of this study indicated that sexual skills training with cognitive-behavioral approach was effective on sexual dysfunction among infertile women. We suggest that obstetricians and gynecologists, midwives, nurses, and psychologists use this method in addition to other approved methods. Treatment of sexual dysfunction in infertile women is very important by twofold. Firstly,

treatment of infertility is important. Secondly, by treating sexual dysfunction, marital relations are improved. This is an effective method to avoid marital and familial conflicts and resultant consequences. As married individuals have various sexual behaviors and patterns, by training couples, it is possible to enhance their sexual knowledge and make cognitive changes.

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