doi: 10.22100/ijhs.v3i2.209
Original Article

IJHS 2017;3(2):15-20
ijhs.shmu.ac.ir

IJHS
International Journal of Health Studies

The Impact of Cognitive Behavioral Sex Therapy on Decreasing Anxiety and Increasing Sexual Function in People with Vaginismus

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Received: 30 April 2017
Accepted: 22 July 2017

Abstract

Background: *The purpose of this study is to investigate the impacts cognitive behavioral sex therapy has on decreasing anxiety and increasing sexual function of people with vaginismus.*
Methods: *The sample for this study was randomly chosen from a population of married women aged 20 to 35 years who were referred to both Farhangian Shahid Abuzari and Vali-Asr Therapeutic Centers in Shahr-e-Ray. Thirty female subjects were chosen and were divided into two groups; experimental group and control group. The pre-test was administered for both groups. The pre-test consisted of the items on Spielberger's state-trait anxiety inventory (SATI) as well as the items on Rosen et al. (2000) Female Sexual Function Index. Then, the subjects in experimental group were treated with 12 sessions of cognitive behavioral therapy for vaginismus' sexual dysfunctions. At the end, post-test was administered for both groups.*
Results: *The results of covariance analysis demonstrated that cognitive behavioral therapy for sexual dysfunctions will lower the anxiety and, at the same time, it can also enhance sexual performance of females with vaginismus in the experimental group compared with control ($P<0.05$).*
Conclusions: *Given the effects of cognitive behavioral therapy on people with vaginismu for improving sexual awareness about sexual function, it is recommended that young couples should be trained as this can help them to sustain their marital life and prevent sexual dysfunction.*

Keywords: Cognitive behavioral sex therapy, Vaginismus, Anxiety, Sexual function.
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Please cite this paper as: Aliakbari Dehkordi M, Mohammadi A, Alipour A, Mohtashami T. The impact of cognitive behavioral sex therapy on decreasing anxiety and increasing sexual function in people with vaginismus. Int J Health Stud 2017;3(2):15-20.

Introduction

Sexual dysfunction is prevalent among 30% to 50% of both sexes and it may lead to some negative consequences in the lives of couples. One of these sexual dysfunctions is vaginismus or painful contraction of the vaginal muscles during sexual intercourse, which is caused by a feeling of pain or its prediction on the first sexual intercourse. Vaginismus is considered as a type of sexual pain dysfunction in DSM-V.[1] The main feature of vaginismus is the continuous involuntary contraction of the muscles located in the external one third of the vagina when the male's penis, tampons or speculum[2] are going to penetrate into the vagina (criterion A). This type of dysfunction can lead to serious distress or to couple's problems (criterion B), and it might not be solely due to the physiological effects of the sexual dysfunction (criterion C).[1] Since epidemiological studies usually lack items asking about vaginismus, its prevalence is not well known, however, it is estimated to be oscillating at around 1% to 6%.[2]

Review of the related literature suggests a relationship between anxiety and sexual dysfunction, and the impacts of anxiety and impacts of anxiety on women's sexual desire has been established and it has a leading role in most of women's sexual dysfunctions.[3] Ward and Ogden (2010) suggest that the most prevalent cause for vaginismus is anxiety and fear of pain.[4] Amin Esmaeli et al. (2002) found that 48% of women with vaginismus who asked for treatment were afflicted with anxiety.[5] In other research by Payne (2005), it was shown that vaginismus patients showed a high degree of state-trait anxiety and their symptoms included extreme vigilance as well as fear of pain.[6] In addition, in their study, Eysenck et al. (2007) regarded the impacts of anxiety and sexual fear as significant contributors in the decrease of sexual desire, sexual stimulation and orgasm.[7] Furthermore, by lowering attention to the stimuli relevant to the task and increasing focus on the stimuli related to threat, anxiety will result in dysfunction. In fact, by creating negative cognitions with regard to issues such as failure or incapability through sexual intercourse, anxiety will also result in cognitive distractions through intercourse which finally results in sexual dysfunction. Most sexual dysfunctions of women are the result of anxiety combined with some other issues such as cultural expectations, feeling guilty, prediction of painfulness, low self-confidence and feeling incompetent.[8] Therefore, sexual dysfunctions are more prevalent among those patients with anxiety and depressive disorders and their sexual and life satisfaction is lower as well.[9] Previous research has shown that marital problems and divorce are more common among those afflicted with anxiety disorders.[10] TerKuile et al. (2007) have suggested that vaginitis response, which is considered as a conditioned fear reaction to sexual stimulations, will lead to avoidance behaviors and consequently to lowering of sexual functioning.[11] Ward and Ogden (2010) concluded that vaginismus patients avoid sexual intercourse as a result of feelings like guilt, hopelessness and anger, which is itself the result of low self-confidence, and they influence their relationship with their own partner and therefore their marital satisfaction will be influenced as well.[4]

Thus, anxiety is considered as one of the most significant causes of most sexual disorders which need to be eliminated with some proper intervention programs.[12] One of the methods that has been proved to be efficient and which was fully researched is the cognitive-behavioral intervention model. Review of the related literature suggests the effectiveness of this kind of intervention in treating patients with vaginismus.[13-16] TerKuile et al. (2007) showed that cognitive-behavioral therapy

influences lifetime vaginismus through affecting characteristics such as fear of penetration and avoidance behaviors.[11] Engman et al. (2010) also conducted a study entitled "long-term intercourse behaviors in the female patients with vaginismus treated with cognitive behavioral therapy" on 59 women. Fifty-nine women were treated using this method. Their results show that 81% of women were treated and they had successful sexual intercourses afterward.[15] Kabakci and Batur (2003) investigated the impacts of cognitive-behavioral therapy on patients with vaginismus, and their anxiety levels decreased greatly following instructions.[16] Besides, their sexual performance was enhanced greatly. Salehzadeh et al. (2011) conducted a study in Iran and demonstrated that cognitive-behavioral therapy is considerably effective for women with sexual dysfunctions.[17] Aliakbari Dehkordi et al. (2012) also have shown that cognitive-behavioral therapy results in improving the marital adjustment and satisfaction of women with vaginismus dysfunction.[18]

As is apparent from review of the literature, favorable sexual functioning is directly related to marital adjustment and satisfaction,[16,19] because sexual intercourse is one of the most significant components of a couple's relationship and it is effective in promoting quality and continuity of marital life. Lack of awareness and understanding toward sexual dysfunctions and behaving improperly toward it, which prevents receiving proper and timely interventions, will significantly lower the quality of a couple's relationship and it will also endanger the family's peace, security and its psychological well-being.

Furthermore, the wide application of anxiety-decreasing approaches as a progressive treatment is illustrative of the agreement among psychological theorists as well as clinical therapists with regard to the contribution of anxiety in promotion of vaginismus. Since there are a variety of methods examined in other countries for this problem, it is necessary to consider their effectiveness for selecting the best treatment for Iran (a country with some specific and unique cultural properties). Also, research on vaginismus which makes couple's sexual intercourse impossible or problematic is scarce in our country; therefore, the main objective of this study is to investigate the effectiveness of cognitive-behavioral therapy for sexual dysfunction. This study also attempts to answer the question: is cognitive-behavioral therapy for sexual dysfunction effective in reduction of anxiety and improvement of sexual functioning and its related components or not?

Materials and Methods

The present study is an experimental type and it contains both pre-tests and post-tests with control groups. The statistical sample for this study is a group of 20 to 35 year-old married women with vaginismus who were referred to Farhangian Shahid Abuzari and Vali-Asr Therapeutic Centers in Shahr-e-Ray. In this study, the subjects were selected using randomized sampling method. These women lacked any other physical or psychological disorders and they were randomly assigned into two groups: experimental; and control group. After receiving the code of ethics in medical research (IRCT2016031027004N1), the consent forms were first given to participants and the required items such as study objectives, confidentiality, and keeping subjects' information secret were all contained therein. Also, it was explained that if someone was no longer willing to continue with the program, he or she could quit. In addition, it was said that the results of the study would be given to the study subjects after its completion. Further, following the end of the project, some instructional sessions were held free of any charge for the study subjects.

Spielberger State-Tait Anxiety Inventor y(1970).

This scale was used for the evaluation of anxiety among patients with vaginismus. State anxiety was defined by Spielberger as a transient excitement state and trait anxiety was defined as the individual differences with regard to anxiety, i.e., inclination toward reactions to threatening situations is different among different individuals.[20] Spileberger State-Trait Inventory (STAI) is composed of 40 items, with the first 20 questions asking about state anxiety (manifest anxiety) and the second 20 asking about trait anxiety (covert anxiety). STAI is an instrument with a high degree of reliability and validity which is applicable within various populations. Spielberger (1970) reported the Cronbach's alpha for state-trait scales as 0.92 and 0.90, respectively.

In addition, the reliability coefficient for state anxiety was calculated from 0.16 to 0.62 and for trait anxiety was from 0.73 to 0.86.[20] The reliability coefficient for state anxiety is significantly lower than the same value for trait anxiety, because state anxiety is variable over time.[20] In a study in Iran, the internal consistency for both scales was calculated for a population of 600 by Cronbach's alpha, which was reported 0.91 for state anxiety and 0.92 for trait anxiety, and the alpha obtained for the whole test was 0.94.[21]

For the anxiety questionnaire, the Cronbach's alpha coefficients for the whole scale and sub-scales are as follows: the total scale 0.921, the anxiety state 0.739, and trait anxiety 0.815.

Female Sexual Function Index: one of the suitable methods for investigating female sexual function is Rosen et al. (2000) female sexual function index which tests female's sexual function using 19 items in six areas including: desire, arousal, lubrication, orgasm, satisfaction and sexual pain.[22] Regarding the scoring, the score for each area is obtained by adding up the score for items within each area and multiplying it by their number. Since the number of items in each area are not equal, first we add up the score obtained for each area and then they are multiplied by a coefficient which has an inverse relationship with number of items.[22] the total score for this scale will be obtained through adding up the score for each area. Therefore, the scoring procedure is such that higher score is representative of better sexual function. Based on giving the same weight to all the areas, the maximum number for each area is equal to 6 and it is equal to 36 for the whole scale. The score zero shows that the person did not have sexual intercourse during the past four weeks. The cut-off point for the whole scale and sub-scale were: for the whole scale, 28; for desire, 3.3; for sexual arousal, 3.4; lubrication, 3.4; satisfaction, 3.8 and sexual pain, 3.8. In other words, the higher the cut-off

scores, the higher the performance in that subscale. This scale is a general standardized questionnaire which is approved by Rosen et al. (2000) in terms of both reliability and validity.[22] Its validity and reliability were also affirmed by Mohammadi et al. (2009) in Iran. In this study, the reliability coefficient for the whole scale was 78% and 75% for split-half and test-retest reliability, respectively, and for the subscales was between 63% and 75% using split-half and 0/70 to 0/81 using test-retest method.[23]

The Cronbach's alpha coefficients the whole scale and sub-scales are as follows: the total scale 0.79, desire 0.74, sexual arousal 0.72, lubrication 0.71, satisfaction 0.72, orgasm0.751, and sexual pain 0.79.

At first, the study subjects were interviewed individually and information such as age and educational degree was obtained. In addition, they signed the consent form and they declared their agreement about their persistence through study. The pre-test was administered to both control and experimental groups and the subjects completed both Spielberger State-Trait Anxiety Test (1970) and Rosen et al. (2000) Female Sexual Function Index.[20,22] Then, the experimental group through cognitive-behavioral therapy for vaginismus sexual dysfunction. This treatment package was taken from the guide by Terkuile et al. (2007) that was administered for the first time on a group of vaginismus patients.[11] Of course, it should be mentioned that regarding the peculiar features of the culture and the differences observed with females in Iran's society compared with western women, it was necessary to add some items to this package. These extra items were reviewed and approved by gynecologists and psychologists.[24] This instruction program was designed for 12 weeks with one session per week. The present study was conducted at Farhangian Shahid Abuzari and Vali-Asr Therapeutic Center in Shahr-e-Ray City. A summary of this cognitive-behavioral package is as follows: 1) becoming familiar with female sexual disorders and cognitive-behavioral therapy; 2) Defining normal sexual orientation and physiological responses and describing male and female's sexual cycles; 3) muscle relaxation training; 4) effective communication training, 5) problem solving, self-confidence reinforcement and anger-management skills training; 6) cognitive restructuring in relation to sexual-mental disorders; 7) improving sexual techniques and skills (sensory focus 1); 8) improving sexual techniques and skills (sensory focus 2); and 9-11) Regular desensitization for sexual penetration. Each of these important topics within this instructional package was explained within one or two sessions and some homework was assigned for study subjects at the end of every session. The post-test was administered for both experimental groups at the end of sessions. Too the control group has not been received any intervention.

Descriptive data analysis methods such as mean and standard deviation were used. In order to test the hypotheses, covariance analysis was used and the data were analyzed using SPSS software package v.19.[25]

Results

The mean age for this sample was 27.84 years. In addition 40% of the sample group had undergraduate degrees, 33.3% had diploma degrees or lower, 16.7% had associate degrees and 10% had graduate degrees.

According to table 1, the study subjects in experimental group were compared with subjects in control group in terms of anxiety descriptive indices and its components.

As can be seen from table 1, the mean and standard deviation for the anxiety test and its components in both control and experimental groups were given for both pre-tests and post-tests. Generally, we can conclude that the average score for anxiety scale, state anxiety and trait anxiety in the experimental group were decreased in pre-tests compared with post-tests.

Table 1. The statistical indices related to the variables under study

Variables		Mean	Standard deviation
Anxiety			
- Experimental	Pre-test	113.46	15.61
	Post-test	72.93	13.69
- Control	Pre-test	102.86	16.03
	Post-test	107.20	14.41
State anxiety			
- Experimental	Pre-test	55.06	10.40
	Post-test	34.00	5.81
- Control	Pre-test	48.93	9.64
	Post-test	51.13	8.68
Trait anxiety			
- Experimental	Pre-test	58.40	5.82
	Post-test	38.93	8.59
- Control	Pre-test	53.93	6.87
	Post-test	56.06	6.25

As can be seen from table 2, the mean for sexual function and its component including sexual desire, sexual arousal, lubrication, orgasm, satisfaction and sexual pain, have been increased in post-test compared with pre-test in control group. In order to test the main hypotheses of this study, multivariate covariance analysis was used based on the type of study and a summary of its results are provided in the following table. It is noteworthy that the rationale for applying multivariate covariance analysis was approved too.

The results from the Shapiro-Wilk test to assess the assumption of normal distribution of variables indicate that the distribution of the variables of sexual function (P=0.2) and anxiety (P=0.4) in the experimental and control groups was normal. Also, homogeneity of variance-covariance matrices was confirmed by using box test for the sexual function variable (P=0.224) and anxiety (P=0.5).

According to the results displayed in table 3, after adjusting the mean for pre-test in experimental group (M=69.784) and control group (M=110.34) and the results obtained for anxiety scale (P=0.001; F=97.2), we can claim that anxiety variable is statistically significant at P<0.05. In addition, the effect size shows that 78% of the difference between these two groups in post-test with regard to anxiety is related to cognitive-behavioral therapy for sexual dysfunctions exist in experimental group. This means that teaching cognitive-behavioral therapy for sexual disorders was actually effective in decreasing anxiety among vaginismus patients.

Table 2. Mean and standard deviation for sexual function scale and its components

Variables	Mean		Standard deviation
Sexual function scale			
- Experimental	Pre-test	17.92	4.03
	Post-test	26.49	4.62
- Control	Pre-test	17.68	4.84
	Post-test	17.76	4.35
Sexual desire			
- Experimental	Pre-test	3.36	0.95
	Post-test	3.92	0.87
- Control	Pre-test	3.20	0.97
	Post-test	3.48	1.06
Sexual arousal			
- Experimental	Pre-test	3.04	1.02
	Post-test	4.06	0.92
- Control	Pre-test	2.90	1.04
	Post-test	3.00	0.88
Lubrication			
- Experimental	Pre-test	3.98	0.99
	Post-test	5.06	0.65
- Control	Pre-test	3.74	1.16
	Post-test	3.44	1.01
Orgasm			
- Experimental	Pre-test	2.90	1.08
	Post-test	4.08	0.94
- Control	Pre-test	2.85	1.28
	Post-test	3.38	1.02
Satisfaction			
- Experimental	Pre-test	3.04	1.13
	Post-test	4.80	0.97
- Control	Pre-test	3.14	1.09
	Post-test	2.80	0.95
Sexual pain			
- Experimental	Pre-test	1.60	1.10
	Post-test	4.29	1.90
- Control	Pre-test	1.84	0.78
	Post-test	1.65	0.73

Besides, the impact of cognitive-behavioral therapy for sexual dysfunctions on each component of anxiety is like this: state anxiety (F=80.96, P=0.001); and trait anxiety (F=85.91, P=0.001). As is apparent from table 3, the components of both state and trait anxieties are significant at P<0.05, i.e., cognitive-behavioral therapy for sexual dysfunctions was effective in reduction of both kinds of anxiety.

Table 3. Summary of the results of multivariate covariance analysis in MANCOVA on anxiety and its components

Dependent variable	Mean square	F	Sig	Effect size	Test's statistical power
State anxiety	2778.49	80.96	0.001	0.75	0.10
Trait anxiety	2837.94	85.91	0.001	0.77	0.10
Anxiety	11017.06	97.20	0.001	0.78	1.00

As is evident in table 4, after adjusting the pre-test scores in experimental group (M=26.4) and control group (M=17.84), and based on the results obtained for the sexual performance scale (F=53.21, P=0.001), we can argue that sexual performance differences between two groups are significant (P<0.05). In addition, the effect size shows that nearly 66% of the sexual performance difference between the two groups in post-test is related to cognitive-behavioral therapy for sexual dysfunction in experimental group, and this means that teaching cognitive-behavioral therapy for sexual dysfunctions was effective in promoting the level of sexual performance of patients with vaginismus.

Furthermore, based on the results displayed in table 4, adjusting the scores for the impact of cognitive-behavioral therapy on the components of sexual performance will be: sexual desire subscale (F=1.2, P=0.284); sexual arousal (F=28.88, P=0.001); lubrication (F=42.77, P=0.001); orgasm (F=4.39, P=0.048); satisfaction (F=85.96, P=0.001); and pain subscale (F=42.1, P=0.001). As Table 4 shows, the differences between the two groups in components such as sexual arousal lubrication, orgasm, satisfaction and pain are significant (P<0.05), i.e., cognitive-behavioral therapy did not have any significant impact on sexual desire.

Table 4. The results of multivariate covariance analysis in MANCOVA on sexual functioning and its components

Dependent variable	Mean square	F	Sig	Effect size	Test's statistical power
Sexual desire	0.64	1.20	0.28	0.052	0.183
Sexual arousal	9.81	28.88	0.001	0.568	0.999
Lubrication	16.26	42.77	0.001	0.66	1
Orgasm	2.27	4.39	0.048	0.167	0.518
Satisfaction	30.21	85.96	0.001	0.796	1
Sexual pain	54.41	42.10	0.001	0.657	1
Sexual function scale	548.65	53.21	0.001	0.663	1

Discussion

As it was previously stated, the purpose of this study was to investigate the impacts of cognitive-behavioral therapy for sexual dysfunctions on sexual function of vaginismus patients. The results showed that teaching of cognitive-behavioral therapy was effective in decreasing anxiety, state anxiety and trait anxiety scores. These findings are consistent with findings in the literature.[2,6,1,16,18] As an explanation for this result, we can argue that anxiety is a kind of pervasive perturbation that is accompanied by a feeling of worry; it is also accompanied by some physical symptoms and damaging and stressful environmental factors may lead to its development. The impact of anger and anxiety of females' sexual desire is widely known and nearly all females' sexual dysfunctions are somehow related to anxiety or anxiety is one of the causes.[6] According to the vaginismus' behavioral model, vaginitis response, which is a conditioned reaction toward sexual arousal, is capable of being treated by exposure treatment. Therefore, after reduction of fear, women will be able to go through sexual intercourse. This is possible through reduction of avoidance behaviors and establishment of long time exposure to frightening arousals. Generally, cognitive behavioral therapy is effective in relieving anxiety and pain of women afflicted with vaginismus. The prescribed exercises are not exclusively mechanical or physical and will lead in complex psychological reactions in patients. For instance, by using sensory focus exercises through training sessions, joyful reactions will be improved, and on the other hand sexual tension will be avoided as well. Secondly, this therapeutic method facilitates expressing emotions for patients, which is influential in decreasing their state anxiety. Third, this therapeutic method will gradually give the required capability and motivation to patients.[17]

Furthermore, the present study showed that teaching cognitive-behavioral therapy is effective in the promotion of sexual functioning. Besides, the results of this study showed that all sexual performance components, except sexual desire, are significant, i.e., cognitive-behavioral therapy is significantly effective in enhancing sexual arousal, lubrication, orgasm, satisfaction and sexual pain. This finding is consistent

with the findings in the literature.[11,15,16,26] In interpretation of such results, we can argue that cognitive-behavioral interventions are composed of two main mechanisms; first, they raise individual's cognitive skills through creating an awareness with regard to sensory focus or sexual arousal and stimulation; second, they eliminate those negative attitudes or thoughts that interfere with proper sexual performance and substitute better and more constructive attitudes or thoughts for them. Besides, behavioral methods of anxiety decrease such as relaxation and regular desensitization as well as teaching assertiveness and the right kind of interaction between couples are among other interventions that are applied in cognitive-behavioral approach to treatment.[18] On the other hand, training couples and modifying their wrong beliefs will lead to change in their maladaptive cognitions and various studies have investigated the effectiveness of cognitive restructuring in reducing sexual problems.[18,26] Since negative attitudes toward sexual intercourse will worsen these symptoms and also it establishes them, therefore, discovering such negative inculcates is a key to the successful analysis of sexual problems.[19] Cognitive-behavioral patterns are effective in improving sexual function and satisfaction, elimination of disappointing thoughts and improving marital relationship,[27] and thus will lead to better and wider sexual functioning. Meston et al. (2004) fond that the best intervention program is the cognitive-behavioral method through the use of cognitive restructuring techniques, anxiety reduction techniques such as relaxation, provision of proper sexual information and knowledge, practicing sensory focus and regular desensitization.[28] These techniques and approaches are all part of the cognitive-behavioral approach used in this study, thus, the results obtained from it are interpretable. Furthermore, with regard to the effectiveness of cognitive-behavioral therapy for sexual dysfunctions which did not have any significant impact on the sexual desire component, the increase observed for this component was not significant, although descriptive statistics proved its significance. Bason (2005) suggested that sexual desire is inherent and spontaneous and it is reflected in sexual thoughts and attitudes.[29] There are a variety of factors that affect sexual desire such as degree of intimacy between couples, feeling to be a good woman, femininity and feminine attractiveness. Since patients of vaginismus have experienced a multitude of failures in their previous relationships, these factors worsen to a large extents and it can be the reason for lack of statistical significance of this component. It seems that this component requires longer interventions.

There were some limitations in this study as well. The population for this study was married women with vaginismus who were referred to both Farhangian Shahhid Aboozari and Vali-Asr Therapeutic Centers in Shahr-e-Ray, thus the generalizability of the results is questionable. Further, considering the study population and unwillingness of subjects to participate in follow-up studies, the researcher could not continue further, so it is suggested that some similar research experiments are designed, and the effect of this intervention in follow-up period is investigated. Besides, since sexual desire was the only component which lacked statistical significance, it is suggested that the impacts of cognitive-behavioral interventions on sexual desire be investigated in a separate study.

Acknowledgement

We thank all the subjects who took part in this study, the management of Farhangian Shahid Aboozari and Vali-Asr therapeutic centers in Shahr-e-Ray, and we would also like to show our gratitude to all those colleagues and people who provided insight and expertise and assisted this research.

Conflict of Interest

The authors declared that they have no conflict of interest.

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