

# Effectiveness of Cognitive Behavioral Couple Therapy Based on Heimberg's Model on Sexual Schemas and Sexual Satisfaction of Distressed Women

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## ABSTRACT

**Objective:** The present study aimed to evaluate the effectiveness of cognitive behavioral couple therapy based on Heimberg's model on sexual schemas and sexual satisfaction among distressed women.

**Methods and Materials:** This applied research employed a quasi-experimental design with a pretest-posttest and control group format. The statistical population included all distressed women referred to counseling and psychology clinics in Karaj in 2023. A purposive non-random sampling approach selected 30 participants, who were randomly assigned into two groups (15 in the experimental group and 15 in the control group). Assessment tools included the Sanaei Marital Conflict Questionnaire (1999), Anderson and Cyranowski's Self-Sexual Schema Questionnaire – Women's Form (1994), and the Sexual Satisfaction Scale by Mattson and Trapnell (2005). The experimental group received cognitive behavioral couple therapy based on Heimberg's model in 12 sessions of 90 minutes each, held weekly. Data were analyzed using multivariate covariance analysis.

**Findings:** The findings indicated a significant difference ( $p < .05$ ) in the posttest means of sexual schema and sexual satisfaction between the experimental and control groups, after controlling for pretest effects.

**Conclusion:** Thus, cognitive behavioral couple therapy based on Heimberg's model can be considered an effective treatment method for improving sexual schemas and enhancing marital sexual satisfaction among distressed women.

**Keywords:** Sexual satisfaction, distressed women, cognitive behavioral couple therapy based on Heimberg's model, sexual schemas.

## 1. Introduction

Marital conflict is defined as verbal or physical dispute due to contradictions in family matters (Gao et al., 2022). Marital conflicts lead to personality, psychological, and physical disorders, including provocative personality traits, unhealthy communication patterns, domestic violence, infidelity, irrational thoughts and beliefs among couples, difficulties in spending time together, issues with family leadership, and harmful interferences. Ultimately, these conflicts result in marital dissatisfaction and, consequently, divorce (Sadeghi et al., 2022). The emergence of conflict does not necessarily lead to relationship breakdown as long as a solution is found; however, a lack of resolution may indeed lead to relationship failure. Thus, examining factors that influence marital conflicts and providing effective treatments is crucial.

One of the factors related to marital conflicts is the sexual schema (Islami Baba Heidari et al., 2021). Sexual schemas are defined as cognitive generalizations about an individual's sexual aspects, originating from past experiences, manifesting in current experiences, influencing the processing of sexual social information, and guiding sexual behavior (Dundas et al., 2021). Sexual schema emphasizes the cognitive aspect of sexual desires that individuals have toward their sexuality. Sexual schemas affect people's feelings, beliefs, and attitudes towards sexual desires. Those with positive sexual schemas tend to experience less shame and have more positive attitudes toward sexuality (Evli et al., 2021). In their research, Babaie et al. (2019) demonstrated a negative relationship between sexual schemas and marital conflicts; in other words, positive sexual schemas are significantly associated with fewer marital conflicts (Babaie et al., 2019).

On the other hand, studies indicate that another dimension contributing to marital conflicts is reduced sexual satisfaction among couples (Soleimani et al., 2021). Sexual satisfaction is defined as an emotional response stemming from an individual's subjective assessment of the positive and negative aspects associated with sexual relationships (Cervilla et al., 2024). Numerous studies show that sexual satisfaction is essential for life satisfaction, well-being, quality of life, emotional satisfaction, happiness, and improved sexual functioning (Bilal & Rasool, 2022). Sexual satisfaction also leads to lower levels of marital conflict, satisfaction with the marital relationship, life satisfaction, and higher physical and psychological health (Zamanifar et al., 2022). Razeghi et al. (2020) found a significant negative

relationship between sexual satisfaction and marital conflicts, highlighting the importance of sexual satisfaction in marital relationships within therapeutic interventions and family education (Razeghi et al., 2020).

Considering the negative effects of marital conflicts on couples' lives, various theoretical perspectives with different approaches seek to explain and resolve them. One effective treatment in this context is cognitive behavioral couple therapy (Sarabandi et al., 2022). Cognitive behavioral couple therapy is a relatively short-term and effective therapy developed to alter negative interaction cycles and emotional responses among couples facing relational issues (Şenol et al., 2023).

Cognitive behavioral couple therapy is recognized as an established and primary-line treatment with positive outcomes (Adam et al., 2022). It is based on the premise that irrational beliefs and discouraging coping behaviors, along with negative mood states, are influential in the formation and persistence of couple issues, while individuals possess the ability to think and act in ways appropriate to their situations. However, due to their understanding and expectations, they may behave differently. Heimberg's model is one of the approaches within cognitive behavioral therapy. Cognitive behavioral couple therapy based on Heimberg's model follows an educational approach, employing both cognitive strategies such as identifying cognitive distortions, cognitive restructuring of anxiety-provoking thoughts, and reinforcement of effective coping self-talk, as well as behavioral strategies including modeling, exposure, role-playing, muscle relaxation, coping skills training, and self-efficacy enhancement. This model, grounded in the principles of cognitive behavioral therapy, focuses on identifying and altering negative communication and cognitive patterns that can lead to relationship problems (Selvapandiyan, 2019).

The core of cognitive behavioral couple therapy based on Heimberg's model is primarily self-help oriented, aiming to assist couples in identifying negative thought patterns that may cause tension and conflict and developing effective techniques to resolve these conflicts and issues (Hall, Kellett, Berrios, Bains, Scott, 2016). This therapeutic approach is also a short-term and often more cost-effective method compared to other therapies, with evidence supporting its effectiveness across a broad range of maladaptive behaviors, making it attractive to many therapists (Peters et al., 2019). Studies by Villa et al. (2020) and Rasing et al. (2019) have examined and confirmed the effectiveness of cognitive behavioral therapy in couples

(Rasing et al., 2019; Villa et al., 2020). Research in this field shows the positive impact of this therapy on issues related to schemas and sexual satisfaction. Rodríguez-Gonzalez et al. (2022) found that cognitive behavioral therapy can enhance couple satisfaction as a primary outcome and sexual satisfaction as an effective outcome (Rodríguez-Gonzalez et al., 2022).

In summary, given the importance of family functioning and the need to prevent its instability, identifying factors associated with sexual satisfaction—a foundation for marital stability—is essential. Another important aspect of this research is that, in our culture, there is generally no constructive emphasis on sexual matters, and there is limited research in this area. Given that sexuality is a crucial component of improving the quality of couples' relationships, studies of this nature are necessary to raise families' awareness of the impact of marital conflicts on marital life, especially sexual relationships, thereby promoting the health and well-being of current and future families. Accordingly, the present study aims to assess the effectiveness of cognitive behavioral couple therapy based on Heimberg's model on sexual schemas and sexual satisfaction of distressed women.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study was applied and quasi-experimental, with a pretest-posttest design and a control group. The statistical population included all distressed women who attended counseling and psychology clinics in Karaj in 2023. From this population, 30 women were selected through a non-random and convenient purposive sampling method and randomly assigned into two groups (15 in the experimental group and 15 in the control group). Inclusion criteria were as follows: 1. Informed consent to participate; 2. Minimum of 4 years of marriage; 3. At least a high school diploma; 4. Age range between 20 and 50 years; 5. No drug or substance use; 6. Distressed women; 7. Score above 130 on the Marital Conflict Questionnaire. Exclusion criteria included: 1. Any physical or mental illness that could interfere with the study variables; 2. Absence from more than three treatment sessions; 3. Participant's unwillingness to continue participation in the study.

The research was conducted as follows: After obtaining an ethics code from the Ethics Committee of Islamic Azad University, Arak Branch and coordinating with counseling and psychology clinics in Karaj, 30 individuals were

selected based on the inclusion and exclusion criteria and were randomly assigned into two groups (one experimental and one control). Participants were briefed on the study topic, treatment sessions, and objectives, and ethical considerations were explained to them. After group allocation, participants completed the Sexual Schema and Sexual Satisfaction Questionnaires as a pretest before intervention. The experimental group received an intervention based on cognitive behavioral couple therapy by Heimberg & Becker (2002) in 12 weekly 90-minute sessions conducted by the researcher, while the control group received no intervention. After the treatment sessions, both groups completed the research questionnaires in the posttest stage.

Ethical considerations included the following: 1. Prior to the study, participants were informed about the study process, objectives, and research methods; 2. Participants were assured of the intervention's harmlessness; 3. Participants were informed of their freedom to withdraw from the study at any stage; 4. The researcher committed to safeguarding participants' private information and using data solely for research purposes; 5. Participant inquiries would be addressed, and results would be shared with them upon request.

### 2.2. Measures

#### 2.2.1. Marital Conflict

This 42-item questionnaire, developed by Sanaei in 2000, measures marital conflicts across seven domains: decreased cooperation, decreased sexual relationship, increased emotional responses, increased child support-seeking, increased individual relationships with relatives, decreased family relationships with spouse's relatives and friends, and financial separation. Responses are rated on a 5-point Likert scale (from Always = 5 to Never = 1), with scores ranging from 42 to 210, where higher scores indicate more conflict. Sanaei (2000) tested the questionnaire on a group of 111 individuals with marital conflict and a control group of 108 individuals, demonstrating significant differences between compatible and incompatible couples in various dimensions, thus supporting the test's ability to distinguish conflicting from non-conflicting couples. In Parvaei, MamSharifi & Shahamat Dehsorkh (2023), Cronbach's alpha reliability for the full questionnaire was 0.88, while in this study, it was 0.81 (Abedi et al., 2024; Navabinejad et al., 2024).

### 2.2.2. Sexual Self-Schema

Developed by Andersen & Cyranowski in 1994 to assess sexual self-concept, this scale includes separate versions for women and men. The women's version comprises 50 attributes rated on a 7-point Likert scale from Not at All (0) to Very Much (6), with total scores ranging from 0 to 156. Since individuals are often hesitant to discuss sexual matters, 24 attributes serve as filler items to obscure the main focus from participants. The scale has 26 core items and three subscales: Passionate-Romantic, Open-Comfortable, and Shy-Cautious. Andersen & Cyranowski (1994) reported Cronbach's alpha of 0.81, 0.77, 0.66, and 0.82 for the subscales and full scale, respectively, with significant incremental variance from 1.3% to 12.4%, indicating satisfactory validity (Nowosielski, Jankowski, Kowalczyk, Kurpisz, Normantowicz-Zakrzewska & Krasowska, 2018). In Mojtabaei, Saberi & Alizadeh (2015), Cronbach's alpha was 0.78 for the total scale, 0.70 for the Passionate-Romantic subscale, 0.66 for Open-Comfortable, and 0.56 for Shy-Cautious. Content validity was confirmed by 10 psychology faculty members from Islamic Azad University, Roudehen. In this study, reliability was 0.82 (Mojtabaei et al., 2015; Zargarinejad & Ahmadi, 2020).

### 2.2.3. Sexual Satisfaction

Designed by Meston & Trapnell in 2005 to measure women's sexual satisfaction, this 30-item scale covers five dimensions: Satisfaction (items 1-6), Communication (items 7-12), Compatibility (items 13-19), Relationship Anxiety (items 20-24), and Personal Anxiety (items 25-30). Responses are rated on a 5-point Likert scale (from Strongly Agree to Strongly Disagree), with higher scores indicating greater satisfaction. Meston & Trapnell (2005) reported internal consistency ranging from 0.45 to 0.72, test-retest reliability of 0.92 over 4-5 weeks, and concurrent validity with sexual functioning issues of 0.61. In Roshan Chesli, Mirzaei & Nikazin (2014), Cronbach's alpha was 0.96 for the overall scale and ranged from 0.82 to 0.91 across dimensions, with a strong positive correlation with the Women's Sexual Satisfaction Index by Hudson et al. (1981) (correlation between 0.62 and 0.83), indicating good convergent validity (Mosadegh et al., 2023; Rostami, 2023; Salehi et al., 2024). In this study, Cronbach's alpha reliability was 0.92.

## 2.3. Intervention

### 2.3.1. Cognitive Behavioral Couple Therapy

This group-based therapy package, developed by Heimberg & Becker (2002), was administered in line with the study objectives, consisting of 12 sessions of 90 minutes each, conducted twice weekly (Heimberg & Becker, 2002).

Session 1: Introduction and rapport-building; explanation of treatment rationale; discussion of the nature of anxiety, identification of anxiety-provoking thoughts, factors, and symptoms; introduction to cognitive behavioral therapy (CBT) conceptualization; and explanation of sexual schemas and sexual satisfaction issues that contribute to marital conflict.

Session 2: Observation and assessment of participants' ability to focus on internal experiences; identification of core emotions underlying sexual schemas; and empowering members in self-awareness, recognizing personal characteristics, needs, desires, goals, values, and self-identity.

Session 3: Introduction to the relationship between thoughts, emotions, and behaviors; understanding automatic thoughts and cognitive distortions; challenging cognitive distortions; discussing the connection between thoughts, emotions, and bodily sensations, with examples across various situations; explanation of thinking errors and negative automatic thoughts.

Session 4: Emotional indicators, including exploration of how emotions arise and how to record related thoughts and feelings; identification and introduction of common negative thoughts and cognitive distortions.

Session 5: Development of a hierarchy of avoided situations for desensitization; use of worksheets to identify and confront avoided situations, exposure through imagery, and combining exposure with relaxation techniques.

Session 6: Challenging common negative thoughts and cognitive distortions and replacing irrational thoughts with logical ones; education and discussion on anger management, assertiveness, time management, and daily logging; teaching problem-solving skills to address conflicts; discussing refusal skills and delegation.

Session 7: Worry management; identification of participants' most common worries; listing and recording worries with a worry log; recognizing cognitive distortions.

Session 8: Cognitive techniques, including cost-benefit analysis, differentiating between possibility and probability, and addressing distorted automatic thoughts; examining



protective and purpose-driven factors, catastrophic thinking, labeling, and negative prediction.

Session 9: Addressing unresolved questions such as “why” questions; addressing perfectionistic beliefs about anxiety control; understanding rumination and the effects of behavioral activation techniques; training on relaxation techniques.

Session 10: Teaching, practicing, and implementing effective coping strategies; handling interpersonal triggers; communication skills training, assertiveness training, physical relaxation techniques, active responsibility-taking, identifying and recording negative self-talk, and learning to replace it with positive self-talk.

Session 11: Practicing effective coping strategies, stress management techniques, changing and challenging false beliefs through questioning, finding accurate beliefs, clarifying beliefs, and learning to recognize bodily reactions to different emotions.

Session 12: Emphasis on understanding and recognizing the benefits of social support; summary of treatment sessions, review of skills taught, discussion on strengths and areas of improvement for both therapist and treatment plan; obtaining feedback from participants, conducting post-test, and concluding treatment sessions.

**Table 1**

*Descriptive Statistics*

Variable	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Kolmogorov-Smirnov Statistic	Kolmogorov-Smirnov SD
Sexual Schema	Experimental	188.40	26.88	171.27	25.59	0.732	0.688
	Control	153.60	42.89	150.87	38.86	0.942	0.530
Sexual Satisfaction	Experimental	63.66	5.74	77.00	9.87	0.688	0.714
	Control	61.33	5.61	60.00	5.15	0.975	0.482

Table 1 shows pretest and posttest scores for sexual schema and sexual satisfaction variables for the control and cognitive behavioral couple therapy groups. The results indicate minimal changes in the control group’s mean scores for sexual schema and sexual satisfaction from pretest to posttest. However, a significant increase in sexual schema and sexual satisfaction was observed in the experimental group after receiving cognitive behavioral couple therapy.

According to Table 1, the Kolmogorov-Smirnov statistic for the subscales shows significance levels above the assumed threshold ( $p > .05$ ), confirming the normal distribution of data within the groups. Additionally, the findings indicate an increase in the experimental group’s mean sexual schema score from pretest to posttest, while the

## 2.4. Data analysis

Multivariate covariance analysis (MANCOVA) was performed using SPSS software version 26 to analyze the data.

## 3. Findings and Results

The sample in this study included 30 participants, with 15 individuals in the experimental group (mean age = 27.60, SD = 6.20) and 15 in the control group (mean age = 30.60, SD = 7.01), indicating age homogeneity between groups. In terms of education, most participants held a bachelor’s degree—9 participants (60%) in the experimental group and 6 participants (40%) in the control group. The mean and standard deviation for marriage duration were 9.83 and 2.68 in the experimental group and 10.16 and 2.87 in the control group. Regarding the number of children, 70% of the women in the experimental group had one child, while 30% had more than one. In the control group, 65% had one child, and 35% had more than one. Table 1 displays the descriptive statistics of the study variables.

control group showed little change. The assumption checks for covariance analysis were as follows: Box plots were used to check for outliers, with none detected. The significance level for the interaction of group and pretest sexual schema was 0.099, which is greater than 0.05, indicating the regression slope assumption was met. Similarly, the group-pretest sexual satisfaction interaction was not significant ( $p = 0.128$ ), supporting this assumption. The Box’s M test revealed that  $F(11.055)$  was not significant at the error level of 0.135, so the null hypothesis was not rejected. The Levene’s test for homogeneity of variances showed  $F(0.517)$  for sexual schema was greater than the error level of 0.478, and  $F(3.091)$  for sexual satisfaction was greater than 0.090, thus confirming homogeneity assumptions for both

variables. Therefore, Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root tests were used

to confirm the validity of the covariance analysis, with results in Table 2.

**Table 2**

*Multivariate Significance Test Results on Variables in Control and Experimental Groups*

Effect	Value	F	p	Partial Eta Squared	Power
Pillai's Trace	.915	13.48	$p \leq .01$	.91	1
Wilks' Lambda	.085	13.48	$p \leq .01$	.91	1
Hotelling's Trace	10.784	13.48	$p \leq .01$	.91	1
Roy's Largest Root	10.784	13.48	$p \leq .01$	.91	1

Based on Table 2, it can be inferred that cognitive behavioral couple therapy effectively impacts sexual schemas and sexual satisfaction in distressed women. Table

2 also indicates a significant difference in at least one of the study variables between the two groups, attributed to the effectiveness of cognitive behavioral couple therapy.

**Table 3**

*ANCOVA Results*

Source	Sum of Squares	df	Mean Square	F	p	Eta Squared	Power
Pretest Sexual Schema	588.199	1	588.199	25.166	$p \leq .001$	.492	.998
Group	4832.393	1	4832.393	206.754	$p \leq .001$	.888	1
Error	607.691	26	23.373				
Pretest Sexual Satisfaction	751.710	1	751.710	26.274	$p \leq .001$	.503	.999
Group	1623.563	1	1623.563	56.747	$p \leq .001$	.686	1
Error	743.868	26	26.610				

Table 3 shows a significant difference between the two groups across the examined components, as the F values are significant at  $p < .05$ . Based on the estimated means, this significance favors the experimental group, indicating that cognitive behavioral couple therapy based on Heimberg's model is effective in improving sexual schemas and sexual satisfaction among distressed women.

#### 4. Discussion and Conclusion

This study aimed to determine the effectiveness of cognitive behavioral couple therapy (CBCT) on sexual schemas and sexual satisfaction in distressed women. The findings indicated that CBCT positively impacted the sexual schemas of distressed women, aligning implicitly with findings from prior studies (Abbaszadeh et al., 2022; Rostamkhani et al., 2020).

To interpret this finding, it can be suggested that since an individual's sexual schemas can influence cognitive processing and emotional regulation in response to sexual information (Zarea, Ahi, Vaziri & Shahabizadeh, 2020), as well as the nature and functioning of marital relationships, CBCT helps couples enhance their understanding of chronic issues and reorganize these issues in a comprehensible way.

As awareness of schemas increases, emotional avoidance decreases, and individuals feel more empowered to handle threatening situations (Sarabandi et al., 2022). Researchers believe that women with negative sexual schemas report relatively less interest in sexual activity compared to those with positive schemas. Additionally, women with negative schemas are more likely to report anxiety, while those with positive schemas tend to report greater relaxation in romantic relationships (Cyranski et al., 1999). In CBCT, the therapist assists women in identifying negative and conflicting sexual schemas, which may include misconceptions about themselves, their partner, and sexuality. After identification, the therapist helps clients challenge these beliefs and replace them with realistic, positive experiences. CBCT teaches both partners to communicate effectively and without judgment, helping reduce misunderstandings and sexual tension. Women are encouraged to express their sexual feelings and needs openly, reducing conflict and anxiety. CBCT also teaches stress management techniques to ease anxiety related to sexual relationships, making women feel more comfortable in sexual situations. Learning relaxation techniques enables women to experience more calmness during sexual activity

(Shahmoradi et al., 2021). Ultimately, CBCT based on Heimberg's model can positively impact distressed women's sexual schemas by identifying and altering negative schemas, enhancing effective communication, managing stress, developing problem-solving skills, and changing negative behaviors, thus not only improving sexual relations but also leading to greater emotional and psychological satisfaction.

The results also demonstrated that CBCT is effective in enhancing sexual satisfaction among distressed women, consistent with findings from Rodríguez-Gonzalez et al. (2022). This finding suggests that CBCT primarily helps couples learn to express their emotions more effectively and engage more in reciprocal and mutual interactions. It assists women in identifying negative and inaccurate beliefs that may impact their sexual satisfaction (Rodríguez-Gonzalez et al., 2022). Through cognitive-behavioral techniques, women can challenge these beliefs and replace them with more positive thoughts (Bodenmann et al., 2020). This therapy aids couples in identifying negative or restrictive behaviors that may affect sexual satisfaction and encourages a focus on positive behaviors and creating positive experiences, thus increasing sexual satisfaction. In the CBCT intervention process, couples focus on needs and emotions, express unmet desires, and address issues arising from negative interaction cycles, reconstructing these cycles (Najafi et al., 2015). Empathy, reinterpretation of special situations, acceptance of the reality of stressful situations, and conversation are all factors that improve marital sexual satisfaction, all of which are addressed in CBCT. Additionally, CBCT provides couples with the opportunity to interact and learn ways to overcome crises, enabling them to discover potential solutions. This growth in interpersonal skills enhances compatibility and improves the couple's sexual relationship (Fathi et al., 2022), ultimately increasing sexual satisfaction. CBCT based on Heimberg's model, through identifying and altering negative beliefs, strengthening emotional communication, managing stress, developing problem-solving skills, modifying negative behaviors, and teaching sexual techniques, can effectively increase sexual satisfaction in distressed women. This process not only improves sexual relationships but also leads to an overall increase in marital satisfaction.

Given that the findings of this study indicate that CBCT affects sexual schemas and sexual satisfaction in women experiencing marital conflict, it is recommended that this therapy be considered in counseling and psychology clinics

as an intervention to improve sexual schemas and enhance sexual satisfaction.

## 5. Limitations & Suggestions

The limitations of this study included the following: Social beliefs about sexual matters are often negative and perceived as taboo by most individuals, so only female patients were included in sampling and therapy sessions, limiting the generalizability of the results to men with marital conflicts. Furthermore, there was demographic variation due to initial differences among participants. The study was conducted exclusively in Karaj, so generalization of the results should be done cautiously. Therefore, future studies are recommended to include larger samples across different cities and control for initial individual differences. Future research should also compare the effectiveness of CBCT with other therapeutic approaches. Practically, given that the present study shows CBCT's impact on sexual schemas and sexual satisfaction among women with marital conflicts, it is suggested that counselors and psychologists use CBCT when working with women suffering from self-sexual schema disorders and low sexual satisfaction.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Each participant received an informed consent form to understand the study's objectives. Ethical guidelines, including the privacy of participants, accuracy in citation, adherence to ethical standards in data collection, confidentiality, and unbiased data analysis, were observed. This study received ethical approval from the Ethics Committee of Islamic Azad University, Arak Branch, with code IR.IAU.ARAK.REC.1402.116.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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## Authors' Contributions

All authors equally contributed in this article.

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