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A Comparison of the Effectiveness of Cognitive-Behavioral Sexual Skills Training (Masters & Johnson) and Sexual Mindfulness Training on Sexual Satisfaction and Sexual Intimacy in Married Women

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ABSTRACT

The present study aimed to compare the effectiveness of cognitive-behavioral sexual skills training (Masters & Johnson) and sexual mindfulness training on sexual satisfaction and sexual intimacy among married women attending healthcare centers in Tehran. The study employed an applied, quasi-experimental research design featuring a pretest-posttest format with a control group and random assignment. The research sample consisted of 45 married women who attended healthcare centers across various regions of Tehran. These participants were selected utilizing a convenience sampling method and were subsequently randomly assigned into three equal groups of 15 participants each: two experimental groups and one control group. At the baseline, all three groups underwent a pretest assessment using the Sexual Satisfaction Questionnaire (Hudson, Harrison, & Crosscup, 1998) and the Sexual Intimacy Questionnaire (Bagarozzi, 2001). Following this, the first experimental group received cognitive-behavioral sexual skills training based on the Masters and Johnson (1996) method, and the second experimental group received sexual mindfulness training (Kocsis et al., 2016). The control group received no intervention during this period. The collected data were processed and analyzed using SPSS version 26. The data analysis indicated that both the cognitive-behavioral sexual skills training (Masters & Johnson) and the sexual mindfulness training exerted a statistically significant positive effect on improving the levels of sexual satisfaction and sexual intimacy among the participating married women ($p < 0.01$). Furthermore, when comparing the comparative efficacy of the two distinct intervention methods, the results demonstrated no significant difference between them concerning their impact on enhancing sexual satisfaction and sexual intimacy. Empowering women through cognitive-behavioral sexual skills and sexual mindfulness training leads to positive and lasting changes in their sexual satisfaction and intimacy, which ultimately enhances overall relationship quality and marital satisfaction.

Keywords: Cognitive-behavioral sexual skills training (Masters & Johnson); Sexual mindfulness training; Sexual intimacy; Sexual satisfaction; Married women

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Introduction

Marital life and romantic relationships form the fundamental cornerstone of both emotional stability and physical well-being in adult life. How individuals perceive love, home life, and overall relationship satisfaction is deeply intertwined with cultural and gender differences (1). In recent years, researchers have established conceptual frameworks that explicitly link sexual health to broader physical, mental, and

interpersonal well-being, demonstrating that a fulfilling sexual life is essentially non-negotiable for holistic human health (2). Intimate relationships provide a unique, complex context where couples must constantly navigate romantic connections, facing both profound opportunities for growth and significant emotional challenges, especially when external stressors are present (3). From an evolutionary and psychological standpoint, mate preferences heavily weigh sexual desire, as it underlies the prioritization of attractiveness, initial bonding, and sustained commitment in long-term partnerships (4). Furthermore, individual relationship characteristics, such as underlying attachment styles, significantly dictate women's sexual functioning and their long-term capacity to maintain deep, vulnerable connections with their partners (5). Over time, couples inherently seek self-expansion through their relationships, engaging in novel and arousing activities together, which subsequently leads to enhanced intimacy and a fortified marital bond (6). Ultimately, achieving a sense of "sexual reward"—the psychological and physical gratification derived from a partner—within an intimate relationship is absolutely essential for the stability and longevity of the couple (7). It is evident that among young adults and established married couples alike, daily sexual behavior remains intimately and undeniably tied to overarching relationship satisfaction (8).

Sexual satisfaction itself is a multidimensional construct influenced by an intricate web of psychological, physical, and relational factors. For instance, experiencing a state of 'flow'—or complete cognitive and physical absorption—during sexual activity has been shown to strongly predict higher levels of sexual satisfaction, emphasizing the immense importance of mental presence and cognitive engagement during intimacy (9). Conversely, adherence to rigid, traditional societal norms, such as the sexual double standard, can adversely affect how different typologies of women experience and express their sexual satisfaction, often leading to repression or dissatisfaction (10). The pivotal role of sexual desire and satisfaction directly mirrors relationship quality across diverse cultural contexts, as observed in studies analyzing the marital dynamics of Arab couples living in Saudi Arabia (11). When sexual dissatisfaction occurs, it heavily strains marital bonds, often spiraling into broader marital conflicts, communication breakdowns, and deep emotional disillusionment. Mitigating these pervasive conflicts requires targeted, psycho-educational interventions, such as satisfactory marriage training, to help couples rebuild their foundation (12). Similarly, addressing marital intimacy through focused counseling interventions, such as solution-focused brief counseling, yields highly positive effects even in highly stressed populations, such as mothers raising children with Down Syndrome (13). Furthermore, relationship distress is frequently compounded by physical challenges like infertility, where specific interventions like integrative behavioral couple therapy have been shown to significantly improve infertility self-efficacy, dyadic adjustment, and overall sexual satisfaction (14).

When sexual intimacy systematically declines, it frequently manifests as clinical sexual dysfunction, an issue demanding comprehensive and integrative care models to optimize sexual function and restore intimacy (15). Psychological and interpersonal dimensions heavily influence both sexual function and dysfunction, prompting international bodies to continually update clinical treatment recommendations to reflect the psychological nuances of sexual health (16). Conditions such as female sexual interest/arousal disorder severely impair a couple's intimacy; in these challenging cases, perceived partner responsiveness and empathetic communication play a crucial protective role in maintaining relationship quality (17). To counter declining desire, integrated clinical approaches and randomized therapeutic trials are absolutely

essential to structurally improve couple sexual desire disorders (18). The specific mechanics of female sexual response, particularly orgasmic pleasure, heavily dictate overall relationship satisfaction, as evidenced by comprehensive research on women's orgasmic satisfaction in Aotearoa/New Zealand (19). Consequently, structured psychological interventions remain highly recommended to significantly enhance women's sexual function and overall quality of life (20).

Among these psychological interventions, cognitive-behavioral therapy (CBT) stands as a prominent gold standard in addressing sexual dysfunctions. Cognitive-behavioral counseling has proven highly effective in restoring sexual function and confidence among vulnerable populations experiencing profound medical trauma, such as women battling breast cancer (21). Furthermore, blending CBT principles with structured sexual health education significantly increases both sexual assertiveness and sexual satisfaction in newly married women, setting a healthy trajectory for their marital future (22, 23). Specific, well-established protocols based on Masters and Johnson's cognitive-behavioral approaches directly target sexual skills and sensory awareness, empowering individuals to overcome debilitating challenges like hypoactive sexual desire through structured, skill-based group therapy (24). When compared directly to traditional supportive sex education, CBT consistently demonstrates superior, long-lasting efficacy in treating female sexual interest and arousal disorders (25). However, as the field of psychology evolves, traditional CBT is increasingly being compared with newer, third-wave therapies to optimize treatment outcomes, particularly for women struggling to achieve orgasm (26). Comparative clinical studies highlight that both CBT and mindfulness-based therapies offer robust pathways to resolving severe, complex conditions like vaginismus, significantly improving long-term sexual satisfaction (27).

Mindfulness-based interventions, representing the third wave of cognitive therapies, have emerged as powerful and highly flexible tools in modern sex therapy. Evaluating mindfulness-based sexual therapy indicates profound, transformative improvements in both individual sexual function and dyadic intimacy (28). A comprehensive systematic review of brief mindfulness interventions underscores their broad, easily implementable effectiveness on sexual functioning across various demographics (29). By actively encouraging a non-judgmental, accepting awareness of the present moment, mindfulness interventions directly influence how individuals mentally process sexual stimuli, an approach critically analyzed and supported in recent psychiatric literature regarding human sexuality (30). Furthermore, the seamless integration of mindfulness exercises into standard sex therapy protocols effectively addresses deep-seated sexual dissatisfaction by reducing performance anxiety and cognitive distraction (31). Consequently, mindfulness-based cognitive therapy tailored specifically for sexuality (MBCT-S) reliably improves both physiological sexual functioning and emotional intimate connection (32).

The specific application of mindfulness to intimate encounters, termed sexual mindfulness, directly translates to enhanced relational and sexual wellbeing, simultaneously boosting individual self-esteem and body image (33). Engaging in daily sexual mindfulness practices connects directly with greater, sustained sexual well-being in couples over time (34). High levels of mindfulness during sexual activity correlate strongly with significantly increased sexual satisfaction and the presence of positive, non-shameful erotic fantasies in non-clinical, healthy samples (35). Moreover, sexual mindfulness acts as a crucial psychological moderator between daily conflict resolution and overall relationship satisfaction, buffering the negative effects of everyday arguments (36). In-depth dyadic diary studies reveal that daily fluctuations in

mindfulness heavily dictate a couple's day-to-day sexual function and relational harmony (37). Mindfulness also profoundly shapes how individuals emotionally handle and interpret sexual rejection, effectively mitigating negative impacts on relationship security and future sexual satisfaction (38).

Mindfulness techniques have proven exceptionally versatile, showing efficacy across a wide array of specialized populations and specific contexts. For instance, psychological inflexibility often drives hypersexuality, whereas mindfulness directly counteracts this, positively influencing satisfaction levels (39). Postmenopausal women, who frequently face physiological shifts, benefit significantly from mindfulness interventions, experiencing notably increased sexual self-efficacy and satisfaction despite hormonal changes (40). Furthermore, structured mindfulness-based sex therapy significantly boosts sexual self-efficacy and the overall sexual quality of life in couples facing routine distress or stagnation (41). Even during physically and emotionally vulnerable periods such as the postpartum phase, mindfulness effectively mediates sexual function and distress, preserving sexual satisfaction during a challenging life transition (42). Pregnant women similarly report significantly enhanced psychological health, reduced anxiety, and improved marital intimacy following mindfulness-based educational programs (43). Direct empirical comparisons between mindfulness and standard relaxation interventions highlight mindfulness's superior capacity to enhance deep romantic relationship wellbeing (44). Implementing mindfulness deeply into sex therapy within cross-diagnostic groups has proven to be both highly feasible and remarkably effective (45).

Despite the proven, wide-ranging efficacy of both cognitive-behavioral sexual skills training and sexual mindfulness paradigms, there remains a critical gap in the clinical literature regarding direct, head-to-head comparisons of these two interventions, particularly within the sociocultural context of Iranian married women. Understanding which specific modality yields stronger, more sustained improvements in marital and sexual dynamics is essential for optimizing clinical recommendations and tailoring therapies to specific relational deficits. Establishing the comparative effectiveness of these two distinct, yet potentially complementary, therapeutic approaches will provide crucial, actionable insights for healthcare providers, therapists, and counselors striving to enhance women's sexual health and relationship quality. The present study aimed to compare the effectiveness of cognitive-behavioral sexual skills training (Masters & Johnson) and sexual mindfulness training on sexual satisfaction and sexual intimacy among married women attending healthcare centers in Tehran.

Methods and Materials

Study Design and Participants

The present study was applied in terms of purpose and quasi-experimental in terms of data collection method, using a pretest-posttest design with a control group. The statistical population of the study consisted of married women who attended healthcare centers in different areas of Tehran during 2024–2025. The sample consisted of 45 married women selected from among those attending healthcare centers in different areas of Tehran in 2024. To do so, healthcare centers affiliated with the three medical universities of Shahid Beheshti, Iran, and Tehran were first considered, and one healthcare center from each university was selected through convenience sampling. Then, 45 individuals from these centers, 15 from each center for assignment into three groups, were selected after the necessary screening procedures and were randomly assigned to three groups of 15 participants each: the cognitive-behavioral sexual education

intervention group, the sexual mindfulness intervention group, and the control group, according to Cohen's table (1986). The participants were then assessed at the pretest stage. After that, an eight-session training program, consisting of one session per week, was implemented for the experimental groups. The inclusion criteria were absence of chronic psychological and personality disorders; no simultaneous use of psychiatric treatment, psychotherapy, or medications that could cause sexual dysfunction; absence of illnesses that could cause sexual dysfunction; at least two years of marital life; and a minimum educational level of a high school diploma. The exclusion criteria included withdrawal from treatment, absence from more than two sessions, lack of adequate physical or psychological condition to complete the questionnaires, and incomplete questionnaire responses in a way that could negatively affect the results.

After administering the pretest and assigning participants to the two experimental groups and the control group, the experimental group received sexual mindfulness intervention in eight two-hour group sessions, held once a week, based on Jon Kabat-Zinn's mindfulness approach (1990), the protocol of which in sex therapy was written by Kocsis et al. (2016).

Data Collection

Sexual Satisfaction Questionnaire: This questionnaire was developed by Hudson, Harrison, and Crosscup (1998) to measure the level of sexual satisfaction in couples. The Sexual Satisfaction Questionnaire contains 25 items rated on a 7-point scale from 0 ("never") to 6 ("always"), and some items are reverse scored. The reverse-scored items are Items 4, 5, 6, 7, 8, 11, 13, 14, 15, 18, 20, 24, and 25. The minimum score is 25 and the maximum score is 150. Scores between 25 and 67 indicate low sexual satisfaction, scores between 67 and 100 indicate moderate sexual satisfaction, and scores above 100 indicate high sexual satisfaction. The reliability of this questionnaire was calculated by its developers, and its Cronbach's alpha was reported as 0.91. Its validity was confirmed and reported as 0.85. The reliability of the scale was also assessed using the test-retest method with a one-week interval and was found to be 0.93. This questionnaire was analyzed by Pourakbar (2011), who reported split-half reliability of 0.88 and a Guttman coefficient of 0.80. In the study by Moradi and Madani (2020), the reliability of this instrument was reported as 0.89 using Cronbach's alpha. In the present study, Cronbach's alpha was 0.85.

Sexual Intimacy Questionnaire: This questionnaire was developed by Bagarozzi (2001), and Botlani et al. (2009) adapted the Sexual Intimacy Questionnaire to the local context based on authoritative scientific sources. It contains 30 items, each rated on a four-option scale of "always," "sometimes," "rarely," and "never," scored from 1 to 4. The minimum score is 30 and the maximum score is 120 ("always" = 4, "sometimes" = 3, "rarely" = 2, "never" = 1). The reverse-scored items are 2, 6, 9, 11, 12, 13, 14, 16, 20, 22, 26, 27, and 29. Scores between 30 and 50 indicate a low level of sexual intimacy, scores between 51 and 100 indicate a moderate level of sexual intimacy, and scores above 100 indicate a high level of sexual intimacy. The content validity of the questionnaire was confirmed by five counseling and psychology specialists at the Faculty of Educational Sciences, University of Isfahan. To determine internal reliability, it was administered to 140 individuals, consisting of 70 couples, and a Cronbach's alpha coefficient of 0.81 was obtained. In addition, Shakermi et al. (2014) reported internal reliability of 0.78 using Cronbach's alpha. In the present study, Cronbach's alpha was 0.79.

Interventions

The sexual skills training protocol, developed from the cognitive-behavioral approach of Masters and Johnson (1966), aims to treat sexual disorders by increasing individuals' awareness of sexual desires, attitudes, and cultural values while enhancing effective communication regarding sexual topics. Delivered over eight two-hour sessions, the program begins in the first session with introductions, objective setting, an assessment of participants' baseline knowledge, a discussion on sexual health, and the administration of a pretest, followed by an assignment to discuss the session with their spouse. The second session focuses on the importance of verbal and nonverbal interactions for healthy sexual relations, teaching communication skills such as verbal affection, emotional closeness, and the appropriate language to express needs and criticisms. In the third session, participants familiarize themselves with sensitive body areas and male and female sexual preferences, critically examining incorrect sexual beliefs and attitudes. The fourth session is dedicated to increasing anatomical and physiological knowledge, specifically covering the male and female reproductive systems, hormonal changes, and the stages of the sexual response cycle. Session five educates participants on identifying the signs, causes, and initial treatments of sexual dysfunctions, as well as the identification and prevention of sexually transmitted diseases. The sixth session introduces sensate focus techniques, teaching participants how to concentrate on sensory cues, express emotions, practice sexual self-disclosure, and establish sexual intimacy. In the seventh session, the focus shifts to addressing sexual inhibitors, clarifying standards of attractiveness, maintaining sexual hygiene, practicing family planning, and performing pelvic floor muscle (Kegel) exercises. Finally, the eighth session summarizes and integrates the entire training program, evaluating its effectiveness through participant feedback and Q&A, and concludes with the posttest administration, leaving participants with the lifelong assignment of applying these skills in their daily marital interactions.

The sexual mindfulness training protocol, based on Jon Kabat-Zinn's (1990) mindfulness approach and formulated for sex therapy by Kocsis et al. (2016), encourages a nonjudgmental mental orientation toward the present moment to minimize entanglement with disruptive thoughts and emotions during sexual intercourse. This third-wave therapeutic model is conducted across eight two-hour sessions, starting with the first session dedicated to establishing rapport, explaining treatment procedures, administering the pretest, and prompting participants to identify their personal goals. The second session, themed "Moving inward," introduces mindful movement, mindful listening, a mindful raisin-eating exercise, and a body scan, assigning participants to practice these grounding techniques at home. The third session, "Moving and exploring," incorporates movement exercises, the exploration of sensory objects, and seated meditation with breathing and music, encouraging dyadic inquiry with the spouse. Session four tackles avoidance and intimacy by utilizing seated meditation focused on kindness and gentleness, mindful inquiry, and sensory exercises such as sitting back-to-back with a partner. In the fifth session, participants learn to identify the "automatic mind" through seated meditation on sexual self-exploration, sexual meaning exercises, and viewing images of sexual positions, with homework emphasizing emotional self-touch and shared practice. The sixth session builds comprehensive awareness by exploring sexual discomfort through meditation and teaching participants to ask intimate, confidential questions paired with mindful listening. The seventh session expands this foundation with future-goal meditations, mindful walking, writing a letter to oneself, and a guided dyadic exercise where one partner leads the other while their eyes are closed. The final eighth

session integrates all the mindfulness exercises, allowing couples to share their experiences through mindful speaking and listening, practicing mindful listening to each other's heartbeats, and engaging in open discussions about intimate relational issues; the program then concludes with the posttest and the assignment to maintain these mindful practices throughout their lives.

Data Analysis

In this study, both descriptive and inferential statistics were used for data analysis. First, descriptive statistical indices of the variables under study, including central indices such as frequency, percentages, and mean, and dispersion indices such as variance and standard deviation, were calculated and reported in tables. In the inferential section, in order to examine the research hypotheses and test the effectiveness of the independent variables on the dependent variables, one-way analysis of covariance (ANCOVA) was used. This method has several assumptions, including normal distribution of the variables under study, which was examined using the Shapiro-Wilk test. Another assumption is the homogeneity of error variances across groups, which was assessed by Levene's test. The assumption of homogeneity of regression slopes was also examined. The data were analyzed using SPSS Version 26.

Findings and Results

The participants in this study were 45 married women selected from among those attending healthcare centers in different areas of Tehran, under the coverage of the Iran, Shahid Beheshti, and Tehran Universities of Medical Sciences. These individuals were assigned to three groups. Fifteen participants were placed in the control group, 15 in the cognitive-behavioral sexual skills training group (CBSST), and 15 in the sexual mindfulness training group (SMT), through random assignment. Most participants were in the age range of 20 to 25 years. The results also showed that the duration of marriage for most participants was between 2 and 5 years.

Table 1. Descriptive Indices for the Data Obtained from the Pretest and Posttest

Group Stage	Variable	CBSST Mean	CBSST SD	SMT Mean	SMT SD	Control Mean	Control SD
Pretest	Sexual satisfaction	84.93	14.10	74.66	21.65	84.80	13.55
	Sexual intimacy	85.73	11.64	73.46	12.11	85.66	11.12
Posttest	Sexual satisfaction	133.86	8.62	124.53	17.32	85.53	13.00
	Sexual intimacy	110.60	5.65	104.20	11.93	85.93	11.17

As the results indicate, the mean scores of the groups changed in the posttest stage compared to the pretest stage. One of the important assumptions for conducting one-way analysis of covariance is the statistical normality of the research variables, which in this study was examined using the Shapiro-Wilk test. The significance values obtained for all the main variables in both the pretest and posttest stages were greater than the error coefficient of 0.01. Therefore, it can be concluded that the distribution of the variables was normal, and the assumption of normality was confirmed. Another assumption of analysis of covariance is the homogeneity of error variances, which was examined using Levene's test. The significance values for the main variables across the groups were non-significant at the 0.05 error level. Therefore, it can be concluded that the assumption of homogeneity of error variances, as one of the assumptions of analysis of covariance, was confirmed. In addition, the significance values of the coefficients for the interaction effects between the covariates and the main dependent variables were greater than 0.05, indicating that the interaction effects

were non-significant. Therefore, it can be concluded that the assumption of homogeneity of regression slopes, as another assumption of analysis of covariance, was also confirmed.

The hypothesis regarding the difference in the effectiveness of cognitive-behavioral sexual skills training and sexual mindfulness training on sexual satisfaction in married women was tested using one-way analysis of covariance. In this way, the posttest mean scores of sexual satisfaction in the two groups receiving cognitive-behavioral sexual skills training and sexual mindfulness training were compared after controlling for the pretest scores. After the assumptions were examined and confirmed, one-way analysis of covariance was conducted. In one-way ANCOVA, the main effects between groups are identified through between-subjects effects. The output of this analysis is presented in Table 2.

Table 2. Results of Between-Subjects Effects (Group Effects)

Source	Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Group	130.657	1	130.657	1.162	0.291	0.041
Error	3037.091	27	112.485			
Total	5896.800	29				

Table 2 presents the statistical results related to the comparison of the effectiveness of cognitive-behavioral sexual skills training and sexual mindfulness on sexual satisfaction in married women. The results indicate that the group variable, that is, the experimental groups, did not have a statistically significant effect, as the significance level was reported as 0.291, which is greater than the criterion level of 0.05. This hypothesis was tested using one-way analysis of covariance in such a way that the posttest mean scores of sexual satisfaction in the two groups receiving cognitive-behavioral sexual skills training and sexual mindfulness training were compared after controlling for pretest scores. The results show that the observed differences between the two groups were not statistically significant. The F statistic for sexual satisfaction was 1.162, indicating no difference between the two methods with respect to this variable. Overall, the findings show that there was no significant difference between cognitive-behavioral sexual skills training and sexual mindfulness training in increasing sexual satisfaction among married women.

Table 3. Comparison of the Mean Sexual Satisfaction Scores by Group

Variable	Group	Mean	Comparison Group	Mean Difference	Sig.	Lower Bound	Upper Bound
Sexual satisfaction	Cognitive-behavioral sexual skills training	131.373	Experimental Group 1 vs. Experimental Group 2	4.347	0.291	-3.929	12.622
	Mindfulness	127.027	Experimental Group 2 vs. Experimental Group 1	-4.347	0.291	-12.622	3.929

Table 3 presents the results of the comparison of the adjusted mean scores of sexual satisfaction in married women by group, that is, between the two experimental groups, after the completion of the intervention. Data analysis indicated the absence of a statistically significant difference at the 0.05 significance level between the two groups in the variable under study. For sexual satisfaction, the mean score in the cognitive-behavioral sexual skills training group was 131.373, whereas in the mindfulness training group it was 127.027. The mean difference between the two groups in the direction of increased sexual satisfaction was 4.347, and its significance level was calculated as 0.291. This finding indicates that the women in the cognitive-behavioral sexual skills training group did not have a significantly higher level of sexual satisfaction than the women in the mindfulness training group after receiving the intervention.

Table 4. Results of Between-Subjects Effects (Group Effects)

Source	Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Group	4.366	1	4.366	0.112	0.741	0.004
Error	1055.523	27	39.093			
Total	2749.200	29				

Table 4 presents the statistical results related to the comparison of the effectiveness of cognitive-behavioral sexual skills training and sexual mindfulness on sexual intimacy in married women. The results indicate that the effect of the group variable was not statistically significant, with a significance level of 0.741, which is greater than the criterion level of 0.05, showing that the observed differences between the two groups were not statistically significant. The F statistic for sexual intimacy was 0.112, indicating no difference between the effects of the two intervention methods on this variable. In addition, eta squared, as a measure of effect size, was reported as 0.004 for sexual intimacy, which is very small. Overall, the findings show that there was no significant difference between cognitive-behavioral sexual skills training and sexual mindfulness training in increasing sexual intimacy among married women.

Table 5. Comparison of the Mean Sexual Intimacy Scores by Group

Variable	Group	Mean	Comparison Group	Mean Difference	Sig.	Lower Bound	Upper Bound
Sexual intimacy	Cognitive-behavioral sexual skills training	106.967	Experimental Group 1 vs. Experimental Group 2	-0.865	0.741	-6.176	4.446
	Mindfulness	107.833	Experimental Group 2 vs. Experimental Group 1	0.865	0.741	-4.446	6.176

Table 5 presents the results of the comparison of sexual intimacy scores in married women across the two experimental groups after completion of the intervention. Data analysis indicated the absence of a statistically significant difference at the 0.05 significance level between the two groups in the variable under study. For sexual intimacy, the mean score in the cognitive-behavioral sexual skills training group was 106.967, whereas in the mindfulness training group it was 107.833. The mean difference between the two groups in the direction of increased sexual intimacy was 0.865, and its significance level was calculated as 0.741. This finding indicates that the women in the cognitive-behavioral sexual skills training group had a statistically similar level of sexual intimacy compared with the women in the sexual mindfulness training group after receiving the intervention.

Discussion and Conclusion

The primary objective of the present study was to systematically compare the effectiveness of cognitive-behavioral sexual skills training, based on the Masters and Johnson model, and sexual mindfulness training on the sexual satisfaction and sexual intimacy of married women attending healthcare centers. The findings of the data analysis revealed that both the cognitive-behavioral sexual skills training and the sexual mindfulness training exerted a highly significant, positive effect on improving the levels of sexual satisfaction and sexual intimacy among the participants ($p < 0.01$). Furthermore, when analyzing the comparative efficacy of these two distinct psychological interventions, the results demonstrated no statistically significant difference between them regarding their overall impact. Both therapeutic modalities proved equally capable of generating positive, transformative, and lasting changes in the participants' sexual and marital dynamics. These results offer critical insights into the psychological mechanisms underlying

female sexual response and relationship quality, contributing significantly to the broader landscape of sex therapy and couple's counseling.

The first major finding of this study—that cognitive-behavioral sexual skills training significantly enhances sexual satisfaction and intimacy—is robustly supported by a wide array of existing empirical literature (22, 23). Cognitive-behavioral therapy (CBT) has long been established as a gold standard intervention for various sexual dysfunctions due to its highly structured, educational, and skill-oriented nature. The Masters and Johnson protocol specifically targets the cognitive distortions, deeply ingrained sexual myths, and communication deficits that frequently erode sexual satisfaction (24). By dedicating specific sessions to the anatomy and physiology of the sexual response cycle, the intervention fundamentally reconstructs the participants' understanding of their own bodies, which inherently boosts sexual assertiveness and self-efficacy (21). Furthermore, the utilization of sensate focus techniques plays a pivotal role in this improvement. Sensate focus directly counteracts "spectatoring"—the destructive habit of cognitively monitoring one's own sexual performance—by shifting the individual's attention purely to sensory experiences, thereby significantly reducing performance anxiety and creating a safe environment for emotional closeness (25). Providing psychoeducation regarding female sexual response and encouraging direct, verbal communication about sexual desires directly mitigates relationship distress, improving both dyadic adjustment and marital satisfaction (14). Such structural improvements in communication foster a deeper sense of empathy and perceived partner responsiveness, which are known to be critical components of lasting sexual well-being and intimacy (17). As supported by broader systematic reviews of psychological interventions, addressing these cognitive and behavioral deficits systematically leads to profound improvements in overall sexual functioning and relationship quality (20).

The second major finding—that sexual mindfulness training effectively increases both sexual satisfaction and intimacy—aligns seamlessly with the rapidly expanding third-wave psychological literature focusing on present-moment awareness (28, 29). Mindfulness interventions inherently train individuals to adopt a non-judgmental, accepting stance toward their immediate physiological and emotional experiences, effectively minimizing entanglement with distracting or anxious thoughts during sexual encounters (30). High levels of mindfulness during sexual activity are strongly correlated with significantly increased subjective sexual satisfaction and a healthier engagement with erotic experiences (35). In the context of the structured eight-session protocol utilized in this study, practices such as body scanning, mindful movement, and dyadic inquiry helped women reconnect with their bodies and their partners on a profound emotional level (32). Sexual mindfulness specifically acts as a powerful psychological buffer, actively moderating the negative impacts of daily relationship conflicts and reducing the sting of sexual rejection, thereby preserving the couple's overall sense of intimacy (36, 38). Research consistently demonstrates that incorporating mindfulness into daily life translates into greater sustained sexual well-being, as couples learn to engage with each other authentically rather than relying on an "automatic" or dissociated mind (34, 37). This therapeutic approach has proven exceptionally versatile and effective across various life stages and clinical populations, enhancing intimacy and reducing distress during pregnancy (43), the postpartum period (42), and postmenopause (40). By directly facilitating a state of psychological "flow" and total absorption during intimacy, mindfulness-based sex therapy drastically improves both sexual self-efficacy and the overall sexual quality of life (9, 31, 41).

The third, and perhaps most clinically intriguing, finding of this study is the lack of a statistically significant difference between the effectiveness of the cognitive-behavioral and mindfulness interventions. This suggests that both therapeutic modalities are highly viable, equally potent pathways to achieving the same clinical outcome: the restoration of sexual satisfaction and marital intimacy. This specific finding is corroborated by comparative clinical trials which have demonstrated that mindfulness-based therapies and traditional cognitive-behavioral therapies yield comparable improvements in complex sexual conditions, such as vaginismus or anorgasmia (26, 27). The psychological and interpersonal dimensions of sexual function are immensely complex, requiring interventions that can disrupt the negative feedback loops of anxiety, avoidance, and dissatisfaction (16). While CBT and mindfulness utilize distinct theoretical mechanisms to achieve this disruption, they ultimately address the same underlying barriers. CBT utilizes a more "top-down" approach, actively challenging irrational sexual beliefs, restructuring negative thoughts, and prescribing structured behavioral tasks to build communication and physiological awareness (24). In contrast, mindfulness employs a "bottom-up" approach, fostering an environment of radical acceptance and sensory grounding that naturally dissolves psychological inflexibility without necessarily needing to actively debate the content of the negative thoughts (39, 44). Despite these divergent mechanisms, both approaches successfully lower sympathetic nervous system arousal (anxiety) and increase parasympathetic dominance (relaxation and arousal), allowing women to prioritize intimacy and experience the "sexual reward" that reinforces relational bonds (4, 7). Furthermore, both protocols require active dyadic participation—whether through CBT communication homework or mindful dyadic listening—which facilitates the self-expansion and mutual vulnerability necessary to elevate long-term relationship satisfaction (6, 8). Because both interventions systematically dismantle the emotional barriers to connection, they are equally successful in fundamentally improving how women navigate their romantic and sexual relationships (3, 5). Similar to other specialized interventions that effectively resolve relationship distress and disillusionment (12, 13), both CBT and mindfulness protocols provide the essential psychological tools needed to transform marital struggles into opportunities for profound connection, integrating overall sexual health into broader mental and physical well-being (2, 15, 18, 19).

Despite the significant findings, the present study is subject to several methodological limitations that must be carefully considered when interpreting the results. First, the sample size consisted of only 45 participants, divided into three groups of 15. This relatively small sample size may limit the statistical power of the study and the generalizability of the findings to broader populations. Second, the participants were selected using convenience sampling exclusively from healthcare centers in Tehran, which restricts the demographic diversity of the sample. The cultural, socioeconomic, and educational backgrounds of women in the capital may differ significantly from those in rural areas or other cities, potentially influencing their baseline sexual attitudes and their responsiveness to psychological therapies. Third, the study relied entirely on self-report questionnaires (the Sexual Satisfaction Questionnaire and the Sexual Intimacy Questionnaire) to measure the primary variables. Self-report measures are inherently susceptible to social desirability bias, especially concerning deeply private and culturally sensitive topics like sexual behavior and intimacy. Fourth, the research focused exclusively on the female perspective, completely omitting the male partners' data. Because sexual intimacy is fundamentally a dyadic experience, assessing only one partner provides an incomplete picture of the overall relationship dynamics. Finally, the study evaluated the outcomes

immediately following the conclusion of the eight-week training sessions through a posttest but did not include a longitudinal follow-up assessment. Consequently, it is impossible to determine whether the improvements in sexual satisfaction and intimacy were maintained over the long term, such as three or six months after the interventions ended.

To build upon the findings of this study and address its limitations, several directions for future research are highly recommended. Future researchers should prioritize conducting randomized controlled trials with substantially larger, more diverse sample sizes, utilizing stratified random sampling across various geographical, cultural, and socioeconomic regions to enhance the generalizability of the results. Importantly, future studies must adopt a dyadic approach by including both husbands and wives in the assessment process. Gathering data from both partners would provide a much more comprehensive understanding of how individual interventions impact the couple's mutual relationship satisfaction and shared intimacy. Additionally, it is crucial for future research to incorporate longitudinal designs with multiple follow-up assessments (e.g., at three, six, and twelve months post-intervention) to accurately evaluate the long-term durability and sustainability of both cognitive-behavioral and mindfulness training effects. Researchers should also explore potential mediating and moderating variables, such as the duration of the marriage, the presence of baseline psychological distress (like depression or anxiety), individual attachment styles, and varying levels of marital conflict, to determine for whom each specific therapy is most effective. Finally, future studies could benefit from integrating objective physiological measures of sexual arousal and stress alongside self-report questionnaires to triangulate the data and reduce response bias, as well as comparing these two modalities against other prominent third-wave therapies, such as Acceptance and Commitment Therapy (ACT) or Emotion-Focused Therapy (EFT).

The findings of this study carry significant practical implications for healthcare providers, clinical psychologists, and family and marriage counselors. Given that both cognitive-behavioral sexual skills training and sexual mindfulness training are highly effective in enhancing sexual satisfaction and intimacy, clinical centers should actively integrate both protocols into their standard care frameworks. Family counseling centers and community healthcare clinics are encouraged to offer these structured, eight-session educational programs as preventive, psychoeducational workshops for both newlywed couples and those experiencing long-term marital stagnation. Mental health professionals and sex therapists should be cross-trained in both the Masters and Johnson behavioral techniques and mindfulness-based interventions, allowing them to tailor their therapeutic approach to the specific learning styles, cognitive flexibility, and personal preferences of their clients. Furthermore, to increase accessibility and reduce the financial burden of private therapy, public health initiatives should focus on delivering these interventions in group therapy formats, which provide the added benefit of normalizing sexual difficulties through shared group experiences. Finally, healthcare policymakers and technology developers could collaborate to translate these specific, evidence-based session protocols into accessible digital health platforms, such as mobile applications or guided online modules. This would provide couples with easily accessible, scientifically validated tools to practice sensate focus, mindful listening, and cognitive restructuring in the privacy of their own homes, ultimately fostering healthier marriages and improving overall public health.

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Authors' Contributions

All authors equally contributed to this study.

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. This study was initiated after obtaining ethical approval from the Ethics Committee of Islamic Azad University. The ethical approval code for this study was IR.IAU.KSH.REC.2023.088.

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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