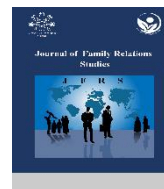




# Journal of Family Relations Studies

Journal home page: <http://jhfs.uma.ac.ir/>



## Research Paper

### The Effectiveness of Mindfulness-Based Couple Therapy on Sleep Quality and Rumination among Women with Marital burnout



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**Citation:** Hashim, M. & Soleimani, E. (2026). The Effectiveness of Mindfulness-Based Couple Therapy on Sleep Quality and Rumination among Women with Marital burnout. *Journal of Family Relations Studies*, 6(2): 8-17. <https://doi.org/10.22098/jfrs.2025.17538.1248>

[10.22098/jfrs.2025.17538.1248](https://doi.org/10.22098/jfrs.2025.17538.1248)

#### ARTICLE INFO:

**Received:** 2025/05/28

**Revised:** 2025/07/24

**Accepted:** 2025/08/27

**Available Online:** 2026/06/10

#### Key words:

Couple Therapy, Mindfulness, Marital Burnout, Sleep Quality, Rumination

#### ABSTRACT

**Objective:** The present study aimed to investigate the effectiveness of Cano's mindfulness-based couple therapy (2018) on sleep quality and rumination in women experiencing marital burnout.

**Methods:** This research employed an experimental pretest-posttest design with a control group. The statistical population included all women with divorce experience through the "Masir" system who visited counselling centres for psychological services from December 2023 to January 2024 in Urmia. The sample consisted of 40 participants selected based on convenience sampling. Data were collected using the *Pines Marital burnout Scale* (1996), the Pittsburgh Sleep Quality Index (PSQI) by Buysse et al. (1989), and the Ruminative Response Scale (RRS) by Nolen-Hoeksema and Morrow (1991). Cano's mindfulness-based couple therapy was conducted in a group format over six 60-minute sessions for three weeks (two sessions per week) at one of the counseling centers, while the control group received no intervention. Data analysis was performed using multivariate analysis of covariance (MANCOVA), in SPSS 22.

**Results:** The results indicated Cano's mindfulness-based couple therapy intervention led to an increase in the mean scores of the experimental group compared to the control group in sleep quality and their dimensions, except for medication use. Conversely, it resulted in a decrease in mean rumination scores and its dimensions among women experiencing Marital burnout seeking divorce ( $P \leq 0.001$ ).

**Conclusion:** The findings suggest that Cano's (2018) mindfulness-based couple therapy is an effective intervention for improving sleep quality and reducing rumination and their associated dimensions among women seeking divorce. Accordingly, mental health professionals, family counselors, and policymakers may consider integrating this therapeutic approach into preventive and supportive programs designed to strengthen marital relationships and mitigate factors associated with divorce.

## 1. Introduction

Marital burnout refers to a state of emotional, physical, and psychological exhaustion that resulting from persistent efforts to maintain a relationship that no longer provides satisfaction and meaning (Travers, 2023). It can

be described as a form of depression that specifically emerges due to problems and stressors related to marital relationships (Smith & Johnson, 2022; Javdan et al., 2023). This condition is primarily associated with

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negative feelings towards a partner, decreased sexual satisfaction, and lack of commitment to the relationship (Lee et al., 2023). Some factors associated with Marital burnout include lack of emotional communication, financial stress, and role imbalance within married life (Chen & Wang, 2023).

Studies have shown that women experiencing marital burnout often face specific sleep disorders, such as chronic insomnia, frequent awakenings at night, and reduced sleep depth (Brown & Davis, 2018). Sleep quality is defined as a multidimensional concept that includes factors such as sleep duration, sleep depth, frequent awakenings at night, and the feeling of being refreshed in the morning (Buysse, 2019). Medina et al. (2009) and Sabetroo et al. (2023) demonstrated that sleep disorders play a mediating role in the relationship between marital stress and depressive symptoms. Marital stress can lead to specific sleep disorders, which subsequently increase depression. Garcia and Martinez (2019) showed that women are significantly more sensitive than men to the effects of marital stress on sleep. Harvey (2002) proposed a cognitive model for insomnia, illustrating how life pressures, including marital tensions, can disrupt thought patterns and mental states before sleep, ultimately leading to decreased sleep quality. In another study, Karasek and Theorell (2006) investigated the effects of various stressors, including marital stress, on overall health and sleep quality. The results indicated that marital stress can directly and indirectly affect sleep quality. Therefore, since sleep quality plays a crucial role in individuals' physical and psychological health (Hirshkowitz et al., 2015; Cappuccio et al., 2011), and considering the association between marital burnout and sleep quality among women, addressing this factor and providing solutions to improve the sleep quality of these individuals is of great importance.

On the other hand, rumination is defined as a cognitive process in which an individual repeatedly and involuntarily thinks about focus on their thoughts and feelings related to various problems, particularly emotional and interpersonal issues (Nolen-Hoeksema & Watkins, 2011). The relationship between rumination and marital burnout is bidirectional, that is rumination can exacerbate marital burnout, and conversely, marital burnout can increase rumination (Joormann & Dkane, 2015). Rumination is strongly associated with psychological disorders such as depression, anxiety, and chronic stress. This process can create a negative cycle that exacerbates negative feelings and reduces the individual's self-efficacy rather than resolving the problem (Lyubomirsky & Tkach, 2004; Mikaeili et al., 2025).

The importance and role of rumination in marital burnout have been investigated and confirmed in various studies.

Wisco et al. (2019) showed that rumination can act as a common process contributing to marital burnout. Falahati and Mohammadi (2020) showed that dimensions of negative automatic thoughts can positively and significantly predict marital burnout. Because rumination can exacerbate negative emotional cycles and lead to the persistence or worsening of mental disorders (Keller et al., 2020; Mikaeili et al., 2023) and harm general health by being linked to cardiovascular disease, weakened immune system, gastrointestinal disorders, reduced sleep quality, and increased insomnia (Garland et al., 2022; Harvard Health Press, 2020), efforts to control and treat this factor are crucial.

Considering the relationship between rumination and sleep quality, with marital burnout is essential psychological treatment of rumination and sleep disorders in women experiencing marital burnout. Mindfulness-based intervention (MBIs) is a therapeutic and developmental approach designed based on mindfulness principles and practices. Mindfulness-based couple Therapy (MBCT) is a therapeutic approach that combines mindfulness principles with couple therapy methods (Carson & Carson, 2019). This type of therapy helps couples better face their emotional, psychological, and relational challenges using mindfulness exercises and improves their relationships (Kabat-Zinn, 2013; Carson & Carson, 2019). The primary goal of mindfulness-based couple therapy is for individuals to fully attend to the present, view their thoughts and feelings and those of their partner with neutrality (Wachs & Cordova, 2007), manage tensions and conflicts more effectively (Carson & Carson, 2019), and enhance the emotional and psychological connection between them (Barnes et al., 2007). Recently, Cano et al. (2018) introduced a new version of mindfulness-based couple therapy, which is the focus of this study. In this research, relaxation training and meditation, mental imagery of the couple, recalling shared past memories, forgotten occasions such as anniversaries, value orientation, psychological flexibility, commitment to a daily personal program, and problem-solving based on values and goals provide a way to enhance marital satisfaction and inner coherence (Cano et al., 2018). Yekta et al. (2022) showed that this approach can significantly impact marital satisfaction, reduce tension, and increase emotional connection between couples. Wachs and Cordova (2007) also found that this intervention helps couples better manage their emotions and those of their partners and move beyond their automatic reactive patterns. Studies (Song et al., 2022; Ding et al., 2020; Zhang et al., 2019; Fleury et al., 2016; Witkiewitz et al., 2018; Gottman & Declaire, 2019) have also confirmed the effectiveness of this psychological intervention on marital relationships and co-occurring problems.

Given the importance of marital burnout and its physical and psychological consequences on women's health, the need for effective strategies to manage and reduce these issues is of considerable importance. Mindfulness-based intervention, as a novel therapeutic method, has the potential to assist couples in managing stress, reducing rumination, improving sleep quality, and enhancing emotional connections (Carson & Carson, 2019; Wachs & Cordova, 2007). Additionally, various studies have shown that mindfulness-based couple therapy can significantly impact marital satisfaction, reduce tension, and resolve relational problems (Fleury et al., 2016; Witkiewitz et al., 2018). Accordingly, the present study aimed to investigate the effectiveness of mindfulness-based couple therapy on sleep quality and rumination in women experiencing marital burnout.

## 2. Materials and Methods

The present research method is applied in terms of purpose and quasi-experimental in terms of execution, utilizing a pretest - posttest design with a control group. The statistical population includes all women experiencing marital burnout who are seeking divorce between December 2024 and January 2025 in Urmia city. The sample of the present study consists of 40 individuals (20 individuals for each subgroup) selected from the statistical population using the convenience sampling and randomly assigned to two groups of 20: the experimental group and the control group. It is noteworthy that the sample size in experimental research is sufficient, with 15 individuals per group (Biyabangard, 2010).

**Inclusion Criteria:** The inclusion criteria for participants in the study are as follows: completion of the informed consent form for participation in the research, ability to read and write, female gender, Obtaining a score above 4 as the cut-off point on the Pines Marital Disgust Questionnaire (1996), seeking divorce through the "Masir" system, having children, not having consulted a psychologist or family counselor in the past year, and absence of acute and chronic psychological disorders (self-reported no medication use).

**Exclusion Criteria:** Participants were excluded from the study if they provided incomplete responses to the assessment instruments, participated simultaneously in other psychological or psychotherapeutic interventions during the study period, or withdrew from the study at any stage of the research process.

**Research Implementation Method:** After obtaining the necessary approval from the university, the researcher visited the West Azerbaijan Bar Association Center located on Shahid Beheshti Street and obtained a list of active counseling centers registered in the "Masir" system in Urmia. Following coordination with the

directors of these centers and an explanation of the study objectives, eligible participants were identified and recruited.

After the target population had been identified and the sample selected, participants were randomly assigned to either the experimental group or the control group. Prior to the intervention, all participants completed the study questionnaires as part of the pretest assessment.

The experimental group then received Cano's (2018) mindfulness-based couple therapy in a group format consisting of six 60-minute sessions delivered over a three-week period (two sessions per week). The control group did not receive any intervention during this period. Upon completion of the intervention, both groups completed the posttest assessment.

No participant attrition occurred during the study. This may be attributed to participants' need to obtain divorce-related certification through the "Masir" system, as well as their motivation to actively engage in the therapeutic process.

Data were analyzed using descriptive statistics (means and standard deviations) and inferential statistics, including multivariate analysis of covariance (MANCOVA). All analyses were conducted using SPSS version 22. Statistical significance was set at  $p < .05$ .

### Instruments

**Marital Burnout Questionnaire:** This questionnaire was developed by Pines (1996) and consists of 21 questions and has three components: emotional exhaustion (2, 3, 5, 9, 11, 13, 17), psychological exhaustion (6, 8, 12, 14, 15, 18, 19, 20), and physical exhaustion (4, 1, 7, 10, 16, and 21). It is scored on a 7-point scale. The upper limit of the score is 147, and the lower limit is 21. In interpreting the scores, a score greater than 5 indicates the need for immediate help, a score of 5 indicates the presence of a crisis, a score of 4 indicates a state of burnout, a score of 3 indicates the risk of burnout, and a score of 2 or less indicates a good relationship. The test-retest reliability coefficient of this questionnaire was 0.89 for one-month period, 0.76 for two-month period, and 0.66 for four-month period, and its Cronbach's alpha coefficient was reported to be between 0.91 and 0.93. Also, the scores of this questionnaire had a significant negative correlation with Enrich's marital satisfaction (Pines & Nunes, 2003). In the study of Saffarinia et al. (2022), the reliability coefficient using Cronbach's alpha method was 0.88 for the entire questionnaire and between 0.81 and 0.91 for the components. In this study, this tool was used to determine the statistical sample, so that participants had to obtain a mean score above 4 as a cut-off point.

**Pittsburgh Sleep Quality Index (PSQI):** Designed by Buysse et al. (1989), this index originally contains 9

questions, but question 5 comprises 10 sub-items, resulting in a total of 19 questions. It assesses overall sleep quality across 7 subscales, including subjective sleep quality (question 9), sleep duration (question 4), sleep onset latency (questions 2 and the first item of question 5), sleep adequacy (questions 1-3-4), sleep disturbances (items 2 to 10 of question 5), use of sleep medication (question 6), and daytime functional impairment (questions 7-8). Scoring is based on a 4-point Likert scale from 0 (very good) to 3 (very bad), with the average score for each subscale ranging from 0 to 3, and the total score for the index ranging from 0 to 21, where a total score of 5 or higher indicates poor sleep quality. Buysse et al. (1989) reported the validity of the index in clinical and non-clinical samples across different cultures as suitable, with reliability assessed using test-retest and Cronbach's alpha methods yielding coefficients of 0.79 and 0.83, respectively. In Iran, Mansouri et al. (2011) found the content validity of all items to be above 0.79, and the reliability of the Pittsburgh Sleep Quality Index was obtained with a Cronbach's alpha of 0.81 (as cited in Zarei & Hemmati, 2022). In this study, the reliability of the scale was also obtained with a Cronbach's alpha of 0.83.

**Ruminative Response Scale (RRS) by Nolen-Hoeksema and Morrow (1991):** This scale consists of 22 items and measures three subscales: brooding (items 7, 11, 12, 20, and 21), deep thinking (items 5, 10, 13, 15, and 16), and depression (items 1, 2, 3, 4, 6, 8, 9, 14, 17, 18, 19, and 22). Scoring is done on a 4-point Likert scale, where never scores 1, rarely scores 2, sometimes scores 3, and always scores 4. The score range is from

22 to 88, with higher scores associated with higher rumination. This scale was first translated and standardized in Iran by Yousefi (2004; as cited in Asadi et al., 2021), and its content validity has been confirmed, with Cronbach's alpha calculated in the range of 0.77 to 0.90 for reliability. Other studies have used Cronbach's alpha to assess reliability, yielding coefficients of 0.77 for ruminative responses and 0.68 for distracting responses (Mohammadkhani et al., 2017). Internationally, reliability assessments using Cronbach's alpha have reported coefficients ranging from 0.78 to 0.86 (Eisma et al., 2022). In the present study, Cronbach's alpha for this questionnaire was 0.69.

**Mindfulness-Based Couple Therapy Intervention by Cano:** This intervention was developed by Cano et al. (2018) at the University of Vienna in the USA. The mindfulness-based intervention helps couples practice meditation together, become aware of their minds and bodies, and improve their ability to listen empathically to one another's feelings and concerns. These exercises not only assist in their relaxation but also reduce conflicts arising from overcoming difficult situations (Cano et al., 2018). The mindfulness-based couple therapy was conducted in a group format over 6 sessions of 60 minutes each for 3 weeks (two sessions per week) at one of the counseling centers, while the control group received no intervention. This intervention also includes home-based couple exercises. A summary of the sessions is presented in Table 1. The protocol was translated into Persian by Firoozi (2023) and adapted and validated according to the local culture.

**Table 1. Summary of the Mindfulness-Based Couple Therapy Intervention Protocol (Cano et al., 2018)**

Session	Session Goals	In-Session Exercises
1	Psychological flexibility including: understanding values, setting goals, and pursuing goals	Therapeutic relationship with clients; semi-structured interview to understand current family situation and coping with problems; familiarization of each partner with the intervention logic, introduction to mindfulness, and acting based on values
2	Teaching mindfulness skills and increasing moment-to-moment awareness and attention to bodily sensations; identifying potential values, and continuous exercises; expressing value forms and evaluating how much each individual aligns with their life values	Review breathing relaxation exercise; introduce body relaxation meditation; start expanding the values identified in the anniversary celebration exercise
3	Identifying specific behaviors and goals aligned with values; continuing mindfulness skills with practice of being present and awareness of thoughts	Review body muscle meditation; introduce leaf meditation on flowing water; review values discussed in previous sessions; introduce goals related to values
4	Logical flexibility, including shaping healthy interaction skills	Couples' mindfulness exercise: identifying and solving problems based on values and behavioral goals; practicing psychological flexibility skills for mutual communication, and practicing flexibility skills, including mindful listening and responding with positive emotions towards the partner
5	Couples' mindfulness exercise; identifying and solving problems based on values and behavioral goals; applying psychological flexibility skills for mutual communication and practicing rational flexibility skills, including mindful listening and responding with positive emotions towards the partner	Learning listening skills; establishing communication with mindfulness; practicing identifying and expressing negative emotions related to symptoms and stress in the presence of the partner

Session	Session Goals	In-Session Exercises
6	Combining learned skills during the intervention, identifying psychological and logical flexibility skills, and continuing exercises after treatment, problem-solving challenges that can undermine behaviors, psychological and rational flexibility	Review loving-kindness meditation; review acting based on values
<b>After Treatment</b>	Individual program for continuing exercises; expanding boundaries to find solutions; continuing exercises in daily personal program	

**3. Results**

Table 2 presents the demographic characteristics of the participants, categorized by experimental and control groups.

As shown in Table 2, the majority of participants in both the experimental and control groups had a marriage duration of 1–3 years, had one child, and held either a master's or doctoral degree.

**Table 2. Demographic Characteristics of Participants by Experimental and Control Groups**

Variable	Experimental Group		Control Group		
	F	%	F	%	
<b>Age (M &amp; SD)</b>	28.76 (2.55 ±)		27.35 (3.01 ±)		
<b>Marriage History</b>	1-3 years	12	60.00	11	55.00
	4-6 years	6	30.00%	8	40.00
	More than 6 years	2	10.00	1	5.00
<b>Education Level</b>	Diploma and below	1	5.00	0	0.00
	Associates' and Bachelor's	9	45.00	11	55.00
	Master's and Doctorate	10	50.00	9	45.00
<b>Number of Children</b>	One child	16	80.00	13	65.00
	Two or more	4	20.00	7	35.00

The results of Table 3 indicate that the mean (and standard deviation) of participants in the experimental group for total sleep quality in the pre-test was 16.44 (±7.01) and in the post-test was 26.36 (±4.12). Additionally, the total rumination in the pre-test was 70.41 (±8.78), and in the post-test was 53.27 (±6.49). Overall, the results show that the mean of the experimental group differs from the control group in sleep quality and total rumination and its various dimensions. Specifically, the mean of participants in the

experimental group after the intervention of the independent variable in sleep quality and its various dimensions was higher than that of the control group participants. Conversely, the mean of participants in the experimental group after the intervention of the independent variable in total rumination and its various dimensions was lower than that of the control group participants. In the inferential findings section, the significance of this difference was assessed.

**Table 3. Descriptive Indices of Participants in Dependent Variables and Their Components**

Measures	Experimental Group				Control Group			
	Pre-Test		Post-Test		Pre-Test		Post-Test	
	M	SD	M	SD	M	SD	M	SD
<b>Total Sleep Quality (19 questions)</b>	44.16	7.01	26.26	4.12	44.41	6.58	42.74	6.88
<b>Subjective Sleep Quality (1 question - reversed)</b>	2.22	0.287	1.13	0.219	1.99	0.202	2.13	0.198
<b>Sleep Duration (1 question - reversed)</b>	2.43	0.376	1.43	0.196	2.33	0.414	2.03	0.502
<b>Sleep Onset Delay (2 questions)</b>	5.01	1.01	2.66	0.329	4.88	1.11	5.05	1.34
<b>Sleep Adequacy (3 questions - reversed)</b>	7.87	1.37	3.49	0.637	8.00	2.63	7.86	2.56
<b>Sleep Disturbance (9 questions)</b>	19.66	4.28	14.61	3.01	20.02	4.55	18.97	4.04
<b>Sleep Medication Use (1 question)</b>	1.99	0.201	1.06	0.232	2.19	0.467	1.95	0.428
<b>Daily Functional Impairment (2 questions)</b>	4.98	1.22	1.98	0.319	5.00	1.77	4.75	1.22
<b>Total Rumination (22 questions)</b>	70.41	8.78	53.27	6.49	69.26	8.90	70.08	9.01
<b>Expressing (5 questions)</b>	15.76	3.03	11.52	2.49	14.29	3.01	15.01	2.98
<b>Dwelling (5 questions)</b>	16.08	3.42	12.02	2.02	15.55	2.99	16.33	3.13
<b>Depression (12 questions)</b>	38.57	6.57	29.73	4.15	39.09	5.89	38.74	6.01

To test the hypotheses under study and compare the control and experimental groups while controlling for the effect of the pre-test on the post-test, multivariate analysis of covariance (MANCOVA) was used. Given that sleep quality and total rumination, along with their components, consist of 12 dependent variables,

MANCOVA was employed to compare the two groups. Before using multivariate analysis of variance, to meet the assumptions of this test, the Shapiro-Wilk test, Levene's test, and Box's test were conducted. The results of the Shapiro-Wilk test indicated that the statistic for the dependent variables at the pre-test and post-test stages

was not significant at the level ( $P \leq 0.05$ ), meaning that the distribution of the variables in the sample was normal compared to the distribution in the statistical population. The results of the Levine test also showed that F statistic for all 12 dependent variables studied is not significant ( $P \leq 0.05$ ). This indicates that the error variance of these variables among the subjects (experimental group and

control group) is not different, and the variances are equal. Additionally, to examine the assumption of homogeneity of covariances, Box's test was used, and the results indicated that Box's value is not significant ( $P = 0.271$ ,  $F = 0.963$ ,  $BOX = 31.75$ ). Consequently, the assumption of equality among the covariances holds.

**Table 4. Results of Validity Indices for the Significance Test of Multivariate Analysis of Covariance on Dependent Variables**

Source	Test Name	Value	F	Hypothesis df	Error df	P	Eta
Group	Pillai's Trace	0.377	79.43	12	39	0.001	0.377
	Wilks' Lambda	0.038	79.43	12	39	0.001	0.377
	Hotelling's Trace	30.89	79.43	12	39	0.001	0.377
	Largest Root Error	30.89	79.43	12	39	0.001	0.377

The results in Table 4 indicate that the significance levels of all tests allow for the use of multivariate analysis of covariance. These results suggest that there is a significant difference between the experimental group and the control group with respect to at least one

of the dependent variables. To determine which of the dependent variables were significantly affected by the independent variable compared to the control group, multivariate analysis of covariance has been employed, the results of which are presented in Table 5.

**Table 5. Results of the Multivariate Analysis of Covariance (MANCOVA) on Dependent Variables in Experimental and Control Groups**

Source	Dependent Variable	SS	df	MS	F	P	Eta
Group	Total Sleep Quality	346.45	1	346.45	53.85	0.000	0.603
	Subjective Sleep Quality	109.88	1	109.88	10.99	0.000	0.275
	Sleep Duration	57.91	1	57.91	5.05	0.000	0.249
	Sleep Onset Delay	122.77	1	122.77	12.19	0.000	0.299
	Sleep Adequacy	149.73	1	149.73	14.48	0.000	0.404
	Sleep Disturbance	153.79	1	153.79	15.05	0.000	0.444
	Sleep Medication Use	29.80	1	29.80	1.16	0.128	0.105
	Daily Functional Impairment	128.67	1	128.67	13.03	0.000	0.339
	Total Rumination	339.11	1	339.11	49.14	0.000	0.598
	Expressing	140.17	1	140.17	14.14	0.000	0.378
	Dwelling	136.77	1	136.77	13.99	0.000	0.352
	Depression	180.75	1	180.75	18.84	0.000	0.483

As observed in Table 6, the results of the multivariate analysis of covariance indicate that there is a significant difference between the experimental group and the control group in the studied dependent variables, except for the component of sleep medication use, at a significance level of ( $P \leq 0.001$ ). In other words, the mean sleep quality, rumination, and their dimensions in the experimental group after the couple therapy based on mindfulness (Cano) differ significantly. This means that after the intervention of couples therapy based on mindfulness (Cano), the mean of the experimental group significantly increased in sleep quality and its dimensions compared to the control group, while the mean of rumination and its dimensions significantly decreased, indicating the effectiveness of this intervention method.

#### 4. Discussion and Conclusion

The findings of the present study indicated the intervention of couples therapy based on Cano mindfulness significantly affected sleep quality and its

dimensions, except for the component of sleep medication use, in women seeking divorce, leading to an increase in their sleep quality. These findings are consistent with those of [Song et al. \(2022\)](#), [Ding et al. \(2020\)](#), [Zhang et al. \(2019\)](#), [Bogusch et al. \(2016\)](#), [Kanen et al. \(2015\)](#), [Najarnasab et al. \(2024\)](#), [Jameinezhad et al. \(2024\)](#), [Firoozi \(2023\)](#), [Solgi and Kamarkhani \(2022\)](#), and [Zarei and Garavand \(2022\)](#). For instance, [Song et al. \(2022\)](#) demonstrated that cognitive training based on mindfulness improves sleep quality. Additionally, [Firoozi \(2023\)](#) showed that couples therapy based on Cano mindfulness significantly enhances the sense of cohesion and marital satisfaction in women. [Solgi and Kamarkhani \(2022\)](#) concluded that mindfulness training improves sleep quality.

To explain the effectiveness of couples therapy based on mindfulness on sleep quality, research indicates that higher levels of mindfulness are associated with better sleep quality through the reduction of negative emotions ([Bogusch et al., 2016](#); [Ding et al., 2020](#)). Furthermore, the meta-analysis by [Kanen et al. \(2015\)](#) revealed that

individuals who practiced long-term mindfulness reported high and satisfactory sleep quality. Similarly, Zhang et al. (2019) found that increased mindfulness improved sleep quality even three months after the intervention period. A cross-sectional study also showed that higher levels of mindfulness are linked to better sleep quality, reduced daytime sleepiness, pre-sleep arousal, and dysfunctional beliefs about sleep (Howell et al., 2017). Thus, it is not surprising that the intervention of couple therapy based on mindfulness led to an enhancement in the sleep quality of women seeking divorce. Additionally, Shallcross et al. (2019) in the cognitive model of insomnia noted that the ability to accurately observe internal and external experiences enables individuals to address sleep problems more flexibly, distancing themselves from daily worries, and this mindfulness competency positively affects the quality and quantity of sleep.

The results also indicated that the intervention of couples therapy based on Cano mindfulness significantly affected rumination and its dimensions in women seeking divorce, leading to a reduction in their rumination. These findings align with those of Lantheaume et al. (2024), Komariah et al. (2023), Talley & Shelly-Tremblay (2020), Greeson et al. (2018), Pourrahimi et al. (2024), Zarei and Garavand (2022), and Izanloo et al. (2021). For example, Lantheaume et al. (2024) demonstrated that a mindfulness-based intervention program plays a significant role in reducing cognitive fusion. Komariah et al. (2023) found that mindfulness meditation reduces depression, anxiety, and stress. Talley & Shelly-Tremblay (2020) showed that mindfulness reduces the impact of cognitive emotion regulation strategies, including rumination. Greeson et al. (2018) found that individuals who utilize mindfulness skills reduce the activation of their negative automatic thoughts. Pourrahimi et al. (2024) showed that couples therapy based on mindfulness significantly reduced cognitive fusion and dysfunctional attitudes in couples experiencing emotional divorce.

To explain the effectiveness of couples therapy based on mindfulness on rumination, it can be stated that, firstly, as research has shown, there is a significant relationship between mindfulness and rumination (Marais, 2020). Secondly, individuals who approach events without judgment and accept occurrences with high awareness become less trapped in repetitive and passive thoughts (Kiken et al., 2015). Therefore, it is not unexpected that the intervention of couples therapy based on mindfulness led to a reduction in rumination among women seeking divorce. Thirdly, the Re-perceiving model of mindfulness suggests that mindfulness helps individuals re-perceive moment-to-moment experiences and reduces

automatic and habitual responses to negative stimuli (Rash et al., 2019). Cross-sectional and longitudinal studies indicate that mindfulness is an effective factor in mitigating rumination (Petrocchi & Ottaviani, 2015; Butz & Stahlberg, 2018). Overall, the results of the study showed that Cano mindfulness-based couples therapy intervention led to an increase in the mean scores of the experimental group compared to the control group in sleep quality and its dimensions, except for medication use. In contrast, it led to a decrease in the mean scores of ruminations and their dimensions among women with marital burnout seeking divorce.

The present study was conducted on women in the city of Urmia, and therefore, the generalization of its findings to populations in other cities should be approached with caution due to cultural differences. Furthermore, this research utilized questionnaire tools, and recall bias regarding past events is one of the disadvantages of self-report questionnaires. The use of non-random convenience sampling was another limitation of the current study. In this study, follow-up data were not obtained in the analysis, and ultimately, variables such as family, social, and cultural status were not controlled. Therefore, future researchers are recommended to replicate this study on men in other cities, using clinical interviews, random sampling methods, incorporating follow-up data in the analysis, and controlling variables such as family, social, and cultural status. It is also recommended for planners, family specialists, psychologists, and counselors to consider the utilization of couples therapy based on Cano mindfulness, alongside other interventions, to enhance and improve marital relationships and prevent divorce.

## 5. Ethical Considerations

### Compliance with ethical guidelines

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation steps. They were also assured about the confidentiality of the research. They were free to participate in the research and could leave the study whenever they wanted, and the research results were provided to them if they wished.

### Funding

This research did not receive any funding from funding organizations in the public, commercial, or non-profit sectors.

### Authors' contributions

All authors contributed to the design, implementation, and writing of all parts of the article.

### Conflicts of interest

The authors declare no conflict of interest.

**Acknowledgments**

We thank all the participants who collaborated with us in this research.

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