http://www.jhpr.ir
Hosp Pract Res. 2026 March;11(1):840-846
doi 10.30491/hpr.2026.562426.1526
HPR
Hospital Practices and Research
Original Article

The Effectiveness of Mindfulness Training on Attitudes Towards Menopause and Health Adjustment in Menopausal Women

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Received November 26, 2025; **Accepted** January 6, 2026; **Online Published** March 30, 2026

Abstract

Background: Menopause represents a significant physiological and psychological transition, often accompanied by negative attitudes and considerable challenges in health adjustment.

Objectives: This study aimed to investigate the effectiveness of mindfulness training in improving attitudes toward menopause and health adjustment among menopausal women.

Methods: This quasi-experimental study employed a pre-test, post-test design with a control group. The statistical population included menopausal women referred to a health center in Ahvaz, Iran, in 2024. A sample of 30 eligible women aged 51-65 years was selected using convenience sampling and randomly allocated into two equal groups (experimental, n = 15; control, n = 15). The experimental group received eight 70-minute sessions of mindfulness training, while the control group was placed on a waitlist. Data were collected using the Attitudes Toward Menopause Questionnaire and the Health Adjustment subscale of the Bell Adjustment Inventory. Data were analyzed using Chi-square and Multivariate Analysis of Covariance (MANCOVA) via SPSS 25.

Results: Initial analysis indicated no significant differences in age and educational level between the two groups ($P > 0.05$). The MANCOVA results showed that the mindfulness intervention significantly improved both attitudes toward menopause ($\eta^2p = 0.60$) and health adjustment ($\eta^2p = 0.57$) in the experimental group compared to the control group ($P < 0.001$), with large effect sizes.

Conclusion: The findings suggest that mindfulness training is an effective, non-pharmacological intervention for enhancing psychological resilience and improving women's adaptation during the menopausal transition. Specialists and therapists are encouraged to incorporate mindfulness protocols into women's health promotion and counseling programs.

Keywords: Menopause, Mindfulness, Attitude, Adjustment, Psychological, Health Promotion

1. Background

Menopause is an inevitable biological milestone that marks the permanent cessation of menstruation and the end of reproductive capacity, typically occurring between the ages of 45 and 55 years.[1] Beyond its physiological definition, menopause constitutes a profound psychosocial transition that influences virtually every domain of a woman's life.[2] Women's attitudes toward menopause are shaped by cultural contexts; in Iranian and Middle Eastern societies, menopause is frequently viewed negatively, often associated with aging, loss of fertility, and despair, influenced by patriarchal norms, stigma around sexuality, and limited open discussion.[3] This period is characterized by marked hormonal fluctuations, most notably a sharp decline in estrogen levels, which trigger a wide array of physical and psychological symptoms. These include vasomotor symptoms such as hot flashes and night sweats, urogenital atrophy, sleep disturbances, mood swings, anxiety, and depression.[4] The quality of life during this transitional phase is heavily influenced by a woman's perception of and adaptation to these changes. Although menopause is a natural process, it often imposes chronic challenges to well-being, necessitating effective coping strategies to preserve physical and psychological equilibrium.[5,6]

A woman's psychological well-being during menopause is closely intertwined with her attitude toward this life stage.[7] Attitudes encompass cognitive, affective, and behavioral predispositions that shape the interpretation and management of menopausal symptoms. Negative attitudes—frequently rooted in societal stigma, fear of aging, perceived loss of femininity, or anxiety about future health risks—can amplify symptom perception and intensity, creating a bidirectional vicious cycle: negative cognitions heighten distress and symptom reporting, while exacerbated symptoms reinforce pessimistic views.[8,9] This creates a vicious cycle in which negative self-image and heightened anxiety exacerbate physical symptoms, which, in turn, reinforce the initial negative outlook. In contrast, positive and accepting attitudes—viewing

menopause as a natural, liberating, or empowering phase—are consistently associated with fewer reported symptoms, higher self-esteem, and greater engagement in health-promoting behaviors.[10] Research underscores that psychological interventions aimed at restructuring negative cognitions about aging and reproduction are essential for cultivating positive menopausal attitudes, thereby alleviating distress and improving overall health outcomes.[9]

Concurrently, health adjustment, also known as health-related adaptation, refers to an individual's capacity to cope effectively with biological, psychological, and social changes that affect physical health and daily functioning.[11] In the menopausal context, successful health adjustment involves adapting to fluctuating physical symptoms and managing emotional demands, while poor adjustment manifests as excessive somatic preoccupation, hypervigilance to bodily changes, and maladaptive coping (e.g., avoidance), which are particularly relevant post-menopause due to long-term risks from estrogen depletion, such as cardiovascular disease and osteoporosis.[12,13] In the menopausal context, successful health adjustment involves adapting to fluctuating physical symptoms, implementing necessary lifestyle modifications, and managing the emotional demands of hormonal transition. Poor health adjustment is often manifested as excessive somatic preoccupation, hypervigilance to minor bodily changes, and maladaptive coping strategies such as avoidance or denial, all of which compromise quality of life and increase healthcare utilization.[12] Given the long-term health implications of estrogen depletion—including elevated risks of cardiovascular disease and osteoporosis—proactive, adaptive coping and self-care practices are critical for sustaining vitality in later life.[13,14]

The intricate interplay between psychological states, attitudinal frameworks, and symptom experiences has shifted clinical and research attention toward non-pharmacological, mind–body interventions. Mindfulness training has emerged as a promising approach, although evidence from controlled trials remains mixed.[15,19] Mindfulness, as conceptualized by Jon Kabat-Zinn, is the practice of intentionally directing attention to the present moment with an attitude of non-judgmental acceptance.[20] Formalized in programs such as Mindfulness-Based Stress Reduction (MBSR), mindfulness training operates through mechanisms that include enhanced emotional regulation, cognitive defusion (decentering), and acceptance of present-moment experience.[21] By promoting decentering—observing thoughts and sensations as transient events rather than fixed realities—and fostering acceptance, mindfulness facilitates cognitive restructuring of negative menopausal attitudes and reduces reactivity to symptoms.[22] By encouraging women to observe menopausal symptoms (e.g., hot flashes, anxiety) without reflexive reactivity or aversion, mindfulness diminishes secondary emotional suffering and the overall burden of symptoms.[16]

Empirical evidence supports the broad efficacy of mindfulness training across chronic physical and psychological conditions highly relevant to menopause, including generalized anxiety, insomnia, chronic pain, and emotional dysregulation.[17,18] Studies specifically targeting menopausal women have demonstrated that structured mindfulness interventions significantly reduce the frequency and perceived severity of vasomotor symptoms, alleviate depressive symptoms, and enhance overall quality of life.[9,22] Theoretically, the emphasis on acceptance and non-judgment in mindfulness practice is well-suited to reshaping negative attitudes toward menopause and fostering adaptive health behaviors.

Despite accumulating evidence of benefits in symptom management and quality of life, rigorously controlled studies simultaneously examining mindfulness training's impact on menopausal attitudes and health adjustment are notably scarce, such as in Iran, particularly in culturally diverse populations facing socioeconomic stressors. Establishing the efficacy of mindfulness training in these targeted domains is essential for validating a low-cost, non-pharmacological intervention suitable for widespread implementation in women's health services and counseling settings. Such evidence would support the development of tailored psychoeducational protocols that promote resilient and positive aging.

2. Objectives

Accordingly, the primary objective of the present study was to investigate the effectiveness of mindfulness training in improving attitudes toward menopause and health adjustment among menopausal women.

3. Methods

3.1. Study Design

The present study employed a quantitative, quasi-experimental research design involving pre-test, post-test, and a control group. The independent variable was mindfulness training, and the dependent variables were attitude toward menopause and health adjustment.

3.2. Participants

The statistical population consisted of all menopausal women (defined as at least 12 consecutive months without menstruation) who were referred to a designated public health center in the city of Ahvaz, Iran, during the year 2024. A sample of 30 eligible women was selected using convenience sampling based on their willingness to participate and meeting the inclusion criteria. Subsequently, these participants were randomly allocated into two equal groups: the experimental group (n = 15) and the control group (n = 15). Random allocation was performed using a simple randomization method: eligible participants were assigned sequential numbers, and a random number generator was used to allocate them to groups. Inclusion

criteria for participation were being a menopausal woman between the ages of 51 and 65 years, having reading and writing literacy, having no history of psychiatric drug consumption (e.g., anti-anxiety or anti-depressant medications), not having a history of addiction, and not simultaneously participating in any other psychological intervention program. Psychiatric history was assessed through structured clinical interviews conducted by the researcher, focusing on current or past diagnosed mental disorders, ongoing psychiatric treatment, or use of psychotropic medications (self-reported and verified where possible via medical records at the health center). Exclusion criteria included: more than two unexcused absences from the training sessions, starting any new pharmacological or psychological treatment during the study period, or experiencing a major life event or severe illness.

3.3. Ethical Considerations

Ethical considerations were rigorously observed. Informed consent was obtained from all participants after fully explaining the study's purpose and procedures. Confidentiality of data was ensured, and the control group was placed on a waiting list and offered the training intervention upon completion of the study.

3.4. Instruments

3.4.1. Attitudes Toward Menopause Questionnaire (ATMQ)

The Attitudes Toward Menopause Questionnaire (ATMQ) was developed by Neugarten et al.[23] This self-report measure assesses women's cognitive and affective perceptions of the menopausal transition. The questionnaire comprises 34 items rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The total score is obtained by summing all item scores, with higher scores indicating more positive and adaptive attitudes toward menopause. The Persian version of the ATMQ has demonstrated acceptable to good internal consistency in previous Iranian studies (Cronbach's $\alpha \geq 0.78$).[24] In the present study, the internal consistency was high (Cronbach's $\alpha = 0.84$).

3.4.2. Health Adjustment Subscale of the Bell Adjustment Inventory (BAI)

The Bell Adjustment Inventory (BAI) was originally developed by Bell[25], and only the Health Adjustment subscale was employed in the current study. This subscale evaluates the degree of adaptive coping and adjustment to physical and psychological health challenges. It consists of 32 items scored on a 4-option format: 0 ("Yes"), 2 ("I don't know"), and 3 ("No"), with one additional unweighted option in some versions. Higher total scores reflect greater maladjustment (i.e., poorer health adjustment), characterized by increased somatic preoccupation and distress. Accordingly, a reduction in mean scores post-intervention signifies improved health adjustment. The Persian adaptation of this subscale has shown satisfactory reliability in prior Iranian samples (Cronbach's $\alpha = 0.81$).[26] Internal consistency in the present study was also satisfactory (Cronbach's $\alpha = 0.85$).

3.5. Procedure

The research process commenced after obtaining ethical approval and an introductory letter from the university. The researcher secured cooperation from the management of the selected health center in Ahvaz to identify potential participants. Eligible women who met the inclusion criteria were informed about the nature and importance of the research and then randomly assigned to either the experimental or control group. All participants in both groups completed the Attitudes Toward Menopause Questionnaire and the Health Adjustment subscale (as a pre-test). Following the pre-test, the experimental group began the mindfulness training sessions conducted by the researcher, while the control group received no specific intervention during this period (waitlist condition). Upon completion of the eight-week intervention, both groups completed the questionnaires again (post-test) for data collection and analysis.

3.6. Intervention Protocol

The intervention consisted of mindfulness training, delivered in eight weekly sessions, each lasting 70 minutes. The sessions were conducted by the first author (researcher), who has formal training in mindfulness-based interventions and prior experience delivering structured mindfulness protocols. The core components of the training emphasized purposeful, non-judgmental attention to the present moment, incorporating structured practices like body scan, mindful movement, and focusing on breath as an anchor. The control group was placed on a waiting list and received no concurrent intervention during the experimental phase. The content of the eight-session program is summarized in Table 1.

3.7. Data Analysis

Statistical analysis was performed using SPSS version 25. Descriptive statistics (mean, standard deviation) were used to characterize the sample. Inferential statistics included the chi-square test (χ^2) to confirm the homogeneity of the experimental and control groups regarding demographic variables. The primary hypothesis test employed Multivariate Analysis of Covariance (MANCOVA), using the pre-test scores as covariates, to determine the effectiveness of the intervention on the combined dependent variables (attitudes toward menopause and health adjustment). The significance level was set at $P < 0.05$.

Table 1. Summary of the Eight-Session Mindfulness Training Protocol

Session	Title / Core focus	Key concepts and techniques
1	Introduction to mindfulness and automatic pilot	Introduction to the "Automatic Pilot" mode, mindful eating, and the concept of attention control.
2	Living in the present moment: body scan	Formal practice of the Body Scan to cultivate non-judgmental awareness of bodily sensations; acknowledging internal and external experiences.
3	Mindful breathing and gentle movement	Focusing on the breath as an anchor; practicing mindful stretching and movement; bringing awareness to the present moment experiences.
4	Awareness of thoughts and emotions	Introducing Cognitive Decentering (thoughts are not facts); learning to observe thoughts and feelings as mental events rather than realities.
5	Acceptance and non-aversion	Exploring how we typically react to difficulties; practicing acceptance (radical acceptance) of unpleasant sensations or emotions without judgment.
6	Thoughts as mental events and future planning	Deepening the non-judgmental stance toward thoughts; application of mindfulness to daily activities and interpersonal interactions.
7	Mindfulness in daily life and self-compassion	Integrating mindfulness into everyday routines; fostering self-compassion and kindness towards difficult experiences.
8	Maintaining and sustaining practice	Reviewing core skills; developing a personalized plan for long-term mindfulness practice to cope with life challenges.

4. Results

The final sample consisted of 30 menopausal women (experimental group: n = 15; control group: n = 15). All participants completed both pre- and post-test assessments, with no missing data. The mean age of participants in the experimental group was 56.87 ± 3.44 years, whereas the mean age in the control group was 57.60 ± 3.72 years. No significant between-group difference in age was observed using an independent samples t-test (t = 0.57, $P = 0.573$). The majority of participants in both groups had primary or secondary education (73.3% in the experimental group and 80.0% in the control group). Notably, none of the participants reported having higher (tertiary) education. Chi-square tests confirmed no statistically significant differences between the groups in terms of educational level ($\chi^2 = 1.14$, $P = 0.767$), indicating successful randomization and demographic homogeneity.

The experimental group showed substantial improvements post-intervention, with attitudes toward menopause increasing markedly and health adjustment scores (indicating maladjustment) decreasing substantially, while the control group remained largely unchanged (Table 2). As shown in Table 2, pretest mean scores for attitudes toward menopause were comparable between the experimental (M = 45.14, SD = 6.24) and control (M = 46.47, SD = 5.39) groups. At posttest, the experimental group exhibited a marked increase (M = 51.24, SD = 6.52), whereas the control group showed virtually no change (M = 46.13, SD = 5.38). Similarly, health adjustment scores (where lower scores indicate better adjustment) decreased substantially in the experimental group from pretest (M = 12.13, SD = 2.53) to posttest (M = 9.47, SD = 2.67), while the control group displayed a slight increase (worsening) from M = 12.73 (SD = 2.37) to M = 13.15 (SD = 1.96).

Table 2. Descriptive Statistics for Attitudes Toward Menopause and Health Adjustment Scores in Experimental and Control Groups at Pretest and Posttest

Variable	Group	Experimental group	Control group
		Mean ± SD	Mean ± SD
Attitudes towards menopause	Pre-test	45.14 ± 6.24	46.47 ± 5.39
	Post-test	51.24 ± 6.52	46.13 ± 5.38
Health adjustment	Pre-test	12.13 ± 2.53	12.73 ± 2.37
	Post-test	9.47 ± 2.67	13.15 ± 1.96

Preliminary analyses were conducted to verify the assumptions of multivariate analysis of covariance. Kolmogorov–Smirnov tests revealed that the distribution of pretest and posttest scores for both dependent variables did not deviate significantly from normality in either group ($P > 0.05$). Levene's test confirmed homogeneity of variances for attitudes toward menopause (F = 0.42, $P = 0.521$) and health adjustment (F = 1.06, $P = 0.312$). Box's M test indicated homogeneity of variance–covariance matrices (Box's M = 8.74, $P = 0.189$), and no violations of linearity or homogeneity of regression slopes were observed.

Table 3. Univariate ANCOVA Results for Attitudes Toward Menopause and Health Adjustment

Variables	Source	SS	df	MS	F	P	η^2p
Attitudes towards menopause	Pre-test	788.17	1	788.17	287.24	0.001	0.72
	Group	298.43	1	298.43	108.76	0.001	0.60
	Error	71.34	26	2.74			
Health adjustment	Pre-test	92.40	1	92.40	64.83	0.001	0.61
	Group	74.49	1	74.49	52.26	0.001	0.57
	Error	37.06	26	1.43			

After adjusting for pretest scores, multivariate analysis of covariance (MANCOVA) revealed a highly significant overall effect of group membership on the combined dependent variables (Wilks' $\Lambda = 0.12$, F = 91.43, $P < 0.001$,

η^2p = 0.88). Subsequent univariate ANCOVA results (Table 3) confirmed significant between-group differences for both variables. For attitudes toward menopause, the experimental group demonstrated significantly higher posttest scores than the control group (F = 108.76, P < 0.001, η^2p = 0.60), reflecting a large effect size. For health adjustment, the experimental group exhibited significantly lower (more adaptive) posttest scores (F = 52.26, P < 0.001, η^2p = 0.57), also indicating a large treatment effect. These findings demonstrate that mindfulness training produced substantial and statistically significant improvements in both attitudes toward menopause and health-related adjustment compared to the waitlist control condition.

5. Discussion

The present quasi-experimental study demonstrated that an eight-week mindfulness training intervention produced statistically significant and clinically meaningful improve ments in both attitudes toward menopause and health adjustment among menopausal women. After controlling for baseline scores, the experimental group exhibited markedly more positive menopausal attitudes and significantly better health adjustment than the waitlist control group, with large effect sizes (η^2p = 0.60 and 0.57, respectively). These preliminary findings provide empirical support for the potential utility of mindfulness-based approaches as a non-pharmacological strategy for enhancing psychological resilience during the menopausal transition, though replication in larger, more diverse samples is needed.

The substantial improvement in attitudes toward menopause aligns closely with the core mechanisms of mindfulness practice.[20] By cultivating non-judgmental present-moment awareness and cognitive decentering, mindfulness training enables women to observe negative thoughts about aging, loss of femininity, or bodily changes as transient mental events rather than immutable truths.[9] This process weakens catastrophizing and aversive reactions that typically reinforce negative menopausal schemas. The resulting shift toward acceptance and self-compassion fosters a more positive, adaptive, and empowering view of menopause as a natural life stage.[22] These results are consistent with previous evidence indicating that acceptance-based interventions significantly reduce psychological distress and improve overall well-being in postmenopausal women.[16,19]

The observed enhancement in health adjustment further underscores the role of mindfulness in strengthening adaptive coping with physical and emotional challenges. Lower post-intervention maladjustment scores in the experimental group reflect reduced somatic preoccupation, hypervigilance, and emotional reactivity to menopausal symptoms. Mindfulness appears to interrupt the vicious cycle of symptom–stress amplification by promoting equanimity and skillful response patterns rather than avoidance or rumination.[27] This finding corroborates earlier randomized controlled trials demonstrating that MBSR and related protocols significantly improve health -related quality of life, sleep, and perceived physical symptom burden in midlife and menopausal populations.[22,28]

Taken together, the parallel improvements in attitude and adjustment highlight psychological flexibility—the ability to remain consciously in contact with the present moment without unnecessary defense—as the central therapeutic process underlying the intervention's efficacy.[20] By reducing experiential avoidance and fostering values-consistent behavior, mindfulness training empowers women to engage proactively in self-care and health-promoting activities despite the inherent discomforts of the menopausal transition.

Several limitations should be acknowledged. The use of convenience sampling from a single urban health center and the modest sample size limit the generalizability of findings to broader socioeconomic, cultural, or rural populations. Furthermore, the study was conducted exclusively in an Iranian context, where cultural attitudes toward menopause often carry negative connotations (e.g., associations with aging and loss of vitality), potentially influencing baseline attitudes and responsiveness to the intervention; these culturally specific factors may not fully translate to other populations. The absence of an active control condition (e.g., health education or relaxation training) prevents definitive conclusions about the specific versus nonspecific effects of mindfulness training. Additionally, the lack of follow-up assessments limits conclusions regarding the long-term maintenance of gains; future studies should incorporate follow-up periods and examine strategies such as booster sessions or ongoing home practice to support sustained benefits.

Despite these limitations, the study offers preliminary clinical implications. Mindfulness training is a brief, cost-effective, and side-effect-free intervention that can be readily integrated into primary care, gynecological, and community health settings. Health professionals are encouraged to incorporate structured mindfulness protocols into routine menopausal care and psychoeducational programs to promote positive adaptation and long-term well-being.

Future research should employ larger, randomized, and socioeconomically diverse samples, include active control conditions, and incorporate extended follow-up periods (6–12 months) to assess durability of effects. Exploration of potential mediators (e.g., psychological flexibility, self-compassion, emotion regulation) and moderators (e.g., baseline symptom severity, cultural attitudes toward menopause) would further elucidate the mechanisms and boundary conditions of mindfulness-based interventions in this population.

6. Conclusion

The present study provides preliminary evidence that the eight-week mindfulness training protocol was effective in improving both attitudes toward menopause and health adjustment among the participating women. Specifically, the intervention led to a statistically significant enhancement in adaptive attitudes and a reduction in somatic preoccupation compared to the control group. These findings offer cautious support for the implementation of mindfulness-based strategies as a non-pharmacological therapeutic approach in menopausal care, particularly in cultural contexts where negative attitudes predominate. Thus, specialists and health promotion programs are strongly encouraged to integrate mindfulness training to foster psychological resilience and optimize coping mechanisms for women experiencing the menopausal transition.

Research Highlights

What Is Already Known?

Mindfulness-based interventions effectively reduce menopausal symptoms, improve quality of life, and decrease psychological distress in midlife women, with evidence primarily focused on vasomotor symptoms and mood.

What Does This Study Add?

This study demonstrates that an eight-week mindfulness training significantly improves attitudes toward menopause and health adjustment in Iranian menopausal women, offering a culturally adaptable, non-pharmacological approach targeting cognitive and adaptive dimensions of the menopausal transition.

Acknowledgments

The authors express their sincere gratitude to all the menopausal women who voluntarily participated in this study and generously shared their time and experiences.

Author Contributions

EA: Conceptualization, Methodology, Investigation, Formal analysis, Data curation, Writing – original draft, Project administration. ZDB: Conceptualization, Methodology, Supervision, Validation, Writing – review & editing. Both authors have read and approved the final version of the manuscript.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

This study was conducted in full compliance with ethical standards for research involving human participants. The research protocol was reviewed and approved by the Ethics Committee of Islamic Azad University, Ahvaz Branch (Approval Code: IR.IAU.AHVAZ.REC.1404.098).

Funding/Support

This research received no external funding.

Declaration of Generative AI and AI-assisted technologies

During the preparation of this work the authors used Grammarly in order to improve the English language, grammar, and readability of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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