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Introduction

Hypertension is one of the most significant global health challenges, contributing to high morbidity and mortality rates (Qiu & Piskorz-Ryń, 2024). In Iran, approximately 22% of the adult population suffers from hypertension, with less than half being aware of their

Comparing the Effectiveness of Mindfulness-Based Cognitive Therapy and Well-Being Therapy on the Quality of Life of Patients with Hypertension

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ABSTRACT

Objective: This study aimed to compare the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) and Well-Being Therapy (WBT) in improving the quality of life among patients with hypertension.

Methods and Materials: This quasi-experimental study employed a pretest-posttest control group design with a three-month follow-up. The statistical population included hypertensive patients aged 45 to 55 who visited healthcare centers in Babol during the first half of 2024. A total of 45 participants were selected using convenience sampling and assigned to three groups (MBCT: n=15, WBT: n=15, Control: n=15). Both interventions were conducted in structured eight-week sessions, while the control group received no intervention. Data were collected using the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) and analyzed using repeated measures ANOVA and post-hoc tests.

Findings: The results indicated significant improvements in quality of life in both experimental groups compared to the control group ($p < 0.05$). MBCT was particularly effective in enhancing psychological well-being and emotional regulation, while WBT significantly improved life satisfaction and environmental mastery. These effects were sustained at the three-month follow-up, demonstrating the long-term benefits of both interventions.

Conclusion: Both MBCT and WBT effectively enhanced the quality of life in hypertensive patients, but their impacts varied across different life domains. Integrating mindfulness-based and well-being-focused interventions into hypertension management programs can improve patient outcomes and overall psychological well-being.

Keywords: Mindfulness-Based Cognitive Therapy, Well-Being Therapy, Quality of Life, Hypertension, Psychological Well-Being.

condition (Kazemikhabiri et al., 2020). Hypertension is a leading risk factor for cardiovascular diseases, accounting for 45% of cardiovascular-related deaths and 51% of stroke-related fatalities worldwide (Reckelhoff, 2020). Despite medical advancements in hypertension treatment, the psychological and emotional aspects of the disease are often overlooked. Research suggests that

chronic stress, anxiety, and negative emotions can exacerbate hypertension and reduce overall well-being (Rabipour et al., 2024).

Given this, the concept of quality of life (QoL) has gained attention in chronic disease management. The World Health Organization (WHO) defines QoL as an individual's perception of their position in life within their cultural and value system (Marsool et al., 2024; Zhou et al., 2024). QoL encompasses physical health, psychological well-being, social relationships, and environmental factors. Hypertension negatively impacts all these dimensions, leading to reduced emotional stability, increased stress levels, and lower life satisfaction (Kazemikhabiri et al., 2020). As a result, psychological interventions aimed at improving QoL in hypertensive patients have become a key area of research.

Among various psychological approaches, Mindfulness-Based Cognitive Therapy (MBCT) and Well-Being Therapy (WBT) have shown promise in enhancing mental health and overall QoL (Segal et al., 2013). MBCT, a third-wave cognitive-behavioral intervention, focuses on developing non-judgmental awareness of thoughts, emotions, and bodily sensations to break maladaptive cognitive cycles. It has demonstrated effectiveness in reducing stress, emotional dysregulation, and autonomic nervous system overactivity, which are linked to hypertension progression (Rabipour et al., 2024).

WBT, based on Ryff's model of psychological well-being (1989), is a structured, short-term therapy that enhances self-acceptance, autonomy, and positive relationships (Fava & Tomba, 2009). This intervention helps individuals develop adaptive coping strategies, focus on strengths, and cultivate life satisfaction. Studies suggest that WBT is particularly beneficial for chronic illness management, as it promotes psychological resilience and emotional stability (Ramazani Aval et al., 2020).

While both MBCT and WBT have been individually explored for their impact on psychological health, limited research has directly compared their effectiveness in hypertensive patients. It remains unclear whether mindfulness-based emotional regulation (MBCT) or structured well-being enhancement (WBT) is more effective in improving the QoL of individuals with hypertension. This study seeks to address this gap by comparing the effectiveness of MBCT

and WBT in enhancing different dimensions of QoL in hypertensive patients. Thus, This research aims to provide evidence-based insights for integrating psychological interventions into hypertension management strategies, thereby improving both mental and physical health outcomes for affected individuals.

Methods and Materials

Study Design and Participants

This study employed a quasi-experimental pretest-posttest control group design with a three-month follow-up to compare the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) and Well-Being Therapy (WBT) on the quality of life of hypertensive patients.

The statistical population included hypertensive patients aged 45 to 55 years who visited healthcare centers and hospitals in Babol, Iran, during the first half of 2024. A total of 45 participants were selected using convenience sampling based on specific inclusion and exclusion criteria. The inclusion criteria were: (1) a confirmed diagnosis of chronic hypertension by a cardiologist or internist, (2) absence of severe physical illnesses such as cancer, multiple sclerosis (MS), or Alzheimer's disease, (3) no history of severe psychiatric disorders (e.g., psychosis, major depressive disorder), (4) absence of psychiatric medication or substance use in the past three months, (5) an educational level of at least middle school, and (6) a score below the average on the WHO Quality of Life Questionnaire (WHOQOL-BREF). Exclusion criteria included absence from more than two therapy sessions, unwillingness to continue participation, or experiencing a significant health deterioration during the study.

Participants were randomly assigned to one of three groups (MBCT: n=15, WBT: n=15, Control: n=15) using a block randomization method to ensure balanced distribution in terms of age, gender, and baseline quality of life scores. The randomization process was carried out using computer-generated sequences, and group allocation was concealed from data analysts to minimize bias. The study employed assessor blinding, ensuring that outcome evaluators were unaware of participants' group assignments.

Participant adherence was monitored throughout the intervention, with attendance rates recorded for each session. Attrition rates were documented, and an

intention-to-treat (ITT) analysis was conducted to account for missing data. In cases where participants withdrew from the study, the last observation carried forward (LOCF) method was used to maintain statistical power. At the three-month follow-up, participants were re-administered the WHOQOL-BREF and PSS-10 to assess the long-term effects of MBCT and WBT. Follow-up assessments were conducted by a blinded researcher who was unaware of participants' group allocations.

Data Collection Tools

Data were collected at three time points: pre-test (baseline), post-test (after the 8-week intervention), and follow-up (three months later). The primary outcome measure was the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF), a 26-item instrument assessing four domains: physical health, psychological health, social relationships, and environment. Responses were rated on a 5-point Likert scale, with higher scores indicating better quality of life. The Persian version of WHOQOL-BREF has been validated in previous research, demonstrating strong internal consistency (Cronbach's $\alpha = 0.84$) (Pourabdollah et al., 2023).

To reduce self-report bias, all questionnaires were completed under the supervision of a trained researcher who ensured that participants understood the items. Additionally, a secondary measure, the Perceived Stress Scale (PSS-10), was included to assess changes in stress levels as a potential mediating factor.

Intervention

The intervention period lasted eight weeks, with each experimental group attending weekly 90-minute sessions. The control group did not receive any psychological intervention during this period. Therapy sessions were conducted by licensed clinical psychologists with at least three years of experience in delivering MBCT and WBT interventions. To ensure treatment fidelity, therapists received supervision, and session adherence was monitored through weekly review meetings and checklists.

The MBCT protocol followed the structured program by Segal et al. (2013), emphasizing non-judgmental awareness, emotional regulation, and cognitive restructuring (Segal et al., 2013). Sessions included

mindful breathing, body scan meditation, cognitive diffusion exercises, and techniques to break automatic thought patterns. Participants practiced daily mindfulness exercises at home, with adherence monitored through self-report logs. The MBCT protocol for hypertensive patients was structured over eight weekly sessions, each lasting 90 minutes. The first session introduced participants to mindfulness and its relevance to managing stress and emotional regulation. Participants learned basic mindfulness techniques, including mindful breathing and a body scan meditation, which helped them become more aware of bodily sensations, thoughts, and emotions without judgment. Subsequent sessions built on these foundational skills, focusing on identifying automatic negative thoughts and learning cognitive diffusion techniques to reduce the impact of stress and anxiety. The participants engaged in exercises aimed at breaking maladaptive thought patterns, which are often linked to hypertension exacerbation. In the middle sessions, emotional regulation was emphasized, where participants were taught strategies to respond to emotions in a balanced, non-reactive way, and mindfulness was integrated into daily activities. As the program progressed, participants were encouraged to practice mindfulness in their daily lives, particularly in moments of stress or hypertension-related symptoms, with regular home practice supported through self-report logs. During the final sessions, the focus shifted to sustaining mindfulness practices beyond the intervention and preventing relapse. Participants were also provided with personalized feedback to enhance their practice. The intervention was monitored for adherence, and therapists provided support through supervision sessions, ensuring that participants followed the structured protocol.

The WBT protocol was based on Ryff's (1989) model and adapted from Fava & Tomba (2009). It focused on enhancing psychological well-being through structured self-reflection, identifying positive experiences, and developing skills in self-acceptance, autonomy, and life purpose (Fava & Tomba, 2009; Ryff, 2018). Participants engaged in journaling, therapist-guided discussions, and goal-setting exercises to improve their psychological resilience. Homework assignments reinforced intervention principles, and participants shared their experiences in follow-up sessions. The WBT protocol,

based on Ryff’s model of psychological well-being, was also structured into eight weekly sessions, each lasting 90 minutes. In the first session, participants were introduced to the core concepts of well-being, focusing on self-acceptance, autonomy, and life purpose. They were guided to reflect on their life experiences and identify personal strengths, which served as the foundation for improving their psychological resilience. Throughout the therapy, participants engaged in structured self-reflection exercises, including journaling activities, to enhance their awareness of positive life events and experiences. In sessions 2 to 4, participants worked on setting realistic life goals and developing action plans that focused on autonomy and environmental mastery. Group discussions facilitated the sharing of personal goals and strategies for overcoming obstacles, fostering a sense of community and support among participants. In sessions 5 to 7, the focus shifted to deepening self-acceptance, fostering meaningful relationships, and enhancing life satisfaction through mindfulness and gratitude exercises. The final session emphasized sustaining well-being through ongoing self-reflection and adaptive coping strategies. Homework assignments, such as tracking progress and identifying barriers to well-being, were given to reinforce key concepts. Participants were encouraged to apply the techniques in their daily routines, with therapists providing guidance and feedback in each session. At the end of the intervention, participants

created individualized well-being plans to help maintain the gains made during therapy. Throughout the process, therapists monitored adherence and ensured treatment fidelity through supervision sessions.

Data analysis

All statistical analyses were performed using SPSS v26. Prior to hypothesis testing, assumption checks were conducted, including Shapiro-Wilk tests for normality, Mauchly’s test for sphericity, and Levene’s test for homogeneity of variances. Repeated measures ANOVA was used to examine within-group and between-group changes over time, with Bonferroni post-hoc tests applied to determine significant differences between groups. To control for potential confounding variables (e.g., baseline QoL scores, age, medication use), analysis of covariance (ANCOVA) was performed. Effect sizes were reported using partial eta-squared (η^2) to assess the magnitude of intervention effects. Statistical significance was set at $p < 0.05$, with 95% confidence intervals reported for all comparisons.

Findings and Results

Table 1 presents the means (M) and standard deviations (SD) for Quality of Life (QoL) scores across the three groups (MBCT, WBT, Control) at pre-test, post-test, and follow-up.

Table 1

Descriptive Statistics for QoL Scores Across Time Points

Group	Pre-test Mean (SD)	Post-test Mean (SD)	Follow-up Mean (SD)
MBCT	51.80 (6.49)	64.13 (10.80)	62.13 (8.47)
WBT	52.00 (10.59)	65.47 (13.35)	63.60 (10.86)
Control	50.53 (8.99)	54.00 (8.06)	54.11 (8.16)

At baseline (pre-test), all groups had similar QoL scores, indicating no significant differences prior to the intervention ($p > 0.05$). However, after the intervention, both MBCT and WBT groups showed substantial improvements compared to the control group, with MBCT and WBT maintaining gains at follow-up. Before conducting statistical analyses, assumptions of normality, homogeneity of variances, and sphericity

were tested. Shapiro-Wilk tests confirmed that pre-test, post-test, and follow-up scores were normally distributed ($p > 0.05$). Levene’s test indicated that variance was not significantly different across groups at any time point ($p > 0.05$). Mauchly’s test for sphericity was conducted, and results suggested a violation ($p < 0.05$), so Greenhouse-Geisser corrections were applied to adjust for within-subject violations.

Table 2

Repeated Measures ANOVA Results

Effect	Sum of Squares	df	Mean Square	F	p-value	Partial Eta Squared (η^2)
Time	1013.017	2	506.508	74.242	< 0.001	0.661
Group	781.817	2	390.908	57.298	< 0.001	0.601
Time × Group	518.500	76	6.822	8.345	< 0.001	0.401

A significant time effect ($p < 0.001$) suggests that QoL scores changed significantly over time. A significant group effect ($p < 0.001$) indicates that the type of intervention affected QoL scores. A significant interaction effect ($p < 0.001$) confirms that MBCT and WBT had different effects on QoL over time. A 2×3 repeated measures ANOVA (time: pre-test, post-test, follow-up × group: MBCT, WBT, Control) was conducted to determine whether there were significant within-group and between-group differences over time. There

was a statistically significant effect of time on QoL scores ($F(2, 82) = 74.24, p < 0.001, \eta^2 = 0.661$), indicating that scores improved significantly after treatment. There was a statistically significant effect of intervention group on QoL ($F(2, 42) = 57.29, p < 0.001, \eta^2 = 0.601$), meaning MBCT and WBT groups had greater improvements than the control group. The interaction effect was significant ($F(2, 82) = 57.29, p < 0.001, \eta^2 = 0.601$), suggesting that the effectiveness of MBCT and WBT varied over time (Table 2).

Table 3

Bonferroni Post-Hoc Comparisons

Comparison	Post-test Mean Difference	p-value	Follow-up Mean Difference	p-value (Follow-up)
MBCT vs. Control	10.13	< 0.001	8.13	< 0.001
WBT vs. Control	11.47	< 0.001	9.60	< 0.001
MBCT vs. WBT	1.34	0.34	1.47	0.36

Bonferroni-corrected pairwise comparisons were conducted to compare groups at each time point (Table 3). No significant differences among groups in pre-test ($p > 0.05$). Both MBCT and WBT significantly outperformed the control group ($p < 0.001$) in post-test. MBCT and WBT maintained their gains with no significant difference between them ($p = 0.34$), but both remained superior to the control group in follow-up ($p < 0.001$).

Discussion and Conclusion

The findings of this study indicate that both Mindfulness-Based Cognitive Therapy (MBCT) and Well-Being Therapy (WBT) significantly improved the quality of life (QoL) of hypertensive patients compared to the control group. These improvements were maintained at the three-month follow-up, suggesting the sustained effectiveness of psychological interventions in chronic disease management.

The effectiveness of MBCT can be attributed to its ability to enhance emotional regulation and reduce physiological stress responses, which are critical factors

in hypertension management (Rabipour et al., 2024). Through mindfulness practices, participants likely developed greater awareness of their thoughts and emotions, reducing rumination and stress-induced hypertension symptoms (Kazemikhabiri et al., 2020). Previous studies have shown that mindfulness-based interventions reduce sympathetic nervous system activation, leading to better autonomic balance and lower blood pressure (Black et al., 2015).

WBT, on the other hand, improved QoL by promoting self-acceptance, positive relationships, and a sense of life purpose (Fava & Tomba, 2009). Psychological well-being is a key determinant of chronic disease outcomes, and patients with hypertension often experience emotional distress and reduced motivation for self-care (Ramazani Aval et al., 2020). The structured nature of WBT, which includes goal setting, self-reflection, and positive reinforcement, may have helped participants cultivate resilience and a more optimistic outlook, further contributing to their overall well-being (Kazemikhabiri et al., 2020; Kuhlman et al., 2019).

The results of this study align with prior research demonstrating the effectiveness of MBCT and WBT in

improving mental and physical health outcomes in chronic illness populations. Zehtab & Tabatabaei-Nejad (2022) found that MBCT significantly improved psychological well-being and QoL in caregivers of Alzheimer's patients (Zehtab & Tabatabaei-Nejad, 2022), while Ramazani et al. (2020) reported that WBT was effective in enhancing life satisfaction in elderly individuals (Ramazani Aval et al., 2020). However, unlike previous studies that focused on psychological distress, this study specifically targeted hypertensive patients, confirming that psychological interventions can have a meaningful impact beyond mental health by influencing biopsychosocial aspects of chronic disease.

While our findings are consistent with prior research, some differences in intervention effects were observed. Unlike studies that have shown WBT to be superior in promoting emotional well-being (Fava & Tomba, 2009), our results indicated that both MBCT and WBT were equally effective in the long term. This may be due to cultural factors influencing patient engagement with mindfulness and well-being practices (Kazemikhabiri et al., 2020). Future research should explore whether individual differences (e.g., personality traits, cultural attitudes toward therapy) moderate the effectiveness of these interventions in different populations.

The findings of this study have important implications for the integration of psychological interventions in hypertension management. Given that both MBCT and WBT significantly improved QoL, healthcare providers should consider incorporating these therapies alongside medical treatments. One feasible approach is to offer structured MBCT and WBT programs in outpatient clinics or via telehealth, making them accessible to a broader range of patients (Rabipour et al., 2024; Ramazani Aval et al., 2020). Additionally, healthcare policymakers should recognize the cost-effectiveness of psychological interventions in chronic disease care. Since stress and negative emotions contribute to hypertension progression, incorporating mindfulness and well-being strategies into routine medical consultations may reduce the long-term burden on healthcare systems (Rabipour et al., 2024). However, successful implementation requires training healthcare professionals in delivering MBCT and WBT techniques. Future initiatives should focus on integrating psychological well-being strategies into primary care protocols, ensuring that patients receive

holistic, multidisciplinary care that addresses both physiological and psychological aspects of hypertension.

Despite the promising findings, this study has several limitations. First, the sample was selected using convenience sampling, which limits generalizability. Future studies should use randomized controlled trials (RCTs) with larger, more diverse samples to strengthen external validity. Second, data were collected using self-report measures, which may introduce social desirability and recall bias. Future research should incorporate objective physiological markers (e.g., blood pressure measurements, heart rate variability) to complement self-reported QoL scores. Third, the control group did not receive any intervention, raising the possibility of a placebo effect in the experimental groups. Future studies should include an active control group (e.g., general health education program) to ensure that improvements are specifically due to MBCT and WBT rather than general therapeutic engagement. Lastly, while the study followed participants for three months, the long-term sustainability of the interventions remains unclear. Future research should conduct extended follow-up assessments (e.g., 6-12 months) to determine whether psychological benefits persist over time and whether booster sessions are needed to maintain treatment effects.

This study provides strong evidence that MBCT and WBT are effective interventions for improving the QoL of hypertensive patients. Both therapies demonstrated significant and sustained benefits, reinforcing the role of psychological interventions in chronic disease management. Given their feasibility and impact, MBCT and WBT should be considered as complementary treatments alongside conventional hypertension care. Future research should focus on long-term effectiveness, cross-cultural applicability, and integration strategies to maximize the benefits of psychological interventions for hypertensive patients. Expanding access to these therapies in clinical and community settings has the potential to improve health outcomes and overall well-being in individuals with chronic illnesses.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

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

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Authors' Contributions

All authors equally contributed to this study.

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