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Comparison of the Effectiveness of Integrated Spiritual Self-Care Training and Mindfulness-Based Cognitive Therapy on Quality of Life and Health Self-Efficacy in Patients Undergoing Hemodialysis

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A B S T R A C T

Purpose: This study aimed to compare the effectiveness of integrated spiritual self-care training and mindfulness-based cognitive therapy on quality of life and health self-efficacy in patients undergoing hemodialysis.

Methodology: The present study was a quasi-experimental design conducted in three phases: pre-test, post-test, and follow-up, with a control group. The statistical population consisted of patients with kidney disease undergoing hemodialysis in Isfahan in the fall of 2024, from whom 60 patients were purposefully selected and assigned to three groups (each group comprising 20 participants). The Quality of Life Scale (Hays et al., 1994) and the Health Self-Efficacy Scale (Becker et al., 1993) were used to measure the dependent variable at three time points. The two treatment groups each underwent ten sessions of 75 to 90 minutes, while the control group received no treatment. Data were analyzed using repeated measures analysis of variance and Bonferroni post hoc test via SPSS version 26.

Findings: The results indicated a significant difference in quality of life and health self-efficacy between the integrated spiritual self-care training and mindfulness-based cognitive therapy groups compared to the control group ($p < .01$). However, no significant difference was found between the two treatment groups ($p > .05$).

Conclusion: Given the effectiveness of both integrated spiritual self-care training and mindfulness-based cognitive therapy in enhancing quality of life and health self-efficacy, it is recommended that these treatments be utilized for patients with kidney disease undergoing hemodialysis in healthcare centers.

Keywords: *Integrated spiritual self-care training, mindfulness-based cognitive therapy, quality of life, health self-efficacy, kidney disease patients*

1. Introduction

In recent years, chronic kidney disease (CKD), despite all possible advancements, has remained a major global health concern, placing significant pressure on healthcare systems and medical care services in most countries worldwide (Poku et al., 2022). Chronic kidney disease is a common term for disorders affecting the structure and

function of the kidneys (Faridah et al., 2021; Li, 2024). This condition is a progressive and irreversible disorder (Darvishi et al., 2022; Roudsary et al., 2022), and despite the use of replacement therapies, it is associated with a high mortality rate in many cases (Dehesh et al., 2024). In terms of prevalence, chronic kidney failure has been reported at 242 cases per one million people worldwide, with an annual increase of approximately 8% (Arzhangi et al., 2021). Kidney failure ultimately leads to a condition in which the use of replacement therapies, one of the most well-known being dialysis, becomes essential for the patient's survival (Bozorgzadeh et al., 2022). Hemodialysis is a therapeutic method for patients with acute and chronic kidney failure aimed at correcting imbalances in water, electrolytes, and metabolic waste, which typically needs to be performed at least three times per week (Arzhangi et al., 2021). In Iran, according to some reports, more than 50% of patients with chronic kidney failure undergo hemodialysis treatment (Darvishi et al., 2022; Mehr Azin et al., 2021).

Beyond the number of individuals undergoing hemodialysis, it is crucial to acknowledge that chronic kidney failure is a multidimensional phenomenon requiring attention to physical, psychological, and social aspects. Therefore, various variables that may influence different aspects of the lives of patients undergoing hemodialysis should be considered alongside efforts to support these patients. In this regard, quality of life and health self-efficacy have been identified as two key variables for patients undergoing hemodialysis (Iri et al., 2019; Noghani et al., 2020).

Quality of life is a multidimensional concept encompassing physical, psychological, social, and environmental health (Poku et al., 2022). Although there is no complete consensus among scholars regarding its definition, most experts consider it a multidimensional concept that includes physical aspects, disease symptoms, the effects of treatment on life, and psychosocial, familial, and economic conditions (Arzhangi et al., 2021). Studies have shown that patients undergoing hemodialysis experience higher rates of anxiety, depression, and social support deficiencies compared to the general population. Additionally, high treatment costs and limited coping skills, combined with the side effects of prescribed medications, can increase feelings of hopelessness and depressive symptoms in these patients (Roshanpour Dehbri, 2021), all of which contribute to a decline in their quality of life (Arzhangi et al., 2021).

Alongside the deterioration in quality of life caused by the condition of patients undergoing hemodialysis, one of the factors that can effectively help these patients manage their stressful conditions is self-efficacy (Solati et al., 2019). Self-efficacy refers to an individual's confidence in their ability to perform specific behaviors, as well as the level of effort, persistence, and perceived ability to overcome difficulties (Noghani et al., 2020). The ability to overcome obstacles and challenges influences individuals' feelings, thoughts, motivation, and performance and is considered a significant predictor of health-related behaviors. This concept is particularly important in four fundamental domains: autonomy, organization, problem-solving, and seeking social support. In this regard, some studies have highlighted the role of self-efficacy in self-management of issues related to chronic disease (Bozorgzadeh et al., 2022). Additionally, evidence suggests that increasing self-efficacy in dialysis patients is associated with improved weight control between dialysis sessions, reduced hospitalizations, lower amputation rates, and enhanced quality of life (Noghani et al., 2020).

Beyond the focus on quality of life and health self-efficacy, it is essential to emphasize the importance of psychological and social education in supporting patients undergoing hemodialysis alongside physical and medical treatments. Although hemodialysis is considered the most effective treatment for kidney failure, it is also necessary to employ other therapeutic approaches to rehabilitate these patients. Various psychological interventions and educational programs have been developed for patients undergoing hemodialysis. Among these, spiritual self-care training and mindfulness-based cognitive therapy have been particularly noteworthy. Given the increased risk of mortality and susceptibility to other diseases among hemodialysis patients, self-care is crucial (Khazaei et al., 2022). Spiritual self-care is regarded as the most significant form of self-care and involves using spiritual beliefs and teachings as a source of control and self-protection (Boughdady et al., 2024; Nam, 2024). More specifically, spiritual self-care consists of a set of spirituality-based practices aimed at promoting recovery during illness and maintaining well-being. These practices may involve behavioral, cognitive, emotional, and ethical aspects, manifesting in religious concepts such as reliance on God, patience, prayer, supplication, and meditation. The goal of spiritual education is to harness existential capacities, divine motivations, and moral virtues to address psychological disorders. Accordingly, it has been suggested that spiritual

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experiences, by providing meaning and purpose in life and fostering a sense of connection to God, help individuals better cope with stressful life situations and work toward improving their conditions (Hashemzadeh et al., 2020). Several studies have demonstrated the effectiveness of spiritual self-care training, including Eiri et al. (2019), which examined its impact on self-efficacy, Bozorgzadeh et al. (2024), which investigated the use of Orem's self-care model on self-efficacy in dialysis patients (Bozorgzadeh et al., 2022).

Beyond spiritual self-care as a therapeutic and educational approach for hemodialysis patients, another prominent psychological treatment is mindfulness-based cognitive therapy, which originates from cognitive-behavioral therapy and has empirical support for treating chronic diseases (Rouhi et al., 2022). Studies on hemodialysis patients highlight the need for educational strategies to support them, enhance their motivation for better disease management, and modify behavior to cope with treatment challenges (Armstrong & Rimes, 2016; Segal et al., 2018). Mindfulness-based cognitive therapy focuses individuals' attention on present-moment internal and external experiences, promoting acceptance of events without attempting to alter them. This therapy involves a specific and intentional focus on the present without prejudice or judgment (Parsons et al., 2017). It encourages individuals to become aware of their moment-to-moment internal experiences, bodily sensations, thoughts, and emotions, as well as environmental aspects such as sights and sounds. Additionally, this approach integrates mindfulness skills with cognitive techniques to help individuals observe their negative thoughts without becoming entangled in them, ultimately fostering the development of new perspectives and more positive emotional experiences (Parsons et al., 2017; Rouhi et al., 2022). Studies have demonstrated the effectiveness of mindfulness-based cognitive therapy, including Khezayi et al. (2022), which examined its impact on improving the quality of life in female dialysis patients (Khazaei et al., 2022), Rouhi et al. (2024), which assessed its effects on the quality of life of hemodialysis patients (Rouhi et al., 2022), and Mehr Azin et al. (2022), which investigated its role in medication adherence among dialysis patients, which is closely linked to health self-efficacy (Mehr Azin et al., 2021).

In summary, based on the theoretical and empirical literature reviewed, and considering the challenges faced by patients undergoing hemodialysis, it is essential to develop integrative intervention programs incorporating various dimensions of care. These interventions should be informed by theories of spiritual care (Hashemzadeh et al., 2020; Iri et al., 2019), studies on the needs of hemodialysis patients (Beng et al., 2019), and faith-based education programs for chronic disease patients (Babamiri Gomi et al., 2022). Additionally, previous research indicates that quality of life and health self-efficacy, and their responsiveness to spiritual self-care education among hemodialysis patients, have not been extensively explored or compared to mindfulness-based cognitive therapy, despite the latter being an established intervention for various chronic conditions. Furthermore, comparing the effectiveness of integrated spiritual self-care with mindfulness-based cognitive therapy will contribute to expanding the range of scientifically supported treatments available for hemodialysis patients. Accordingly, this study aims to address the following question: Is the effectiveness of an integrated spiritual self-care training program different from that of mindfulness-based cognitive therapy in improving the quality of life and health self-efficacy of patients undergoing hemodialysis?

2. Methods and Materials

2.1. Study Design and Participants

The present study was a three-group quasi-experimental design, including an integrated spiritual self-care training group, a mindfulness-based cognitive therapy (MBCT) group, and a control group, conducted in three phases: pre-test, post-test, and a 45-day follow-up. The statistical population included outpatients with kidney disease undergoing hemodialysis at a comprehensive hospital center affiliated with the Isfahan University of Medical Sciences in the fall of 2024. A total of 60 hemodialysis patients, with 20 individuals per group, were selected based on inclusion criteria using a purposive sampling method and were then randomly assigned to one of the three groups through simple randomization (lottery method). The decision to include 20 participants per group was based on the recommended minimum of 15 participants per group in experimental studies (Gall et al., 2014).

The inclusion criteria included obtaining written informed consent from hemodialysis patients, willingness to participate in the study, acceptance and adherence to the principles and rules of group education, absence of chronic psychological disorders such as bipolar disorder or schizophrenia, absence of other chronic physical illnesses, not undergoing psychiatric treatment, and being within the

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age range of 30 to 55 years. The exclusion criteria included lack of cooperation or unwillingness to continue participation in educational sessions, failure to complete assignments, and absence from two or more sessions. Furthermore, after the completion of training for the two experimental groups, the control group received an educational intervention.

After randomly assigning participants to three groups (two experimental groups receiving integrated spiritual self-care training and mindfulness-based cognitive therapy, and one control group), hemodialysis patients completed the Quality of Life and Health Self-Efficacy Questionnaires at the pre-test stage. Subsequently, the two treatment groups participated in their respective therapeutic programs in a counseling center. Upon completion of the training sessions, all three groups participated in the post-test phase, followed by a follow-up assessment 45 days later, in which they completed the same questionnaires again.

The integrated spiritual self-care training and mindfulness-based cognitive therapy were delivered in 10 sessions of 75 to 90 minutes, held once per week for a total duration of 10 weeks. The sessions were conducted by a therapist with over 10 years of experience in psychotherapy and psychoeducational training. The control group did not receive any intervention until the experimental groups completed their programs. The mindfulness-based cognitive therapy group received the MBCT training package developed by Kabat-Zinn, which has been previously validated in Iran through studies such as Khosh-Khatti et al. (2019). The integrated spiritual self-care training package was developed for the first time in this study and was used after initial validation.

The development process involved an initial thematic network analysis based on theoretical frameworks and literature, using the Attride-Stirling (2001) approach. Fundamental and organizing themes related to self-care training, patient needs, and existing theories and recommendations for spiritual care in hemodialysis patients were identified. The content validity ratio (CVR), calculated by three independent coders, was 1. Next, educational and therapeutic techniques were extracted using conventional content analysis. A panel of six expert psychologists, each with over 10 years of experience in psychotherapy and training, reviewed and structured the techniques into a 10-session training package. The initial package was evaluated by six psychology experts, and after incorporating their revisions, an overall agreement coefficient of 0.928 was obtained. Following expert validation, a preliminary pilot study was conducted with eight hemodialysis patients, confirming its initial effectiveness.

2.2. Data Collection Tools

The Kidney Disease Quality of Life questionnaire was adapted from the World Health Organization's Quality of Life questionnaire and developed by Hays et al. (1994). The KDQOL-SF consists of 36 items covering multiple dimensions, including physical functioning (10 items), role limitations due to physical problems (4 items), role limitations due to emotional problems (3 items), social functioning (2 items), emotional well-being (5 items), pain (2 items), fatigue and energy (4 items), general health perception (5 items), and individual health (1 item). It also includes kidney disease-specific components such as symptoms (12 items), the impact of kidney disease on life (8 items), burden of kidney disease (4 items), occupational status (2 items), cognitive functioning (3 items), quality of social interactions (3 items), sexual functioning (2 items), sleep (4 items), social support (2 items), encouragement and support from dialysis staff (2 items), and patient satisfaction (1 item). Scoring varies depending on the questions and items, with a total possible score ranging from 0 to 100. Higher scores indicate better quality of life. Scores from 0 to 33 indicate low quality of life, scores from 34 to 66 indicate moderate quality of life, and scores from 67 to 100 indicate high quality of life. In a study by Darvishi et al. (2022), the Cronbach's alpha reliability of this questionnaire among 20 hemodialysis patients was 0.89. In the present study, the Cronbach’s alpha coefficient was 0.79 (Darvishi et al., 2022).

Health Self-Efficacy Questionnaire (Health Behaviors) was developed by Becker et al. (1993) and consists of 28 items covering four dimensions: nutritional self-efficacy, mental health self-efficacy, physical activity self-efficacy, and health responsibility self-efficacy. Each item is rated on a five-point Likert scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. The total score ranges from 28 to 140, with higher scores indicating greater health self-efficacy. Becker et al. (1993) confirmed the construct validity of this questionnaire using exploratory factor analysis with varimax rotation and reported a significant positive correlation (r = 0.43) between the Health Self-Efficacy Questionnaire and the General Self-Efficacy Questionnaire, indicating convergent validity. The Cronbach’s alpha for the entire questionnaire was 0.94, with subscale reliability coefficients ranging from 0.81 to 0.92.

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The test-retest reliability over a two-week interval was reported as 0.73 for the total questionnaire and between 0.63 and 0.70 for the subscales. In Iran, Azadbakht et al. (2015) validated a version of this questionnaire. Exploratory factor analysis confirmed the four-factor structure in the Iranian population, and content validity indices were reported as satisfactory. The Cronbach's alpha for the total questionnaire and its subscales ranged from 0.73 to 0.84 (Azad Bakhsh et al., 2015). In the present study, the Cronbach's alpha coefficient was 0.88.

2.3. Interventions

Integrated Spiritual Self-Care Training Protocol: In the first session, participants were introduced to the training program, and its practical goals were outlined. The concepts of threat, worry, and anxiety were discussed, along with their roles and dimensions. Group discussions were conducted based on participants' lived experiences, and strategies for coping with these emotions, particularly spiritual coping methods, were introduced. Mindfulness techniques and meditation practices were also taught. The second session focused on religious coping, specifically strengthening a secure and trusting bond with God. Participants practiced spiritual coping strategies aimed at fostering a sense of unity with others, nature, and a deeper meaning in life. The session concluded with a review and a take-home assignment. In the third session, the concepts of spiritual enthusiasm and tranquility were introduced. Relaxation strategies and their functions were taught, followed by practical exercises for cultivating self-enthusiasm. The session concluded with a summary and a take-home assignment. The fourth session centered on increasing enthusiasm for life, positive thinking, and optimism, concluding with a summary and a take-home assignment. The fifth session introduced the concepts of spiritual and psychological empowerment. Meditation strategies and their functions were taught, alongside exercises for strengthening faith in divine wisdom and providence. The session concluded with a summary and a take-home assignment. The sixth session involved nature-based therapy, encouraging participants to connect with nature. Social modeling was also introduced by discussing successful patients who exhibited resilience, efficacy, and hope. The session concluded with a summary and a take-home assignment. In the seventh session, the need for enhancing spiritual and social support was emphasized. Participants were trained in forming support groups with other patients, and gratitude practices were introduced. The session concluded with a summary and a take-home assignment. The eighth session focused on interpersonal skills to strengthen social support networks. The concepts of kindness and love for God were emphasized, and the session concluded with a summary and a take-home assignment. The ninth session addressed the need for self-awareness, self-regulation, and compassion to prevent relapse into previous mental states. Participants engaged in self-reflection exercises and self-regulation techniques, concluding with a summary and a take-home assignment. The tenth and final session introduced self-compassion and compassion for others through perspective-taking exercises. Self-forgiveness and forgiveness of others were also practiced. The program concluded with a comprehensive review of all previous sessions, a take-home assignment, closure, and the administration of the post-test.

Mindfulness-Based Cognitive Therapy (MBCT) Protocol: The first session focused on welcoming participants and fostering group cohesion. The therapist introduced the goals and rules of the program, provided psychoeducation on mindfulness-based cognitive therapy, and guided participants through the "raisin-eating" mindfulness exercise. Participants were also introduced to the concept of automatic pilot and engaged in a body scan meditation. A take-home assignment was provided. The second session continued body scan meditation and introduced cognitive defusion techniques, including labeling thoughts as hypotheses. Participants practiced alternative thoughts and feelings and recorded positive experiences. A take-home assignment was given. The third session introduced sitting meditation (1–10 minutes) and mindfulness of breathing. Participants practiced mindful movement exercises, with a take-home assignment to incorporate mindfulness into daily movement. The fourth session focused on breathing and stretching exercises, mindfulness of space, and present-moment awareness. Participants practiced visual and auditory mindfulness, with a take-home assignment involving seated meditation and a three-minute breathing space exercise as a coping strategy for distress. The fifth session emphasized walking meditation, acceptance, and allowing thoughts and emotions to arise without resistance. Participants engaged in sitting meditation, focusing on breath and body awareness, with a take-home assignment to continue mindfulness meditation and breathing exercises. The sixth session explored responses to thoughts, emotions, and physical sensations. Participants learned to observe their mental processes, differentiating between positive, negative, and neutral

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thoughts. They recorded daily experiences without judgment, with a take-home assignment to replace negative thoughts with positive alternatives. The seventh session reinforced the concept of allowing thoughts to come and go without judgment. Participants practiced selective mindfulness exercises and were assigned a take-home task to integrate various mindfulness techniques into their routines. The eighth session focused on full-body mindfulness, including breath, body, sounds, thoughts, and emotions. Participants engaged in a full-body scan meditation, with a take-home assignment to continue practicing mindfulness and replacing distressing thoughts with positive alternatives. The ninth session emphasized applying mindfulness techniques to daily life, including mindful walking, mindful eating, and mindful music listening. Participants were assigned a take-home task to implement mindfulness in various everyday experiences. The tenth and final session provided a comprehensive review of the training, with participants sharing feedback and reflecting on their progress. The therapist emphasized the importance of daily mindfulness practice, and the post-test was administered. The session concluded with scheduling follow-up assessments.

2.4. Data Analysis

Prior to statistical analyses, assumptions were tested, including normality (Shapiro-Wilk test), homogeneity of error variances (Levene's test), equality of variance-covariance matrices (Box's M test), and sphericity (Mauchly's test). Data analysis included descriptive statistics (mean and standard deviation) and inferential statistics using repeated measures analysis of variance and Bonferroni post hoc tests. Analyses were performed using SPSS version 26, with statistical significance levels set between 0.05 and 0.001.

3. Findings and Results

The three study groups were compared in terms of age, education, years of living with kidney disease and undergoing hemodialysis, and gender using the chi-square test. No significant differences were found among the three groups regarding demographic variables. Table 1 presents the mean and standard deviation of quality of life and health self-efficacy for the three study groups across the pre-test, post-test, and follow-up stages.

Table 1

Mean (Standard Deviation) of Quality of Life and Health Self-Efficacy in the Study Groups Across Three Time Points

Variable	Time	Integrated Spiritual Self-Care Group M (SD)	Mindfulness-Based Cognitive Therapy Group M (SD)	Control Group M (SD)
Quality of Life	Pre-test	38.55 (10.32)	41.25 (11.88)	37.45 (9.59)
	Post-test	57.56 (9.05)	55.50 (9.44)	40.90 (10.38)
	Follow-up	60.30 (8.57)	56.45 (9.06)	43.10 (11.36)
Health Self-Efficacy	Pre-test	34.90 (2.55)	34.80 (2.98)	35.95 (5.04)
	Post-test	45.05 (2.16)	44.90 (2.55)	36.80 (4.57)
	Follow-up	49.35 (1.66)	49.15 (2.70)	36.60 (4.80)

As shown in Table 1, the mean values of quality of life and health self-efficacy indicate that both the integrated spiritual self-care group and the mindfulness-based cognitive therapy group demonstrated greater changes compared to the control group in both the post-test and follow-up stages.

Prior to conducting the repeated measures analysis of variance, the results of the Shapiro-Wilk test for quality of life and health self-efficacy indicated that both variables were normally distributed ($p \geq .05$). Levene's test results also confirmed the equality of variance among the study groups for these two variables ($p \geq .05$). Additionally, Box's M test for quality of life and health self-efficacy indicated the equality of variance-covariance matrices ($p \geq .05$). However, Mauchly's test for sphericity was significant for both quality of life and health self-efficacy, indicating a violation of the sphericity assumption. To address this, the Greenhouse-Geisser correction was applied to the degrees of freedom for the time factor and the time-group interaction factor. Table 2 presents the results of the repeated measures analysis of variance for quality of life and health self-efficacy.

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Table 2

Results of Repeated Measures Analysis of Variance for Quality of Life and Health Self-Efficacy

Source of Effect	Sum of Squares	df	Mean Square	F	p	Partial Eta Squared	Power
Quality of Life							
Within-group							
Time	7103.24	1.32	5365.67	478.95	.001	.89	1.00
Time × Group	1732.06	2.65	654.18	58.39	.001	.67	1.00
Error (Time)	845.37	75.46	11.20	-	-	-	
Between-group							
Group	4977.34	2	2488.67	8.69	.001	.23	0.96
Error	16318.98	57	286.30	-	-	-	
Health Self-Efficacy							
Within-group							
Time	3071.63	1.73	1779.89	517.95	.001	.90	1.00
Time × Group	1311.67	3.45	380.03	110.59	.001	.79	1.00
Error (Time)	338.03	98.37	3.44	-	-	-	
Between-group							
Group	1729.90	2	864.95	29.39	.001	.51	1.00
Error	1677.77	57	29.43	-	-	-	

For the variable quality of life, as shown in Table 2, within-group effects reveal a significant effect of time ($F = 478.95$, $df = 1.32$, $p < .01$) and a significant time × group interaction ($F = 58.39$, $df = 2.65$, $p < .01$). The partial eta squared for the time factor was .89, and the test power was 1, while for the time × group interaction, the partial eta squared was .67, with a test power of 1. These results indicate that 89% and 67% of the variance in quality of life changes were attributable to the independent variable (either the integrated spiritual self-care training or the mindfulness-based cognitive therapy), both confirmed with 100% power. Additionally, for the between-group effects, the results indicate a significant difference among groups ($F = 8.69$, $df = 2$, $p < .01$). The partial eta squared for the group factor was .23, and the test power was .96. This means that the analysis identified a significant difference in quality of life between at least one of the experimental groups (either integrated spiritual self-care training or mindfulness-based cognitive therapy) and the control group, with a power of 96%.

For the variable health self-efficacy, as shown in Table 5, within-group effects indicate a significant effect of time ($F = 517.95$, $df = 1.73$, $p < .01$) and a significant time × group interaction ($F = 110.59$, $df = 3.45$, $p < .01$). The partial eta squared for the time factor was .90, and the test power was 1, while for the time × group interaction, the partial eta squared was .79, with a test power of 1. These results indicate that 90% and 79% of the variance in health self-efficacy changes were attributable to the independent variable (either the integrated spiritual self-care training or the mindfulness-based cognitive therapy), both confirmed with 100% power. Additionally, for the between-group effects, the results indicate a significant difference among groups ($F = 29.39$, $df = 2$, $p < .01$). The partial eta squared for the group factor was .51, and the test power was 1. This means that the analysis identified a significant difference in health self-efficacy between at least one of the experimental groups (either integrated spiritual self-care training or mindfulness-based cognitive therapy) and the control group, with a power of 100%.

To determine the differences between the study's time phases and the potential differences between the groups, a Bonferroni post hoc test was conducted. The results of the Bonferroni test are presented in Table 3.

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Table 3

Results of the Bonferroni Post Hoc Test for Time and Group Comparisons in Quality of Life and Health Self-Efficacy

Variable	Row	Baseline Group	Comparison Group	Mean Difference	Standard Error	p
Quality of Life						
Time	1	Pre-test	Post-test	-12.23	0.57	.001
	2		Follow-up	-14.20	0.59	.001
	3	Post-test	Follow-up	-1.97	0.27	.001
Group	4	Integrated Spiritual Self-Care Group	Mindfulness-Based Cognitive Therapy Group	1.07	3.09	1
	5		Control Group	11.65	3.09	.001
	6	Mindfulness-Based Cognitive Therapy Group	Control Group	10.58	3.09	.003
Health Self-Efficacy						
Time	1	Pre-test	Post-test	-7.03	0.32	.001
	2		Follow-up	-9.82	0.36	.001
	3	Post-test	Follow-up	-2.78	0.25	.001
Group	4	Integrated Spiritual Self-Care Group	Mindfulness-Based Cognitive Therapy Group	0.15	0.99	1
	5		Control Group	6.65	0.99	.001
	6	Mindfulness-Based Cognitive Therapy Group	Control Group	6.50	0.99	.001

As shown in Table 3, for both quality of life and health self-efficacy, there is a significant difference between the pre-test and post-test, the pre-test and follow-up, and the post-test and follow-up. This indicates that quality of life and health self-efficacy increased from the pre-test phase to the post-test and follow-up phases, as well as from the post-test to the follow-up phase.

At the group level, a significant difference was observed between the integrated spiritual self-care training and mindfulness-based cognitive therapy groups compared to the control group ($p < .01$). However, no significant difference was found between the two intervention groups regarding their effectiveness on quality of life and health self-efficacy. This finding suggests that both educational and therapeutic approaches were equally effective in improving quality of life and health self-efficacy.

4. Discussion and Conclusion

This study aimed to compare the effectiveness of integrated spiritual self-care training and mindfulness-based cognitive therapy on quality of life and health self-efficacy in patients undergoing hemodialysis. The results indicated that the effectiveness of integrated spiritual self-care training and mindfulness-based cognitive therapy on the quality of life and health self-efficacy of patients with kidney disease undergoing hemodialysis was equivalent. A search of the literature did not reveal any studies that directly compared the effectiveness of integrated spiritual self-care training and mindfulness-based cognitive therapy on these variables in hemodialysis patients. Therefore, in aligning the findings of this study with previous research, only studies with conceptual relevance were considered. In this regard, the study by Khazaei et al. (2022) demonstrated the effectiveness of cognitive-behavioral therapy (which shares some similarities with mindfulness-based cognitive therapy) in improving the quality of life of female dialysis patients (Khazaei et al., 2022), and the study by Rouhi et al. (2022) confirmed the effectiveness of cognitive-behavioral therapy on the quality of life of hemodialysis patients (Rouhi et al., 2022). The findings of these studies are partially aligned with the results of the present study.

The effectiveness of integrated spiritual self-care training on the quality of life of hemodialysis patients in this study can be attributed to the content and structure of this intervention. Based on a comprehensive thematic analysis of literature related to the needs and challenges of hemodialysis patients, five key areas were identified as the foundation for developing the intervention: the need for spiritual coping with feelings of threat and anxiety, the need for spiritual and psychological empowerment, the need to enhance spiritual and social support, the need to foster spiritual enthusiasm and tranquility, and the need to improve self-awareness, self-regulation, and compassion. Each of these aspects, which formed the core content of the integrated spiritual self-care

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training, provided hemodialysis patients with the opportunity to focus their emotional, cognitive, behavioral, and spiritual resources on improving their health, thereby creating a foundation for enhancing their quality of life.

In addition to the integrated spiritual self-care training, mindfulness-based cognitive therapy also contributed to the improvement of hemodialysis patients participating in this study. Mindfulness-based cognitive therapy facilitated the process of modifying belief systems and cognitive patterns while encouraging present-moment awareness and an effective approach to living with chronic kidney disease. Furthermore, this therapy reinforced a cognitive-behavioral commitment that enabled patients to recognize and utilize their existing capacities, fostering a sense of progression toward an improved quality of life despite their illness. The equivalent effectiveness of both therapeutic approaches in improving the quality of life of hemodialysis patients suggests that supportive interventions for these patients should incorporate a diverse range of cognitive, behavioral, and spiritual strategies. Given that these patients require empowerment in both cognitive belief systems, which are central to mindfulness-based therapy, and in spiritual and meaning-based self-care, both interventions were able to enhance the quality of life of hemodialysis patients by addressing these domains.

Another key finding of this study was that both integrated spiritual self-care training and mindfulness-based cognitive therapy significantly and equally improved health self-efficacy in hemodialysis patients. A review of the literature did not identify any studies that directly compared the effectiveness of these two interventions in improving health self-efficacy in hemodialysis patients. However, related studies, such as Iri et al. (2019), demonstrated the effectiveness of spiritual self-care training in improving self-efficacy in non-renal patients (Iri et al., 2019), and Bozorgzadeh et al. (2022) confirmed the effectiveness of Orem's self-care model in enhancing self-efficacy in hemodialysis patients. These findings align with the results of the present study (Bozorgzadeh et al., 2022).

The effectiveness of both integrated spiritual self-care training and mindfulness-based cognitive therapy in enhancing health self-efficacy in hemodialysis patients in this study can be explained by their impact on quality of life. Since both interventions effectively improved the quality of life of hemodialysis patients, they also reinforced a sense of effort accompanied by perceived competence, thereby increasing perceived health self-efficacy, which is fundamentally based on belief in oneself and one's abilities. Beyond this explanation, spiritual self-care specifically addresses the unique needs of hemodialysis patients by equipping them with skills to control their life trajectory through reliance on spiritual and meaning-based support systems, thereby strengthening their belief in their ability to maintain and improve their health despite chronic kidney disease. Similarly, mindfulness-based cognitive therapy enhanced behavioral and cognitive skills related to non-judgmental awareness, fostering a belief in one's efficacy in striving for health. The equal effectiveness of both approaches on health self-efficacy in hemodialysis patients is likely due to their simultaneous and pressing cognitive, behavioral, spiritual, and emotional needs.

Overall, the findings of this study indicate that both integrated spiritual self-care training and mindfulness-based cognitive therapy are equally effective in improving quality of life and health self-efficacy. Given that improvements in these factors can significantly enhance the health and well-being of hemodialysis patients, it is recommended that these two interventions be implemented as effective therapeutic approaches in kidney disease treatment centers, counseling facilities for hemodialysis patients, and private psychological counseling and therapy clinics.

Finally, it is important to acknowledge the limitations of this study. One limitation is that the research was conducted exclusively on patients undergoing hemodialysis, and therefore, caution should be exercised when generalizing the results to other kidney disease patients or individuals with other chronic physical conditions. Additionally, data collection relied on self-report questionnaires, which may be subject to social desirability bias and limited depth of information. From a research perspective, it is recommended that future studies assess the effectiveness of integrated spiritual self-care training in combination with mindfulness-based cognitive therapy not only on quality of life and health self-efficacy in hemodialysis patients but also on other variables such as emotional and psychological well-being indicators. Furthermore, future research should incorporate in-depth assessments through interviews alongside questionnaire-based evaluations to obtain a more comprehensive understanding of the effects of these interventions.

Authors' Contributions

All authors significantly contributed to this study.

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Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent. This study is part of a doctoral dissertation in the field of psychology and has received ethical approval (IR.IAU.KHUISF.REC.1403.214) from the Scientific Research Ethics Committee of the university.

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