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Comparing the Effectiveness of Acceptance and Commitment Therapy and Mindfulness-Based cognitive Therapy on Life Expectancy and Quality of Life in Coronary Heart Disease Patients with Hypertension

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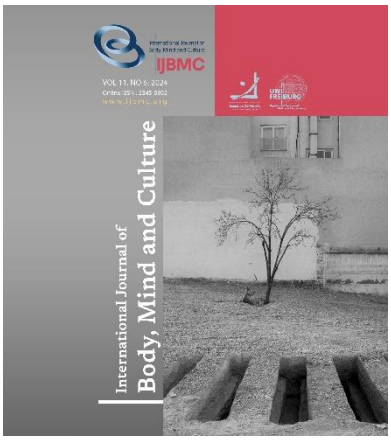

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ABSTRACT

Objective: Cardiovascular diseases stand as the leading cause of mortality and hospital admissions globally. This study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Mindfulness-Based Cognitive Therapy (MBCT) on the life expectancy and quality of life among patients with coronary heart disease and hypertension referred to Shahid Rajaei Hospital.

Methods and Materials: This study was a semi-experimental type with pre-test, post-test and 3-month follow-up with a control group. The statistical population encompassed all individuals diagnosed with coronary heart disease and high blood pressure in Tehran during the period of 2022-2023. From this population, 45 patients were selected through purposive sampling methods and subsequently randomized into two experimental groups and one control group. Data collection utilized the Life Expectancy Scale by Snyder et al. (1991) and the Quality of Life of Heart Failure Patients questionnaire developed by Minnesota Recto et al. (1984). For data analysis, repeated measures analysis of variance was employed, utilizing SPSS-26 software.

Findings: The findings indicated that Acceptance and Commitment Therapy (ACT) and Mindfulness-Based Cognitive Therapy (MBCT) were effective in improving the life expectancy and quality of life of patients with coronary heart disease and hypertension ($P<0.05$). Furthermore, the results revealed no significant difference in the effectiveness of the two therapeutic interventions, ACT and MBCT, on the life expectancy and quality of life of patients with coronary heart disease and hypertension.

Conclusion: In conclusion, the lack of significant difference in effectiveness between the two interventions suggests that both can be valuable options for individuals seeking to improve their health outcomes in this population. Further research may be warranted to explore potential differences in long-term outcomes or to identify which intervention may be best suited for specific patient populations.

Keywords: Acceptance and Commitment Therapy, Coronary Heart Disease Patients, Life Expectancy, Mindfulness-Based Cognitive Therapy, Quality of Life.

Introduction

Today, cardiovascular diseases are the most important cause of death and hospitalization in the world (Türen et al., 2024), because cardiovascular diseases are the cause of one-third of deaths in the world (Rubino et al., 2024). Coronary heart disease, as one of the main consequences of cardiovascular diseases, affects the physical, psychological, social and economic dimensions of the sufferers (Xie et al., 2024). Patients with coronary heart disease have physical problems such as shortness of breath, fatigue, and weak performance, which can become worse as their disease progresses and increases in severity, and in addition to these cases, the occurrence of psychological symptoms is also very common in them (Patel et al., 2024).

Physical and psychological distress in patients with coronary heart disease significantly reduces health-related quality of life, increases the risk of adverse clinical complications, and healthcare costs (Wang et al., 2023). Life expectancy is the use of the perceived capacity to create paths towards desired goals and the perceived motivation to move in those paths and a positive expectation to achieve the goals and is considered as an important mechanism in managing and facing life challenges and is closely related to mental health (Huang et al., 2023). Having a sense of life expectancy, especially in those with chronic diseases, can increase individual motivation to maintain physical, psychological, emotional and social health during the period of illness (Ma et al., 2023). In addition, creating and maintaining hope in psychological interventions for chronic patients is important because hope is an effective way to motivate and plan for treatment goals (Tian et al., 2023). The feeling of hope in patients with heart diseases is clearly associated with a reduction in stress and psychological distress and an increase in physical performance (Zheng et al., 2024). Snyder's research determined the effect of hope on improving the mental health and quality of life of patients, and other studies also confirmed the effect of improving hope on improving the quality of life in chronic patients such as cancer, AIDS, and hypertension (Shang et al., 2022). A positive relationship between hope and quality of life has also been observed in cardiovascular patients (Li et al., 2020).

Quality of life is one of the most important concepts for people with chronic diseases (Liang et al., 2020)and the researches of (Kim et al., 2019) and (Oreel et al., 2019)have confirmed the relationship between chronic disease and reduced quality of life. Quality of life does not only include physical health, but also includes mental status, level of individual independence, social life, and personal beliefs of individuals (Hu et al., 2024). Health-related quality of life as a multidimensional concept is not only limited to disease symptoms, side effects caused by treatment, and in addition, it includes the perception of health and satisfaction with life and physical, psychological and social performance measures (Gómez et al., 2024). Patients with heart failure referring to outpatient centers have problems ranging from moderate to poor in terms of mental health, quality of life related to health, general quality of life and its dimensions (physical and mental), and social and clinical factors influence them. Therefore, it is important to use treatment approaches that affect the management of physical, psychological and environmental factors, and evaluating the quality of life in appropriate time intervals is important to determine the exact dimensions of interventions (Jha et al., 2019). In patients with heart failure, all physical and psychological interventions aim to improve the quality of life (Moradi et al., 2020).

Conventional psychological interventions, such as motivational interviewing and supportive counseling, have not shown significant effects on anxiety, physical performance, or depression in coronary heart disease patients with high blood pressure. However, interventions based on acceptance and commitment to enhancing psychological and physical health have emerged as promising alternatives (Nicolescu et al., 2024). Treatment grounded in acceptance and prior commitment has proven effective for addressing psychological issues and disorders associated with various diseases, including chronic pain (Levin et al., 2024), cancer (Gallego et al., 2024), multiple sclerosis (Sloshower et al., 2020) and others, as evidenced by universal validation. Research has indicated that acceptance and commitment-based therapy improves quality of life and psychological flexibility (Wersebe et al., 2018), psychological well-being (Iturbe et al., 2022) and life expectancy for individuals with chronic illnesses. The focus of this therapy on acceptance, spiritual and personal values, and living in accordance with those values makes it particularly well-suited for individuals grappling with chronic diseases (Graham et al., 2016).

The primary advantage of this treatment method compared to other psychotherapies is its consideration of motivational aspects alongside cognitive aspects to enhance the impact and continuity of treatment effectiveness (Donisi et al., 2024)

Another intervention that shows promise in improving psychological factors for heart patients is mindfulness-based cognitive therapy. Through mindfulness treatment, individuals are introduced to metacognition and learn new behavioral strategies to focus their attention, prevent rumination, and manage worrisome responses (Darfashi, 2015). By combining vitality with a clear perception of experiences, the conscious mind can bring about positive changes in happiness and overall well-being. Mindfulness therapy has been shown to reduce psychological distress and symptoms of anxiety and depression (Buckner et al., 2020) enhance mental, physical, emotional, and spiritual well-being (Colle et al., 2010) and even alleviate physical symptoms (Garagoun et al., 2021)

According to the aforementioned evidence, the objective of this study is to compare the effectiveness of acceptance and commitment-based therapy versus mindfulness-based cognitive therapy on the life expectancy and quality of life of coronary heart patients with high blood pressure who are referred to Shahid Rajaei Hospital.

Methods and Materials

Study Design and Participants

The methodology employed in the current research was an experiment utilizing a semi-experimental design with a pre-test and post-test, as well as a control group, and included a three-month follow-up period. The research population comprised individuals with coronary heart disease and high blood pressure at Shahid Rajaei Hospital in Tehran during 2022 and 2023. The sampling method involved purposive sampling, whereby potential participants were selected based on specific criteria. Following this, a pre-test session was conducted, which included a clinical interview administered by the researcher under the supervision of a psychiatrist, utilizing the DSM-5 diagnostic criteria.

The present study involved 45 individuals, with 15 participants in each of the three groups: two intervention groups and one control group. Participants were selected from patients who scored highest on the baseline assessments after completing the questionnaires. The sampling method was purposive, and participants were randomly allocated to the groups. The inclusion criteria were as follows: a diagnosis of coronary heart disease (stable angina pectoris, unstable angina pectoris, or myocardial infarction), at least 70% blockage in one of the coronary vessels as confirmed by angiography, at least six months since the acute inflammatory phase of the disease or intervention, age between 35 and 60 years, an education level above the fifth grade, and patient consent to participate. Exclusion criteria included inflammatory diseases, autoimmune disorders, serious psychiatric conditions, or the use of immunological or psychiatric medications. Participants who did not consent to the research were also excluded. The first experimental group underwent acceptance and commitment-based therapy, while the second experimental group received mindfulness-based cognitive therapy. Both treatments were administered once weekly for 90 minutes. As for the control group, no specific intervention was implemented during the study. However, adhering to ethical principles, they were offered the option of receiving either acceptance and commitment-based therapy or mindfulness-based cognitive therapy at the conclusion of the study.

The appropriate sample size for experimental and control groups in research can vary depending on the research design, the specific objectives of the study, the statistical power required, and ethical considerations (Chow, 2011). It is recommended recommend that at least 15 participants be considered for each group (Crowe et al., 2023).

Data Collection Tools

Life Expectancy Questionnaire: Snyder et al. (1991) created a hope questionnaire with the aim of evaluating hope. This questionnaire has 12 statements (four statements to measure agentive thinking, four statements to measure strategic thinking and four deviant statements) and two subscales of agent and strategy and evaluates the total score of hope. The scoring of this questionnaire is based on the eight-choice Likert scale as completely disagree (1), strongly disagree (2), disagree (3), slightly disagree (4), slightly agree (5), agree (6), strongly agree (7). , the item is agreeable (8) that the total score is obtained by summing up the score

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of all the statements of the questionnaire and a higher score indicates more hope and a lower score indicates less hope. The reliability and external validity of the hope questionnaire were investigated by Snyder and Lopez (2007), and they reported the Cronbach's alpha coefficient of 0.91 and the internal consistency of the entire test from 0.74 to 0.84. Validity and reliability of the hope questionnaire inside the country in the research of Kermani, Khodapanahi and Heydari (2011), its validity was investigated using construct validity and confirmatory factor analysis, indicating the two-factor structure of the hope questionnaire, including agent thinking and strategies, and Cronbach's alpha coefficient reported 0.86 and through retesting 0.81 (Haji-Adineh et al., 2019). Cronbach's alpha reported in the present study was 0.815.

Quality of Life Questionnaire of Minnesota Heart Failure Patients: Rector et al. (1984), the Minnesota Heart Failure Quality of Life Questionnaire aimed at evaluating the impact of interventions on the quality of life of heart failure patients and the patients' perception of the effects of heart failure on physical, psychological and economic aspects. - They built their social life which has 21 items and 2 subscales and its total score shows the quality of life. The scoring of this questionnaire is based on a six-option Likert scale in the form of no (0), very low (1), low (2), medium (3), high (4), very high (5), and the total quality of life score is Summing up the score of all subjects is obtained. The score range of this questionnaire is between 0 and 105, where a lower score indicates a higher quality of life and a higher score indicates a lower quality of life for patients with heart failure. external validity and reliability of the quality of life questionnaire by Rector et al. (1987); Gurkin et al. (1993) reported the Cronbach's alpha coefficient of the questionnaire as 0.94. Also, Bennett et al. (2002) investigated the validity of the quality of life questionnaire from the correlation method between its scores and reported a correlation coefficient of 0.81. In Iran, Eskandari et al. (2015) investigated the validity and reliability of the quality of life questionnaire and reported Cronbach's alpha coefficient of 0.95 and retest coefficient of 0.90 (Davoudi-Monfared et al., 2023; Rahmani et al., 2018). Cronbach's alpha reported in the present study was 0.732.

Intervention

Acceptance and commitment-based therapy: Acceptance and commitment-based therapy was implemented in 8 weekly 90-minute sessions according to the protocol of acceptance and commitment-based therapy by Hayes et al. (2010):

Session 1: This session focuses on introducing the therapy framework, explaining what Acceptance and Commitment Therapy (ACT) is, and setting expectations for the group. Patients meet each other, and the therapist establishes a collaborative therapeutic alliance. The therapist explains the main principles and goals of ACT, including helping patients understand their heart failure and how it impacts their lives. The session also includes information on managing heart failure, discussing potential treatment methods and their pros and cons, and starting psychological training. Homework assignments are given to reinforce learning.

Session 2: This session involves assessing the patients' readiness for change and understanding their expectations of the therapy. The therapist explores patients' motivations and concerns, guiding them to reflect on what they hope to gain from the process. The therapist also introduces the concept of "creative frustration," a therapeutic tool used to help patients confront the gap between where they are and where they want to be, ultimately fostering psychological flexibility and openness to change.

Session 3: In this session, patients are encouraged to reflect on their current strategies for coping with heart failure and its challenges. The therapist helps them identify ineffective or unhelpful strategies, explaining why they often don’t work in the long run. The concept of acceptance is introduced, with clear distinctions drawn between acceptance and other related but unhelpful concepts such as surrender, ignoring, or tolerating. Patients learn that acceptance is a continuous process, not a passive one, and explore how avoiding painful experiences exacerbates their distress. The therapist guides patients to confront and accept these experiences, using them as stepping stones to greater emotional flexibility.

Session 4: The focus of this session is on committed behavior and the concept of "cognitive fusion," where patients' thoughts become entangled with their sense of self. The therapist helps patients separate their identity

from their thoughts and emotions, teaching them not to fuse with negative or distressing mental content. Metaphors and language interventions are used to help patients loosen the grip of unhelpful thoughts. This session encourages patients to spend less time dwelling on their mental struggles, promoting active engagement with life despite the challenges they face.

Session 5: This session builds on the previous one by further exploring the concept of the self in ACT. Patients are guided to recognize the distinction between their "self" (the observing self) and their "self-concept" (the narrative they have about themselves). This session also addresses how therapy can help patients shift from a fixed, self-limiting concept to a more fluid and open sense of self. The goal is to help patients see themselves as more than just their heart failure diagnosis or the limitations it imposes.

Session 6: Here, patients are encouraged to identify their core values—the things that truly matter to them in life. The therapist helps them focus on these values, which will serve as a guide for future behavior. The practice of mindfulness is introduced, focusing on living in the present moment, which is essential for overcoming distress related to heart failure. Mindfulness also helps patients become more aware of their thoughts and emotions without getting overwhelmed by them.

Session 7: The therapist helps patients differentiate between values and goals, emphasizing the importance of pursuing values rather than just achieving specific outcomes. Common mistakes in value selection, such as pursuing values based on external pressures rather than internal desires, are discussed. The session encourages patients to explore how their values can guide them in navigating the difficulties of living with heart failure, considering both internal and external resources to help them stay aligned with what truly matters to them.

Session 8: The final session is focused on "committed action." Patients are encouraged to make a firm commitment to acting in ways that align with their values, despite any challenges or fears. Behavioral strategies are introduced to help patients take practical steps toward living according to their values. The therapist emphasizes that commitment is an ongoing process, involving consistent effort and the ability to adapt and persist in the face of obstacles, especially as it relates to managing heart failure.

Mindfulness-based cognitive therapy: Mindfulness-based cognitive therapy was implemented in 8 weekly 90-minute sessions according to the guidelines for mindfulness-based cognitive therapy by Segal et al. (2013):

Session 1: The first session focuses on introductions and setting the stage for the therapy. Patients are introduced to the symptoms of depression and the role of mindfulness in managing these symptoms. The therapist provides an overview of the research components, explaining the evidence supporting mindfulness-based interventions for depression. The session aims to create an open and supportive environment for participants, while emphasizing the connection between thoughts, emotions, and physical experiences.

Session 2: This session begins with a body scan meditation, where participants are guided to focus their attention on different parts of their bodies to increase awareness of physical sensations. The group discusses their experiences with the meditation, sharing any obstacles they encountered during practice. The therapist helps participants understand the common challenges in establishing a mindfulness practice and offers strategies to overcome these difficulties. Additionally, the session introduces the concept of separating thoughts and feelings, helping participants recognize that thoughts are not necessarily reflective of reality. The session concludes with seated meditation focused on bodily sensations.

Session 3: In this session, participants engage in a mindfulness exercise that encourages them to see and hear in a non-judgmental way for two minutes. This exercise helps them become more aware of the present moment and develop mindfulness skills. Following this, the group practices sitting meditation, emphasizing attention to bodily sensations and breath. The goal is to deepen participants' awareness of their present experiences without judgment, fostering greater emotional regulation and acceptance.

Session 4: The focus of this session is on a more advanced sitting meditation practice that includes attention to breathing, body sensations, sounds, and thoughts, referred to as "four-dimensional sitting meditation." Participants learn to observe their thoughts, bodily sensations, and the sounds around them with equanimity. The therapist also discusses how stress responses manifest in difficult situations and guides

participants to explore alternative attitudes and behaviors in response to these challenges. Additionally, mindful walking is practiced to bring mindfulness into movement.

Session 5: This session introduces the "three-minute breathing space" exercise, which helps participants ground themselves in the present moment and bring awareness to their thoughts and feelings. The therapist also offers the "Creation, Thought, Separate Perspectives" exercise, emphasizing that the content of thoughts is often not a reflection of reality. This exercise aims to help participants recognize the impermanent nature of thoughts and view them from a more objective standpoint, reducing their power to affect mood and behavior.

Session 6: The focus in this session is again on four-dimensional meditation, with a focus on being aware of everything that arises in consciousness. The central theme of the session is self-care and exploring what constitutes the best way to take care of oneself. Participants are encouraged to reflect on their needs and what helps them manage their depression effectively. This session aims to deepen mindfulness practice and reinforce the importance of self-compassion and self-care in the healing process.

Session 7: In this session, participants practice the three-minute breathing space again, with a focus on how to overcome common obstacles to meditation, such as distractions or frustration. The therapist opens the floor for questions about the practice, allowing participants to share their struggles and successes. This session provides an opportunity to troubleshoot and refine participants' mindfulness practices, ensuring they feel supported in their journey toward more consistent practice.

Session 8: The final session prepares participants to complete the treatment and provides a summary of key lessons learned throughout the course. The therapist offers additional tips for maintaining a mindfulness practice after the program concludes, such as integrating mindfulness into daily activities. Participants also complete a post-test to assess their progress. The session closes with a sense of closure and readiness to continue using mindfulness tools to manage depression in the future.

Data analysis

Data were collected using univariate, multivariate analysis and repeated measures of covariance in SPSS version 26 for analysis.

Findings and Results

The mean ± standard deviation for the age of participants in the acceptance and commitment therapy (ACT) group was 49.2 ± 6.35, in the mindfulness based cognitive therapy (MBCT) group it was 50.4 ± 7.01, and in the control group, it was 48.7 ± 5.89. Regarding gender distribution, the ACT group comprised 8 men (53%) and 7 women (47%). The MBCT group included 5 men (33%) and 10 women (67%). In the control group, there were 6 men (40%) and 9 women (60%). It is important to note that statistical tests indicated no significant differences between the groups concerning demographic variables.

Table 1

Comparison of the mean and standard deviation of the scores of the research variables among the three groups and at three times before and after the intervention and follow-up

Variable	Group	Pre-test		Post-test		Follow up	
		M	SD	M	SD	M	SD
life expectancy	ACT	37.9	6.85	53.5	6.03	52.4	6.12
	MBCT	38.4	5.33	51.1	7.42	50.4	7.08
	Control	38.9	6.90	39.5	7.24	38.8	6.76
Quality of Life	ACT	49.8	4.05	38.6	3.63	39.5	3.66
	MBCT	48.6	3.35	36.2	4.26	37.06	4.31
	Control	50.3	4.32	50.1	4.25	50.4	4.37

The normality of the distribution of the variables' scores was assessed using the Shapiro-Wilk test. The results were not significant, indicating that the distribution of the scores for the dependent variables is normal. The assumption of homogeneity of covariances, tested by Mauchly's test, was not met, suggesting that the

Greenhouse-Geisser correction should be applied for the analysis of variance with repeated measures. Levene's test results indicated that the variance error in the research variables is not significant at the level of 0.05. The significance levels of all four multivariate statistics, including Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root, are significant at the level of 0.001 (P < 0.01), indicating that the intervention had a general effect on the dependent variables.

Table 2

Results of repeated measures analysis of variables

Variable	Source of changes	SS	df	MS	F	P	Eta
Life expectancy	time	2385.53	1.01	2362.96	274.649	< 0.01	0.86
	time × group	1121.88	1.01	111.264	129.163	< 0.01	0.75
	group	2179.93	2	1089.96	8.37	< 0.01	0.39
Quality of life	time	1454.45	1.22	1191.47	124.08	< 0.01	0.74
	time × group	576.08	1.22	471.92	49.14	< 0.01	0.53
	group	1353.34	2	676.5	20.22	< 0.01	0.32

The results of the Table 2 mean that the effect of time and group is significant. The interaction of group and time is also significant. To examine the difference in the effectiveness of the two interventions, a pairwise comparison was conducted using the Bonferroni test on the research variables, with the results displayed in Table 3.

Table 3

Bonferroni test to compare three groups in research variables

Variables	Research stages	group	group	Mean Difference	Sig
life expectancy	Pre-exam	ACT	MBCT	-0.533	1
		ACT	control	-1	1
		MBCT	control	-0.466	1
	Post-test	ACT	MBCT	2.40	1
		ACT	control	14	0.001
		MBCT	control	11.6	0.001
	Follow up	ACT	MBCT	2.06	1
		ACT	control	13.6	0.001
		MBCT	control	11.6	0.001
Quality of Life	Pre-exam	ACT	MBCT	1.20	1
		ACT	control	-0.466	1
		MBCT	control	1.66	1
	Post-test	ACT	MBCT	2.40	0.340
		ACT	control	-.11.4	0.001
		MBCT	control	-.13.8	0.001
	Follow up	ACT	MBCT	2.46	0.328
		ACT	control	-.10.9	0.001
		MBCT	control	-.13.4	0.001

According to the results of the Bonferroni test in Table 3, there is no significant difference in life expectancy and quality of life among the three groups in the pre-test (p<0.05); In the post-test, significant differences were reported in all variables between the intervention and control groups (p<0.05). There is no significant difference in the effectiveness of acceptance and commitment therapy and mindfulness-based cognitive therapy in the post-test and follow-up research variables (p<0.05).

Discussion and Conclusion

The results revealed that treatment based on acceptance and commitment is effective in enhancing the life expectancy of coronary heart patients with high blood pressure. This finding aligns with the research conducted by Mohammadi et al. (2022), Sloshower et al. (2020), Afshinpoor (2018). The underlying principle of acceptance and commitment therapy is to assist individuals in maximizing their potential, enriching their

lives, and finding meaning. The theory underpinning this approach is grounded in the belief that individuals should accept what is beyond their personal control and commit to actions that enhance their lives. The goal of acceptance and commitment therapy is to help clients create a rich, complete and meaningful life; At the same time, life has its sufferings and sufferings and one should accept life with its sufferings (Hasani Dehghani, 2020).

The findings also indicated that mindfulness-based cognitive therapy effectively improves the life expectancy of coronary heart patients with high blood pressure. This outcome is consistent with the research of Mehdizadeh (2023), Afshar Shandiz (2023), Carvalho et al. (2022), Türen et al. (2024), Kang and Luo (2022). In the resulting explanation, it can be said that the mechanism of mindfulness, using focused breathing, is effective in regulating excitement. The characteristic of the mindfulness method is that it informs the person about the roots of the disorder and its mechanism in the brain, prevents him from becoming anxious, focuses on his thoughts and desires in a conscious state, and allows the person to so that he does not choose to repeat actions or thoughts and ruminate on them to reduce anxiety. In people who have physical symptoms, mindfulness training leads to a cognitive change in their thinking and actions and benefits from the principles of conditional reinforcement. In this way, in order to go to the next step, the person tries to see himself in a higher step, and this tendency towards a higher step continuously causes the gradual improvement of the person step by step, and at the same time, peace and awareness, to the treatment. A person continues and solves his shortcomings and problems in face-to-face meetings (Kang & Luo, 2022).

Data analysis revealed no significant difference between the effectiveness of acceptance and commitment-based therapy and mindfulness-based cognitive therapy on life expectancy. To the best of our knowledge, no previous study has specifically compared the effectiveness of these two treatments on the life expectancy of coronary heart patients with high blood pressure. Both treatments share similarities in teaching clients the skills and principles of mindfulness. They aid in altering problematic cognitive and emotional patterns associated with anxiety, anger, and self-criticism. The core of these interventions lies in addressing the relationship between cognitive patterns and emotion regulation. Therapists are equipped with techniques from mindfulness training, acceptance and commitment therapy, and cognitive-behavioral therapy, enabling them to effectively manage these systems and respond more appropriately to various situations.

The results demonstrated that treatment based on acceptance and commitment has a positive impact on the quality of life of coronary heart patients with high blood pressure. This finding aligns with the research conducted by Mohammadi et al. (2022), Sloshower et al. (2020), Afshinpoor (2018) Acceptance and commitment therapy differs from traditional approaches by focusing not on changing or reducing unwanted thoughts and feelings but on helping individuals become aware of and observe these thoughts and feelings without judgment. This approach empowers patients to find logical solutions to their problems, thereby improving their quality of life.

The findings also indicated that mindfulness-based cognitive therapy effectively enhances the quality of life of coronary heart patients with high blood pressure. This outcome is consistent with the research of Mehdizadeh (2023), Afshar Shandiz (2023), Li et al. (2020), Frostadottir and Dorjee (2019). Mindfulness-based cognitive therapy is a form of psychotherapy that effectively enhances an individual's quality of life by reducing depression. This therapeutic approach integrates traditional cognitive-behavioral therapy methods with novel psychological strategies, including mindfulness and conscious attention meditation. Cognitive methods involve educating clients about depression, its symptoms, and its impact on their lives. Mindfulness-based strategies, on the other hand, emphasize the importance of becoming aware of one's thoughts and feelings and accepting them without judgment, rather than becoming entangled or reacting to them. Similar to cognitive therapy, mindfulness-based cognitive therapy operates on the theory that individuals with a history of depression are susceptible to the re-emergence of automatic cognitive processes that can trigger depressive episodes when they become distracted or their minds wander. The primary goal of mindfulness-based cognitive therapy is twofold: to disrupt these automatic cognitive processes and to foster a more detached and observant mindset toward the stimuli that enter the mind. Additionally, this therapy teaches clients to react less intensely to these stimuli and to accept and observe their thoughts and feelings without judgment. This practice of mindful

awareness enables individuals to pay closer attention to their cognitive processes, allowing them to respond in a more meditative and calm manner. As a result, it is reasonable to conclude that these factors contribute to the effectiveness of mindfulness-based cognitive therapy in improving patients' quality of life.

Mindfulness-based cognitive therapy is a form of psychotherapy that effectively enhances an individual's quality of life by reducing depression. This therapeutic approach integrates traditional cognitive-behavioral therapy methods with novel psychological strategies, including mindfulness and conscious attention meditation. Cognitive methods involve educating clients about depression, its symptoms, and its impact on their lives. Mindfulness-based strategies, on the other hand, emphasize the importance of becoming aware of one's thoughts and feelings and accepting them without judgment, rather than becoming entangled or reacting to them. Similar to cognitive therapy, mindfulness-based cognitive therapy operates on the theory that individuals with a history of depression are susceptible to the re-emergence of automatic cognitive processes that can trigger depressive episodes when they become distracted or their minds wander. The primary goal of mindfulness-based cognitive therapy is twofold: to disrupt these automatic cognitive processes and to foster a more detached and observant mindset toward the stimuli that enter the mind. Additionally, this therapy teaches clients to react less intensely to these stimuli and to accept and observe their thoughts and feelings without judgment. This practice of mindful awareness enables individuals to pay closer attention to their cognitive processes, allowing them to respond in a more meditative and calm manner. As a result, it is reasonable to conclude that these factors contribute to the effectiveness of mindfulness-based cognitive therapy in improving patients' quality of life.

The findings of the research revealed that treatment based on acceptance and commitment, as well as mindfulness-based cognitive therapy, effectively enhance the life expectancy and quality of life of coronary heart patients with high blood pressure. It is important to acknowledge that every research endeavor has its limitations. In the present study, the limitations included the reliance on self-report questionnaires, a relatively small sample size, and the lack of comprehensive control over the sample during the interval between the pre-test and post-test, as well as the follow-up period. To address these limitations and form a more conclusive opinion about the results, it is recommended to conduct similar research in the same field and expand the scope to include other nursing homes. This would provide opportunities for comparison and increase the generalizability of the findings. Given that this research focused specifically on coronary heart patients with high blood pressure, it would be beneficial to explore the impact of these interventions on other patient populations experiencing chronic pain, specific diseases, and varying age groups. Future research should also consider investigating the potential gender-specific effects of these interventions. To enhance the reliability of the therapeutic intervention assessments, re-testing on larger groups is suggested. Additionally, future research should aim to compare the effects of more treatment methods and extend the follow-up period to assess the long-term continuity of treatment effects.

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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.

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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