

The Impact of a Mindfulness-Based Intervention on Developing Health Behavior and Reducing Death Anxiety among Cardiac Patients: A Quasi-experimental Study

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Abstract

Objectives: This study examines the effectiveness of mindfulness-based intervention in fostering healthy behaviour and reducing death anxiety among cardiac patients in Jordan.

Methods: To achieve the research objectives, scales were developed to evaluate healthy behavior and death anxiety. Furthermore, the mindfulness-based intervention guidance program is designed and administered. A sample of 21 heart patients was purposefully selected and distributed into two groups: an experimental group of (11) patients who underwent the mindfulness-based guidance program and a control group of (10) patients who did not receive any intervention. The mental intervention was performed for a month and a half with the experimental group.

Results: The results demonstrated significant improvements in healthy behaviour, and a decrease in death anxiety among participants in the experimental group compared to those in the control group. Furthermore, follow-up assessments revealed that these beneficial effects were sustained in the experimental group.

Conclusions: The study supports focusing on mindfulness-based intervention as a therapeutic approach to enhance healthy behavior and reduce death anxiety among heart patients. The researchers conclude that heart patients need such interventions to improve their quality of life, and to positively reflect on their psychological wellbeing.

Keywords: Mindfulness-based intervention, healthy behaviour, death anxiety, cardiac patients.

أثر التدخل المبني على اليقظة الذهنية في تطوير السلوك الصحي وخفض قلق الموت لدى مرضى القلب: دراسة شبه تجريبية

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ملخص

الأهداف: الكشف عن فعالية التدخل القائم على اليقظة الذهنية في تعزيز السلوك الصحي والحد من قلق الموت بين مرضى القلب في الأردن.

المنهجية: لتحقيق أهداف البحث تم تطوير مقاييس لتقييم السلوك الصحي وقلق الموت، وكذلك تصميم وتطبيق برنامج إرشادي مبني على اليقظة الذهنية. وتم اختيار عينة قصدية مكونة من 21 مريضاً بالقلب وتم توزيعها على مجموعتين: مجموعة تجريبية (11) مريضاً خضعت للبرنامج الإرشادي ومجموعة ضابطة (10) مرضى، لم تتلق أي تدخل، وتم إجراء التدخل الذهني لمدة شهر ونصف.

النتائج: أظهرت النتائج تحسناً ملحوظاً في السلوك الصحي وانخفاضاً في قلق الموت بين المرضى المشاركين في المجموعة التجريبية مقارنة مع المجموعة الضابطة. وعلاوة على ذلك، كشفت تقييمات المتابعة أن هذه الآثار الإيجابية استمرت في المجموعة التجريبية.

الخلاصة: التركيز على التدخلات القائمة على اليقظة الذهنية كمنهج علاجي مساعد لتعزيز السلوك الصحي وتقليل قلق الموت بين مرضى القلب، حيث استنتج الباحثون أن مرضى القلب يحتاجون لبرامج إرشادية تساهم في تحسين نوعية حياتهم، وتنعكس بشكل إيجابي على صحتهم النفسية.

الكلمات الدالة: التدخل المبني على اليقظة الذهنية، السلوك الصحي، قلق الموت، مرضى القلب.

1. Introduction

Mindfulness, a concept associated with positive psychology, has been recognized as a potent predictor of psychological well-being, significantly influencing various aspects of human functioning. Extensive research in this field has demonstrated its positive impact on performance, adaptability, and resilience against psychological stress (Ritchie & Bryant, 2012). Moreover, empirical investigations have revealed positive corrected item-total correlations between mindfulness and several mental health indicators, such as ambition, tolerance of ambiguity, self-efficacy, and academic achievement (Brausch, 2011).

Mindfulness is the conscious and non-judgmental awareness of present-moment experiences and thoughts, allowing individuals to observe and accept them without avoidance (Carlson, 2012; Wupperman et al., 2008). This cognitive process is facilitated through mindfulness exercises, emphasizing thinking and reflection beyond immediate knowledge.

Researchers have offered diverse theoretical perspectives on the components of mindfulness, including its association with novelty-seeking and attachment to one's environment, leading to openness and curiosity toward experiences and fostering connectedness with the surroundings. Others have highlighted its role in providing novel perspectives and promoting flexibility in coping with environmental demands (Haigh et al., 2011).

Individuals who exhibit higher levels of mindfulness have been found to demonstrate compassion, self-acceptance, and empathy towards themselves and others. They experience lower stress levels and encounter fewer difficulties in managing interpersonal relationships. Furthermore, they display enhanced personal skills and exhibit more effective communication with others, leading to an overall improved quality of life compared to individuals with lower levels of mindfulness (Burgoon et al., 2000).

Heart diseases are considered to be of the most common diseases that cause death and are affected by the psychological state of the patients. These are among the most common diseases that cause fear in the individual. Consequently, heart disease patients become affected by unhealthy behavioral patterns associated with their daily life activities. Psychological interventions to improve psychological health are useful in influencing the health of the heart and circulatory vessels. (Levine, et al., 2021)

The current study aims to evaluate the effectiveness of a counselling program depending on mindfulness-based cognitive therapy in promoting healthy behaviour and reducing death anxiety among a sample of heart disease patients. Moreover, to examine the program's long-term impact. The significance of this study lies in enriching the theoretical literature on health behaviour and death anxiety among heart disease patients. It seeks to explore their psychological phenomena, alleviating the pressure and anxiety they experience. Additionally, the study's importance stems from providing a counselling program that can benefit psychologists, counsellors, and sociologists in assisting this group in coping with the changes resulting from their illness. (Huijing, et al, 2020)

Death anxiety is recognized as one of the most intricate forms, encompassing various other types of anxiety. Traumatic events that threaten an individual's life and subject them to fear of death, destruction, harm, and pain, are among the most impactful types of trauma (Al-Tarawneh, 2021; Szczepanowski et al., 2022). Nienaber and Goedereis (2015) define death anxiety as an exaggerated negative emotional response associated with anticipating one's cessation of existence. It represents a form of generalized anxiety characterized by persistent and excessive worry across various life circumstances, leading to disruptions in daily life. Physiological responses such as increased heart rate, muscle tension, insomnia, and difficulty concentrating accompany this anxiety. Furthermore, Tavakoli and Behroo (2011) describe death anxiety as an unstable and obscure feeling of distress or dread arising from real or imagined threats related to death. Miller et al. (2012) identified four dimensions describing different elements of death anxiety: anxiety related to the cognitive and emotional impact of death and dying, anticipation and fear of bodily changes during death and dying, awareness of the limited time between birth and death and its swift passage, and anxiety concerning the distress and pain accompanying death.

Various forms of death anxiety can be manifested, each with distinct characteristics. One such form is anticipatory anxiety, which compels individuals to take action to confront the perceived threat to their existence, resulting in cognitive and physiological reactions (Marinovic & Hunter, 2022; Szczepanowski et al., 2022). Another potent manifestation is

existential death anxiety, which revolves around the fear of personal destruction, making it one of the most profound expressions of death-related concerns. Additionally, predatory death anxiety emerges when individuals harm others physically or mentally, and their primary response to this form of anxiety is often accompanied by feelings of guilt, whether consciously or unconsciously (Langs, 2008).

Understanding how individuals cope with death anxiety sheds light on their social behaviour. Many people resort to symbolic practices, such as art and music, to transcend the mortal self while developing robust defenses against those with differing perspectives to preserve their social worldviews and self-esteem. This behaviour is driven, in part, by the need to mitigate death anxiety by seeking validation and protection through interpersonal relationships (Iverach, et al, 2014).

The theoretical perspectives on death anxiety provide further insights. Freud posited that the ultimate goal of life is to confront death, and individuals possess both life and death instincts. However, thoughts of death are typically relegated to the unconscious to deny its inevitability (Szczezanowski et al., 2022). Behaviourists view death anxiety as subject to classical conditioning, similar to other fears, while cognitive theorists emphasize the role of interpretation and anticipating threatening events in eliciting anxiety responses (Corey, 2013). Understanding the nuances of death anxiety and its coping mechanisms contributes to a deeper comprehension of human behaviour and psychological functioning.

Existentialists posit that human existence inherently faces threats from mortality and impermanence. Across various psychological perspectives, death anxiety is widely acknowledged as a fundamental element of human fears, encompassing concerns such as obsessive-compulsive disorder, neuroticism, and somatic delusions (Sharf, 2016).

A study by Samadi and Gwanmeh (2005) aimed to assess the level of death anxiety among a sample of heart patients at the Queen Alia Heart Center in Jordan. The findings indicated a low level of death anxiety among the participants. Additionally, the study identified religious commitment, social support, and gender as statistically significant predictors of death anxiety. Age, smoking habits, and educational level did not significantly contribute to explaining the variance in death anxiety levels.

In a related study, Mohammed et al. (2021) investigated the effectiveness of a cognitive-behavioral counselling program grounded in mindfulness principles in fostering psychological flexibility among university students. The results indicated statistically significant differences between participants' mean scores in the experimental and control groups on the Psychological Flexibility Scale, favouring the experimental group during the post-intervention assessment. Furthermore, the study demonstrated significant improvements in psychological flexibility for the experimental group between pre-intervention and post-intervention assessments. However, no statistically significant differences were found in psychological flexibility between the pre-intervention and follow-up assessments for the experimental group.

A study by Ahmed (2022) aimed to assess the effectiveness of mindfulness-based therapy in reducing post-traumatic stress disorder (PTSD) symptoms among female victims of cyberbullying. The findings revealed a significant reduction in PTSD symptoms in the participants, indicating the efficacy of the mindfulness-based program in alleviating their symptoms. Furthermore, the positive effects of the therapy were observed to persist over time, as there were no statistically significant differences between the post-intervention and follow-up assessments, indicating the sustained effectiveness of the mindfulness-based treatment in reducing PTSD symptoms in the sample. Shively et al. (2005) examined the impact of behavioural regulation on the quality of life among patients with mild heart muscle weakness. Over time, the first group showed improvement, although no significant differences were found between the two groups concerning physical and mental performance, physical activity, or overall health awareness.

Another investigation by Hamed (2021) proposed an innovative reading program to reduce death anxiety levels in elderly Muslim individuals. The study evaluated the program's therapeutic efficacy, cost-effectiveness, and treatment duration using a pre-post experimental design. The results revealed that the proposed reading program required only nine hours of treatment time and incurred no more than 100 Egyptian pounds, demonstrating its efficiency and affordability compared to conventional therapeutic methods. The study suggested the development of reading-based therapeutic programs for various psychological and organic conditions, focusing on meeting the needs of elderly participants.

Furthermore, Al-Shahri's study (2019) examined the prevalence of irrational beliefs among heart patients and their

association with death anxiety. The results indicated a statistically significant impact of social status on death anxiety levels, favouring individuals with lower socioeconomic status. However, the study found no statistically significant impact of economic status or interaction between social and economic status on the variance in death anxiety scores among heart patients.

These studies offer valuable insights into the multifaceted nature of death anxiety and its potential interventions. They provide important implications for psychological treatment and enhance our understanding of human emotional responses to existential concerns.

In their respective studies, Onsa and Yousef (2015) and Al-Jack and Al-Sharif (2020) aimed to examine the psychological factors related to heart patients. Onsa and Yousef (2015) sought to explore the association between death anxiety and depression among heart patients at Al-Shaab Hospital in Khartoum. The study revealed a notable increase in death anxiety and depression among heart patients. Furthermore, significant gender-based differences were found in death anxiety and depression, while no significant variations were observed concerning age, marital status, or educational level among the heart patients.

Similarly, Al-Jack and Al-Sharif (2020) focused on investigating psychological stress and its corrected item-total correlations with frustration among individuals diagnosed with heart disease at the Sudan Heart Center. The research findings indicated a significant psychological stress and frustration elevation among heart patients. Gender-based differences were also observed, with higher psychological stress levels observed in males than females. Additionally, the study revealed significant corrected item-total correlations between psychological stress and frustration among heart patients. However, no significant differences in psychological stress were identified based on age or educational level among the heart patients.

These empirical studies provide valuable insights into the psychological experiences of heart patients, shedding light on the significance of addressing death anxiety, depression, psychological stress, and frustration in heart disease management. The findings have important implications for healthcare professionals, emphasizing the need for a holistic approach to patient care, encompassing their psychological well-being, and tailoring interventions accordingly to enhance overall treatment outcomes and patient quality of life.

Abdel-Fattah et al. (2004) conducted a study investigating the effectiveness of a rational-emotive behavioural counselling program in reducing anxiety, depression, and fear of death among a sample of children with heart disease at Al-Shaab Hospital in Khartoum state. The results indicated that the program did not lead to the development of rational thinking in the experimental group; instead, differences in the control group were observed in favour of the control group. Although anxiety and fear of death did not significantly decrease, the program did show a reduction in depression among the experimental sample. Furthermore, irrational thinking decreased, and the program demonstrated an impact on reducing fear of death in the experimental group.

On another note, health behaviour has become a topic of considerable interest among researchers from various disciplines, as it promotes healthy practices, supports overall well-being, and aids in preventing chronic and complex diseases (Abdel-Khaleq & Al-Niyal, 2019).

Health behaviour is any activity an individual performs to prevent or detect disease and promote health to enhance well-being and improve the quality of life (Ferguson & Danial, 1995). The World Health Organization (WHO) (2003) adds that health behaviours, such as engaging in regular physical activity, avoiding harmful substances like alcohol, drugs, and tobacco, adhering to a diet rich in fruits and vegetables, ensuring adequate sleep, using sun protection, maintaining weight control, practicing self-care, and others, contribute to maintaining good health. Health awareness, conversely, refers to individuals' knowledge of health-related information and their sense of responsibility toward their health and the community's well-being (Adwan, 2020; Pandya & Bhatt, 2014; Zou et al, 2020)

The focus on overall health has become crucial for maintaining human well-being, contributing significantly to disease prevention and reduction. Health behaviour is pivotal in helping individuals preserve and enhance their health. The current study investigates the role of two psychological factors among a sample of heart disease patients.

Specifically, this research seeks to explore the effect of a counselling program based on conscientiousness-cognitive therapy in promoting healthy behaviour and reducing death anxiety within a sample of heart disease patients in Karak Governorate. The study represents an intersection of health psychology and quality of life. It offers potential benefits to participants in improving their quality of life and addressing the challenges associated with chronic illness. Consequently, researchers have directed their attention toward examining health behaviour and its connection with such medical conditions (Rowley, 2002).

The heightened risk of heart disease is associated with several well-known risk factors, including smoking, age, health behaviour, and obesity. Research indicates that a notable proportion of patients with arterial occlusion are smokers, while sedentary adults face increased susceptibility to heart disease compared to their physically active counterparts. The number of deaths attributed to heart diseases further emphasizes the urgency of addressing this issue (American Heart Association, 2002; Myers, 2007).

Health behaviour encompasses a set of observable behaviours, practices, and habits that individuals adopt to maintain, enhance, or restore their health, considering that individual health results from the integration of physical, mental, emotional, and motor development aspects, as well as work pressures and financial challenges (Al-Nawaiseh, 2021). It is also characterized as compiling explicit actions, protocols, and routines to preserve, enhance, or recuperate health. This definition stems from prior evaluations of health-associated behaviours, which encompass a range of psychological components such as beliefs, anticipations, motivations, values, cognitive understanding, and additional cognitive attributes, including emotional qualities (Rogowska et al., 2016).

Rajab and Mohammed (2019) have highlighted that promoting health behaviour can yield various benefits, including identifying health risks and diseases, acquiring preventive knowledge, raising health awareness, understanding specific preventive measures for different diseases, recognizing chronic and infectious diseases and their preventive strategies, translating preventive awareness into health-related practices to uphold individual and community well-being, and optimizing healthcare expenditure by emphasizing preventive measures over treatment. Health habits and lifestyle choices, such as regular physical activity, sufficient sleep, and a balanced diet, profoundly impact an individual's health. Numerous health issues related to chronic diseases can be attributed to unhealthy behaviours practiced by individuals (Al-Riyahneh, 2018).

The study aimed (Thuneibat, 2023). to identify the level of healthy behavior practiced during the COVID-19 quarantine among students of the College of Sports Sciences at Mutah University. The study sample consisted of 120 students from the College of Sports Sciences in Mutah. The study used the descriptive approach, using the health behavior scale, The results of this study also indicated that the healthy behavior among students of the College of Sports Sciences reached a high level during the coronavirus/Covid-19 quarantine.

Furthermore, Aligower et al. (2001) conducted a study exploring the relationship between depressive symptoms, social support, and personal health behaviour. The findings indicated a significant association between depressive symptoms and reduced physical activity, irregular sleep patterns, skipping breakfast, and failure to use seat belts among both genders. Additionally, depression was linked to the non-use of sunscreen and smoking among female participants. Lower levels of social support were associated with reduced alcohol consumption, decreased physical activity, irregular sleep patterns, and failure to use seat belts in cars.

In a separate study conducted by Si Beshir and Massoudi (2016) on patients with coronary artery disease, distinguishing between myocardial infarction and angina pectoris, the objective was to assess health beliefs and explore the orientation towards health behaviour among the participants. In conjunction with prior research, the results indicated that patients with coronary artery disease tended to hold negative health beliefs and demonstrated a negative orientation towards health behaviour. Consequently, the study established a relationship between health beliefs and the orientation towards health behaviour in the examined sample.

Non-adherence to health behaviour is presented in various ways: a substantial percentage of patients fail to maintain a healthy diet, commit errors in medical treatment, neglect regular blood tests, overlook foot care, and exhibit low physical

activity levels. As chronic diseases continue to escalate, the psychological, social, and economic burden of caring for chronic patients becomes a pressing concern, compelling researchers to investigate the determinants influencing health behaviour among these specific participants (Nowasra & Al-Hourani, 2018).

Chronic diseases pose a significant global health challenge, with low-income and middle-income countries accounting for a substantial share of deaths and disease cases related to these conditions. The rising prevalence of chronic diseases is closely linked to changes in dietary patterns, marked by increased consumption of processed foods with high fat, salt, and sugar. The economic burden of chronic diseases raises concerns about individuals' ability to cope with the associated costs, potentially leading to disability or reduced productivity (Hope, 2003).

Cardiovascular psychology has seen significant advancements and growth in recent years, particularly in the context of health psychology. One of the critical advantages of health psychology is its preventive focus, as it identifies individuals' personality traits and behaviours that may predispose them to certain diseases, including cardiovascular conditions before physical symptoms manifest. This early prediction effectively prevents and manages cardiovascular diseases (Scott-Sheldon et al., 2020).

Certain psychological factors have been linked to heart-related issues, particularly sudden cardiac arrest, which often affects individuals with pre-existing severe conditions such as blood clotting and thrombosis (Momeni et al., 2016; Zou & Chair, 2021). Additionally, psychological stress has been found to exacerbate these health conditions. As a result, there is a growing recognition of the importance of addressing psychological factors in treating and managing cardiovascular patients to improve their overall well-being and quality of life.

In this regard, a study by Bukhleeer (2021) explored the significance of psychological interventions provided by health psychologists for patients with heart and artery diseases. The study addressed the psychological risks associated with cardiovascular diseases, including denial, anxiety, depression, and a decreased quality of life. Unlike conventional psychological treatments, psychological interventions for individuals with chronic organic diseases require a holistic approach that considers both the physical health and the psychological aspects, particularly the potential risk of mortality.

Mindfulness interventions have been associated with understanding stress and its contributing factors and developing positive coping strategies, such as problem-solving and cognitive reappraisal, enabling individuals to effectively navigate educational life's challenges (Kamath, 2015; Roche et al., 2019). In addition, mindfulness practices contribute to developing psychological resources, such as a more flexible self-concept, increased self-confidence, and mastery of personal abilities, leading to improved coping abilities (Kamath, 2015).

Moreover, mindfulness training fosters better emotional regulation and the ability to direct attention to the present moment, reducing rumination about the past and worry about the future. Consequently, individuals may experience an enhanced capacity to manage and cope with stressful situations (Sayyeda, et al., 2017). The benefits of mindfulness are manifold, encompassing an increased sense of competence in managing the environment by fostering effective responses to stress and enhancing a coherent sense of self. Moment-to-moment awareness enables individuals to be more open and attuned to their experiences while contributing to an increased sense of meaning and exploration of life's significance (Weissbecker, et al., 2002).

Another relevant experimental investigation was conducted by Al-Mashagbah and Aladdin (2018). This study examined the impact of a mindfulness-based group counselling program on enhancing optimism and psychological well-being among female students from the Faculty of Educational Sciences at Al-Hashemite University. The results discovered statistically significant differences between the experimental and control groups, favouring the experimental group in mindfulness, optimism, and psychological well-being measures. These findings underscored the effectiveness of the mindfulness-based group counselling program implemented in the study. Furthermore, comparisons between the pre-and post-intervention assessments, conducted four weeks after the mindfulness-based group counselling program's implementation, indicated no statistically significant differences in the mean scores of the experimental group concerning measures of optimism and psychological well-being. However, a statistically significant increase in scores on the mindfulness scale was evident, indicating its enduring impact during the follow-up assessment.

Al-Jamil (2020) aimed to examine the impact of Mindfulness-Based Cognitive Therapy (MBCT) in influencing youth attitudes towards migration. The results revealed the MBCT program's efficacy in positively changing young individuals' attitudes regarding migration. Similarly, Al-Qahtani (2021) researched to investigate how to reduce symptoms of obsessive-compulsive disorder among patients seeking treatment at Al-Qwayiyah General Hospital. The study also sought to assess the sustainability of the therapeutic program's impact after two months of implementation. The findings indicated an inverse corrected item-total correlations between levels of mindfulness and symptoms of obsessive-compulsive disorder. Additionally, statistically significant differences were observed between the mean scores of the experimental and control groups on the Obsessive-Compulsive Scale, favouring the experimental group. However, no statistically significant differences were found in the follow-up assessments conducted after two months of program implementation.

Furthermore, Mahboub (2021) conducted a study to explore the efficacy of Mindfulness-Based Cognitive Therapy in fostering positive thinking and reducing symptoms of post-traumatic stress disorder during the COVID-19 pandemic. The results demonstrated statistically significant differences in the mean scores of the sample participants on the Positive Thinking Scale between pre-and post-intervention assessments, favouring the post-intervention assessment. The findings also revealed a reduction in post-traumatic stress disorder symptoms among the sample, highlighting the impact of Mindfulness-Based Cognitive Therapy in promoting positive thinking and alleviating post-traumatic stress disorder symptoms. However, no statistically significant differences were observed between pre- and post-intervention assessments for positive thinking and post-traumatic stress disorder symptoms.

In a similar study, Al-Nawaiseh (2021) aimed to assess the effectiveness of an existential therapy-based counselling program in enhancing mindfulness and reducing emotional reactivity among new university students at Mu'tah University in Jordan. The findings revealed that the program successfully promoted mindfulness and reduced emotional reactivity among participants in the experimental group compared to the control group. Additionally, it was observed that the program's positive effects persisted even after the follow-up period, which occurred after the program's completion.

A study conducted by Jassar and Zaghul (2023) aimed to evaluate the levels of mindfulness and social skills among university students and study the relationship between them. In addition, the study aimed to identify the predictive ability of personal mindfulness in social skills. The study used the descriptive, correlational approach, and the study sample consisted of 600 male and female students (212 males and 388 females) from Yarmouk University enrolled in the second semester of the academic year (2020-2021). To achieve the objectives of the study, the Interpersonal Mindfulness Scale (Pratscher, et al., 2019) and the Social Skills Scale were used. The results showed moderate levels of mental alertness and social skills with an average of (3.519 and 3.495,)respectively. A statistically significant relationship was observed between these variables.

Given the above, the research problem in the current study is multifaceted. Firstly, at an individual level, the researcher observed certain behavioural aspects among heart disease patients, such as fluctuations in health behaviour and increased death anxiety. Secondly, at the local level, there has been an upward trend in the number of individuals affected by heart disease in the Hashemite Kingdom of Jordan, necessitating a stronger focus on post-recovery psychological care for these participants. Lastly, the nature of the variables under investigation adds complexity to the research problem, as it addresses health behaviour and reduces death anxiety, which impacts physical health and has significant psychological and social implications that can interfere with individuals' daily functioning.

The primary objectives of the current study are to assess the effectiveness of a mindfulness-based cognitive therapy program in promoting healthy behaviour and reducing death anxiety among heart disease patients in the region of Al-Karak, Jordan. Moreover, the study aims to explore the potential long-term effects of the program to determine its sustainability and lasting impact on participants' well-being.

To achieve these objectives, the study seeks to answer the following research questions:

- 1- Are there statistically significant differences in the development of health behaviour between the experimental and the control groups attributed to the mindfulness-based cognitive therapy program?
- 2- Are there statistically significant differences in the reduction of death anxiety between the experimental and the

control groups attributed to the mindfulness-based cognitive therapy program?

3- Are there statistically significant differences in maintaining the reduction of death anxiety and developing health behaviour in the experimental group between the post and the follow-up assessments?

The study aims to provide valuable insights into the role of psychological interventions in managing cardiovascular diseases, particularly in promoting health behaviour and alleviating death anxiety among patients. The findings are expected to contribute to the growing body of knowledge in health psychology and further enhance the well-being and quality of life of individuals with heart and artery diseases.

Method

1. Research Methodology

The current study utilized a quasi-experimental design for its appropriateness in investigating the research topic

2. Participants

The study participants consisted of all heart disease patients in Al-Karak Governorate, encompassing both government and Prince Ali hospitals. A convenience sampling method was employed, initially involving 135 participants. From this initial sample, 30 patients were randomly selected for a pilot test to ensure the validity and reliability of the measurement tools. Ultimately, the final sample size was reduced to 93 patients after excluding 12 incomplete questionnaires.

3. Research Method

After explaining the study's objectives to the selected patients, 21 individuals voluntarily agreed to participate and were divided into the experimental group (n=11) and the control group (n=10). All of the 11 participants in the experimental group willingly underwent the current counselling program, consisting of 13 mindfulness-based sessions, each lasting approximately one hour.

The scope of the study was delineated based on several factors. In terms of objective scope, the investigation focused on all diagnosed heart disease patients in government and Prince Ali hospitals within Al-Karak Governorate, Jordan. Geographically, the study was confined to Al-Karak Governorate, situated in the southern region of the Hashemite Kingdom of Jordan. The study's temporal framework spanned the years 2022-2023. Furthermore, the study encompassed all heart disease patients within the defined geographical area and designated time frame.

Instruments

1. The Death Anxiety Scale

The Death Anxiety Scale was developed following an extensive review of relevant literature and previous studies on death anxiety, including the works of Al-Tarawneh (2021), Al-Samadi and Ghanem (2005), Al-Shahri (2019), Onsa and Yousef (2015). The initial version of the scale comprised 25 items, organized into three dimensions: thoughts about continuous death (9 items), anxiety about illness and disability before death (8 items), and imagination of the future related to illness (8 items).

To ensure the scale's appropriateness for the study's objectives and context, several psychometric properties were assessed:

Content Validity

To ensure the validity of the scale and its suitability to the objectives of the study and the clarity and linguistic integrity of the items, the scale was presented to some experts, who reached (11) faculty members working in colleges of education in Jordanian universities, and a criterion of agreement was adopted by (9) experts to maintain or modify the item. Linguistic modifications were made in (8) items.

The scale was presented to a panel of (11) experts, all faculty members from education colleges at Jordanian universities. Their feedback led to linguistic revisions in eight items to enhance clarity and linguistic soundness.

Construct Validity:

The scale's construct validity was examined by administering it to a pilot sample of 30 heart disease patients from both the study and external participants. Corrected item-total correlations coefficient between each item and its respective dimension, as well as inter-dimensional corrected item-total correlations, were calculated. All corrected item-total correlations were statistically significant at the 0.05 level, indicating the validity of all items.

Reliability

The reliability of the scale was assessed using two methods:

a. Test-Retest Reliability: The scale was administered to a sample of 30 heart disease patients. After two weeks, the same individuals were asked to complete the scale again. Pearson correlation coefficients between their scores in both administrations ranged between 0.80 and 0.89 for total scores on the three dimensions and 0.90 for total scores on the scale.

b. Cronbach's Alpha: The scale's internal consistency was measured using Cronbach's alpha on a sample of heart disease patients from the survey sample. The Cronbach's alpha coefficients ranged from 0.77 to 0.85 for the dimensions and 0.86 for the total score, indicating acceptable internal consistency.

The application, scoring, and interpretation of the Death Anxiety Scale were carried out following the item directions. Respondents (heart disease patients) provided ratings on a 5-point scale, where higher scores denoted higher levels of death anxiety. The scale was interpreted based on the arithmetic mean of each item, categorizing respondents into three levels: low death anxiety (1-2.33), moderate death anxiety (2.34-3.66), and high death anxiety (3.67-5).

2. Health Behavior Scale

The Health Behavior Scale was developed based on a thorough review of relevant literature and previous studies on health behaviour, including the works of Karima (2017), Al-Fakhrani (2008), and Samadi and Samadi, (2011). The initial version of the scale consisted of 36 items, organized into three dimensions: cleanliness behaviour (12 items), physical activities and exercises (12 items), and dietary and medication behaviour (12 items).

To ascertain the scale's suitability for the current study, its psychometric properties were assessed as follows:

Content validity

The items of the Health Behavior Scale were presented in their initial form to (11) experts from faculty members from Jordanian universities, and they were asked to express their opinions and review the items of the scale. A consensus of nine experts approved the scale, and based on their comments, amendments were made to (7) Items.

Internal consistency validity:

The initial version of the Health Behavior Scale was presented to a panel of (11) experts, and faculty members from Jordanian universities. They were asked to review and provide feedback on the scale items. Based on their input, seven items were revised, and a consensus of nine experts approved the remaining items.

Construct Validity: The internal consistency of the Health Behavior Scale was assessed using the internal consistency method. Corrected item-total correlation coefficients between each item, its respective dimension, and the total score were calculated based on responses from a pilot sample of 30 heart disease patients from the study participants and external sources. All corrected item-total correlations coefficients ranged from 0.50 to 0.89 between items and the total score and from 0.55 to 0.89 between dimensions and the total score, indicating statistically significant corrected item-total correlations and confirming the scale's construct validity.

Reliability of the Health Behavior Scale

The scale's reliability was examined using test-retest reliability, where the scale was administered to the survey sample. After two weeks, the same individuals were asked to complete it again. Pearson corrected item-total correlations coefficient between the two administrations were calculated. Additionally, Cronbach's alpha was used to determine internal consistency. The test-retest reliability coefficients for the overall scale and its dimensions ranged from 0.80 to 0.82, and the internal consistency values ranged from 0.75 to 0.82 for the dimensions. The overall Cronbach's alpha for the scale was 0.77, indicating satisfactory stability and reliability for the Health Behavior Scale and its dimensions, making it suitable for the current study.

Correcting the Health Behavior Scale

The scale consists of (36) items in its final version, encompassing three dimensions. The options have been ranked as follows: "strongly agree," "agree," "neutral," "disagree," and "strongly disagree," with all items considered positive and assigned scores of (5, 4, 3, 2, 1), respectively. Consequently, a person's total score on the scale ranges from (36-180) points.

The scale analysis is based on the range, using the formula (Highest Value - Lowest Value) / number of options. Therefore, $5 - 1 / 3 = 1.33$. The scale is interpreted as follows:

- Scores between 1 and 2.33 represent a low level of health behaviour.
- Scores between 2.34 and 3.66 represent a moderate level of health behaviour.
- Scores between 3.67 and 5 represent a high level of health behaviour.

1. Mindfulness-Based Counseling Program

The current counselling program was developed based on the concepts of mindfulness therapy. Extensive theoretical literature was reviewed when selecting the sessions for the current program, including the works of Al-Nawaisa (2021), Mohammed, Al-Sayed, and Ghunaim (2021), Al-Qahtani (2021), Abdelfattah, Nasr, and Ibrahim (2004), and Al-Riyahneh (2018). The program comprises (13) one-hour sessions and targets individuals between the ages of (25-45) years. In addition, a study by Abdullah and Al-Mismari (2021) investigated the levels of mindfulness related to death Anxiety among Cardiac Patients. The primary objectives of these sessions are to help patients reduce death anxiety and enhance their health behaviours. Below is a summary of the counselling sessions:

Session 1: Introduction and familiarization between the researcher and clients, outlining the program's goals, activities, and instructions.

Session 2: Definition and explanation of mindfulness.

Session 3: Providing essential guidelines for training in mindfulness skills.

Session 4: Practicing mindfulness skills.

Session 5: Training in the skill of active listening and non-judgmental awareness.

Session 6: Training in mindfulness of breath, body, feelings, and thoughts.

Session 7: Monitoring thoughts and emotional awareness.

Session 8: Training in appropriate health behaviours.

Session 9: Self-regulation training.

Session 10: Learning body relaxation techniques and practicing them.

Session 11: Introducing and practicing Transcendental Contemplation Technique.

Session 12: Generalizing mindfulness skills to all life situations.

Session 13: The closing session involves program completion, evaluation, post-assessment, and setting follow-up appointments.

Study Procedures

The following procedures were adopted in conducting the current study:

1. Reviewing the theoretical literature and previous studies on health behaviour, death anxiety, and mindfulness.
2. Developing the study instruments and preparing them in their initial form.
3. Selecting the survey sample for assessing the scale's psychometric properties, which consisted of (30) heart disease patients.
4. Preparing the mindfulness-based counselling program, consisting of (13) counselling sessions.
5. Selecting (21) heart disease patients who expressed a desire to participate in the mindfulness-based counselling program and randomly dividing them into two groups: the experimental group (11 patients) to whom the counselling program was applied and the control group (10 patients) to whom the counselling program was not applied.
6. Ensuring the equivalence of the experimental and control groups before implementing the counselling program on the experimental group. The Mann-Whitney test was used to determine statistical differences between the ranks' means and their sum and Table (1) illustrates the results.

Table 1: Mann-Whitney Test for the Pre-test Levels of Death Anxiety and Health Behavior among Patients According to the Group Variable

Dimension	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney Value	Z Value	Statistical Significance
After Thinking	Experimental	11	11.64	128.00	48.00	0.49-	0.62
About Death	Control	10	10.30	103.00			
After Illness	Experimental	11	10.05	110.50	44.50	0.74-	0.46
and disability	Control	10	12.05	120.50			
After Imagining	Experimental	11	11.73	129.00	47.00	0.57-	0.57
the future	Control	10	10.20	102.00			
Total Death Anxiety	Experimental	11	11.36	125.00	51.00	0.28-	0.78
Score	Control	10	10.60	106.00			
After Cleanliness	Experimental	11	10.82	119.00	53.00	0.14-	0.89
Behaviour	Control	10	11.20	112.00			
After Activities	Experimental	11	10.77	118.50	52.50	0.18-	0.86
	Control	10	11.25	112.50			
After Food and	Experimental	11	9.95	109.50	43.50	0.81-	0.42
Medication	Control	10	12.15	121.50			
Total Health	Experimental	11	10.91	120.00		54.00	0.07-
Behaviour Score	Control	10	11.10	111.00			0.94

Based on Table (1), no statistically significant differences ($\alpha = 0.05$) were found in the mean ranks between the experimental and control groups, indicating that both groups had similar levels of health behaviour and death anxiety.

7. The intervention program was delivered with two to three weekly sessions, each lasting 60 minutes.
8. Post-test measurements were conducted, and the results were analyzed.
9. Follow-up measurements were taken three weeks after the completion of the intervention program.
10. The results were thoroughly analyzed, interpreted, and discussed, leading to the formulation of recommendations.

4. Results

Results related to the first research question, which investigates whether there are statistically significant differences ($\alpha = 0.05$) in reducing death anxiety levels between the ranks of the experimental group and the ranks of the control group in the post-test measurements attributed to the mental alertness program, were examined. The mean and the sum of ranks were computed to answer this question, and the Mann-Whitney U test was used. This test is a non-parametric test for comparing two different groups and their ranks. Table (2) presents the results of the Mann-Whitney U test to determine the significance of differences in death anxiety ranks between the members of the experimental and control groups in the post-test measurements.

Table 2: Mann-Whitney U test results for death anxiety rank differences between experimental and control groups in post-test measurements

Dimension	Group	Number	Mean Rank	Sum of Ranks	U Value	Z Value	Statistical Significance	Eta Squared
Thinking of Death	Experimental	11	8.45	93.00	27.00	1.98-	0.04	0.20
	Control	10	13.80	138.00				
Illness and Disability	Experimental	11	7.95	87.50	21.50	2.37-	0.02	0.26
	Control	10	14.35	143.50				
Imagining the Future	Experimental	11	8.09	89.00	23.00	2.27-	0.02	0.17

Dimension	Group	Number	Mean Rank	Sum of Ranks	U Value	Z Value	Statistical Significance	Eta Squared
	Control	10	14.20	142.00				
Total Death Anxiety Score	Experimental	11	8.23	90.50	24.50	2.16-	0.03	0.15
	Control	10	14.05	140.50				

Note: The "-" sign after the Z Value indicates a negative value.

As shown in Table (2), there are statistically significant differences in the level of death anxiety between the two groups attributed to the counselling program. The U value (24.50) indicates a statistically significant difference. The ranks of the members in the experimental group were significantly lower than those in the control group in all three dimensions of death.

The results related to the second question, which is: Are there statistically significant differences at the significance level ($\alpha = 0.05$) in the development of health behaviour levels between the ranks of the experimental group and the ranks of the control group in the post-test measurements attributed to the mindfulness-based program? To answer this question, these differences were examined, and the average ranks and sum of ranks were extracted. The Mann-Whitney U test, a non-parametric test for comparing two groups and comparing the ranks of the two groups, was used. Table (3) shows the results of this test.

The results of the second research question address the presence of statistically significant differences, at a significance level of $\alpha = 0.05$, in the development of health behaviour levels between the experimental group and the control group in the post-test measurements attributed to the mindfulness-based program.

To address this question, the differences were analyzed, and the mean ranks and sum of ranks were computed. The Mann-Whitney U test, a non-parametric test for comparing two distinct groups and their rank distributions, was employed for this comparison.

Table 3: Mann-Whitney U Test Results for Health Behavior Ranks between Experimental and Control Groups in Post-Test Measurements.

Dimension	Group	Number	Mean Rank	Sum of Ranks	Mann-Whitney U Value	Z Value	Statistical significance ($\alpha = 0.05$)	Effect Size (Eta)
Hygiene	Experimental	11	13.91	153.00	23.00	2.27-	0.02	0.33
	Control	10	7.80	78.00				
Activities & Exercises	Experimental	11	14.00	154.00	22.00	2.33-	0.02	0.33
	Control	10	7.70	77.00				
Food & Medication	Experimental	11	14.18	156.00	20.00	2.47-	0.01	0.35
	Control	10	7.50	75.00				
Total Health Behavior	Experimental	11	13.91	153.00	23.00	2.26-	0.02	0.35
	Control	10	7.80	78.00				

"*Statistically significant at 0.05."

Table 3 demonstrates the presence of statistically significant differences in the level of health behaviour between the experimental and control groups due to the counselling program. The U value (23.50) is a statistical indicator of this significance. Furthermore, there are significant differences in the ranks of individuals within the experimental and control groups across all three dimensions of health behaviour with the experimental group showing higher ranks. This indicates the effectiveness of the counselling program's in enhancing health behaviour among individuals in the experimental group compared to the control group.

The results related to the third question, which asks whether there are statistically significant differences at a significance level ($\alpha = 0.05$) regarding the retention of reduced death anxiety and the development of health behaviour among individuals in the experimental group between the pre-test and follow-up measurements attributed to the mindfulness-based program, were obtained using the Wilcoxon Signed Ranks Test for within-group comparisons of correlated samples. Table 4 presents these results.

Table 4: Wilcoxon Test Results for Death Anxiety and Health Behaviors at Program End and After 1.5 Months.

Measure	Value	Count	Mean Rank	Sum of Ranks	Z Value	Significance Level
Death Anxiety	Positive Ranks	5	7.40	37.00	0.36-	0.72
	Negative Ranks	6	4.83	29.00		
	Ties	0				
Health Behavior	Positive Ranks	7	7.29	51.00	1.61-	0.11
	Negative Ranks	4	3.75	15.00		
	Ties	0				

Table 4 shows no significant differences in the measures of death anxiety and health behaviour between post-test and follow-up assessments, indicating that members of the counselling group retained the effect from their exposure to the mindfulness-based program.

5. Discussion

The findings of this study show that the experimental group significantly improved overall health behaviours spanning hygiene, activities, workouts, food, and medication compared to the control group. Furthermore, the experimental group saw a significant reduction in death anxiety and related characteristics, such as thoughts of death, fear of disease and disability, and apprehensions about the future and death, showing the efficiency of the interventions used. These improvements in health behaviours and lower levels of death anxiety show that the interventions used considerably contribute to the experimental group's overall well-being and quality of life. The findings highlight the potential of such interventions to promote better living and psychological resilience on a larger scale, emphasizing their relevance and applicability in various circumstances.

These findings are consistent with previous research that has highlighted the role of mindfulness in developing psychological variables, as evidenced by studies conducted by several studies (Abdullah & Al-Mismari, 2021; Allaq & Benin, 2020; Al-Mashagbah & Aladdin, 2018; Al-Jamil, 2020; Al-Qahtani, 2021; Mohammed et al., 2021; Ahmed, 2022).

The observed decrease in death anxiety is most likely because such anxiety harbours emotions that tend to intensify in reaction to the health issues faced by participants in this study. Death anxiety, rooted in several emotions, frequently manifests more vividly when people are dealing with health risks, heightening their fears and concerns about mortality. In this case, providing support and help was critical in increasing participants' self-awareness and ability to regulate these heightened emotions properly, preventing any negative consequences on their psychological condition. The study's interventions served as catalysts, allowing participants to navigate their emotions more adaptively, producing a sense of resilience and control. This, in turn, allowed for a more balanced and cheerful outlook on life, even in the face of health challenges and existential fears. The importance of such supportive and empowering interventions is evident, demonstrating their function in enhancing emotional stability and general quality of life for persons experiencing elevated

death anxiety due to prevailing health difficulties.

The findings are consistent with the current study as well as with research conducted by Hamed (2021), Al-Shahri (2019), and Onsa and Yousef (2015). However, they differ from the study by Abdel-Fattah et al. (2004), which suggested that programs do not significantly reduce death anxiety. This study's positive changes in death anxiety can be attributed to individuals' increased mindfulness and ability to avoid exaggerating these emotions. Regarding health behaviour, the results demonstrate its potential for improvement among individuals, aligning with behaviourist perspectives. This finding aligns with S. Beshir and Messaoudi's (2016) suggestions that individuals with heart disease have health beliefs that can be modified.

The observed improvement in health behaviour is mainly attributable to the counselling program's integrative and engaging design, which incorporated practical home chores that facilitated participants' acquisition of critical life skills. This interactive method considerably aided in developing better health behaviours and reducing death anxiety in the experimental group. Surprisingly, the program's favourable effects were prolonged, with benefits lasting one and a half months after the counselling sessions ended. This sustained efficacy suggests that the benefits of the mindfulness-based counselling program—reduced death anxiety and improved health behaviours—are not merely transitory but have the potential for long-term impact, providing invaluable insights for the development of future interventions aimed at instigating long-term positive transformations in individuals' psychological and behavioural domains. (Zou, H., et al 2021).

The long-term gains seen in the experimental group are most likely due to the counselling program's comprehensive design, which included a combination of therapeutic and preventive techniques, going beyond the essential giving of knowledge. This comprehensive methodology delivered a well-rounded intervention that addressed various aspects of the participants' psychological and behavioural well-being. Furthermore, the durability of beneficial results may be linked to the mutual interactions and supportive relationships developed among participants, which improves their resilience to death anxiety and reinforces positive health practises. This synergy between a versatile intervention model and a collaborative participant environment appears to have created the optimal conditions for ongoing improvement in both behavioural and psychological domains, demonstrating the combined efficacy of comprehensive counselling approaches in alleviating death anxiety and promoting healthier lifestyles.

These findings are consistent with previous research (Al-Mashagbah & Aladdin, 2018; Mohammed et al., 2021; Ahmed, 2022), all of which reported that members of the experimental groups retained the positive effects over the long term. The sustained improvements in maintaining positive effects can be credited to the efficacy of the current mindfulness-based counselling program, which played a pivotal role in enhancing various aspects related to health behaviour and reducing death anxiety among the participants.

In conclusion, the results underscore the effectiveness of the mindfulness-based counselling program in promoting enduring positive changes in health behaviour and reducing death anxiety among the individuals involved in the study.

6. Limitations and Recommendations for Future Research

The study has some limitations that should be considered when interpreting its findings. Firstly, the small sample size used in the study may restrict the generalizability of the results to a broader participants. With a limited number of participants, the study's conclusions may not accurately represent the experiences of a more diverse group. To enhance the study's external validity, future research should aim to recruit a more extensive and varied sample of participants.

Secondly, the follow-up period of one and a half months may be too short to assess the long-term effects of the mindfulness-based counselling program. More extended follow-up periods are necessary to understand whether the observed improvements in death anxiety and health behaviour are sustained over time. Future studies should consider conducting multiple follow-up assessments over extended periods to understand the intervention's lasting impact comprehensively.

Another significant limitation is the lack of control for external factors that may have influenced the participants during the study. Without accounting for potential confounding variables, the observed changes in death anxiety and health behaviour may be influenced by factors unrelated to the mindfulness-based program. To mitigate this limitation,

researchers should implement rigorous control measures, including the use of a well-designed control group and randomization.

In conclusion, while the study provides valuable insights into the effects of the mindfulness-based counselling program, it is essential to acknowledge its limitations. The small sample size, short follow-up period, and lack of control for external factors may affect the study's generalizability and validity. To address these limitations, future research should aim for larger and more diverse samples, conduct longer follow-up assessments, and include robust control measures to strengthen the evidence base and better understand the long-term benefits of mindfulness-based interventions on individuals' psychological well-being and health behaviours.

7. Implications

Based on the findings of this study, several practical implications can be drawn to enhance the well-being of heart disease patients and promote healthier behaviours. Firstly, the mindfulness-based counselling program utilized in this research has demonstrated its effectiveness in improving health behaviour and reducing death anxiety among individuals with heart disease. Therefore, healthcare professionals and practitioners can consider implementing similar mindfulness-based interventions to support these specific patient participants.

Secondly, the newly developed measures employed in the current counselling program have shown promising results in assessing health behaviour and death anxiety variables. These measures can be utilized in clinical settings and research to gain deeper insights into patients' psychological states and monitor their progress. By utilizing these measures, healthcare providers can tailor interventions to address individual needs effectively. This was achieved through mindfulness-based on health behavior and death anxiety. These interventions can be exemplified in practicing mindfulness skills, training in the skill of active listening and non-judgmental awareness, monitoring thoughts and emotional awareness, training in appropriate health behaviours, self-regulation training, learning body relaxation techniques and practicing them, and Generalizing mindfulness skills to all life situations.

Governorate, Jordan

Furthermore, building on the positive outcomes of this study, further research can explore the integration of counselling programs into the overall treatment plan for heart disease patients. Investigating the relationships between counselling interventions and other psychological variables would contribute to a more comprehensive understanding of the overall well-being of these patients.

Additionally, in the context of the patient's family, providing adequate guidance and support is crucial. Family members can play an essential role in helping heart disease patients cope with their anxiety and adopt healthier behaviours. Educating and involving family members in care can facilitate a more holistic approach to patient well-being.

From a professional perspective, employers can contribute to reducing death anxiety and promoting health behaviour among heart disease patients by supporting their professional endeavours. Creating a conducive work environment, offering flexible arrangements, and promoting work-life balance can positively impact patients' mental and physical well-being.

On the social front, individuals should be encouraged to establish meaningful social connections. Engaging in social activities and gatherings can help alleviate feelings of isolation and improve overall mental and emotional well-being.

Lastly, addressing the physical aspect, healthcare providers can educate patients on making informed choices regarding their diet and engaging in regular physical activity. Empowering patients with the knowledge and skills to maintain proper personal hygiene and adopt a healthier lifestyle can improve their overall well-being (Gotink et al., 2015).

In conclusion, the implications drawn from this study offer valuable insights for healthcare professionals, families, employers, and individuals in supporting heart disease patients. Implementing mindfulness-based interventions, utilizing developed measures, and considering the broader psychological context can improve mental and physical well-being, ultimately contributing to better health outcomes for these vulnerable participants.

8. Conclusion

Based on the current study's results, the researcher concludes that heart disease patients in Al-Karak Governorate

require different forms of care, which can significantly impact their psychological well-being and improve certain aspects of their lives, particularly concerning health behaviour and death anxiety. The study's findings highlight significant improvements in health behaviour and reduced death anxiety in the experimental group compared to the control group. The mindfulness-based counselling program effectively fostered positive changes in hygiene, activities, exercises, food habits, and thoughts about death, illness, and the future. The program's support and self-awareness techniques decreased death anxiety, while behaviourist principles were evident in improved health behaviour. The interactive nature of the program and ongoing support facilitated sustained positive outcomes even after one and a half months. Overall, the study emphasizes the effectiveness of mindfulness-based counselling in promoting enduring positive changes in health behaviour and reducing death anxiety among individuals.

By addressing the specific needs of heart disease patients through counselling interventions, healthcare professionals can positively impact their mental well-being and overall quality of life. Implementing counselling programs tailored to this patient participants's unique requirements can significantly improve their psychological state and health behaviours. The study's findings underscore the importance of considering psychological factors in treating heart disease and the potential benefits of mindfulness-based approaches in promoting well-being. These insights provide valuable guidance for healthcare providers and suggest the potential value of integrating counselling programs in comprehensive care for heart disease patients.

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“The author declares that there is no conflict of interest.”

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“This study adhered to the ethical standards of Mutah University and obtained requisite approval from its Institutional Review Board – Department of Counseling and Special Education ”

DATA AVAILABILITY STATEMENT

“The data that support the findings of this study are available from the corresponding author upon reasonable request. ”

REFERENCES

- Abdel-Fattah, N., Nasr, M., & Ibrahim, A. (2004). *Madaa faeiliat barnamaj arshadi eaqlaniun ainfiealiun fi takhfid alqalaq walaiktiaab walkhawf min almawt ladaa eayinat min al'atfal mardaa alqalba: dirasat tajribia*. Unpublished doctoral dissertation, Ain Shams University.
- Abdel-Khaleq, A., & Al-Niyal, M. (2019). Altafawul walfaeiliat aldhaatiat walhana' alshakhsu biwasfiha almunabayat bialsuluk alsihyi ladaa tulaab aljamiea. *Annual Review of Literature and Social Sciences*, 40(537), 9-86.
- Abdullah, A., & Al-Mismari, A. (2021). Alyaqazat aleaqliat waealaqatuha bibaed almutaghayirat ladaa eayinat min talabat jamieat banghazi. *Al-Manara Scientific Journal*, 2, 217-234.
- Adwan, Y. (2020). Namadhij nazariat mufasirat lil'iisabat alqalbiat alwaeayiyati: eard wataqyima. majalat dirasat fi eilm nafs alsiha. *Journal of Health Psychology Studies*, 5(1), 1-12.
- Ahmed, R. (2022). Mumarasat aleilaj alqayim ealaa alyaqazat aleaqliat fi khafd 'aerad aidtirab ma baed alsadmat lieayinat min dahaya alaibtizaz alalkutrunii min alfatayat. *Journal of Social Services*, 73(3), 319-287.
- Al-Fakhrani, K. (2008). *Takid aldhaat waealaqatuh bialsuluk alsihyi ladaa almusiniyn*. Fifth Annual Conference of the Psychology Department - Applications of Psychological Sciences and Social Problems, May 4-6, 53-91, Tanta University, Egypt.
- Al-Jack, H., & Al-Sharif, H. (2020). *aldughut alnafsiat waealaqatuha bial'iihbat ladaa almusabin bimarad alqalb bimarkaz alsuwan lilqalb*. Master's thesis, University of Khartoum, Sudan.

- Al-Jamil, Z. (2020). Faeiliat barnamaj 'iirshadiun qayim ealaa aleilaj alsulukii aljadalii "aliqazat aleaqliati" litaghyir aitijahat alshabab nahw alhijra. *Journal of Arts*, 134, 383-410.
- Allaq, M., & Benin, A. (2020). *Alyaqazat aleaqliat wadawruha fi tahsin jawdat alhayaat alnafsiati. 'aemal almultaqaa alwatanii: jawdat alhayaat waltanmiat almustadamat fi aljazayir - al'abead waltahadiyat*. Proceedings of the National Forum: Quality of Life and Sustainable Development in Algeria - Dimensions and Challenges, 1-133-142.
- Allgöwer, A., Wardle, J., & Steptoe, A. (2001). Depressive symptoms, social support, and personal health behaviors in young men and women. *Health psychology*, 20(3), 223. . <https://scholar.google.com>
- Al-Mashagbah, A., & Aladdin, J. (2018). 'Athar barnamaj 'iirshad jameiin lileilaj almaerifii alqayim ealaa alyaqazat aleaqliat fi tahsin altafawul waleafiat alnafsiat ladaa talabat aljamieat alhashimia. *Unpublished master's thesis*, Hashemite University.
- Al-Nawaiseh, F. (2021). Faealiat barnamaj arshadiun mustanid 'ilaa aleilaj alwujudii fi tanmiat alyaqazat aleaqliat watakhfid alhasasiat alainfiealiat ladaa altalabat aljudud fi jamieat Mutah. *Al-Ma'yar Journal*, 25(62), 822-847.
- Al-Qahtani, A. (2021). Faeiliat aleilaj bialyaqazat aleaqliat likhafd 'aerad alwaswas alqahrii ladaa almuhtaribin almurajiein limustashfaa alqawieiat aleami. *Journal of the Islamic University of Educational and Social Sciences*, 7, 1-37.
- Al-Riyahneh, G. M. (2018). *Faeiliat barnamaj arshadiun jameiun litanmiat alsuluk alsihyi w alkafa'at aldhaatiat almodrikat ladaa altalabat almusabin bial'amrad almuzmina*. *Unpublished doctoral dissertation*, Mutah University, Jordan.
- Al-Shahri, R. (2019). Al'afkar allaeeaqalaniat waealaqatuha biqalaq almawt ladaa mardaa alqalb. *Journal of Educational and Psychological Research*, 20(10), 339-382.
- Al-Tarawneh, H. (2021). Mustawaa qalaq almawt waealaqatih bial'aerad alaiktiaabiati alsaayidat ladaa eayinat min almusiniyn fi al'urduni. *Journal of Educational and Psychological Research*, 5(1), 394-414.
- American Heart Association (2002). *Cardiovascular Disease Statistics*.
- Brausch, B. D. (2011). *The role of mindfulness in academic stress, self-efficacy, and achievement in college students*.
- Bukhleer, W. (2021). Altadakhulat aleilajiat alnafsiat fi majal al'amrad alqalbiat alwaeayiyati. majalat dirasat fi eilm nafs alsuha. *Journal of Health Psychology Studies*, 6(2), 34-40.
- Burgoon, J. K., Berger, C. R., & Waldron, V. R. (2000). Mindfulness and interpersonal communication. *Journal of Social Issues*, 56(1), 105-127.
- Carlson, L. E. (2012). Mindfulness-based interventions for physical conditions: a narrative review evaluating levels of evidence. *International Scholarly Research Notices*, 2012.
- Corey, G. (2013). *Theory and Practice of Counseling and Psychology*. (9th ed.). N.Y: Thomson, publishing com.
- Ferguson, E., & Daniel, E. (1995). The Illness Attitudes Scale (IAS): A psychometric evaluation on a non-clinical population. *Personality and Individual Differences*, 18(4), 463-469.
- Gotink, R. A., Chu, P., Busschbach, J. J., Benson, H., Fricchione, G. L., & Hunink, M. M. (2015). Standardised mindfulness-based interventions in healthcare: an overview of systematic reviews and meta-analyses of RCTs. *PloS one*, 10(4), e0124344.
- Haigh, E. A., Moore, M. T., Kashdan, T. B., & Fresco, D. M. (2011). Examination of the factor structure and concurrent validity of the Langer Mindfulness/Mindlessness Scale. *Assessment*, 18(1), 11-26.
- Hamed, A. (2021). Eilaj qalaq almawt bialqira'ati: dirasat tajribiat ealaa eayinat min almusiniyn almuslimin. *Al-Fahras Journal*, 71, 83-126.
- Hope, R. (2003). *Handbook of Clinical Medicine*. (4th ed.). Oxford: University Press.
- Zou, H., Cao, X., Geng, J., & Chair, S. Y. (2020). Effects of mindfulness-based interventions on health-related outcomes for patients with heart failure: a systematic review. *European Journal of Cardiovascular Nursing*, 19(1), 44-54. <https://doi.org/10.1177/1474515119881947>
- Iverach, L., Menzies, R. G., & Menzies, R. E. (2014). Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. *Clinical psychology review*, 34(7), 580-593.
- Jassar, H., & Zghoul, R. (2023). Interpersonal Mindfulness and Its Predictive Ability in Social Skills, Educational Sciences, 50(2), 1-18.
- Weissbecker, I., Salmon, P., Studts, J. L., Floyd, A. R., Dedert, E. A & .Sephton, S.E. (2002). Mindfulness-based stress reduction

- and sense of coherence among women with fibromyalgia. *Journal of Clinical Psychology in Medical Settings*, 4(9), 297-307.
- Kamath, S. (2015). Role of mindfulness in building resilience and emotional intelligence and improving academic adjustment among adolescents. *Indian Journal of Health & Wellbeing*, 6(4).
- Karima, N. (2017). 'Ahamiyat altarbiyat alsihiyat fi tahsin tabieat aitijahat almardaa almuzminin nahw alsuluk alsihiyi. *Journal of Health Psychology Studies*, 4, 27-43.
- Langs, R. (2008). Unconscious death anxiety and the two modes of psychotherapy. *The Psychoanalytic Review*, 95(5), 791-818.
- Levine, G. N., Cohen, B. E., Commodore-Mensah, Y., Fleury, J., Huffman, J. C., Khalid, U., ... & American Heart Association Council on Clinical Cardiology; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular and Stroke Nursing; and Council on Lifestyle and Cardiometabolic Health. (2021). Psychological health, well-being, and the mind-heart-body connection: a scientific statement from the American Heart Association. *Circulation*, 143(10), e763-e783. .
- Mahboub, H. (2021). Faealiyat aleilaj almaerifii alqayim ealaa alyaqazat aleaqliat fi tanmiat altafikir al'iijabii wakhaft aidtirab ma baed alsadmat 'athna' tafashiy kufid-19. *Journal of Educational and Psychological Sciences*, 14(3), 1524-1555.
- Marinovic, D. A., & Hunter, R. L. (2022). Examining the interrelationships between mindfulness-based interventions, depression, inflammation, and cancer survival. *CA: A Cancer Journal for Clinicians*, 72(5), 490-502.
- Miller, A. K., Lee, B. L., & Henderson, C. E. (2012). Death anxiety in persons with HIV/AIDS: A systematic review and meta-analysis. *Death studies*, 36(7), 640-663.
- Mohammed, H., Al-Sayed, H., & Ghanem, A. (2021). faealiyat barnamaj 'iirshadiin maerifiun sulukiun qayim ealaa alyaqazat aleaqliat fi tanmiat almurunat alnafsiat ladaa tulaab aljamiea. *Journal of the Faculty of Education in Ismailia*, 51, 41-112.
- Momeni, J., Omidi, A., Raygan, F., & Akbari, H. (2016). The effects of mindfulness-based stress reduction on cardiac patients' blood pressure, perceived stress, and anger: a single-blind randomized controlled trial. *Journal of the American Society of Hypertension*, 10(10), 763-771.
- Myers, D.G. (2007). *Psychology*. (8th ed.). New York: Worth Publishers.
- Nienaber, K., & Goedereis, E. (2015). Death anxiety and education: A comparison among undergraduate and graduate students. *Death studies*, 39(8), 483-490.
- Nowasra, F., & Al-Hourani, S. (2018). Alsuluk alsihiyu ladaa almawhubin waleadiyn min talabat almadaris fi muhafazat eajlun waealaqatih bialtahsil al'akadimii. *Journal of Najah University Research - Humanities*, 32(6), 1111-1140.
- Onsa, H., & Yousef, S. (2015). *Qalaq almawt walaiktaab ladaa mardaa alqalb bimustashfaa alshaeb biwilayat alkhartum. Master's thesis*, University of Khartoum.
- Pandya, M. M., & Bhatt, D. J. (2014). Effect of Personal Variables of Youths of Rajkot District on Their Health Care Awareness. *The International Journal of Indian Psychology*, 2(1), 1-5.
- Rajab, F., & Mohammed, I. (2019). Barnamaj muqtarah fi altarbiyat alsihiyat qayim ealaa baed alqadaya alsihiyat almueasirat litanmiat alwaey alsihiyi alwiqayiyi wataswib almuetaqadat alsihiyat alkhata ladaa talabat aldbilum aleami fi altarbia. *Egyptian Journal of Educational Science*, 22(4), 1-45.
- Ritchie, T. D., & Bryant, F. B. (2012). Positive state mindfulness: A multidimensional model of mindfulness in relation to positive experience. *International Journal of Wellbeing*, 2(3). <http://dx.doi.org/10.5502/ijw.v2.i3.1>
- Roche, A. I., Kroska, E. B., & Denburg, N. L. (2019). Acceptance-and mindfulness-based interventions for health behavior change: Systematic reviews and meta-analyses. *Journal of Contextual Behavioural Science*, 13, 74-93. <https://doi.org/10.1016/j.jcbs.2019.06.002>
- Rogowska, A, Wojciechowska, Maszkowska, B, & Borzucka, D (2016). Health behaviours of undergraduate students: A comparison of physical Education and Technical faculties. In *CBU interpersonal conference proceeding* (4), 622-630. [DOI:10.12955/cbup.v4.822](https://doi.org/10.12955/cbup.v4.822)
- Rose, M., Fliege, H., Hildebrandt, M., Schirop, T., & Klapp, B. F. (2002). The network of psychological variables in patients with diabetes and their importance for quality of life and metabolic control. *Diabetes care*, 25(1), 35-42. <https://doi.org/10.2337/diacare.25.1.35>
- Samadi, A., & Ghanem, M. (2005). Qalaq almawt ladaa eayinat min mardaa alqalb. *Journal of Social Sciences*, 33(3), 649-673.

- Samadi, A., & Samadi, M. (2011). Miqyas alsuluk alsihyi litalabat aljamieat al'urduniya. *Arab Journal of Psychiatry*, 22(1), 83-88.
- Sayyeda Taskeen Zahra, Saima Riaz. (2017). Mediating Role of Mindfulness in Stress-Resilience Relationship among University Students. *Pakistan Journal of Psychology*, 48(2). Retrieved from <https://pijku.com/index.php/pij/article/view/45>
- Scott-Sheldon, L. A., Gathright, E. C., Donahue, M. L., Balletto, B., Feulner, M. M., DeCosta, J., ... & Salmoirago-Blotcher, E. (2020). Mindfulness-based interventions for adults with cardiovascular disease: a systematic review and meta-analysis. *Annals of Behavioral Medicine*, 54(1), 67-73. <https://doi.org/10.1093/abm/kaz020>
- Sharf, R. (2016). *Theories of Psychotherapy and Counseling*, 6th Ed, Boston, MA: Cengage learning.
- Shively, M., Kodiath, M., Smith, T. L., Kelly, A., Bone, P., Fetterly, L., Gardetto, N., Shabetai, R., Bozzette, S., & Dracup, K. (2005). Effect of behavioral management on quality of life in mild heart failure: a randomized controlled trial. *Patient education and counseling*, 58(1), 27-34. <https://doi.org/10.1016/j.pec.2004.06.007>
- Si Beshir, K., & Messaoudi, T. (2016). Almuetaqadat alsihyat waealaqatuha bialiaitijah nahw alsuluk alsihyi ladaa mardaa sharayin alqalb altaajia. *Psychological Studies Journal*, 13, 143-158.
- Szczepanowski, R., Wójta-Kempa, M., Pawlak, A., Kolasa, J., Uchmanowicz, I., Czapla, M., & Cyrkot, T. (2022). Depressive and anxiety disorders in the cardiological conditions: psychological interventions. *Medical Research Journal*, 7(4), 333-339. DOI: [10.5603/MRJ.a2022.0051](https://doi.org/10.5603/MRJ.a2022.0051)
- Tavakoli, M., & Behroo, A. (2011). Investigation of Validity and Reliability of Templer Death Anxiety Scale. *Thought & Behavior in Clinical Psychology*, 6(21), 72-80. <https://doi.org/10.1177/00302228221086704>
- Thuneibat, B. S. (2023). Health behavior practiced during the quarantine of the Coronavirus / COVID-19 among students of the College of Sports Sciences at Mutah University. *Dirasat: Educational Sciences*, 50(2), 141-154. <https://doi.org/10.35516/edu.v50i2.4685>
- World Health Organization (WHO) (2003). *Diet, Nutrition and the Prevention of Chronic Diseases*. WHO, Geneva. <http://health.euroafrica.org/books/dietnutritionwho.pdf>
- Wupperman, P., Neumann, C. S., & Axelrod, S. R. (2008). Do deficits in mindfulness underlie borderline personality features and core difficulties?. *Journal of personality disorders*, 22(5), 466-482. <https://doi.org/10.1521/pedi.2008.22.5.466>
- Zou, H., Cao, X., & Chair, S. Y. (2021). A systematic review and meta-analysis of mindfulness-based interventions for patients with coronary heart disease. *Journal of advanced nursing*, 77(5), 2197-2213. <https://doi.org/10.1111/jan.14738>