KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 02 February 2024
Revised 19 March 2024
Accepted 25 March 2024
Published online 01 April 2024

Psychology of Woman Journal

Volume 5, Issue 2, pp 66-75

E-ISSN: 3041-8515

Comparison of the Effectiveness of Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT) on Psychological Well-being and Death Anxiety in Pregnant Women

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A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Mohammadzadeh, M., Mami, S., Ahmadi, V., & Rashidian, T. (2024). Comparison of the Effectiveness of Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT) on Psychological Well-being and Death Anxiety in Pregnant Women. *Psychology of Woman Journal*, *5*(2), 66-75.
http://dx.doi.org/10.61838/kman.pwj.5.2.10

A B S T R A C T

Objective: Pregnancy is a unique period in the life of every woman. Although pregnancy and childbirth can be a pleasant and enjoyable experience, they are also considered stressful experiences. Therefore, this study aimed to compare the effectiveness of Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT) on psychological well-being and death anxiety in pregnant women in Ilam City.

Materials and Methods: The present study is experimental and utilizes a pre-test-post-test design with a control group. The statistical population of this study included all pregnant women in Ilam City in 2020. Using convenience sampling, a total of 45 individuals were selected as sample members and were randomly assigned to three groups: MBSR, ACT, and control. Data collection tools included the Psychological Well-being Scale (Ryff) and the Death Anxiety Scale (Templer). Data were analyzed using SPSS-21 software, multivariate covariance analysis (MANCOVA), and the Bonferroni test.

Findings: The results of the multivariate covariance analysis showed a statistically significant difference in psychological well-being and death anxiety among the experimental groups (MBSR and ACT) and the control group ($F = 132/141$, $P < 0.001$). Additionally, the results of the Bonferroni test indicated that MBSR significantly reduced death anxiety in pregnant women more than ACT ($P < 0.001$). However, there was no significant difference in psychological well-being between the MBSR and ACT groups ($P > 0.474$).

Conclusion: Both MBSR and ACT can be beneficial and effective for improving the psychological status of pregnant women.

Keywords: *Mindfulness-Based Stress Reduction, Acceptance and Commitment Therapy, Psychological Well-being, Death Anxiety, Pregnant Women*

1. Introduction

P

regnancy is a unique period in the life of every woman. Although pregnancy and childbirth can be pleasant and enjoyable experiences, they are also considered stressful experiences that cause major physical and psychological changes in women. These changes cause pregnant women to experience numerous pregnancy-related stressors, including symptoms and physical changes, body fitness, physiological, social, and emotional changes, financial problems, parenting concerns, relationships with others, body image issues, medical problems, anxiety about childbirth, concerns about the baby's health, and ultimately changes in psychological well-being (Campillo et al., 2017). In this regard, research findings indicate that 16.7% of pregnant women experience severe stress regarding childbirth, and 13.6% experience mild stress. Additionally, fear of natural childbirth affects about 20 to 25% of pregnant women (Saemila-Aro et al., 2011; Ghazaei et al., 2016; Akbari Sijirani & Mousavi, 2016; Khani Jihoni, Shahidi, & Kashfi, 2014).

One of the variables related to the psychological status of pregnant women, which is affected during and after pregnancy, is psychological well-being. Psychological well-being is a multidimensional construct that includes cognitive and emotional elements. In fact, psychological well-being is a psychological component of quality of life, defined as individuals' perceptions of life in the realms of emotional behaviors, psychological functions, and mental health dimensions, encompassing two parts. The first part involves cognitive judgments about how individuals are progressing in their lives, and the second part involves the level of pleasant experiences (Keivan et al., 2013; Moulds et al., 2022) According to research findings, pregnant women with high psychological well-being generally have positive emotions and positive evaluations of life events. Conversely, pregnant women with low psychological well-being evaluate conditions and events unfavorably, leading to negative emotions such as anxiety and depression. Therefore, studying psychological well-being among pregnant women is important due to its role in ensuring their mental health (Bailey et al., 2015; Fenwick et al., 2015; Keivan et al., 2013; Moulds et al., 2022).

Another factor that may occur during pregnancy and particularly childbirth, affecting pregnant women's psychological status, is death anxiety. Death anxiety is defined as the feeling of discomfort accompanied by fear directed toward one's own or others' death, considering death as the end of life. Death anxiety is a persistent, irrational, and pathological fear of death or dying. Due to its ambiguous nature, death presents itself as a threat to many individuals, especially pregnant women nearing childbirth or patients with high-risk diagnoses such as cancer, who are inevitably confronted with their own mortality (Aghdam et al., 2022; Ahmadi & Valizadeh, 2021; Asaei et al., 2020; Asghari N et al., 2020; Faghfouriazar, 2023; Goodarzi et al., 2021; Hashemi et al., 2023; Kianpour Barjoee et al., 2022; Mirzaeidoostan et al., 2019; Momeni & Rafiee, 2018; Orang et al., 2023; Taghipour et al., 2020; Yousefi Afrashteh & Masoumi, 2021). Previous studies have reported anxiety in 15% of pregnant Iranian women. Furthermore, due to childbirth-related issues, pregnant women may experience death anxiety as an abnormal and overwhelming fear of death, accompanied by feelings such as panic about death or dread when thinking about the dying process or what happens after death. Although this type of anxiety is a fundamental human component, it is considered an emotional disturbance when it exceeds normal levels and incapacitates the individual (Faghfouriazar, 2023; Hashemi et al., 2023; Kianpour Barjoee et al., 2022).

Given the above points, due to the psychological conditions of pregnant women and the need to reduce the irreversible negative outcomes during pregnancy and childbirth, the use of counseling and psychotherapy services during this crucial period is essential and vital (Ghafoori et al., 2020). Among the psychotherapies used for specific medical conditions such as pregnancy and childbirth are Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT). Various research findings have confirmed the effectiveness of these therapies in the context of childbirth and the psychological status of pregnant women (Ghasemzadeh Barki & SHahgholian Ghahfarokhi, 2020; Hoodersha & Sepahmansour, 2022). Therefore, many physical and psychological problems in pregnant women arise due to their lack of awareness about the natural changes of pregnancy in body and mind; hence, these individuals need more education and increased self-awareness about their pregnancy. Conducting such studies in this area can be practical, necessary, important, and helpful (Ghasemzadeh Barki & SHahgholian Ghahfarokhi, 2020).

One of the third-wave therapies developed for specific medical conditions in patients with chronic pain and related stress is Mindfulness-Based Stress Reduction (MBSR). This therapy is used for specific conditions such as cancer patients, heart patients, rheumatism, individuals with gastrointestinal disorders, swallowing, eating, digestion issues, and childbirth-related stress. In fact, the Mindfulness-Based Stress Reduction program (MBSR) is originally a

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group therapy in which patients are taught various mindfulness exercises, such as sitting meditation, body scan meditation, yoga, and compassionate mind meditation. One of the outcomes of the Mindfulness-Based Stress Reduction program is that individuals realize that most sensations, thoughts, and emotions are transient and fleeting, like waves in the sea. Additionally, individuals are encouraged to pay attention to their inner experiences at each moment, such as bodily sensations, thoughts, and feelings. In reality, mindfulness exercises foster an attitude of non-judgmental acceptance towards experiences, meaning awareness of perceptions, cognitions, emotions, or sensations without judging and evaluating their goodness or badness, truthfulness or falsity, healthiness or unhealthiness, importance, or insignificance (Afsar et al., 2023; Aghdam et al., 2022).

Another third-wave psychotherapy whose effectiveness has been confirmed in various areas, including the psychological status of pregnant women, is Acceptance and Commitment Therapy (ACT). This model, derived from the third wave of behavior therapy, was developed by Hayes in 1986. The primary goal of this model is effective action, which is attentively aware, fully present, and value-based (Peterson & Eifert, 2011; Sedighi Arfaee et al., 2021). This model differs from traditional Cognitive-Behavioral Therapy (CBT), which almost strives to teach people ways to control thoughts, feelings, memories, and other events. Instead, it helps clients establish contact with a transcendent sense of self (observing self) and move towards a rich, meaningful life that brings vitality. Generally, in third-wave behavior therapy, the fundamental emphasis is on awareness of emotions and thoughts, although it does not overlook cognitive change, it is not the direct target, and change occurs indirectly. In Acceptance and Commitment Therapy (ACT), the therapist's goal is to increase clients' psychological flexibility (Fung et al., 2021; Goodarzi et al., 2021; Kalhor et al., 2020). Acceptance and Commitment Therapy teaches effective skills of attention and awareness. Its mission is to change the relationship with difficult thoughts and feelings, so that they are no longer seen as signs but rather viewed as harmless, albeit unpleasant, transient psychological events (Potts, 2016). On the other hand, the fundamental premise in the Acceptance and Commitment approach is that much of psychological problems arise from experiential avoidance, i.e., the person's tendency to avoid unwanted private experiences such as thoughts, urges, or emotions, trying to control or escape from them, thus targeting experiential avoidance to achieve psychological flexibility (Goodarzi et al., 2021; Sedighi Arfaee et al., 2021; Zare et al., 2014).

Finally, given the above points, the present study aims to answer the question: While examining the effectiveness of Mindfulness-Based Stress Reduction training and Acceptance and Commitment Therapy on psychological well-being and death anxiety in pregnant women, is there a significant difference between these two types of psychotherapy on the mentioned variables in pregnant women?

2. Methods and Materials

2.1. Study Design and Participants

The present research is a clinical trial with an experimental method and a pre-test-post-test design with a control group. In this study, there are three groups: two experimental groups (one for Mindfulness-Based Stress Reduction training and one for Acceptance and Commitment Therapy) and one control group. The statistical population of this research included all pregnant women in Ilam City in 2020 who visited the comprehensive health centers of Ilam County for prenatal care. Using convenience sampling, from all pregnant women in Ilam City in 2020, a total of 45 individuals were selected as sample members and randomly assigned to three groups: Mindfulness-Based Stress Reduction training group, Acceptance and Commitment Therapy group, and control group, with each group consisting of 15 members.

Initially, the list of pregnant women's names in Ilam City was obtained from the University of Medical Sciences and the Health Network of Ilam County. Then, through a screening interview, the criteria for inclusion in the study were: voluntary consent to participate, age between 20 to 40 years, no separation during pregnancy, education level of diploma or higher. Finally, 45 individuals were randomly assigned to the three groups: two experimental groups (Mindfulness-Based Stress Reduction training and Acceptance and Commitment Therapy) and one control group. The exclusion criteria included: suffering from physical diseases (such as cancer), having seizures or neurological diseases, substance abuse, and psychological disorders.

At the start of the research, a pre-test was administered to all three groups (two experimental groups and one control group). Then, the related educational programs were implemented for the experimental groups in 8 sessions, each lasting 60 minutes, once a week. The control group received

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no training. After completing the training sessions, a post-test was administered to all three groups. To prevent dropout, the importance of the participants' role and contribution to scientific research was explained, and the benefits of participating in the study were highlighted. Transportation services were also provided, and the educational and therapeutic programs were held regularly and intensively according to the protocol. Additionally, after the study, the control group members received individual psychotherapy services and telephone follow-ups.

2.2. Measures

2.2.1. Psychological Well-being

The short version (18-item) of the Ryff Psychological Well-being Scale (RSPWB), designed by Ryff in 1989 and revised in 2002, was used. This version consists of six factors: autonomy (items 9, 12, 18), environmental mastery (items 1, 4, 6), personal growth (items 7, 15, 17), positive relations with others (items 3, 11, 13), purpose in life (items 5, 14, 16), and self-acceptance (items 2, 8, 10). The total score of these six factors is considered the overall psychological well-being score. This self-assessment tool uses a 6-point Likert scale from "strongly agree" to "strongly disagree" (one to six), where higher scores indicate better psychological well-being. Out of the total items, 10 are scored directly, and 8 are reverse scored (Yousefi Afrashteh & Masoumi, 2021). The short version of the Ryff Psychological Well-being Scale has a correlation with the main scale ranging from 0.70 to 0.90. Results from studies in Australia and other countries indicate the reliability of this scale, with Cronbach's alpha coefficients between 0.70 and 0.85. In Iran, Khanjani et al. (2014) showed that the short form (18-item) of the Ryff Psychological Well-being Scale is useful and applicable for assessing psychological well-being in an Iranian sample, with confirmed validity and reliability for use in scientific research (Moulds et al., 2022; Sedighi Arfaee et al., 2021; Yousefi Afrashteh & Masoumi, 2021).

2.2.2. Death Anxiety

This scale, developed by Templer in 1970, consists of 15 items that assess individuals' attitudes toward death and is widely used. Respondents answer each item with "yes" or "no," where a "yes" response indicates anxiety. Scores range from 0 to 15, with a midpoint (6 to 7) considered the cut-off, where scores of 7 to 15 indicate high death anxiety, and scores of 0 to 6 indicate low death anxiety. Studies on the validity of the Death Anxiety Scale show acceptable validity, with reliability coefficients using Cronbach's alpha (0.65) and split-half method (0.78), indicating acceptable reliability. In another study, internal consistency was 0.76, and test-retest reliability was 0.83. In Iran, Rajabi and Bahrani (2001) conducted a factor analysis of the Death Anxiety Scale, finding five factors, with the first factor explaining the most variance. The split-half reliability of the Death Anxiety Scale was 0.62, and Cronbach's alpha coefficient was 0.73. The correlation between the Death Anxiety Scale and the Death Concern Scale was 0.40, and with the Manifest Anxiety Scale, it was 0.43 (Momeni & Rafiee, 2018; Orang et al., 2023; Taghipour et al., 2020; Yousefi Afrashteh & Masoumi, 2021).

2.3. Interventions

2.3.1. Mindfulness-Based Stress Reduction Training

The Mindfulness-Based Stress Reduction training sessions were conducted in eight 60-minute sessions, one session per week (Aghdam et al., 2022; Ahmadi & Valizadeh, 2021; Faghfouriazar, 2023; Fung et al., 2021; Sedighi Arfaee et al., 2021).

Session 1 and 2:

These initial sessions focus on establishing a therapeutic connection and understanding the nature of stress. Participants are introduced to the concept of mindfulness and engage in body scan exercises and mindful breathing meditations. These practices help participants become aware of their physical sensations and develop a foundation for mindfulness practice.

Session 3 and 4:

The sessions begin with a review of homework assignments, followed by seated meditation exercises. Participants practice a three-minute breathing space to anchor themselves in the present moment. Additionally, they engage in five-minute exercises involving seeing or hearing, along with repeated mindfulness breathing and body scan exercises to reinforce their mindfulness skills.

Session 5 and 6:

These sessions focus on seated meditation, emphasizing awareness of breathing, bodily sensations, sounds, and thoughts. Discussions are held on the relationship between stress, quality of life, and individual well-being. Participants explore how pleasant and unpleasant events impact feelings, thoughts, and bodily sensations. Mindful yoga exercises are

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introduced, and participants learn to view thoughts differently, understanding that thoughts are not facts.

Session 7 and 8:

The final sessions involve reviewing the past week's homework, discussing sleep hygiene, and repeating previous exercises. Participants focus on acceptance and change, engaging in body scan exercises. The sessions conclude with a summary of the program, discussing plans for continuing the practices, and ensuring participants are prepared to maintain their mindfulness practices independently.

2.3.2. Acceptance and Commitment Therapy

The therapy protocol used in this study was based on the Acceptance and Commitment Therapy (ACT) package by Hayes, conducted in eight sessions (Ahmadi & Valizadeh, 2021; Fung et al., 2021; Ghasemzadeh Barki & SHahgholian Ghahfarokhi, 2020; Mirzaeidoostan et al., 2019; Peterson & Eifert, 2011; Sedighi Arfaee et al., 2021).

Session 1 and 2:

These sessions introduce the therapeutic processes and facilitate connection among group members. Participants undergo psychoeducation and complete pre-tests. Discussions revolve around personal experiences and their evaluations, with an emphasis on the efficacy of actions and creating constructive hopelessness. Short mindfulness exercises are introduced, and homework is assigned for the next session.

Session 3 and 4:

After reviewing previous homework, the sessions address control as a problematic assessment of performance. Participants engage in short mindfulness exercises and homework is assigned. Discussions include behavioral commitment, introducing cognitive fusion and defusion techniques, and intervening in problematic language chains. Homework is provided, focusing on reducing fusion with thoughts and emotions.

Session 5 and 6:

These sessions review past experiences, homework, and behavioral commitment. Participants explore self as context, diminishing conceptualized self, and self as observer. Exercises demonstrate the separation between self, inner experiences, and behavior. Mindfulness techniques are applied to illustrate the contrast between experience and mind. Participants practice seeing internal experiences as processes and are assigned further homework.

Session 7 and 8:

In these sessions, past experiences and performance are reviewed, and the concept of values is introduced. Participants learn about the dangers of focusing on outcomes and explore practical life values. Using metaphors and illustrations, the concept of values is explained. The sessions conclude with post-tests, expressing gratitude for participation, and emphasizing the importance of living a values-driven life.

2.4. Data Analysis

Thematic analysis was employed to analyze the transcribed interviews. This involved a rigorous process of reading and re-reading the transcripts, coding data, and identifying patterns and themes related to the psychological impact of miscarriage on women. Initial codes were generated inductively, directly from the data, and were later grouped into broader themes that captured the essence of the participants' experiences. This thematic framework was used to organize and interpret the data, with a focus on understanding the variety and depth of psychological impacts experienced by women following a miscarriage. The analysis was iterative, moving back and forth between the dataset and the emerging analysis to ensure a comprehensive and nuanced understanding of the data. Data were analysied using NVivoe software.

To ensure the trustworthiness of the study findings, several strategies were employed. These included prolonged engagement with the data, which involved spending sufficient time collecting and analyzing data to ensure depth and credibility; peer debriefing, where preliminary findings were discussed with other researchers in the field to challenge and refine the analysis; and member checking, where participants were given the opportunity to review and validate the findings related to their experiences. These steps helped to ensure the reliability and validity of the study's findings.

3. Findings and Results

A total of 45 pregnant women from Ilam city, aged between 19 and 36 years with a mean age of 26.9 years and a standard deviation of 1.45, participated in this study. The educational levels of the sample group were as follows: 7 participants (15.55%) had less than a high school diploma, 16 participants (35.56%) had a high school diploma, 19 participants (42.22%) had a bachelor's degree, and 3 participants (6.67%) had a master's degree. In terms of economic status, 12 participants (26.66%) reported their

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economic status as poor, 23 participants (51.12%) as average, and 10 participants (22.22%) as good.

Table 1

Mean and Standard Deviation of Psychological Well-being and Its Components in Pre-test and Post-test for Control and Experimental Groups

Variable	Group	Pre-test Mean (SD)	Post-test Mean (SD)
Psychological Well-being	Control	59.06 (2.08)	60.33 (2.46)
	MBSR	60.00 (2.75)	80.13 (3.88)
	ACT	58.80 (2.20)	79.73 (3.76)
Autonomy	Control	9.02 (1.84)	9.12 (1.87)
	MBSR	9.55 (1.05)	14.60 (2.00)
	ACT	9.40 (1.50)	14.30 (2.04)
Environmental Mastery	Control	8.40 (1.22)	8.50 (1.02)
	MBSR	8.65 (1.07)	14.40 (2.55)
	ACT	8.30 (1.55)	14.20 (2.37)
Personal Growth	Control	8.90 (1.22)	8.96 (1.90)
	MBSR	9.00 (1.11)	15.10 (2.88)
	ACT	8.80 (1.30)	15.00 (2.70)
Positive Relations	Control	10.10 (2.15)	10.12 (2.18)
	MBSR	10.30 (1.54)	14.80 (2.66)
	ACT	10.00 (2.20)	14.65 (2.75)
Purpose in Life	Control	10.50 (1.88)	10.55 (1.95)
	MBSR	10.60 (1.65)	15.35 (2.37)
	ACT	10.45 (1.80)	15.05 (2.35)
Self-acceptance	Control	11.15 (2.01)	11.45 (2.10)
	MBSR	11.40 (2.08)	16.20 (2.92)
	ACT	11.20 (2.00)	16.00 (2.80)
Death Anxiety	Control	9.13 (0.91)	9.25 (1.09)
	MBSR	9.33 (0.48)	4.13 (0.35)
	ACT	9.40 (1.22)	4.66 (0.45)

Table 1 presents the mean and standard deviation of psychological well-being and its components (autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance) in the pre-test and post-test for the control and experimental groups (Mindfulness-Based Stress Reduction and Acceptance and Commitment Therapy). As shown in the results, the mean and standard deviation of psychological well-being in the pre-test and post-test for the control group were (M = 59.06, SD = 2.08) and (M = 60.33, SD = 2.46), respectively. For the Mindfulness-Based Stress Reduction group, these values were (M = 60.00, SD = 2.75) and (M = 80.13, SD = 3.88). For the Acceptance and Commitment Therapy group, they were (M = 58.80, SD = 2.20) and (M = 79.73, SD = 3.76).

Moreover, Table 1 presents the mean and standard deviation of death anxiety in the pre-test and post-test for the control and experimental groups (Mindfulness-Based Stress Reduction and Acceptance and Commitment Therapy). As shown, the mean and standard deviation of death anxiety in the pre-test and post-test for the control group were (M = 9.13, SD = 0.91) and (M = 9.25, SD = 1.09), respectively. For the Mindfulness-Based Stress Reduction group, these values were (M = 9.33, SD = 0.48) and (M = 4.13, SD = 0.35). For the Acceptance and Commitment Therapy group, they were (M = 9.40, SD = 1.22) and (M = 4.66, SD = 0.45).

To examine the assumptions of covariance analysis, the Kolmogorov-Smirnov test was used to check the normal distribution of variables, with significance levels for psychological well-being (P > 0.466) and death anxiety (P > 0.915) greater than 0.05, indicating normal distribution. For homogeneity of variances, Levene's test results for psychological well-being (F = 2.715) and death anxiety (F = 0.798) were not significant at the 0.05 level, confirming the assumption of homogeneity of variances. Lastly, to assess the homogeneity of regression slopes, the F values for the interaction of group and pre-test for psychological well-being (F = 1.884) and death anxiety (F = 2.060) were not significant at the 0.05 level, indicating homogeneity of regression slopes.

The overall F for Wilks' Lambda test is significant (Wilks' Λ = 0.002, F = 291.832, P < 0.000). Therefore, there are significant differences between the experimental groups and

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the control group regarding the dependent variables. Additionally, the observed power is 1.000, indicating no possibility of a Type II error.

Table 2

Results of Multivariate Analysis of Covariance (MANCOVA) on Post-test Scores Controlling for Pre-test Scores

Variable	Sum of Squares	df	Mean Square	F	Sig.	Effect Size
Psychological Well-being	4064.970	2	2032.485	1137.413	0.000	0.983
Death Anxiety	237.680	2	118.840	419.512	0.000	0.956

Table 2 presents the results of the Multivariate Analysis of Covariance (MANCOVA) on post-test scores controlling for pre-test scores. As shown, after controlling for pre-test scores, there are significant differences in psychological well-being ($F = 1137.413$, $P < 0.000$) and death anxiety ($F = 419.512$, $P < 0.000$) among pregnant women in the experimental groups (Mindfulness-Based Stress Reduction and Acceptance and Commitment Therapy) and the control group.

To determine which variables show significant differences between Mindfulness-Based Stress Reduction, Acceptance and Commitment Therapy, and the control group, Bonferroni post-hoc tests were used, with results shown in Table 3.

Table 3

Bonferroni Test Results for Comparison of Post-test Mean Scores Among Three Groups

Variable	Group	Mean Difference	Std. Error	Sig.
Psychological Well-being	Control vs. MBSR	-20.079	0.512	0.000
	Control vs. ACT	-20.534	0.493	0.000
	MBSR vs. ACT	0.455	0.533	1.000
Death Anxiety	Control vs. MBSR	5.132	0.204	0.000
	Control vs. ACT	4.702	0.196	0.000
	MBSR vs. ACT	-0.430	0.212	0.150

Table 3 shows the Bonferroni test results for comparing the post-test mean scores among the three groups based on differences and significance levels. As the results indicate, there are statistically significant differences in psychological well-being between the control group and the Mindfulness-Based Stress Reduction group ($P < 0.000$) and between the control group and the Acceptance and Commitment Therapy group ($P < 0.000$). However, there is no significant difference between the Mindfulness-Based Stress Reduction group and the Acceptance and Commitment Therapy group ($P = 1.000$). In other words, both the Mindfulness-Based Stress Reduction and Acceptance and Commitment Therapy groups significantly increased psychological well-being in pregnant women compared to the control group, but there is no significant difference in effectiveness between the two experimental groups.

Other results in Table 3 show significant differences in death anxiety between the control group and the Mindfulness-Based Stress Reduction group ($P < 0.000$) and between the control group and the Acceptance and Commitment Therapy group ($P < 0.000$). However, there is no significant difference between the Mindfulness-Based Stress Reduction group and the Acceptance and Commitment Therapy group ($P = 0.150$). In other words, both the Mindfulness-Based Stress Reduction and Acceptance and Commitment Therapy groups significantly reduced death anxiety in pregnant women compared to the control group, but there is no significant difference in effectiveness between the two experimental groups.

4. Discussion and Conclusion

This study aimed to compare the effectiveness of Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT) on the psychological well-being and death anxiety of pregnant women in Ilam city.

The results of the Multivariate Analysis of Covariance (MANCOVA) on post-test scores, controlling for pre-test scores, indicated that there are statistically significant differences in the psychological well-being and death anxiety of pregnant women in Ilam city between the

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experimental groups (MBSR and ACT) and the control group. In other words, both MBSR and ACT were more effective than the control group in increasing psychological well-being and reducing death anxiety among pregnant women. Additionally, the results showed no significant difference in the effectiveness of MBSR and ACT on the psychological well-being and death anxiety of pregnant women.

Although no studies were found that directly compare the effectiveness of MBSR and ACT on psychological well-being, emotional control, and death anxiety in pregnant women, the findings of this research align with previous studies (Afsar et al., 2023; Aghdam et al., 2022; Ahmadi & Valizadeh, 2021; Faghfouriazar, 2023; Fung et al., 2021; Ghasemzadeh Barki & SHahgholian Ghahfarokhi, 2020; Goodarzi et al., 2021; Hoodersha & Sepahmansour, 2022; Kalhor et al., 2020; Mirzaeidoostan et al., 2019; Peterson & Eifert, 2011; Sedighi Arfaee et al., 2021; Zare et al., 2014) in the effectiveness of MBSR and ACT on various psychological conditions in pregnant women and other clinical populations.

Explaining these findings in light of multiple research results, it can be stated that in ACT, individuals are encouraged not to change their experiences but to accept them non-judgmentally. In ACT, no effort is made to change the client's experience; instead, clients actively engage with their problems and issues. In contrast, MBSR interventions revolve around identifying and enhancing positive experiences and sometimes creating new positive experiences. Mindfulness helps individuals identify situations that cause anxiety and stress, gain better self-awareness, recognize their strengths and weaknesses, and learn coping strategies to handle these situations, thus increasing psychological well-being and reducing death anxiety (Ahmadi & Valizadeh, 2021; Goodarzi et al., 2021).

In ACT, the therapist aims to increase the psychological flexibility of clients (Peterson & Eifert, 2011). This therapy teaches effective attention and awareness skills, changing the relationship with difficult thoughts and feelings. It helps clients see them not as symptoms but as transient, albeit unpleasant, psychological events (Goodarzi et al., 2021; Mirzaeidoostan et al., 2019). ACT focuses on experiential avoidance as the root of many psychological problems, targeting it to achieve psychological flexibility (Ahmadi & Valizadeh, 2021). ACT has been effective in promoting mindful acceptance and observance, reducing human suffering, avoiding negative experiences, increasing positive experiences (Ahmadi & Valizadeh, 2021), helping individuals adapt in all situations (Ahmadi & Valizadeh, 2021; Fung et al., 2021; Ghasemzadeh Barki & SHahgholian Ghahfarokhi, 2020), and reducing anxiety (Mirzaeidoostan et al., 2019; Peterson & Eifert, 2011).

In MBSR, according to Kabat-Zinn (2003), stress reduction training involves teaching participants mental relaxation through mindfulness. These efforts shape a mindfulness-based stress reduction model. As Kabat-Zinn states, mindfulness means paying attention in a particular way: purposefully, in the present moment, and non-judgmentally. In mindfulness, individuals learn to be aware of their mental state at every moment and focus their attention on different aspects of their mind (Fung et al., 2021). One outcome of mindfulness exercises is that individuals realize that most sensations, thoughts, and emotions are transient, like waves in the sea. They are encouraged to pay attention to their inner experiences at each moment, such as bodily sensations, thoughts, and feelings. Mindfulness should foster a non-judgmental acceptance of these experiences, without evaluating their goodness, truthfulness, healthiness, or importance (Aghdam et al., 2022). The review of research and empirical literature on mindfulness, especially the mindfulness-based stress reduction program, indicates its effectiveness in reducing psychological harm in various populations and its effectiveness confirmed in multiple studies (Aghdam et al., 2022; Ahmadi & Valizadeh, 2021; Faghfouriazar, 2023; Fung et al., 2021; Goodarzi et al., 2021; Hoodersha & Sepahmansour, 2022; Kalhor et al., 2020; Peterson & Eifert, 2011; Sedighi Arfaee et al., 2021). Indeed, the mindfulness-based stress reduction program can reduce various problematic conditions, such as stress and anxiety (Hoodersha & Sepahmansour, 2022).

5. Limitations and Suggestions

This study has several limitations. Firstly, the sample size was relatively small and limited to pregnant women in Ilam city, which may restrict the generalizability of the findings to broader populations. Additionally, the study relied on self-report measures, which could introduce bias due to participants' subjective perceptions and potential social desirability effects. The lack of long-term follow-up data also limits the understanding of the sustained effects of Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT) on psychological well-being and death anxiety. Moreover, potential confounding variables such as prior mental health

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conditions, support systems, and individual differences in stress coping mechanisms were not controlled for, which might have influenced the results.

Future research should consider larger and more diverse sample sizes to enhance the generalizability of the findings. Longitudinal studies are recommended to assess the long-term effects of MBSR and ACT on psychological well-being and death anxiety. Additionally, incorporating objective measures, such as physiological indicators of stress, could provide a more comprehensive understanding of the interventions' effectiveness. Future studies should also explore the potential moderating effects of variables such as pre-existing mental health conditions, social support, and coping strategies. Comparing the effectiveness of MBSR and ACT with other therapeutic interventions could further delineate the specific benefits and mechanisms of these approaches.

The findings of this study have several practical implications for healthcare providers working with pregnant women. Implementing MBSR and ACT in prenatal care programs could enhance psychological well-being and reduce death anxiety among pregnant women, leading to better mental health outcomes. Training healthcare professionals in these therapeutic techniques can provide them with effective tools to support their patients. Additionally, creating awareness and offering workshops on mindfulness and acceptance strategies for expectant mothers can empower them with skills to manage stress and anxiety during pregnancy. These interventions can be integrated into routine prenatal care to promote holistic well-being and improve the overall quality of maternal healthcare services.

Authors' Contributions

Authors contributed equally to this article.

Declaration

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

Transparency Statement

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

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

Afsar, M., Hassani, F., Farzad, V., & Golshani, F. (2023). Comparison of the Effectiveness of Emotionally-Focused Therapy (EFT) and Mindfulness-Based Schema Therapy (MBST) on Emotion Regulation in Women with Borderline Personality Disorder (BPD). *Applied Family Therapy Journal (AFTJ)*, *2*(1), 262-276. https://journals.kmanpub.com/index.php/aftj/article/view/433

Aghdam, L., Rezaei Jamalouei, H., & Taheri, M. (2022). The effectiveness of mindfulness-based stress reduction on post-traumatic growth and death anxiety in breast cancer patients. *medical journal of mashhad university of medical sciences*, *65*(3), 1111-1124. https://www.magiran.com/paper/2544601

Ahmadi, V., & Valizadeh, H. (2021). The Effectiveness of Acceptance and Commitment-Based Therapy on the Quality of Life and Death Anxiety in the Elderly. *Aging Psychology*, *7*(2), 166-153. https://doi.org/10.22126/jap.2021.6370.1528

Asaei, S., Naziryy, G., & Zarenezhad, M. (2020). Comparing the Tendency to Addiction and Suicide in Physically and Sexually Abused Women Referred to Forensic Medicine with Non-Abused Women; Case study of Fars Province. *Iran-J-Forensic-Med*, *26*(1), 79-84. http://sjfm.ir/article-1-1076-en.html

Asghari N, Madahi M, & A, M. (2020). The Effectiveness of Cognitive-Behavioral Group Therapy (CBT) on Psychological Symptoms (Depression and Psychological Well-Being) in the Elderly. *Journal of Excellence in counseling and psychotherapy*, *32*(8), 15-26. http://sanad.iau.ir/fa/Article/931774

Bailey, S., Bailey, C., Boivin, J., Cheong, Y., Reading, I., & Macklon, N. (2015). A feasibility study for a randomised controlled trial of the Positive Reappraisal Coping Intervention, a novel supportive technique for recurrent miscarriage. *BMJ open*, *5*(4), e007322. https://doi.org/10.1136/bmjopen-2014-007322

Campillo, I. S. L., Meaney, S., McNamara, K., & O'Donoghue, K. (2017). Psychological and Support Interventions to Reduce Levels of Stress, Anxiety or Depression on Women's Subsequent Pregnancy With a History of Miscarriage: An Empty Systematic Review. *BMJ open*. https://doi.org/10.1136/bmjopen-2017-017802

Faghfouriazar, M. (2023). The Effectiveness of Selected Perceptual-Motor Exercises on Working Memory and Quality of Life of Elderly Women. *Aging Psychology*, *9*(3), 310-293. https://doi.org/10.22126/jap.2023.9426.1719

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Fenwick, J., Toohill, J., Gamble, J., Creedy, D., Buist, A., Turkstra, E., Sneddon, A., Scuffham, P. A., & Ryding, E. L. (2015). Effects of a Midwife Psycho-Education Intervention to Reduce Childbirth Fear on Women's Birth Outcomes and Postpartum Psychological Wellbeing. *BMC Pregnancy and Childbirth*, *15*(1). https://doi.org/10.1186/s12884-015-0721-y

Fung, K. P.-L., Vahabi, M., Moosapoor, M., Akbarian, A., Jing-Wen Liu, J., & Wong, J. P.-H. (2021). Implementation of an Internet-Based Acceptance and Commitment Therapy for Promoting Mental Health Among Migrant Live-in Caregivers in Canada: Protocol [Protocol]. *JMIR Res Protoc*, *10*(9), e31211. https://doi.org/10.2196/31211

Ghafoori, F., Dehghan-Nayeri, N., Khakbazan, Z., Hedayatnejad, M., & Nabavi, S. M. (2020). Pregnancy and Motherhood Concerns Surrounding Women with Multiple Sclerosis: A Qualitative Content Analysis. *Int J Community Based Nurs Midwifery*, *8*(1), 2-11. https://doi.org/10.30476/ijcbnm.2019.73900.0

Ghasemzadeh Barki, S., & SHahgholian Ghahfarokhi, M. (2020). The Effectiveness of Acceptance and Commitment Therapy (ACT) In Reducing Perceived Stress in Pregnant Women in During Covid -19 Pandemic [Applicable]. *Journal title*, *14*(3), 89-99. https://doi.org/10.52547/rph.14.3.89

Goodarzi, M. A., Bedayat, E., & Borumand, N. (2021). The effectiveness of mindfulness-based cognitive therapy on experiential avoidance and death anxiety in elderly women [Applicable]. *Rooyesh-e-Ravanshenasi Journal(RRJ)*, *10*(8), 115-124. http://frooyesh.ir/article-1-2727-en.html

Hashemi, Z., Eyni, S., & Yavari, A. (2023). The Relationship Between Personality Traits and Life Satisfaction in the Elderly: The Mediating Role of Cultural Intelligence. *Aging Psychology*, *9*(2), 119-103. https://doi.org/10.22126/jap.2023.9011.1694

Hoodersha, F., & Sepahmansour, M. (2022). The Effectiveness of Mindfulness Training on Lifestyle Promoting Health and Ego Strength of Pregnant Women. *Community Health Journal*, *16*(1), 34-41. https://doi.org/10.22123/chj.2022.244418.1563

Kalhor, A., Davoodi, H., Taghvael, D., & Heidari, h. (2020). Effectiveness of Cognitive Based on Mindfulness Therapy on Inefficient Attitudes and Marital Burnout in the Women with Marital Conflict. *Journal of Clinical Psychology*, *12*(2), 19-30. https://doi.org/10.22075/jcp.2020.20619.1929

Keivan, K., Aliakbar, A., & Afroz, G. (2013). Comparison of biological characteristics in parents of exceptional children and parents of normal children: preventive strategies [Research]. *Journal of Ilam University of Medical Sciences*, *21*(3), 72-82. http://sjimu.medilam.ac.ir/article-1-405-en.html

Kianpour Barjoee, L., Amini, N., Keykhosrovani, M., & Shafiabadi, A. (2022). Effectiveness of Positive Thinking Training on Perceived Stress, Metacognitive Beliefs, and Death Anxiety in Women with Breast Cancer: Perceived Stress in Women with Breast Cancer. *Archives of Breast Cancer*, *9*(2), 195-203. https://doi.org/10.32768/abc.202292195-203

Mirzaeidoostan, Z., Zargar, Y., & Zandi Payam, A. (2019). The Effectiveness of Acceptance and Commitment Therapy on Death Anxiety and Mental Health in Women With HIV in Abadan City, Iran [Original Research]. *Iranian Journal of Psychiatry and Clinical Psychology*, *25*(1), 2-13. https://doi.org/10.32598/ijpcp.25.1.2

Momeni, K., & Rafiee, z. (2018). The Effectiveness of Cognitive-Behavioral Group Therapy on Death Anxiety and General Health of Mourning Elderly Women. *Aging Psychology*, *4*(2), 131-141. https://jap.razi.ac.ir/article_1003.html

Moulds, M. L., Bisby, M. A., Black, M. J., Jones, K., Harrison, V., Hirsch, C. R., & Newby, J. M. (2022). Repetitive negative thinking in the perinatal period and its relationship with anxiety and depression. *Journal of affective disorders*, *311*, 446-462. https://doi.org/10.1016/j.jad.2022.05.070

Orang, S., Saberi, H., & Taheri, A. (2023). develop and evaluate the effectiveness of emotion-based therapy on cognitive emotion regulation and death anxiety in the elderly with cancer. *The Women and Families Cultural-Educational*, *18*(63), 133-152. https://cwfs.ihu.ac.ir/article_207854.html

Peterson, B. D., & Eifert, G. H. (2011). Using Acceptance and Commitment Therapy to Treat Infertility Stress. *Cognitive and Behavioral Practice*, *18*(4), 577-587. https://doi.org/10.1016/j.cbpra.2010.03.004

Sedighi Arfaee, F., Rashidi, A., & Tabesh, R. (2021). The Distress Tolerance in the Elderly: The Role of Experiential Avoidance, Rumination and Mindfulness. *Aging Psychology*, *7*(1), 12-11. https://doi.org/10.22126/jap.2021.6108.1498

Taghipour, R., siahpoosh, S., kazemi dalivand, F., Sadeghi, P., & Farjadtehrani, T. (2020). Comparison of the Effect of Cognitive-Behavioral Therapy and Narrative Therapy in Improving Death Related Distress and Psychological Hardiness in Female Patients with Breast Cancer. *medical journal of mashhad university of medical sciences*, *62*(5.1), -. https://doi.org/10.22038/mjms.2019.17677

Yousefi Afrashteh, M., & Masoumi, S. (2021). Psychological well-being and death anxiety among breast cancer survivors during the Covid-19 pandemic: the mediating role of self-compassion. *BMC Women's Health*, *21*(1), 387. https://doi.org/10.1186/s12905-021-01533-9

Zare, H., Mohammadi, N., Motaghi, P. M., Afshar, H., & Poorkazem, L. (2014). Effectiveness of modified mindfulness-based cognitive therapy on catastrophizing, acceptance and severity of pain in Fibromyalgia patients. *Health Psychology*, *3*(12), 97-117. https://hpj.journals.pnu.ac.ir/article_1609.html

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