Proceedings of ICEIPI 2026 Symposium: Inclusive Education, Cultural Transformation, and the Ethical Dimensions of Learning
DOI: 10.54254/2753-7048/2026.LD33546

The Effect of Mindfulness on Depression and Anxiety in Adults

Fanyue Kong

Drew University, Madison, USA
henna0215@163.com

Abstract. Mindfulness meditation is increasingly recognized as an effective psychological intervention for emotional regulation. Millions of people worldwide suffer from depression and anxiety, which are the most common mental health conditions amd present significant public health issues. This study examines the effects of short-term mindfulness meditation on depression and anxiety in adults. A mixed-methods research design was used, integrating quantitative assessments and qualitative reports. Participants completed standardized psychological scales, including the Beck Anxiety Inventory, Beck Depression Inventory, and Mindful Attention Awareness Scale (MAAS), before and after a four-week mindfulness meditation intervention. Participants also submitted weekly self-reflection reports about their meditation experiences. The results showed that after the intervention, anxiety and depression levels significantly decreased, suggesting mindfulness meditation may alleviate negative emotional symptoms. However, no significant change was found in mindfulness levels as measured by the MAAS. These findings support the potential benefits of mindfulness meditation as an accessible strategy for improving emotional well-being in adults. The study highlights the need for longer intervention periods and larger sample sizes in future research.

Keywords: Mindfulness meditation, Depression, Anxiety, Emotional regulation, Mixed-methods

1. Introduction

A serious and pervasive public health challenge has arisen as societies undergo modernization when emotional disorders like anxiety or depression become more prevalent in them. An estimated 300 million individuals throughout the world live with depression, accounting for approximately 4.4% of the planet's population [1]. At the same time, over 260 million people worldwide suffer from anxiety disorder, about 3.6% of the global population [1]. In response to this growing mental health concern, researchers have explored various interventions, with mindfulness evolving as a promising method. As a way to reduce rumination and relieve stress, mindfulness helps establish effective emotional regulation strategies [2]. Furthermore, both Mindfulness-based Stress Reduction (MBSR) and Mindfulness-based Cognitive Therapy (MBCT) can significantly reduce anxiety and depression symptoms in patients at all levels, including clinical or even subclinical [3].

© 2026 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2753-7048/2026.LD33546

One of the reasons for choosing this topic is that anxiety and depression are common emotions in life. Mood can influence our perception of happiness [4]. While extensive study has been conducted on long-term mindfulness meditation, there is a notable lack of studies investigating the effects of short-term mindfulness practices on mood regulation, so it is an opportunity to improve the research on mindfulness. This study aims to fill a gap in relevant research and explore the effects of short-term mindfulness on the emotional states of depression and anxiety in adults. This study employs a mixed-methods research design that integrates psychological scale assessments with qualitative self-reflection reports to evaluate the effects of a four-week mindfulness meditation intervention.

2. Literature review

2.1. Depression and anxiety: definitions, diagnosis, and neurobiological basis

Depression is a negative emotional state characterized by persistent unhappiness, dissatisfaction, pessimism, and depression. Also, many physical and mental changes occur, including changes in eating or sleeping habits, lack of energy, and difficulties in making decisions and concentrating [5]. Globally, 3.8% of people—around 280 million people—suffer from depression. Among adults, prevalence rates are higher in women (6%) and men (4%), with women being about 50% more likely to experience depression [6]. Major depressive disorder, premenstrual dysphoric disorder, disruptive mood dysregulation disorder, persistent depressive disorder, and depressive disorder brought on by other medical conditions are the five categories into which the Diagnostic Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) divides depressive disorders [7,8]. A depressive episode is typically diagnosed when symptoms such as depressed mood, loss of interest, feelings of worthlessness or guilt, and suicidal ideation persist for at least two weeks and cause significant impairment in social or occupational functioning.

Anxiety is another prevalent mental health condition, which is described as a future-focused emotional state marked by tense feelings, anxious thoughts, and physical symptoms including elevated blood pressure [7]. Specific phobias, social anxiety disorders, separation anxiety disorder, and generalized anxiety disorder are examples of anxiety disorders [9]. Clinically, anxiety disorders are diagnosed when superfluous fear or anxiety is disproportionate to the situation, persistent for at least six months (with some exceptions in children), and causes significant functional impairment, provided symptoms are not attributable to substance use or medical conditions [10].

2.2. Mindfulness meditation and its effects on depression and anxiety

Mindfulness meditation refers to a state of mind in which individuals focus on their breathing, thoughts, and sensations, experiencing them freely as they appear. The purpose of mindfulness meditation is to let individuals pay high attention to their sensors and focus on the moment as it happens. It can also help individuals reduce rumination and stress, helping to regulate mood [11].

One striking finding from previous studies is that mindfulness meditation can ease anxiety and depression symptoms. MBSR and MBCT have significant positive effects on addressing anxiety and stress [12]. Studies have reported brain changes following mindfulness practice, including amygdala and prefrontal cortex connectivity affecting emotional control. By strengthening top-down control mechanisms, mindfulness meditation may reduce emotional reactivity and help individuals better manage anxiety and depressive symptoms [13]. These studies all further support that mindfulness meditation can reduce anxiety and depression.

DOI: 10.54254/2753-7048/2026.LD33546

This study aims to investigate whether mindfulness meditation will help adults with symptoms of depression and anxiety. The author hypothesized that the subjects' feelings of depression and anxiety would decrease after participating in the mindfulness meditation experiment and that they would be able to control their emotions better.

3. Methodology

The purpose of this study is to ascertain whether brief mindfulness meditation can lessen adults' symptoms of anxiety and sadness.

3.1. Participants

Fourteen volunteers aged 18 to 50 years were recruited from the community in Foshan, China. Participants were divided into three age groups for variance testing: Group 1 (32-38 years old), Group 2 (39-45), and Group 3 (46-49).

After excluding two participants due to incomplete or inconsistent responses, the final sample consisted of 12 participants, with equal numbers of males and females.

3.2. Experimental design and variables

Quantitative and qualitative self-reflection reports were combined in a mixed-methods research design. The independent variable was the frequency of mindfulness meditation practice during the four-week intervention. The dependent variables were levels of anxiety, depression, and mindfulness. To reduce potential confounding effects, participants were instructed to meditate in a quiet environment under standardized conditions.

3.3. Materials and measures

There were three psychological scales that were standardized: (1) The degree of anxiety symptoms is evaluated using the Beck Anxiety Inventory (BAI). Minimal anxiety is represented by a score of 0–7, mild anxiety by a score of 8–15, moderate anxiety by a score of 16–25, and severe anxiety by a score of 26–63. (2) The Beck Depression Inventory (BDI) gauges how severe depression symptoms are. Minimal depression is represented by a score of 0–13, mild depression by a score of 14–19, moderate depression by a score of 20–28, and severe depression by a score of 29–63. (3) The Mindful Attention Awareness Scale (MAAS): evaluates individuals' level of mindful awareness in daily life. Scores of 15–45 indicate low levels of reflecting, weaker emotional regulation, and attention control. Scores of 46–75 indicate moderate mindfulness, while scores of 76–90 indicate a high level of mindfulness, indicating stronger awareness and better emotional regulation.

Participants also submitted weekly reflection reports detailing their meditation experiences.

Because the study was not conducted in a clinical setting, the scale results were used only to indicate changes in emotional states rather than clinical diagnoses. Comparisons between pre- and post-intervention scores were used to assess potential changes associated with mindfulness meditation.

3.4. Procedure

The experiment consisted of four stages: (1) Preparation stage – Participants were recruited and provided informed consent. (2) Pre-test measurement – Participants completed the BAI, BDI, and

DOI: 10.54254/2753-7048/2026.LD33546

MAAS questionnaires before the intervention. (3) Meditation intervention – Participants engaged in guided mindfulness meditation sessions five times per week over a four-week period. Each session lasted 12 minutes and took place in a quiet environment. (4) Post-test measurement – After the intervention, participants completed the same questionnaires.

Descriptive statistics and paired-sample t-tests were used to evaluate changes in anxiety, depression, and mindfulness levels based on questionnaire data collected before and after the intervention.

4. Results

4.1. Changes in anxiety (BAI scores)

To examine whether mindfulness mediation reduced anxiety symptoms, pre-intervention and post-intervention BAI scores were compared. A paired-sample t-test was performed after a Shapiro-Wilk normality test revealed that the data roughly followed a normal distribution. Table 1 displays the results of the paired t-test.

Table 1. Paired-sample t-test results for BAI scores

Pair Number	Item	Mean value	Standard deviation	Mean difference	t	p
Pair 1	First BAI score Second BAI Score	24.67 8.33	4.44 8.96	16.33	6.191	0.000**

* p<0.05 ** P<0.01

The paired T-test showed a significant reduction in anxiety scores after the mindfulness intervention (t=6.191, p=0.000). The mean BAI score decreased from 24.67 to 8.33, with a mean difference of 16.33 points. These results suggest that the four-week mindfulness mediation practice was associated with a substantial reduction in anxiety symptoms among participants.

4.2. Changes in depression (BDI scores)

To evaluate whether mindfulness mediation reduced depressive symptoms, pre-intervention and post-intervention BDI scores were compared. A Shapiro-Wilk normality test indicated that the data approximately satisfied normality assumptions; therefore, a paired-sample t-test was conducted.

Table 2. Paired-sample t-test results for BDI scores

Pair Number	Item	Mean value	Standard deviation	Mean difference	t	p
Pair 1	First BDI score Second BDI Score	12.33 6	8.24 6.52	6.33	4.169	0.002**

As shown in Table 2, the paired t-test results indicated a significant reduction in depression scores following the intervention (t = 4.169, P = 0.002). The mean BDI score decreased from 12.33 before the intervention to 6.00 after the four-week mindfulness difference of 6.33 points. This result suggests that the four-week mindfulness meditation program was associated with a significant improvement in depressive symptoms among participants.

DOI: 10.54254/2753-7048/2026.LD33546

4.3. Changes in mindfulness (MAAS scores)

Pre-intervention and post-intervention MAAS scores were compared to see if the mindfulness intervention raised participants' levels of mindfulness. Both the pre-test and post-test MAAS scores resembled normal distributions, according to a Shapiro-Wilk normality test. As a result, a paired-sample t-test was used.

Table 3. Paired-sample t-test results for MAAS scores

Pair Number	Item	Mean value	Standard deviation	Mean difference	t	p
Pair 1	First MAAS score	69.33	10.59	-2.75	-0.984	0.346
	Second MAAS Score	72.08	15.76			

The paired t-test results (Table 3) indicated no significant difference in MAAS scores before and after the intervention ($p>0.05$). Although the mean MAAS scores increased slightly after the intervention, with a mean difference of -2.75, the change was not statistically significant. This suggests that the four-week mindfulness meditation program did not significantly increase participants' self-reported mindfulness levels.

4.4. Effects of gender and age

To examine whether demographic factors influenced the results, one-way ANOVA analyses were conducted to compare scores across gender and age groups.

Gender differences: The analysis indicated no significant gender differences in anxiety (BAI) or mindfulness (MASS) scores at either the pre-test or post-test stage ($p>0.05$). However, a significant gender difference was observed in the pre-test BDI scores ($p<0.05$), with female participants reporting higher levels of depression than male participants. After the intervention, this difference was no longer statistically significant ($p>0.05$), suggesting that the mindfulness intervention may have reduced the gender gap in the depression levels.

Age group differences: The results showed no significant differences among the three age groups in BAI, BDI, or MAAS scores at either the pre-test or post-test stage ($p > 0.05$). This indicates that age did not significantly influence anxiety, depression, or mindfulness levels in this study.

5. Discussion

5.1. Interpretation of key findings

The results indicate that mindfulness meditation significantly reduced participants' anxiety and depression levels, suggesting that short-term mindfulness practice may effectively improve emotional well-being.

Although female participants showed higher depression scores at the pre-test stage, the difference between genders was no longer significant after the intervention. This may indicate that mindfulness meditation can help reduce gender disparities in emotional distress. Furthermore, there were no discernible variations between age groups, indicating that adults of various ages may benefit from mindfulness therapies.

Interestingly, no significant increase in MAAS scores was observed after the four-week intervention. One possible explanation is that trait mindfulness may require longer practice periods to show measurable changes. In addition, participants already showed moderate levels of mindfulness at baseline, which may have limited the extent of observable improvement.

DOI: 10.54254/2753-7048/2026.LD33546

Qualitative reports from participants provided additional sights. Most of participants could not focus on the meditation at the beginning. They were bothered by other thoughts, which made them unable to concentrate and relax. During the second and third weeks of the experiment, they claimed that they could relax more and focus on breathing. Later in the experiment, they felt their sleeping quality was improved. Their mood has become more stable, and mindfulness has become a way to release stress. Overall, in the participants' meditation reports, mindfulness meditation improved their mental and physical well-being.

5.2. Comparison with previous studies

The results of this study are in line with earlier research showing that mindfulness meditation can considerably lessen depressive and anxious symptoms. Mindfulness can allow people to regulate emotions better and reduce rumination, which is a crucial method for treating depression. Some studies have proved that MBSR can reduce depressive symptoms [14]. MBSR has also been shown to influence the reduction of anxiety in people effectively [12]. The results of this study showed higher levels of depression in females, but both males and females generally experience essentially the same effects from mindfulness interventions [15].

Previous studies have reported significant increases in mindfulness levels after meditation interventions [16]. However, other studies have reported insignificant improvements [17]. Unlike in previous studies, this study's MAAS scores did not improve significantly after the intervention. This may be because mindfulness meditation can take longer to improve mindfulness levels significantly. There were only four weeks of mindfulness meditation practiced in this study; there may need to be more time for measurable changes to occur. In addition, the subjects' initial mindfulness scores demonstrated that they already had moderate mindfulness, so there may be less room for improvement, which may also be a reason for the lack of significant change.

Earlier research on mindfulness meditation revealed no meaningful difference in outcomes concerning anxiety, depression, or mindfulness between males and females, which is consistent with the findings of this study [15]. Similarly, age is also not a vital influencing factor for the effects of mindfulness meditation [14]. People from different age groups benefited equally from the intervention. This suggests that mindfulness interventions can be applied to both genders and age groups without much modification.

6. Conclusion

This study examined the effects of short-term mindfulness meditation on depression and anxiety in adults through both quantitative and qualitative methodologies. The results demonstrated significant reductions in participants' anxiety and depression scores following the four-week mindfulness meditation intervention. These findings indicate that mindfulness meditation may represent an effective and accessible strategy for alleviating emotional distress. Additionally, qualitative reports indicated that many participants experienced increased relaxation and enhanced focus during meditation practice. Several individuals also noted improvements in sleep quality and emotional stability. These subjective accounts further substantiate the potential psychological benefits of mindfulness meditation.

However, there are a number of drawbacks to this study. First, the results' generalizability is limited by the very small sample size. Second, the four-week duration of the meditation intervention may be insufficient to produce substantial changes in mindfulness awareness, which may account for the absence of significant differences in MAAS scores before and after the intervention. To more

DOI: 10.54254/2753-7048/2026.LD33546

accurately evaluate the long-term benefits of mindfulness meditation, future studies should use larger sample numbers and longer intervention times. Control groups and physiological measurements would also improve the validity and dependability of study findings. In summary, findings suggest that mindfulness meditation has the potential to reduce symptoms of depression and anxiety and may serve as a valuable tool for promoting psychological well-being.

References

[1] World Health Organization. (2017) Depression and Other Common Mental Disorders Global Health Estimates. Available at: https: //iris.who.int/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf
[2] American Psychological Association. (2019, October) Mindfulness meditation: A research-proven way to reduce stress. Available at: https: //www.apa.org/topics/mindfulness/meditation.
[3] Khoury, B., Lecomte, T., Fortin, G., et al. (2013) Mindfulness-based therapy: a comprehensive meta-analysis. Clinical Psychology Review, 33(6): 763–771. doi: https: //doi.org/10.1016/j.cpr.2013.05.005.
[4] Schmid, P.C., and Schmid Mast, M. (2010) Mood Effects on Emotion Recognition. Motivation and Emotion, 34(3): 288–292. doi: https: //doi.org/10.1007/s11031-010-9170-0.
[5] National Collaborating Centre for Mental Health (UK). (2011) COMMON MENTAL HEALTH DISORDERS. Available at: https: //www.ncbi.nlm.nih.gov/books/NBK92254/
[6] World Health Organization. (2023) Depressive disorder (depression). Available at: https: //www.who.int/news-room/fact-sheets/detail/depression
[7] American Psychological Association. (2022) Anxiety. Available at: https: //www.apa.org/topics/anxiety
[8] National Institute Of Mental Health. (2024) Depression. Available at: https: //www.nimh.nih.gov/health/topics/depression
[9] Bandelow, B., Michaelis, S. and Wedekind, D. (2017) Treatment of Anxiety Disorders. Generalized Anxiety Disorders, 19(2): 93–107. doi: https: //doi.org/10.31887/dcns.2017.19.2/bbandelow.
[10] American Psychiatric Association. (2013) Diagnostic and Statistical Manual of Mental Disorders. Diagnostic and Statistical Manual of Mental Disorders, 5(5). doi: https: //doi.org/10.1176/appi.books.9780890425596.
[11] Davis, D.M., and Hayes, J.A. (2012) What are the benefits of mindfulness? American Psychological Association. Available at: https: //www.apa.org/monitor/2012/07-08/ce-corner
[12] Hoge, E.A., Bui, E., Marques, L., et al. (2013) Randomized controlled trial of mindfulness meditation for generalized anxiety disorder. The Journal of Clinical Psychiatry, 74(08): 786–792. doi: https: //doi.org/10.4088/jcp.12m08083.
[13] Davidson, R.J., Kabat-Zinn, J., Schumacher, J., et al. (2003) Alterations in Brain and Immune Function Produced by Mindfulness Meditation. Psychosomatic Medicine, 65(4): 564–570. doi: https: //doi.org/10.1097/01.psy.0000077505.67574.e3.
[14] Chi, X., Bo, A., Liu, T., et al. (2018) Effects of Mindfulness-Based Stress Reduction on Depression in Adolescents and Young Adults: A Systematic Review and Meta-Analysis. Frontiers in Psychology, 9. doi: https: //doi.org/10.3389/fpsyg.2018.01034.
[15] Hofmann, S.G., Sawyer, A.T., Witt, A.A., et al. (2010) The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. Journal of Consulting and Clinical Psychology, 78(2): 169–183. doi: https: //doi.org/10.1037/a0018555.
[16] Şener, N. and Timur Taşhan, S. (2021) The effects of mindfulness stress reduction program on postmenopausal women's menopausal complaints and their life quality. Complementary Therapies in Clinical Practice, 45: 101478. doi: https: //doi.org/10.1016/j.ctcp.2021.101478.
[17] Wong, C., Yip, B.H.-K., Gao, T., et al. (2018) Mindfulness-Based Stress Reduction (MBSR) or Psychoeducation for the Reduction of Menopausal Symptoms: A Randomized, Controlled Clinical Trial. Scientific Reports, 8(1). doi: https: //doi.org/10.1038/s41598-018-24945-4.