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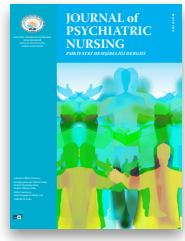

Original Article

Mindfulness meditation interventions of varying lengths on women's anxiety levels

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Abstract

Objectives: Meditation enhances mental health and helps manage stress and anxiety. Regular meditation sessions can increase tranquility, mental clarity, and emotional resilience. However, the optimal duration for mindfulness meditation needs further investigation. This study examined the impact of a 5-stage mindfulness meditation program, administered for varying durations, on anxiety levels in women without psychiatric diagnoses.

Methods: Twenty-five volunteer participants were enrolled and divided into three groups: two experimental groups, which engaged in mindfulness meditation for either 10 minutes or 20 minutes, and a control group that did not meditate. The meditation sessions were conducted over an 8-week period using both a licensed trainer and recorded guidance. Various measures were administered to all groups to assess the outcomes.

Results: Both 10-minute and 20-minute meditation interventions were effective compared to pre-intervention. While post-intervention anxiety scores did not significantly differ between the 10-minute and 20-minute groups, both experimental groups exhibited significantly reduced anxiety levels compared to the control group. Similarly, perceived stress scores showed significant reductions in both meditation groups compared to the control group, with no significant differences between the 10-minute and 20-minute groups. Mindfulness scores and intolerance of uncertainty scores did not significantly differ between the meditation groups and the control group post-meditation.

Conclusion: This research is expected to contribute to the understanding of the varying effects of different time durations of 5-stage mindfulness meditation on stress-induced anxiety in women. The findings could lead to more accessible and practical mental health interventions, especially for women with limited time and resources.

Keywords: 5-stage mindfulness meditation; anxiety; meditation duration; perceived stress; women's mental well-being

Stress, a natural response to challenges, can improve focus and survival instincts, but if excessive or prolonged, it can impair learning, memory, and planning, leading to health issues and exacerbating anxiety and other psychological conditions. When demands exceed coping abilities, individuals feel stressed and experience negative emotions. Events affect individuals based on their evaluation of stress.[1] How individuals interpret their relationship with the environment is crucial in stress perception.[2] Thus, perceiving a situation as stressful and struggling to cope may, in turn, lead to anxiety. Perceived stress and negative emotions, like anxiety, can exacerbate each other, impacting cognitive and emotional equilibrium.[3] Individuals commonly encounter a sense of time distortion when exposed to negative or unpleasant stimuli through various sensory channels.[4] Kramer et al.[5] have shown that meditation can alter time perception. Meditation, particularly mindfulness practices, sensitizes individuals to time and prolongs their perception of it.[6] During meditation, directing attention to the present moment and the breath is thought to facilitate the observation of experiencing uncertainty, implying an acknowledgment and contemplation of uncertainty as well. Intolerance of uncertainty describes individuals' tenden-

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cy to harbor unacceptable thoughts about potential events, irrespective of their probability.[7] This trait may, in turn, be associated with increased levels of worry, mood anxiety, and the development of anxiety disorders.[8] Individuals with low tolerance for uncertainty perceive it as a threat because they struggle to take precautions, ultimately adding to their stress levels.[7] Hence, it can be inferred that both perceived stress and uncertainty are linked to different levels of anxiety. Anxiety manifests as a complex blend of fear and apprehension that can be challenging to pinpoint,[9] often accompanied by physiological reactions. Anxiety disorders entail intense anxiety, fear, and disruptions in behavior.[10]

Stress and anxiety are widespread among women, with studies showing elevated levels compared to men.[11] Several factors contribute to this gender gap, including societal pressures, hormonal changes, and psychosocial stressors. Women tend to seek help for mental health issues more often than men, resulting in higher reported rates of stress and anxiety among women.[12] This willingness to seek support may be influenced by factors such as greater awareness of mental health, societal encouragement to express emotions, and stronger social support networks.[13] However, despite this tendency, societal stigma surrounding mental health can still prevent some women from seeking help. Cultural norms and gender expectations may pressure women to appear strong and resilient, leading them to hesitate in acknowledging their mental health struggles. Additionally, women from marginalized communities may face intersecting forms of discrimination that further hinder their access to mental health support.[14,15] As a result, there may be underreporting of stress and anxiety symptoms among women. Addressing societal stigma and promoting gender-sensitive mental health care are crucial in ensuring that all individuals, regardless of gender, feel empowered to seek the support they need for their mental well-being.

The 5-stage mindfulness meditation involves counting the breath while focusing on the end and head of each breath, observing the breath's movement throughout the body, noticing the breath around the nose, and cultivating open awareness. While research often focuses on assessing the effects of comprehensive programs like Mindfulness-Based Stress Reduction (MBSR) on anxiety, these programs can be prohibitively expensive and time-intensive.[16] A meta-analysis study investigating the effectiveness of MBSR programs in reducing stress and improving health outcomes revealed valuable insights into the benefits of mindfulness meditation for stress reduction among women, despite also including men in the study.[17] Therefore, it is essential to investigate the impact of individual meditation practices, including their duration, on stress and anxiety levels in women.

What is presently known on this subject?

- Mindfulness practice is known to reduce stress and anxiety by improving emotional regulation and present awareness. However, most studies focus on long-lasting or instructor-led programs, leaving the benefits of shorter sessions less clear, especially for middle-aged women.

What does this article add to the existing knowledge?

- The present study shows that 10- and 20-minute daily mindfulness sessions over eight weeks both reduce anxiety and stress, with no difference between durations. This suggested 5-stage mindfulness model, combining self-directed and guided practice, also improved resilience and uncertainty tolerance.

What are the implications for practice?

- Low-cost mindfulness routines can effectively support emotional well-being and fit busy lifestyles. Encouraging self-guided practice may improve accessibility and practice consistency in community and workplace settings.

Study Aim and Hypothesis

This study aims to explore the potential benefits of mindfulness meditation in reducing anxiety, particularly when practiced for shorter durations. Unlike many mindfulness studies that advocate for lengthy daily meditation sessions, this research seeks to assess the effectiveness of meditation within more manageable time constraints, which can accommodate individuals with busy schedules. This approach introduces novelty by proposing a practical and accessible framework for integrating meditation into daily routines. Therefore, the objective of this study is to examine whether short periods of meditation, both through self-training and guided sessions, can help individuals reduce their anxiety levels in everyday life, aiming to offer a feasible method for enhancing overall well-being. A primary goal is to assess how the 5-stage mindfulness meditation affects the anxiety levels of women across varying meditation durations. The research hypothesis is that regular meditation practice, even for short daily durations, is associated with lower anxiety, higher mindfulness, and reduced perceived stress, whereas the length of meditation does not significantly influence these outcomes. Anxiety is expected to be positively related to perceived stress and intolerance of uncertainty.

Materials and Method

This study employed a controlled experimental design. Female volunteers who met the eligibility criteria were classified into low and high anxiety groups according to their Beck Anxiety Inventory scores. Equal numbers of participants from each anxiety level were assigned to the study groups, with the specific allocation of individuals, such as which participants with high anxiety were placed in each group, determined randomly.

Participants

Participants were contacted through online platforms via announcements from various psychologists, yoga instructors, and coaches. Participants filled out an application form, and those deemed suitable were included in the study. Inclusion

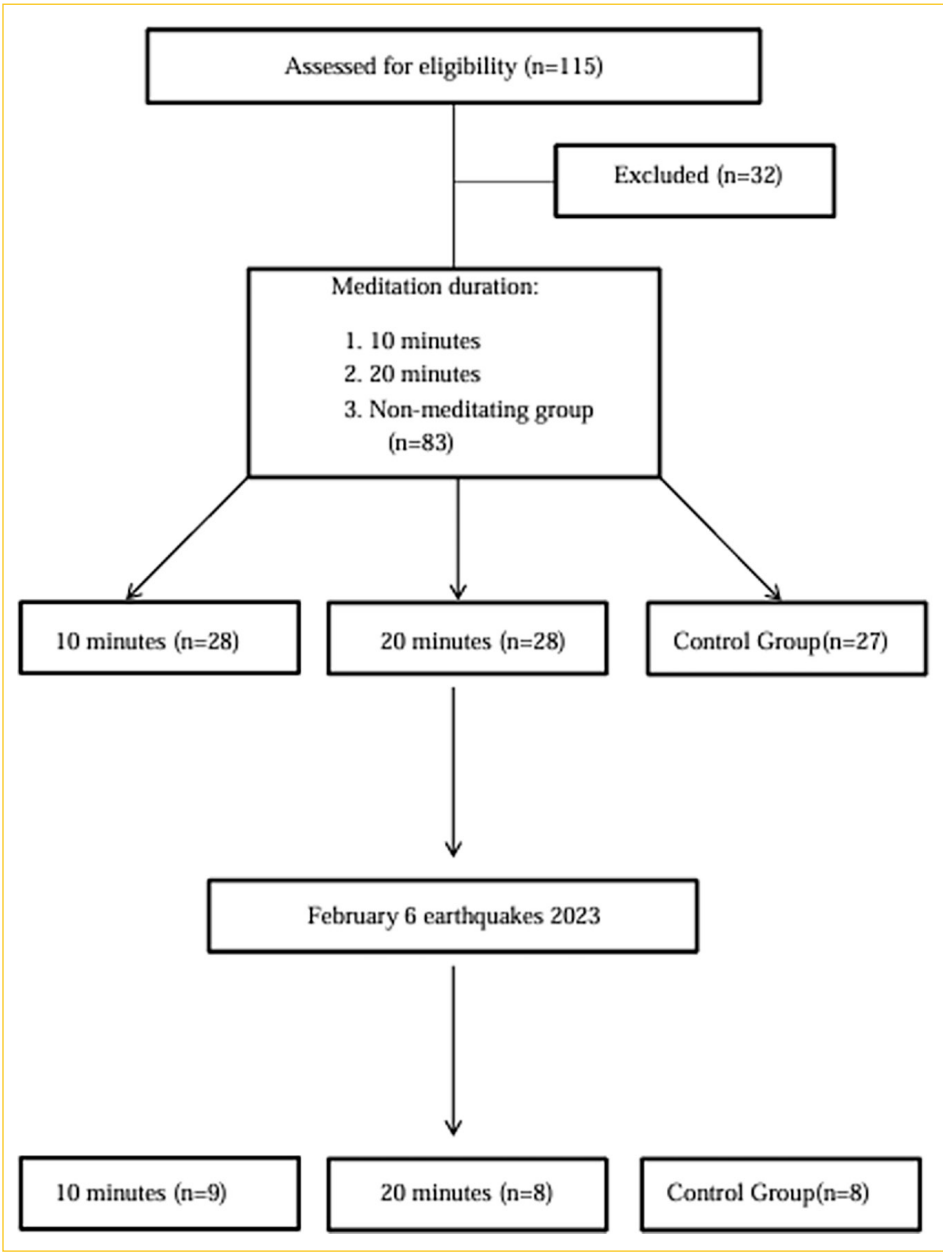

Figure 1. Diagram illustrating the progression of participants from initial recruitment through each stage of the study.

criteria included being female, between the ages of 25 and 35, not having a psychiatric diagnosis, not having a regular meditation practice lasting longer than one month, and committing to not participating in any other yoga meditation workshops or similar training during the 8-week study period. Exclusion criteria included having a psychiatric diagnosis and using related medications, being pregnant, receiving treatment for alcohol or substance abuse, and having received antidepressant or anxiety disorder treatment within the last six months.

The study was conducted with women (age; 30±3.21). Participants were randomly divided into three separate groups: 9 individuals in the 10-minute group, 8 individuals in the 20-minute group, and 8 individuals in the control group. The average Beck Anxiety Inventory score of all eligible participants (n=83) was calculated and found to be 20.37. Anxiety scores below this value were considered low, while those above this value were considered high. Equal numbers of participants with low and high anxiety scores were then randomly assigned to each group. To minimize the impact of age-related differences, a relatively narrow age range of 25–35 was selected. The CONSORT scheme is seen in Figure 1. To assess the homogeneity of the groups, Levene's test was conducted, yielding $F(2.22)=2.62$, $p=0.10$. These results indicated that the participants in each group were assigned homogeneously.

Table 1. Demographic characteristics of the participants

Demographic characteristic	Percentage (%)	Demographic characteristic	Percentage (%)
Participants with self-identified anxiety	61.54	Substance use (alcohol/cigarettes)	69.23
Menstrual symptoms		Migraine diagnosis	34.62
Pain	42.31	Frequent headaches	50
No pain	34.62	Experience physical symptoms with anxiety	92.31
Variability	23.08	Response to anxiety:	
Regular menstrual cycles	88.46	Contact friends	13.5
Employed	84.62	Attempt to sleep	12.5
In a relationship	69.23	Go for a walk	11.5
Education level		Eat a meal	10
Bachelor's degree	61.54	Feel helpless	9.4
Postgraduate	30.77	Unsure of what to do	9.4
Doctoral degree	3.85	Cry	9.4
High school	3.85	Hope the feeling would pass	9.4

Female participants varied in education level, substance use, menstrual cycles with or without pain, headaches-migraine status, different strategies for dealing with anxiety. N=25.

Initially aiming for 83 female participants, the sample size was reduced, likely due to the earthquake disaster in Kahramanmaraş in February 2023, impacting those from nearby areas. The demographic properties of participants are summarized in Table 1.

Procedure

Voluntary participants meeting the specified conditions were divided into groups based on their pre-intervention scores from the Beck Anxiety Inventory (BAI), ensuring an equal distribution of participants across groups to prevent the accumulation of high or low BAI scores in any particular experimental group. Subsequently, two out of the three groups, each consisting of 8–9 women, were formed using an experimental design, with two designated as experimental groups and the third as the control group. Before commencing the meditation practice, each group underwent pre-intervention using the scales applied in the study. The independent variable was the duration of meditation, while the dependent variables included changes in anxiety levels, perceived stress, conscious awareness, and intolerance to uncertainty scores.

The experimental groups (10-minute and 20-minute groups) engaged in 5-stage mindfulness meditation for eight weeks, practicing online with the guidance of a mindfulness licensed expert. Participants followed the meditator's instructions via an online platform twice a week, repeating the recorded meditation sessions provided by the experimenter for an additional four days each week, depending on their study groups. Conversely, the control group did not engage in any meditation practice throughout the experiment but was invited to participate in mindfulness practice after the eight-week period concluded. Participants were given self-report scales: BAI, Perceived Stress Scale (PSS), Mindful Attention Awareness Scale (MAAS), and Intolerance of Uncertainty Scale (IUS). All scales have been adapted into Turkish, with reliability and validity studies conducted in Turkey. At the end of the eight-week intervention, all three groups underwent a post-intervention assessment.

At the beginning, participants received cautions, followed by an orientation exercise directing attention to the environment and the five senses. No additional practice was introduced before the five-stage meditation. The first four stages involved focused attention, such as counting the breath or observing its bodily sensations. The fifth stage emphasized open awareness without a specific focus tool. The details of the practice were presented in Table 2.

Ethical Considerations

This study was approved by the Bartın University Social and Human Sciences Ethics Committee (25.10.2022, No: 2022-SBB-0457). Participants were informed about the purpose and scope of the study, assured that participation was voluntary and their personal data would remain confidential, and informed that the study would be conducted online. Written informed consent was obtained from all participants. This study was conducted in accordance with the principles of the Helsinki Declaration.

Statistical Analysis

When normality and homogeneity assumptions were met, One-Way ANOVA test was applied to compare group differences for PSS and BAI scores before and after the mindfulness intervention. A t-test was used to assess the effectiveness of the mindfulness intervention on IUS, MAAS, PSS, and BAI. Lin-

Table 2. 5-stage meditation stages

Stage	Instruction	Focus
Orientation	Sit upright with elongated spine. Spend 5 min in mindful body movement. Observe the room as if for the first time; let gaze rest naturally.	Orientation to environment
Stage 1	Count after each exhale. If you reach 10 or lose attention, return to 1. Keep breath natural.	Counting with exhalation
Stage 2	Count before each inhale. If attention drifts, return to 1. Breath flows naturally.	Counting with inhalation
Stage 3	Stop counting; observe sensations of breathing (nostrils, chest, abdomen, clothing). Return to breath if distracted.	Bodily breath sensations
Stage 4 (Flashlight)	Focus on nose/upper lip. Notice airflow speed, temperature, and nostril differences.	Focused breath at nostrils
Stage 5 (Projector)	Open awareness of sounds, sensations, thoughts, emotions. Observe without judgment. Keep spine upright.	Open awareness (Zazen)
After	When ready, open eyes and resume activity or continue meditating.	Transition

Safety reminders: (a) maintain upright spine, (b) open eyes briefly if struggling, (c) keep eyes open if intense emotions arise, (d) stop if pain or distress occurs, (e) if dizzy, hold leg/floor and open eyes if it persists.

Table 3. Pre- and post-intervention values of participants by group and scale

	Control						10-Minutes						20-Minutes					
Group	N	Mean	Mdn	SD	Min	Max	N	Mean	Mdn	SD	Min	Max	N	Mean	Mdn	SD	Min	Max
PSS Pre-test	8	29.0	30.5	9.9	17	42	9	31.1	30.0	5.3	23	40	8	33.7	33.0	7.5	21	45
PSS Post-test	8	35.2	34.5	7.3	25	47	9	20.7	23.0	6.9	9	29	8	21.2	18.5	7.9	14	37
IUS Pre-test	8	35.7	29.5	12.9	23	54	9	39.5	38.0	11.8	18	54	8	37.2	39.0	6.6	28	45
IUS Post-test	8	40.1	36.5	10.2	25	53	9	29.6	31.0	9.0	15	46	8	28.0	25.0	6.8	20	40
BAI Pre-test	8	19.5	18.0	11.5	6	42	9	16.6	19.0	7.5	6	30	8	23.8	23.5	15.1	2	44
BAI Post-test	8	22.1	15.5	13.0	9	45	9	8.6	7.0	5.9	2	21	8	6.3	6.5	2.6	1	10

The table includes the number of participants, mean, median, standard deviation, minimum, and maximum scores for PSS, IUS, and BAI, both before and after the mindfulness meditation intervention. N: Number; Mdn: Median; Min: Minimum; Max: Maximum; SD: Standard deviation; PSS: Perceived Stress Scale; IUS: Intolerance of Uncertainty Scale; BAI: Beck Anxiety Inventory.

ear regression analysis was employed to examine the relationships between the variables. The relevant test scores for each group are presented in Table 3. The analysis was conducted using IBM SPSS 28.0.1.1 and GraphPad Prism 10.2.2.

Results

Comparison of Anxiety, Perceived Stress, and Intolerance of Uncertainty Scores

To assess the effectiveness of different time durations of the 5-stage mindfulness intervention, 10-minute, 20-minute, and control groups were assessed. We utilized BAI, PSS, and IUS before and after the intervention. Results showed that there was a significant effect of the 5-stage mindfulness intervention. In the 10-minute duration group, BAI scores showed that mindfulness training significantly reduced BAI scores. Results obtained from the t-test indicated that post-intervention BAI scores decreased after the eight-week training ($T(8)=3.244$, $p=0.011$). PSS scores indicated a significant difference following the eight-week training. Post-intervention results compared to pre-intervention showed that participants' scores were significantly lower in the post-intervention PSS ($T(8)=3.719$, $p=0.005$). On the other hand, comparison of IUS scores showed a significant effectiveness of the eight-week training; analyses obtained from the t-test results indicated that 5-stage mindfulness significantly reduced the IUS scores ($T(8)=2.463$, $p=0.039$). Finally, results obtained from the MAAS indicated no significant difference between the pre- and post-intervention results ($T(8)=-0.246$, $p=0.806$, data not shown in the graph).

In the 20-minute group, BAI scores between the pre- and post-intervention were significantly different. The eight-week 5-stage mindfulness training reduced the BAI scores, with results obtained from the t-test indicating a significant difference ($T(7)=3.768$, $p=0.007$). PSS scores significantly differed between the pre- and post-intervention results, with t-test results showing that the training reduced the PSS scores ($T(7)=2.940$, $p=0.021$). The results obtained from the IUS indicated that the training significantly reduced the IUS scores ($T(7)=4.400$, $p=0.003$). However, as seen in the 10-minute training duration, there was no significant difference when the MAAS scores were compared before and after the inter-

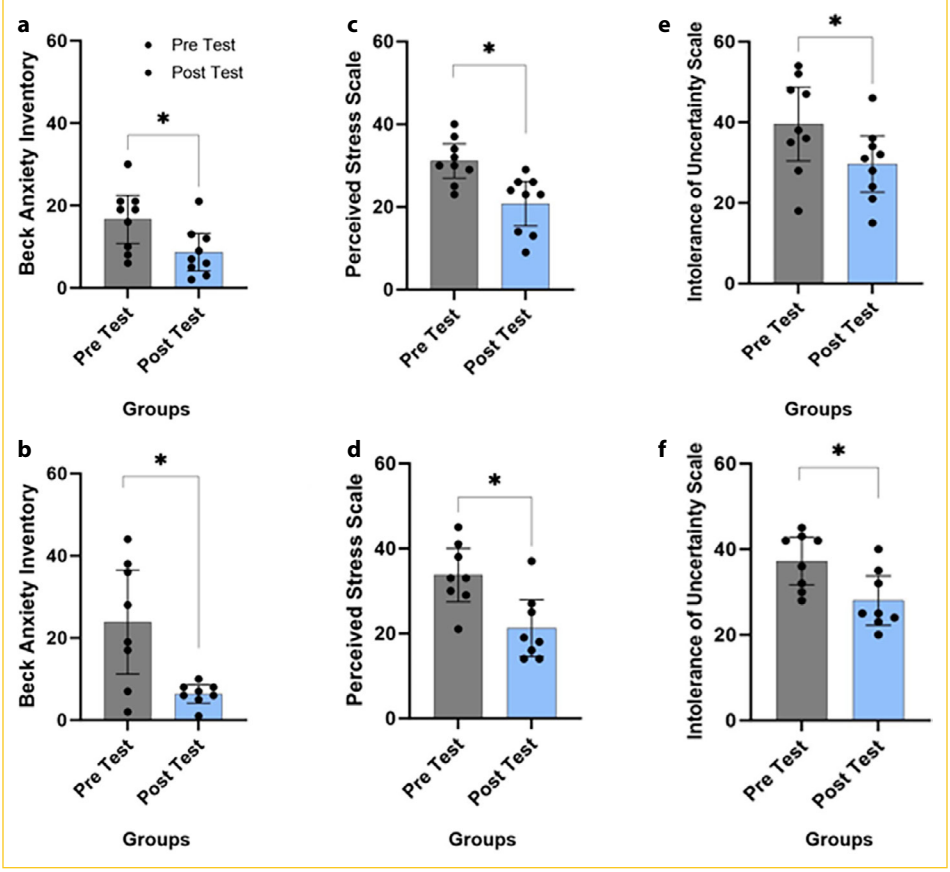

Figure 2. The intervention effect on scales. Participants were assigned to 10-minute (a, c, e) and 20-minute (b, d, f) meditation groups. Following the eight-week mindfulness meditation, BAI, PSS, and IUS scores were significantly reduced in both groups. N=9-8 per group.

BAI: Beck Anxiety Inventory; PSS: Perceived Stress Scale; IUS: Intolerance of Uncertainty Scale.

vention. t-test results indicated an insignificant difference (T(7)=-1.040, p=0.333, data not shown in the graph) (Fig. 2).

These findings indicate that the eight-week, 5-stage mindfulness intervention reduced BAI, PSS, and IUS scores. Both 10-minute and 20-minute sessions were effective, suggesting that even short durations of mindfulness practice can be beneficial. However, MAAS results were similar before and after the intervention, regardless of session length. Since session duration is crucial in this study, it is important to compare the benefits between the 10-minute and 20-minute sessions across the utilized scales to draw a comprehensive conclusion about the impact on mental health.

Perceived Stress and Anxiety Score Difference Between the Groups

Although we observed pre- and post-intervention differences, we next compared the extent of mindfulness training's effect on perceived stress and anxiety levels between the control, 10-minute, and 20-minute groups. Before the intervention, there was no difference between the groups on BAI scores. One-way ANOVA results indicated that all groups showed similar BAI scores ($F[2,22]=2.525$; $p<0.05$). After the eight-week mindfulness intervention, a significant difference was observed between the groups ($F[2,22]=2.895$; $p=0.001$). Post hoc analysis obtained from Tukey's test showed that there was a significant difference between the control and 20-minute groups ($p=0.032$) (Fig. 3).

On the other hand, PSS scores showed that there was no difference between the groups before the mindfulness intervention. One-way analysis revealed non-significant results ($F[2,22]=1.632$; $p<0.05$). After participants enrolled in the eight-week training, a significant change in PSS was observed. One-way analysis showed a significant difference ($F[2,22]=0.046$; $p=0.0008$). Post hoc analysis revealed that there was a difference between the control and 20-minute groups ($p=0.003$) (Fig. 3). Since we did not observe a significant difference between pre- and post-intervention results on the MAAS obtained from the t-test, this data was not included in the analysis for group comparison.

When individuals view events as overwhelming or beyond their capacity to handle, they feel stressed, which can lead to anxiety. In this scenario, anxiety is a reaction to increased

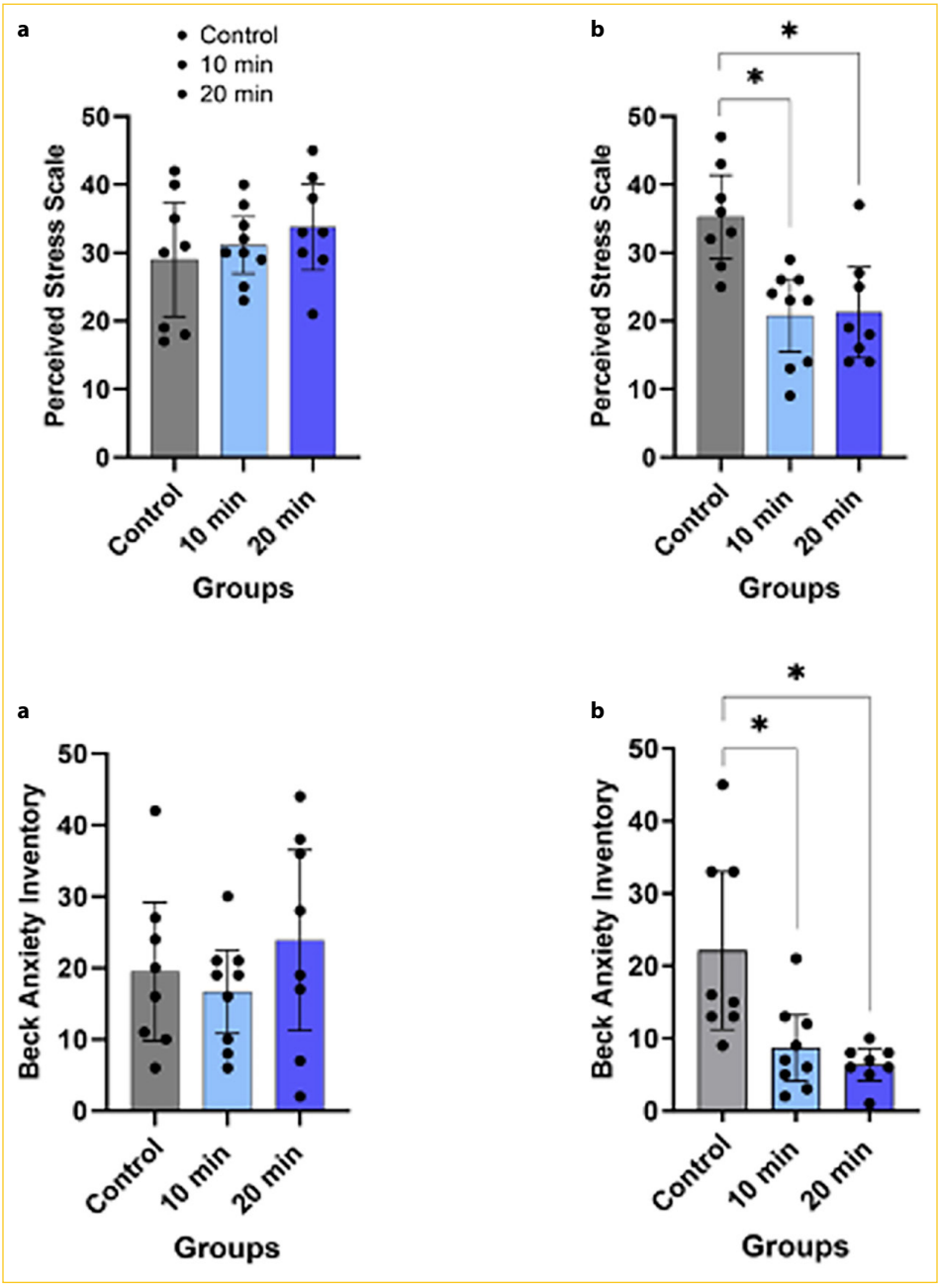

Figure 3. Meditation effect on perceived stress and anxiety. All group scores obtained from PSS compared before and after meditation. (a) Before the intervention, there was no statistically significant difference between the control, 10-minute, and 20-minute meditation groups. (b) Both 10-minute and 20-minute groups showed reduced PSS and BAI scores following the eight-week mindfulness meditation. However, there was no difference between the 10-minute and 20-minute meditation groups. N=8-9 per group.

PSS: Perceived Stress Scale; BAI: Beck Anxiety Inventory.

stress levels and the anticipation of possible threats or difficulties. Therefore, we have focused on PSS and BAI scores for this reason. The findings support that both 10-minute and 20-minute sessions of eight-week mindfulness training reduced perceived stress and anxiety levels. The lack of difference between the two durations suggests that even short sessions are effective. These results reinforce the view that mindfulness training helps alleviate anxiety and reduce stress. Our results indicate that women with similar anxiety scores across the groups benefited from reduced anxiety and perceived stress with both 10-minute and 20-minute sessions, compared to the control group that did not receive mindfulness training.

Regression Analysis of Scores

The extent to which BAI scores predict PSS, IUS, and MAAS were analyzed for both the 10-minute and 20-minute groups. Results showed that there was no regression in the 20-minute group, whereas BAI prediction for IUS was significant for the 10-minute group. Linear regression analysis revealed that a significant relationship exists ($F=13.37$, $p=0.008$). Participants' anxiety scores explained 66% of the variance in IUS scores (R Square=0.6564). A one-unit increase in anxiety score leads to a 0.66-unit increase in IUS score (95% confidence interval). Linear regression analysis showed that both PSS ($F=2.53$, $p<0.05$; R Square=0.2655) and MAAS ($F=3.31$, $p<0.05$; R Square=0.3215) were not significant (Fig. 4).

The prediction of BAI on IUS was significant for the 10-minute group following the mindfulness intervention, but not for the 20-minute group. Although there is a tendency for BAI to predict PSS and MAAS in the opposite direction, this does not reach a significant level in the 10-minute group. This finding suggests that BAI scores explain the variation in IUS, but not in PSS and MAAS, for participants in the 10-minute mindfulness training group.

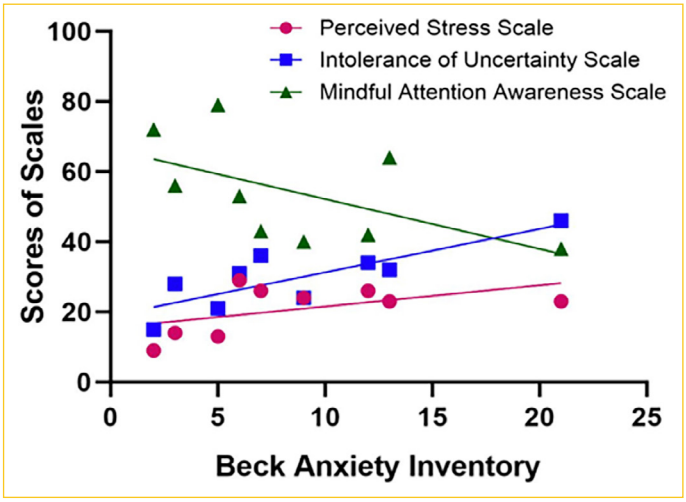

Figure 4. Meditation-Mediated Predictions. In the 10-minute meditation group, BAI scores were predictive of IUS scores. Analysis was conducted to measure how BAI scores explained changes in PSS, IUS, and MAAS. The only significant relationship observed in the regression analysis was between BAI and IUS scores. The opposite tendency was not significant for PSS and MAAS scores. N=9 per group.

BAI: Beck Anxiety Inventory; IUS: Intolerance of Uncertainty Scale; PSS: Perceived Stress Scale; MAAS: Mindful Attention Awareness Scale.

Discussion

Utilizing the 5-stage mindfulness meditation across different groups (control, 10-minute, and 20-minute), perceived stress and anxiety levels were compared among female participants. Scores from the BAI, IUS, and PSS scales indicated that both meditation durations significantly reduced perceived stress and anxiety levels. However, MAAS scores did not differ across groups post-intervention. Further comparisons showed that both 10-minute and 20-minute meditation sessions significantly reduced BAI and IUS scores, but not PSS and MAAS scores. No significant difference was observed between the 10-minute and 20-minute sessions for BAI and IUS scores. Participants were assigned to groups based on their initial BAI scores, and regression analysis was conducted to predict how BAI scores in the treatment groups explained variations in MAAS, IUS, and PSS scores. Only the 10-minute meditation group showed that BAI scores explained the variation in IUS scores, but this was not the case for the 20-minute group.

Dealing with stress-induced anxiety is a primary concern in women's mental health, as women experience higher rates of stress and anxiety compared to men.[18–20] Cultural factors also significantly impact women's mental well-being.[21] Women exhibit higher anxiety levels and are more frequently diagnosed with anxiety disorders than men.[22–24] Access to consultation, therapy, and social support can be challenging due to cost and time constraints. Therefore, low-cost options like meditation can help improve mental health. The present study, like others, suggests that meditation is a viable option.

Although the benefits of stress reduction, emotional regulation, well-being enhancement, and improved focus through meditation have been studied extensively, we compared relatively shorter durations of meditation to test their effectiveness for women. Sparing 10 minutes worked as well as 20 minutes for reducing perceived stress, anxiety, and intolerance of uncertainty. In fact, there was no difference in BAI and IUS scores between the 10-minute and 20-minute groups compared to the control group. However, MAAS scores did not show a difference before and after the meditation across the groups. Given that mindfulness meditation increases focus and attention,[25] the reason for the lack of significance in this study is unknown, as attention-required tasks were not assigned to the participants. Therefore, further research is needed to test if short-duration meditation, with both audio-recorded guidance and trainer guidance over an eight-week period, is effective for women. Buddhist Anapanasati Meditation was conducted using an audio CD for 4 weeks with both male and female medical students.[26] Another recorded mindfulness training included three 1-hour modules: (a) Introduction to Mindfulness, (b) Mindfulness in Daily Life, and (c) Mindful Breathing and Walking. Participants, both male and female healthcare professionals and students, completed the modules in any order over a 4-month period with 20-minute sessions.[25] Our study is similar in session duration, but differs in the concept of mindfulness and completion time. Additionally, 10-minute daily smartphone app-guided sessions for 10 consecutive days were conducted with healthcare professionals, including both group and indi-

vidual sessions.[27] In our study, the 10-minute sessions were spread over eight weeks, and all participants received both trainer-guided and recorded meditation. This design improved PSS and BAI scores following the intervention. In a recent randomized controlled trial involving university students, a 28-day intervention was implemented in which the experimental group received a 30-minute mindfulness session once per week and engaged in 10 minutes of daily meditation practice on the remaining days. Compared with the control group, the intervention group demonstrated statistically significant reductions in depression, rumination, and persistent anxiety.[28]

Another recent study using heartfulness meditation over 12 weeks also supports our findings, showing improved BAI and PSS scores in younger participants (ages 18–24).[29] Other studies have similarly reported improvements in PSS scores [30–32] following mindfulness meditation. A comprehensive randomized study found that mindfulness interventions in women during menopause significantly reduced stress and anxiety levels.[33] A study examining the relationship between short periods of meditation and psychological well-being found no significant difference in meditation times.[34] In an experimental study, when the effects of a single session of meditation practice on state mindfulness, anxiety, and mood were measured in 10-minute and 20-minute versions, no difference in the duration of reduction in anxiety levels was observed, and both groups improved compared to the control groups.[35] Our results are consistent with these findings.

Mindfulness meditation has also been used to investigate attention and awareness processes,[36] though not all attentional processes are affected.[37] The MAAS is a unidimensional measure of mindfulness, assessing mindfulness indirectly by asking about the opposite of mindful attention and awareness, such as absent-mindedness and lack of attention to the present moment.[38] While some studies have shown enhanced MAAS scores post-intervention,[25,39] others found no significant effect, particularly in samples composed predominantly of women (95% of participants).[40]

A meta-analysis found that as the length of meditation practice increased, there was a decrease in alerting, suggesting that attention-related cognitive skills are affected by the duration of meditation.[37] Nevertheless, the meditation protocol performed in the current study attenuated pre-intervention scores of anxiety and perceived stress. Although we did not observe a separate duration effect of meditation on IUS compared to the control group, BAI scores explained the variation in IUS in the 10-minute meditation group. Further research is needed to explain this variation.

Due to its short duration, mindfulness meditation may offer psychiatric nurses an effective self-help method for managing stress and crises in demanding clinical settings without the need for specialized equipment. The meditation's low cost, straightforward nature, and ease of application further support its potential for widespread adoption in clinical practice, making it a practical resource for enhancing resilience and sustaining psychological well-being in healthcare environments. To support this view, a recent study with psychiatric nursing students found that a four-week mindfulness program increased awareness, attentiveness, and interpersonal communication in the experimental group compared to controls.[41] A meta-analysis study published in 2023 suggested that mindfulness interventions lasting 8 weeks or less could significantly reduce anxiety and depression levels in nurses.[42] Because mindfulness studies include various meditation practices, we can assume that meditation produces similar effects in this study. Mindfulness practices enhance self-awareness, which may allow nurses to strengthen psychological resilience and cope with the challenges of patient care with minimal reliance on external tools. In both the short and long term, such practices may alleviate burnout, fatigue, stress, insomnia, and depressive symptoms by serving as an accessible way of regulating the behavior system. By reducing stress-related emotions such as anxiety, irritability, and impatience, which can negatively affect therapeutic interactions, mindfulness contributes to improved occupational performance, greater job satisfaction, and sustained psychological well-being among psychiatric nurses. However, the duration of the intervention should be given further attention in order to more accurately assess the effectiveness of mindfulness meditation in psychiatric nursing. Upcoming research that extends the practice over longer periods and tests it under hospital conditions would provide stronger ecological validity and a better understanding of its practical benefits in real clinical environments.

Limitations of the study

The present study is subject to certain limitations. First, the small sample size restricts the generalizability of the findings, underscoring the need for future research with larger cohorts. Second, the reliance on self-reported data, including weekly meditation frequency and duration as well as scale responses, introduces the possibility of bias and limits the ability to determine whether the reduction in anxiety levels after eight weeks reflected genuine behavioral changes or was influenced by expectancy effects. Third, the participant profile was constrained, as recruitment through online platforms largely reached psychologists, yoga and Pilates instructors, therapists, and compassion educators. This may have resulted in a limitation by reducing the diversity of perspectives and excluding individuals without prior knowledge or interest in mindfulness. Finally, the study only involved female participants within a narrow age range and did not account for gender diversity or sexual orientation, thereby excluding individuals whose assigned gender was female but who do not identify as such.

Conclusion

Overall, the current study revealed that the 5-stage mindfulness meditation, conducted with both self-training and licensed mediator training, helps improve resilience to anxiety, perceived stress, and tolerance to uncertainty in middle-aged women with different demographic features such as education level, employment, menstrual regulation, substance use, and anxiety-coping strategies. While the therapeutic effectiveness of this approach is still a topic of research, it can be a useful tool for increasing well-being. Further studies on different durations of 5-stage mindfulness meditation in women diagnosed with anxiety are necessary to develop low-cost, self-training-based positive intervention approaches.

Ethics Committee Approval: The study was approved by the Bartın University Social and Human Sciences Ethics Committee (no: 2022-SBB-0457, date: 25/10/2022).

Informed Consent: Written consent was obtained from all participants included in the study.

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