EDUCARE: Jurnal Pendidikan dan Kesehatan
E-ISSN: 3031-0709
Website: https://j-edu.org/index.php/
VOLUME 3, ISSUE 2, 2026

MINDFULNESS THERAPY TO REDUCE ANXIETY BEFORE A COMPETENCY EXAMINATION: A ONE-GROUP PRE-TEST POST-TEST DESIGN

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ABSTRACT
Anxiety before nursing competency examinations may negatively affect students' psychological readiness and examination performance. This study aimed to determine the effect of mindfulness therapy on anxiety among final-year nursing students preparing for a competency examination. A quasi-experimental study using a one-group pre-test post-test design was conducted among 51 final-year nursing students at the Department of Health, Politeknik Negeri Nusa Utara, selected through purposive sampling. Anxiety was measured using the Zung Self-Rating Anxiety Scale (ZSAS). Mindfulness therapy was administered through four structured sessions over two weeks, incorporating self-talk, visual imagery, and deep breathing exercises. Pre- and post-intervention anxiety scores were analyzed using the Wilcoxon Signed-Rank Test. The median anxiety score decreased from 45.00 before the intervention to 21.00 after mindfulness therapy. Statistical analysis showed a significant difference between pre-test and post-test anxiety scores ($Z = -6.233$; $p < 0.001$). These findings indicated that mindfulness therapy significantly reduced anxiety among final-year nursing students and could be considered a complementary intervention to support psychological readiness before competency examinations.

Keywords: *Anxiety; Mindfulness Therapy; Nursing Students.*

INTRODUCTION

Competency examinations constitute a critical academic and professional gateway for students in health-related programs, particularly nursing. However, empirical evidence consistently shows that a substantial proportion of students experience clinically relevant levels of anxiety before high-stakes examinations. Studies indicate that 40-70% of university students report moderate to high test anxiety, with higher prevalence observed in health and nursing programs due to academic pressure, performance

evaluation, and professional accountability (Crowley, Kapitula and Munk, 2020; Lei and Lee, 2023). Among nursing students specifically, examination-related anxiety has been reported in more than 50% of students, often manifesting as cognitive impairment, emotional distress, and decreased academic performance (Karo, Siallagan and Pandiangan, 2022; Ahmed, Souilm and El-salihen, 2024). This high prevalence underscores examination anxiety as a significant educational and mental health concern that warrants targeted intervention.

The psychological burden of test anxiety is not limited to emotional discomfort but is associated with measurable negative outcomes. Meta-analytic findings suggest that students with high levels of test anxiety demonstrate 10-20% lower academic performance compared to their low-anxiety counterparts, alongside elevated risks of stress-related symptoms and reduced psychological well-being (Li *et al.*, 2023). In adolescent and university populations, anxiety prevalence related to academic evaluation ranges from 30% to 60%, with persistent anxiety linked to impaired concentration, memory disruption, and maladaptive coping behaviors (Ridlo, Yoenanto and Fardana, 2025). These findings highlight that examination anxiety is not a transient issue but a widespread phenomenon with tangible academic and psychological consequences.

Mindfulness-based interventions have gained increasing attention as effective, non-pharmacological approaches to address anxiety in educational settings. Systematic reviews and meta-analyses report that mindfulness interventions can reduce anxiety symptoms by 20-45%, depending on intervention duration and intensity (Li *et al.*, 2020; Zhu *et al.*, 2025). Among students, mindfulness meditation and brief mindfulness training have been shown to significantly decrease test anxiety scores and negative self-evaluation, with effect sizes ranging from small to moderate (Dundas and Nygard, 2024; Sun *et al.*, 2025). Randomized controlled trials among university and nursing students further demonstrate significant reductions in anxiety, stress, and emotional dysregulation following mindfulness-based programs, supporting their feasibility and effectiveness in academic contexts (Priebe and Kurtz, 2022; Komariah *et al.*, 2023)

Despite strong evidence supporting mindfulness-based interventions, research focusing specifically on anxiety experienced immediately before competency examinations remains limited. Most existing studies emphasize general academic stress or long-term psychological outcomes rather than situational anxiety preceding high-stakes assessments (Parsons *et al.*, 2022; Castro *et al.*, 2025). Furthermore, few studies have employed a one-group pre-test post-test design to evaluate short-term changes in anxiety levels following mindfulness therapy in health education settings. Given the high prevalence of examination anxiety and its negative implications for academic and professional competence, it is essential to empirically evaluate mindfulness therapy as a targeted intervention prior to competency examinations. Therefore, this study aims to examine the effectiveness of mindfulness therapy in reducing anxiety before a competency examination.

METHODS

This study employed a quasi-experimental design using a one-group pre-test–post-test approach to examine changes in anxiety levels following mindfulness therapy before a competency examination. The

study population consisted of 51 final-year nursing students enrolled in the Nursing Program at the Department of Health, Politeknik Negeri Nusa Utara. Participants were selected using purposive sampling based on the following inclusion criteria: being a final-year student, experiencing anxiety related to the competency examination, and being willing to participate. Ethical approval was obtained from the appropriate institutional ethics committee. Anxiety levels were assessed using the Zung Self-Rating Anxiety Scale (ZSAS), a standardized 20-item self-report instrument measuring anxiety symptoms. Each item was rated on a four-point Likert scale ranging from 1 (rarely) to 4 (almost always), with higher total scores indicating greater anxiety. Baseline anxiety data were collected using a pre-test before the intervention.

Mindfulness therapy was subsequently administered over two weeks in four structured sessions according to a standardized operating procedure. The intervention incorporated mindfulness techniques, including self-talk, visual imagery, and deep-breathing exercises, with the aim of enhancing emotional awareness and stress regulation. Following completion of the intervention, post-test anxiety measurements were obtained using the same instrument. Data were cleaned, coded, and tabulated before statistical analysis. The Wilcoxon signed-rank test was used to compare pre-test and post-test anxiety scores, with statistical significance determined at $p < 0.05$. Because this study used a one-group pre-test–post-test design without a control group, the observed changes in anxiety cannot be attributed solely to the mindfulness intervention. Potential threats to internal validity, including history, maturation, regression to the mean, testing effects, and other external factors, may have contributed to the observed changes. Therefore, the findings should be interpreted as evidence of an association between the mindfulness intervention and changes in anxiety rather than as definitive evidence of a causal treatment effect.

RESULT AND DISCUSSION

Results

Table 1 Descriptive Statistics of Nursing Students' Age

Variable	Mean	Median	SD	Min-Max	95% CI
Age	1.96	2.00	0.20	1.00-2.00	1.91-2.02

The data were not normally distributed ($p < 0.05$)

As presented in Table 1, the median age of the nursing students was 22.00 years, with ages ranging from 21 to 24 years. As presented in Table 2, the majority of students were female (96.1%), most lived with their parents (82.4%), and the largest proportion reported independent study as their learning preparation (52.9%).

Table 2 Characteristics of Nursing Students

Variable	Category	n	%
Gender	Male	2	3.9

Variable	Category	n	%
	Female	49	96.1
	Total	**51**	**100.0**
Place of Residence	With Parents	42	82.4
	Boarding House/Dormitory	9	17.6
	Total	**51**	**100.0**
Learning Preparation	Independent Study	27	52.9
	Tutoring	24	47.1
	Total	**51**	**100.0**

Table 3. Differences in Anxiety Scores Before and After Mindfulness Therapy

Measurement	Mean	Median	SD	Min-Max	p-value
Pre-test	45.71	45.00	1.78	45.00-55.00	<0.001
Post-test	24.55	21.00	5.11	20.00-37.00	

As presented in Table 3, the mean anxiety score decreased from 45.71 before mindfulness therapy to 24.55 after the intervention. The median score also decreased from 45.00 to 21.00, with scores ranging from 45.00-55.00 before the intervention and 20.00-37.00 after the intervention. The Wilcoxon Signed-Rank Test showed a statistically significant difference in anxiety scores before and after mindfulness therapy ($Z = -6.233$, $p < 0.001$). These findings indicated that mindfulness therapy was associated with a significant reduction in anxiety scores among the nursing students.

Discussion

The present study suggests that mindfulness therapy was associated with a substantial reduction in anxiety among final-year nursing students preparing for the competency examination. Rather than indicating only a statistically significant pre-post difference, the marked shift in anxiety scores suggests that the intervention may have had practical relevance for students facing an academically demanding and professionally consequential examination. This finding is consistent with evidence showing that mindfulness-based interventions can reduce anxiety among nursing and university students, including anxiety specifically related to academic testing (Li et al., 2020; Karo et al., 2022; Priebe & Kurtz, 2022). However, because the present study used a one-group pre-test–post-test design, the observed improvement should be interpreted as an association rather than definitive evidence that mindfulness alone caused the reduction.

The relatively large reduction in anxiety may be related to the nature of the intervention and the specific psychological demands experienced by students before a competency examination. Examination-related anxiety may involve excessive worry about performance, fear of failure, negative self-evaluation, and heightened physiological arousal. Mindfulness may help students shift attention from anticipatory concerns toward present-moment experiences, thereby reducing the tendency to engage repeatedly with

anxiety-provoking thoughts. Previous evidence indicates that mindfulness-based interventions are particularly relevant to test anxiety and negative self-evaluation, suggesting that their effects may extend beyond general emotional distress to cognitive processes directly involved in examination anxiety (Dundas and Nygard, 2024; Yılmazer, 2024). The reduction observed in this study may therefore reflect the relevance of mindfulness techniques to the specific psychological characteristics of the students' examination context rather than simply a nonspecific reduction in distress.

The intervention incorporated self-talk, visual imagery, and deep-breathing exercises, which may have contributed to the observed improvement through complementary cognitive and physiological processes. Deep breathing may facilitate relaxation and reduce physiological arousal, while self-talk and visual imagery may help students respond more constructively to examination-related thoughts and anticipated situations. These mechanisms should, however, be regarded as plausible explanations derived from previous literature rather than mechanisms directly demonstrated by the present study. Evidence from mindfulness breathing interventions among university students has demonstrated improvements in anxiety, depression, and stress, while studies of brief mindfulness interventions have also reported beneficial psychological outcomes among students (Vorontsova-wenger *et al.*, 2022; Komariah *et al.*, 2023). Thus, the current findings are compatible with a theoretical explanation in which mindfulness supports emotional regulation and reduces maladaptive cognitive responses to stressful academic situations, although the present study did not directly measure these mediating processes.

The magnitude of the reduction may also be partly explained by the participants' initial psychological state and the timing of the intervention. Students were approaching a competency examination, a situation that can intensify anticipatory anxiety and increase sensitivity to interventions targeting immediate stress regulation. Previous research has demonstrated beneficial effects of mindfulness on test anxiety among university and school students, including brief interventions that may be feasible within educational settings (Ahmed, Souilm and El-salihen, 2024; Jithesh, Kumar P and N.K, 2024; Sun *et al.*, 2025). This suggests that mindfulness may be particularly useful when implemented close to an anticipated stressful event. Nevertheless, regression to the mean, repeated administration of the anxiety scale, changes in examination preparation, increased familiarity with the assessment process, peer or family support, and other concurrent experiences may also have contributed to the observed reduction. Therefore, the large change should not be interpreted as evidence that mindfulness therapy alone accounts for the entire improvement.

From a practical perspective, the findings indicate that mindfulness therapy may represent a feasible supportive strategy for nursing education, particularly during periods of high academic pressure. Its potential value lies not only in reducing anxiety scores but also in helping students develop self-regulation strategies that can be applied before examinations and potentially during other stressful academic or clinical situations. This is relevant because nursing students are expected to manage psychological stress while simultaneously demonstrating cognitive, technical, and professional competencies. Evidence from broader reviews has identified mindfulness-based approaches as promising strategies for managing stress and anxiety among health students in tertiary education (Parsons *et al.*, 2022). Therefore, incorporating

brief, structured mindfulness sessions into student support or examination-preparation programs may have practical value, although the optimal duration, frequency, and delivery format require further investigation.

The findings should nevertheless be interpreted in light of important methodological limitations. The absence of a control group prevents differentiation between the effect of mindfulness therapy and changes attributable to history, maturation, regression to the mean, testing effects, examination preparation, or other external influences. The purposive sampling and relatively small sample from a single nursing program also limit the generalizability of the findings to other nursing students or educational institutions. In addition, anxiety was assessed using a self-report instrument, which may be influenced by participants' perceptions and reporting behavior. Future studies should therefore use randomized controlled designs with larger and more diverse samples, include an appropriate comparison group, and incorporate follow-up assessments to determine whether the reduction in anxiety is sustained. Studies examining potential mediators such as emotional regulation, negative self-evaluation, physiological stress, and coping strategies would also help clarify how mindfulness contributes to changes in examination-related anxiety.

Overall, the findings provide preliminary evidence that mindfulness therapy may be a useful approach for managing examination-related anxiety among final-year nursing students. The observed reduction is encouraging from both statistical and practical perspectives, but the magnitude of change should be interpreted cautiously because causal attribution cannot be established from the study design. Further controlled research is warranted to determine the independent effectiveness, mechanisms, and longer-term educational benefits of mindfulness interventions in nursing students (Priebe and Kurtz, 2022; Li *et al.*, 2023).

CONCLUSION

Mindfulness therapy significantly reduced anxiety among final-year nursing students preparing for the competency examination. The findings indicated that mindfulness therapy could be considered a useful complementary intervention for managing examination-related anxiety and supporting students' psychological readiness before competency examinations. Further studies using controlled designs and larger samples are recommended to strengthen the evidence regarding its effectiveness and sustainability.

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