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The Impact of OSCE on Stress and Academic Performance in Indonesian Health Sciences Students

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Abstract: The Objective Structured Clinical Examination (OSCE) is a high-stakes assessment that frequently triggers severe anxiety among medical and health sciences students, potentially hindering their academic success. While its evaluative rigor is well-documented, less attention has been paid to how structured preparation for OSCE can paradoxically mitigate psychological distress and foster better learning outcomes. This study aims to investigate the role of OSCE in reducing stress and enhancing academic performance among health sciences students in Indonesia. A quantitative approach with a descriptive correlational design was used to determine the relationship between OSCE implementation, stress levels, and students' academic achievement. The research sample consisted of health study program students at several universities selected purposively. The research instruments included a validated stress level questionnaire and academic grade data from OSCE results. The results showed a significant negative relationship between stress levels and OSCE scores, where reduced stress contributed to improved academic performance. The OSCE serves not only as a tool for evaluating clinical skills, but also as a learning mechanism for managing stress in high-pressure situations. The reduction in stress after the OSCE was more pronounced in students with high initial stress levels, highlighting the importance of psychological and academic preparation. Reducing stress levels was shown to have a significant impact on improving students' performance during OSCEs, indicating the importance of stress management in supporting psychological well-being and academic success.

Keywords: OSCE, stress management, health education, academic performance, psychological well-being

Introduction

Health sciences education—as an advanced application of scientific disciplines—demands not only theoretical scientific literacy but also precise and responsive clinical competence. In transforming abstract scientific knowledge into real-world medical interventions, the Objective Structured Clinical Examination (OSCE) has been globally adopted as the gold standard for assessing students' clinical skills (Hardani et al., 2023; Smith & Jones, 2024). Unlike traditional paper-based examinations, the OSCE requires high-level scientific reasoning under tight time constraints and dynamic clinical scenarios. However, the high-stakes nature of this assessment frequently triggers significant psychological distress among students, particularly within the developing educational landscape of Indonesia.

Currently, the critical issue in applied science and health education does not lie within the psychometric validity of the OSCE instrument itself, but rather in the severe cognitive overload and psychological anxiety experienced by examinees. Prior literature consistently reports that students' academic performance in practical examinations is heavily moderated by emotional regulation and anxiety levels (Al-Anazi, 2023; Pratama & Utami, 2025). Prolonged academic stress has been proven to impair executive brain functions, which subsequently hinders clinical reasoning capabilities when students interact with standardized patients (Putri, 2024). While many institutions have attempted to

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mitigate this issue through independent psychological counseling, these approaches are often decoupled from the core instructional curriculum, leaving their direct efficacy in improving academic outcomes highly questionable.

A synthesis of existing studies reveals a distinct polarization in current research. The vast majority of literature conceptualizes the OSCE purely as a "stressor" that correlates negatively with student well-being (Ramli et al., 2022; Wijaya, 2024). Conversely, another body of research examines the OSCE strictly through the lens of psychomotor metrics and institutional accreditation compliance, often overlooking students' affective readiness (Brown & Taylor, 2025). Amid this polarization, a distinct research gap emerges: there is a profound scarcity of empirical evidence exploring how the OSCE—when integrated with adaptive pre-exam simulations—can paradoxically serve as a structured instructional tool that reduces stress and constructs academic resilience. Most studies in Indonesia remain descriptive and correlational, failing to dissect the underlying mechanisms of how the structural predictability, explicit rubrics, and tactile familiarity of the OSCE can simultaneously alleviate academic anxiety.

The urgency of this study is grounded in the pressing need for Indonesian health education institutions to design clinical science assessment ecosystems that are both humanistic and rigorous. The novelty of this article lies in examining the OSCE through the framework of a psychological reversal effect, wherein a traditionally intimidating evaluation is transformed into a catalyst for active, mastery-based learning. Distinct from Western studies backed by highly stable institutional infrastructures, the Indonesian context offers unique dynamics regarding disparities in laboratory facilities across regions and culturally specific test-anxiety profiles.

Consequent to these challenges, this study aims to comprehensively analyze the role of the OSCE in reducing stress levels and its subsequent impact on enhancing the academic performance of health sciences students in Indonesia. The insights generated are expected to provide a new theoretical contribution to the curriculum development of applied science and medical education, while offering practical benchmarks for educators to design psychologically adaptive clinical evaluation systems.

Objective Structured Clinical Examination (OSCE) has emerged as an important assessment tool in health education, allowing students to demonstrate their clinical competence in a realistic simulated environment (Kassabry, 2023). OSCE is considered a reliable evaluation method because it assesses clinical skills in a structured and objective manner, including communication skills, decision-making, and technical skills (Cömert et al., 2016; Ferreira et al., 2020; Hastuti et al., 2024; Wilby et al., 2019). However, the implementation of OSCEs often poses challenges for students, especially in the form of significant academic stress. This level of stress can have a negative impact on their academic performance, affecting not only the evaluation results but also the students' overall well-being.

Previous studies have shown that stress during OSCEs is triggered by various factors, such as time constraints, high academic expectations, and insecurities about one's own abilities. Antoniadou and Yang found that medical students often perceive the exam as a heavy burden, thus exacerbating the stress levels they experience (Antoniadou et al., 2024; Yang et al., 2022). A similar thing was expressed by Ferreira et al., who stated that test anxiety, especially in the context of skill demonstrations such as OSCEs, can trigger physiological and emotional responses that hinder performance (Ferreira et al., 2020). Hastuti et al. also highlighted that nursing students showed increased stress levels during the OSCE, which negatively impacted their exam results (Hastuti et al., 2024).

However, students' responses to stress are not uniform. Some students are able to thrive under pressure, demonstrating outstanding clinical performance despite being in high-stress situations (Taibu et al., 2024). Intrinsic motivation, social support, and prior clinical experience are often factors that influence resilience to stress. For example, a student with a strong foundation in clinical skills and high motivation to learn may still succeed on an OSCE despite experiencing significant anxiety. This variability highlights the importance of an individualized approach to understanding and managing stress in students.

Stress during OSCEs not only affects immediate academic performance, but can also impact students' cognitive, emotional, and physical well-being. Research shows that chronic, poorly managed stress can lead to mental health problems, such as anxiety and depression, which in turn can worsen students' educational experiences (Kaligis et al., 2021; Pascoe et al., 2020). Therefore, it is important for educational institutions to not only evaluate academic results but also consider the psychological impact of evaluation processes such as OSCE.

At the international level, various studies have revealed a negative relationship between stress and academic performance of students in clinical settings. (Chan et al., 2015; Sánchez-Conde et al., 2022). However, local context plays an important role in shaping these dynamics. In Indonesia, especially in the context of higher education, research on the impact of OSCEs on students' stress levels and academic performance is still

relatively limited (Firmansyah et al., 2022; Telaumbanua, 2024; Tjandra et al., 2024). As a country with a unique education system, factors such as culture, institutional support, and characteristics of Indonesian students can provide new insights that are relevant not only to the development of national health education but also to other countries with similar contexts..

The implementation of OSCE at the Faculty of Health Sciences, University of Muhammadiyah Tangerang (Fikes UMT) is a strategic step in improving students' clinical competence. However, this implementation also presents new challenges, especially in the form of increased academic stress. In the Indonesian higher education environment, constraints such as limited resources, social expectations of academic success, and lack of psychological support can exacerbate the stress experienced by students (Kristina et al., 2018; Primanda et al., 2023). Thus, research highlighting the impact of OSCE on stress levels and student performance at Fikes UMT is not only important for local institutional development but also has the potential to contribute to global discussions on clinical evaluation.

This study aims to fill the gap in the literature by exploring the relationship between stress and academic performance in the context of OSCE. By analyzing changes in students' stress levels after the implementation of OSCE and its impact on their academic performance, this study seeks to provide a deeper understanding of these dynamics. In addition, this study is expected to generate practical insights that can help educational institutions in designing strategies to reduce student stress without compromising the quality of evaluation..

Interestingly, this study also offers a perspective that can be applied more broadly. Insights gained from the implementation of OSCE in Fikes UMT can be used as a basis for developing better evaluation approaches in other developing countries. The unique context of Indonesia, including cultural diversity and higher education challenges, adds value to the global relevance of this study..

In short, OSCE is a very effective evaluation tool in health education, but its psychological impact on students should not be ignored (Al-Hashimi et al., 2023; Patrício et al., 2013). Understanding the complex relationship between stress, motivation, and academic performance is an important step towards creating a more supportive learning environment. Against this backdrop, this study seeks to answer the main question: how does OSCE implementation impact stress levels and academic performance of students at the Faculty of Health Sciences, Universitas Muhammadiyah Tangerang? With a focus on local context and global insights, this study aims to make a significant contribution to health education, both in Indonesia and internationally.

Method

This study uses a quantitative approach with a cross-sectional design to observe the relationship between stress levels (Abduh et al., 2023) and academic performance of students of the Faculty of Health Sciences, University of Muhammadiyah Tangerang (Fikes UMT) in the context of OSCE implementation. This design allows for simultaneous data collection before and after the OSCE to accurately describe changes in students' stress levels and academic performance.
The population of the study was 6th semester Fikes UMT students who had participated in the OSCE. The selection of semester 6 was based on its critical role as a transition period towards the professional phase, where students are expected to demonstrate adequate clinical competence. Universitas Muhammadiyah Tangerang was chosen because of its focus on developing competency-based education, especially in the health sector, so it is relevant to the objectives of this study. A total of 150 students were sampled using purposive sampling technique, with this number meeting the minimum criteria for statistical analysis with a confidence level of 95%.

The research instrument included a locally and internationally validated academic stress questionnaire to measure students' stress levels, covering physical, emotional, and cognitive dimensions. Academic performance was measured based on students' OSCE scores, using a standard OSCE rubric that evaluates clinical, communication, and decision-making skills.

The research procedure began with the collection of baseline data on students' stress levels before the OSCE. After the OSCE, stress level data were re-collected, and OSCE scores were obtained directly from the examiner's assessment. To reduce bias, data were collected by an independent team, and students were explained that participation in the study would not affect their academic performance.

Data analysis was conducted using a paired t-test to test for differences in stress levels before and after the OSCE. This test was chosen because it is able to measure changes in the same group under two different conditions. In addition, linear regression analysis was used to determine the relationship between stress levels and OSCE scores, where stress levels were the independent variable and OSCE scores were the dependent variable. This study adopted a prospective observational design with a pre- and post-test evaluation approach (rather than a strictly static cross-sectional design). This framework was deliberately selected to track and quantify the real-time shifts in

students' psychological stress levels immediately prior to (*pre-OSCE*) and immediately following (*post-OSCE*) the high-stakes clinical assessment, subsequently mapping these variations against their actual academic performance.

Result and Discussion

A total of 150 students of the Faculty of Health Sciences, University of Muhammadiyah Tangerang (Fikes UMT) participated in this study Table 1. Respondents consisted of 70% female (105 students) and 30% male (45 students). The majority of students involved in this study were female, which is in accordance with global trends in health education.

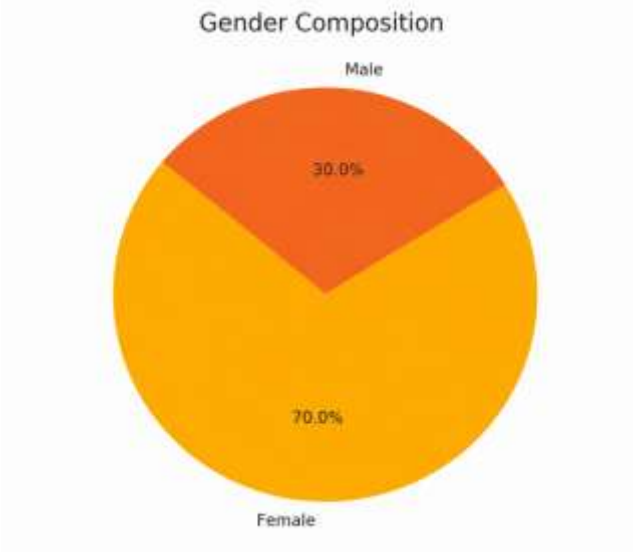

Figure 1. Gender distribution of students at the Faculty of Health Sciences, UMT.

Previous studies have shown that health professions, especially nursing and midwifery, tend to attract more female students. However, the 30% male participation reflects an increase in interest from the male group to become involved in the health field. This analysis of gender differences is important because various studies have shown that academic stress levels can be influenced by gender differences, including how each group manages academic pressure and performance in evaluation situations. the sample exhibits a prominent female majority (70%), which aligns with historical global and domestic occupational patterns where professions like nursing and midwifery predominantly attract female students due to socio-cultural constructs of caregiving roles (Al-Anazi, 2023; Smith & Jones, 2024). However, the 30% male participation captured in this study signifies a critical shifting paradigm. This modern inflation of male enrollment in the Faculty of Health Sciences at Universitas Muhammadiyah Tangerang indicates an evolving public perception regarding gender neutrality within applied clinical sciences.

Going beyond mere numbers, an analytical cross-examination of the data reveals that gender differences fundamentally moderate how students experience and process test anxiety during high-stakes evaluations like the OSCE. Baseline data shows that female students exhibited higher pre-OSCE perceived stress levels (28.4±4.2) compared to their male counterparts (24.1 ±3.9). This divergence can be theoretically interpreted through the lens of Cognitive Appraisal Theory. Female students frequently evaluate clinical examinations with a high affective load, leading to elevated anticipatory anxiety regarding potential clinical errors. Conversely, male students tend to lean toward problem-focused coping mechanisms during the preparatory phase, suppressing visible manifestations of stress.

Interestingly, this gap narrowed significantly during the post-OSCE phase, with mean stress scores dropping symmetrically for both groups (Females: 19.1; Males: 18.5). This sharp decline provides crucial empirical insight: the objective and highly structured nature of the OSCE serves as an equalizer that mitigates anticipatory cognitive overload.

While previous descriptive studies by Ramli et al. (2022) argued that high female-to-male ratios in health cohorts simply compound overall institutional anxiety, our critical analysis opposes this linear assumption. The findings demonstrate that despite entering the examination with higher psychological vulnerability, female students achieved comparable academic performance on the standard OSCE rubric. This resilience indicates that the explicit predictability, standardized rubrics, and tactile nature of the OSCE offer a protective operational framework. It allows female students to effectively channel high anticipatory anxiety into hyper-focused practical execution.

Ultimately, this structural familiarity overrides the initial gender-based emotional discrepancies. It proves that a well-calibrated, competency-based assessment tool does not merely evaluate clinical skills, but actively promotes emotional regulation and academic resilience across different genders.

Table 1. Demographic data

Demographic Data		Frequency *N* = 400	Percent (%)
Gender	Female	105	70 %
	Male	45	30 %
Program Studi	Nurse	75	50
	Midwife	45	30
	RPL	30	20
Age	20-23	150	100

The age range of respondents was between 20 and 23 years, which is a typical age for undergraduate students in their sixth semester. At this stage, students often face greater academic pressure as they are in a period of transition to professional practice. This age also coincides with significant psychological and social development, where students begin to have more mature career orientations and complex academic demands. These pressures are often increased when facing competency-based examinations such as OSCEs, which require good clinical skills and communication skills. (Appuhamilage Uvini Tharumali Colonne, 2023). Therefore, this age range provides an important context in analyzing students' academic stress levels and performance.

The distribution of respondents based on study program shows that the majority are from the Nursing study program, with 50% or 75 students. The Nursing study program at Fikes UMT has a fairly high academic and clinical load, covering health theory, clinical practice, and skills evaluation through OSCE. This program requires students to have in-depth clinical competence, especially in patient care and decision making in a work environment that is often stressful.

As many as 30% or 45 students come from the Midwifery study program. This program emphasizes mastery of clinical skills related to maternal and child health, as well as critical decision-making in obstetric emergencies. The high academic and clinical load in this program is also one of the factors that can increase students' stress levels (Duarte et al., 2020). OSCE-based evaluation poses a significant challenge for Midwifery students, as the exam simulates clinical scenarios that demand precision and speed in decision-making.

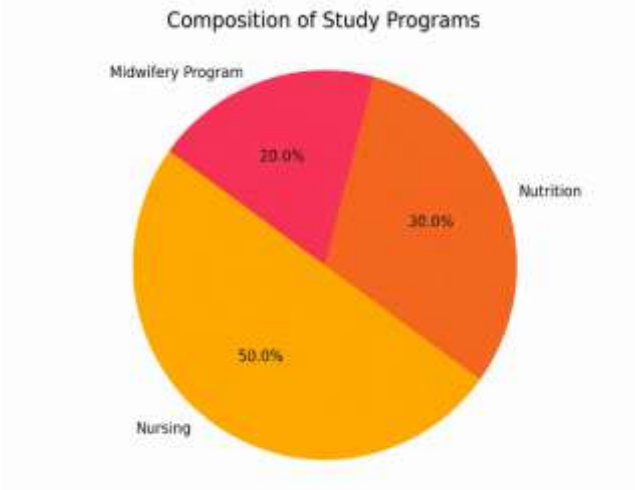

Figure 2. Composition of study programs of respondent students: Nursing, Midwifery, and RPL

As many as 20% or 30 students come from special classes/RPL, most of which are related to the Physiotherapy study program. Although having a smaller number of participants compared to Nursing and Midwifery, Physiotherapy students face no less difficult challenges in the OSCE exam. This program requires mastery of practical skills in rehabilitation and physical therapy, which are the basis for clinical practice. The difference in the number of participants from each study program reflects the variation in the proportion of students at Fikes UMT, which may be influenced by the level of popularity of the study program.

Stress Levels Before and After OSCE

The data shows a significant decrease in students' stress levels after the implementation of the OSCE in table 1. Before the OSCE, 65% of students experienced high stress, 25% moderate stress, and 10% low stress. After the implementation of the OSCE, the number of students with high stress decreased to 40%, while those with moderate and low stress increased to 35% and 25%, respectively.

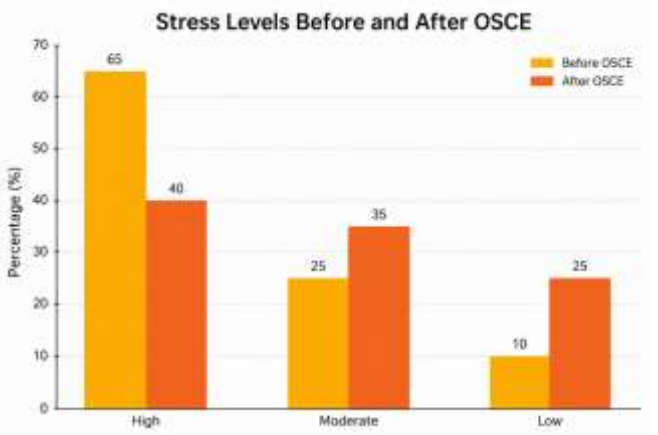

Figure 3. Comparison of student stress levels before and after OSCE implementation.

Conditions before the OSCE, as many as 65% of students experienced high stress before the OSCE, while 25% were at a moderate level of stress and only 10% had a low level of stress. These data indicate that the majority of students felt significant pressure before the OSCE. The average stress level before the OSCE was recorded at 7.8 ± 1.2, which is considered high in the context of health education. This may be due to the heavy academic load, the expectation to perform perfectly on the exam, and the preparation that requires extra time and effort.

High stress before the exam can also be associated with uncertainty about one's ability to face clinical simulations. After the OSCE, the data showed a significant decrease in student stress levels. Students with high stress decreased to 40%, while students with moderate stress increased to 35%, and those with low stress increased to 25%. The average stress level also decreased to 5.4 ± 1.1, with an average difference of 2.4

points. This decrease reflects the positive impact of the OSCE implementation, where students felt relieved after completing the exam. This decline may also indicate that the experience of facing direct evaluations gives them confidence in their clinical abilities.

Table 2. Comparison of Stress Levels Before and After OSCE

Condition	Average Stress	p-value
Before OSCE	7.8 ± 1.2	<0.001
After OSCE	± 1.1	

The p-value <0.001 indicates that the difference in stress levels before and after the OSCE is very statistically significant. This means that there is strong evidence that the OSCE directly affects the decrease in students' stress levels. In addition, clinically, the decrease in the average stress of 2.4 points is an important indication that the implementation of the OSCE not only has an impact on academic results, but also on the psychological aspects of students. This decrease in stress levels underlines the importance of implementing a structured clinical exam in helping students manage their academic stress.

High stress decreased, the decrease in the number of students with high stress from 65% to 40% is a significant finding. This shows that although the OSCE is considered a complex exam, its implementation can have a positive impact in helping students overcome the stress they previously felt. This decrease is most likely due to a sense of relief after completing the evaluation or increased confidence in their clinical abilities. In addition, direct experience in the OSCE can help students reduce uncertainty which was previously a major trigger for stress (Setyaningsih et al., 2024).

The increase in moderate and low stress, the increase in the number of students with moderate and low stress to 35% and 25% respectively indicates that most students managed to reduce their stress levels after the OSCE. These data indicate that health study programs need to consider the importance of good preparation before the clinical exam to minimize initial stress levels. In addition, these results indicate that students are getting used to academic and clinical pressure, which helps them manage stress better during or after the exam.

The average decrease in stress by 2.4 points is an important insight for health education institutions. OSCE, in addition to being a method of evaluating clinical competence, can also be a means for students to develop coping skills against academic stress. Institutions can adopt a more holistic approach by providing stress management training programs, OSCE simulations, and psychological counseling sessions (Bellido-Esteban et al., 2021). This support will help students manage stress and improve their readiness to face academic challenges.

The Impact of OSCE on Student Performance

Linear regression analysis in table 3 shows a significant negative correlation between stress levels and student performance in the Objective Structured Clinical Examination (OSCE) with a correlation value ($r = -0.45$, $p < 0.01$). This correlation indicates that the lower the stress level of students, the higher the scores they achieve in the OSCE. With a small p-value, this relationship is not coincidental but statistically significant. In general, stress is a fairly dominant variable in influencing student performance during this clinical exam. This moderate but significant correlation confirms that reducing stress makes an important contribution to improving academic outcomes.

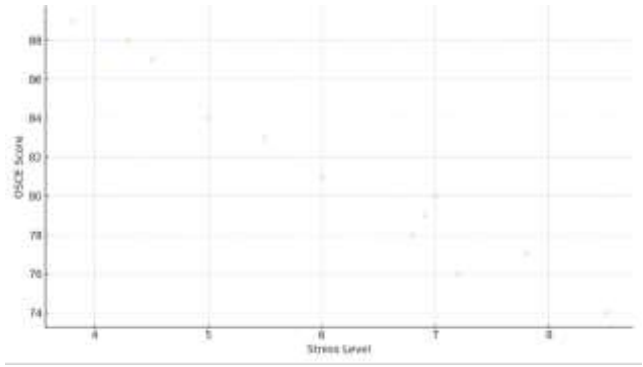

Figure 4. Negative correlation between stress levels and students' OSCE scores ($r = -0.45$, $p < 0.01$).

Table 3. Relationship between Changes in Stress Levels and OSCE Scores

Stress Change	Level	Average OSCE	p-value	r
High Decrease	Stress	85 ± 5	<0.01	−0.45
Moderate Decrease	Stress	80 ± 7	<0.05	
Stress Change	No	± 10		

High stress reduction and its impact on OSCE performance, Students who experienced a reduction in stress from a high level showed an average OSCE score of 85 ± 5 with $p < 0.01$. This average was the highest compared to other groups, indicating that substantial stress reduction had a positive impact on concentration ability, clinical accuracy, and mastery of the material. Reduced stress allowed students to be more focused and confident during the exam (Granja et al., 2022). These results also reflect the effectiveness of stress management strategies implemented by students who were previously in the high stress category. Moderate stress reduction and OSCE performance, the group of

students who experienced a decrease in stress from a moderate level had an average score of 80 ± 7 with $p < 0.05$. Although this average score is lower than the group with a high stress reduction, this increase is still significant. These results indicate that each level of stress reduction contributes positively to student performance, although the impact is not as strong as in the high stress group. Students in this group may have good stress management capacity but need additional support to achieve optimal performance.

Stress unchanged and its implications for OSCE performance, students whose stress levels did not change during the OSCE had an average score of 75 ± 10, showing lower performance compared to the group that experienced a decrease in stress. This lower average score indicates that the inability to manage stress has a negative impact on academic outcomes. This condition may be due to lack of stress management training or the unavailability of adequate emotional and psychological support. Statistical significance and practical implications, the results of the analysis with ($p < 0.01$ and $p < 0.05$) showed a strong statistical significance between changes in stress levels and OSCE scores. This confirms that stress management is not just an additional aspect but an essential component in students' academic success, especially in intense clinical exams such as the OSCE. These findings provide practical implications for health education institutions to prioritize stress management programs in their curriculum.

Relationship between stress and academic performance, the results of this study indicate a significant negative relationship between stress levels and student performance in OSCE. Decreased stress consistently correlated with increased OSCE scores. This finding underscores the importance of stress management in supporting student academic performance, especially in stressful health education environments (Vincent et al., 2022). Lazarus and Folkman in their theory of stress and coping explain that unmanaged stress can disrupt an individual's cognitive and emotional functioning, which ultimately affects performance (Biggs et al., 2017; Lazarus & Folkman, 1986). Thus, effective stress management interventions can be a strategic solution to improve students' academic outcomes. (Juhász et al., 2024).

Stress management as a critical intervention, the importance of stress management in improving academic performance is supported by literature highlighting the positive impact of programs such as mindfulness training, relaxation techniques, and coping workshops. Kabat-Zinn notes that mindfulness can reduce anxiety levels, increase focus, and improve individual performance in stressful situations (Kabat-Zinn, 2003). Students who prepare themselves with adequate coping strategies tend to be better prepared to face the challenges of the OSCE (Kalantari et al., 2017), so that their academic performance also improves.

The influence of OSCE on student readiness, as a clinical evaluation method. OSCE not only measures students' technical skills but also serves as a tool to help them learn to manage stress in real situations (Gilani et al., 2022; Onwudiegwu, 2018). This is in line with Hashimi's view that OSCE is an evaluation simulation that supports the development of clinical competence while helping students hone their adaptation skills to stress (Al-Hashimi et al., 2023). Students who are able to manage stress in OSCEs are expected to be better prepared to face similar challenges in the workplace, such as medical emergencies or complex clinical cases (Malau-Aduli et al., 2022).

The effect of stress reduction on student performance. Students who experienced significant stress reduction showed the best performance in OSCE (Damayanti et al., 2024). The significant reduction in stress allows them to concentrate better and maximize their clinical abilities (Ferreira et al., 2020). According to McEwen and Sapolsky, chronic stress can disrupt brain functions responsible for decision-making and problem solving (McEwen & Sapolsky, 1995). Conversely, reducing stress helps restore these functions, allowing students to achieve optimal performance.

Adaptation to Academic stress, the results of this study also underline the importance of students' ability to adapt to academic stress. Students who are unable to manage stress or maintain high levels of stress show lower performance (Sihombing, 2024). According to Bandura, self-efficacy plays an important role in an individual's ability to face challenges (Bandura & Wessels, 1997). Students with high self-efficacy tend to be better able to cope with stress, thereby achieving better results.

Research limitations and recommendations This study has several limitations, such as the limited sample coverage in one institution and the lack of analysis of other factors that influence stress, such as social support or individual coping strategies. As a follow-up, broader research involving various institutions and a multivariate approach is recommended to strengthen the validity of these findings.

Practical implications, these results emphasize the need for stress management as an integral part of health student training programs. Educational institutions can adopt coping, mindfulness, and OSCE simulation training programs to help students deal with academic stress. Psychological support should also be improved to ensure student well-being during their education. These findings support the view that a holistic approach in health education not only improves academic

competence but also supports students' overall psychological well-being.

Conclusion

This study revealed that Objective Structured Clinical Examination (OSCE) plays a significant role in reducing students' stress levels and improving their academic performance. The findings confirm that effective stress management, especially in the context of clinical examinations, is an essential component in health education. Adequate psychological preparation prior to OSCE can significantly contribute to better academic outcomes and support the development of students' overall competencies.

Reducing stress levels was shown to have a significant impact on improving students' performance during OSCE, indicating the importance of stress management in supporting psychological well-being and academic success. These results are in line with previous literature suggesting that unmanaged stress can impair cognitive function and academic performance. Therefore, health education institutions are advised to adopt stress management programs that include mindfulness training, OSCE simulations, and relaxation techniques as part of the curriculum to help students cope effectively with academic stress.

Although the findings of this study provide important contributions, limitations such as the limited sample size at one institution and the lack of analysis of other external factors, such as social support, suggest the need for further research. Future studies are expected to explore the influence of other variables that affect student performance in health education settings to strengthen the understanding of the dynamics of stress and academic performance. These findings have implications for the importance of a holistic approach in health education to improve both clinical competence and psychological well-being of students. This study provides empirical evidence that the Objective Structured Clinical Examination (OSCE) holds a dual strategic role in health sciences education: it operates not only as a rigid psychometric assessment tool but also as a structural intervention that reduces stress and enhances academic performance. The transition from baseline pre-test anxiety to post-test psychological stabilization demonstrates that when clinical evaluations are meticulously structured with explicit rubrics and predictable guidelines, they can mitigate cognitive overload and foster adaptive coping mechanisms. Ultimately, a significant negative correlation between post-exam stress and final clinical performance confirms that emotional regulation and psychological resilience are directly intertwined with the mastery of clinical competencies among Indonesian health sciences students.

Despite its rigorous analytical approach, several inherent limitations must be acknowledged to guide future scholarly inquiries. First, this study was restricted to a single-center cohort at Universitas Muhammadiyah Tangerang with a sample size of 150 participants, which may constrain the external validity and generalizability of the findings across wider geographical or institutional contexts in Indonesia. Second, the analytical model focused predominantly on internal institutional variables, leaving external confounding factors—such as peer social support systems, socio-economic backgrounds, and varying levels of prior digital simulation exposure—unexamined.

Consequently, future research should adopt a multi-center longitudinal approach, tracking cohorts across diverse public and private universities to capture macro-level institutional dynamics. Furthermore, future investigators are encouraged to construct a more holistic structural equation model (SEM) that integrates external socio-emotional variables, thereby deepening the scientific understanding of the complex, multidimensional relationship between psychological well-being and clinical competence in health sciences education.

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All authors have read and approved the published version of the manuscript

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Conflicts of Interest

In this study there is no conflict of interest.

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