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Research Article

The Relationship Between Ego Strength, Emotional Intelligence, and Clinical Skills Performance in Preclinical Medical Students

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ABSTRACT

Academic stress is associated with mental disorders such as depression, anxiety, and physical performance issues, as well as academic challenges. Medical students are particularly susceptible to high levels of stress due to demanding academic workloads, intense competition, and prolonged study periods. Assessments like the Objective Structured Clinical Examination (OSCE), which evaluate students' clinical skills, also contribute to stress. One of the key factors in successfully facing this test is ego strength and emotional intelligence. This study aims to investigate the relationship between ego strength, emotional intelligence, and clinical skills performance. A quantitative research design employing an analytical observational approach and a cross-sectional methodology was utilized. The instrument used to measure academic stress is the MMPI-1, and emotional intelligence is measured with the TEIQue-SF. A total sampling method was used to select participants. The research findings show that the majority of respondents have low ego strength (60%), medium emotional intelligence (77%), and OSCE scores predominantly at the A grade. There is a relationship between emotional intelligence and OSCE performance ($p = 0.042$), and there is also a relationship between ego strength and OSCE performance ($p = 0.034$). It is important that the identified relationships are correlative rather than causal, and their impact is not statistically significant. These findings suggest the importance of strengthening emotional intelligence and ego strength among medical students to support their clinical performance, particularly during high-stakes assessments such as the OSCE.

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INTRODUCTION

Academic stress is one of the most prevalent forms of stress, defined as an individual's psychological state resulting from persistent academic pressure that leads to personal instability. This type of stress is exacerbated by the modern world's tendency to acquire vast amounts of information as quickly as possible, in a competitive environment. Individuals experiencing academic stress often struggle to quickly analyze the overwhelming information they encounter, which can result in both physical and psychological harm. Numerous studies in the field of education have reported a positive correlation between stress and various issues, including depression, anxiety, physical illnesses, behavioral disorders, mental health disorders, and academic challenges (Khorasani *et al.*, 2023). The higher the level of academic stress students experience, the lower their psychological well-being will be (Gisela, Kinkie and Sabbilla, 2025). There is a strong and positive relationship between academic stress and depression tendencies in UGM Nursing students (Azizah, Warsini and Yuliandari, 2023). There was a significant association between stress, anxiety, and depression with functional constipation in first-year students of the Medical Study Program, Faculty of Medicine, Tanjungpura University (Khafifah, Wilson and Tejoyuwono, 2024). OSCE is a clinical evaluation method that requires students to demonstrate their skills in real and direct presence in front of examiners, creating high psychological pressure. Direct interaction with simulated patients and testers, including on non-interactive stations such as written questions, triggers anxiety because it requires critical thinking in a limited amount of time. Students are not only tested on the technical side but also on communication, decision-making, and professional attitude. The complex exam environment, the large number of stations, the rapid transfer between stations, and the tense atmosphere reinforce the emotional pressure (Rachmawati and Mustikasari, 2020). OSCE is often perceived as a new situation that cannot be predicted or controlled, so the brain responds to it as a threat. It activates the sympathetic nervous system, characterized by increased heart rate and decreased heart rate variability (HRV). The pressure to get the best results and high self-expectations further exacerbates the stress felt by students (Martínez-Pascual *et al.*, 2022).

Medical students, in particular, experience significantly high levels of stress (Al-Ruq *et al.*, 2022). Research on cross-faculty surveys of students in the health sector shows that the prevalence of stress ranges from 31% to 63.5%. In particular, medical students were reported to have a higher prevalence of stress, exceeding 59% (Alwhaibi, Alotaibi, and Alsaadi, 2023). This heightened stress among medical students is attributed to their substantial academic workload, intense competition, and extended study hours (Khero *et al.*, 2019). To effectively manage these challenges, both ego strength and emotional intelligence are vital. A person's emotional intelligence greatly affects how they behave in social and professional contexts, influencing their capacity to control emotions in different situations and, in turn, their overall performance. Moreover, emotional intelligence is a key factor in shaping how individuals make decisions (Ekowati *et al.*, 2020).

Research has generally explored the relationship between emotional intelligence and academic stress. A previous study conducted on students at the Faculty of Medicine and Health Sciences at Warmadewa University found that respondents with low emotional intelligence experienced higher levels of academic stress. In contrast, respondents with high emotional intelligence exhibited greater enthusiasm, engagement, and happiness in their activities,

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as well as a stronger work ethic (Laughs) *et al.*, 2022). Academic pressure and its associated stress are responsible for disturbances in the circadian cycle of the medical students. The factors responsible include longer study duration, harder syllabi, exam stress, clinical duties, which include overnight on-call duties, and emotional challenges and exhaustion associated with witnessing human misery (Khero *et al.*, 2019). At the Faculty of Medicine, Universitas Muhammadiyah Surabaya, there has been a marked increase in academic stress among third-year students, as evidenced by institutional observations and internal records. This stress was reported to be caused by a variety of academic pressures, including demanding coursework, tight schedules, and limited access to effective learning resources. Some students have even sought help from the campus mental health clinic or required hospitalization due to emotional exhaustion and interpersonal conflicts. This condition underscores the urgency of research to identify internal factors, such as ego strength and emotional intelligence, that help manage academic stress effectively.

This research is expected to make a significant contribution to medical education, particularly in learning strategies and the evaluation of clinical skills. By understanding how ego strength and emotional intelligence influence clinical skills, medical education institutions can design more appropriate interventions, such as resilience training and emotional intelligence development for students, as well as OSCE approaches that are better adapted to test takers' psychological states. Ego strength plays an important role in preparing students to face academic challenges, including high-pressure exams such as the OSCE. The ability to manage emotions, survive stressful situations, and maintain focus and motivation is controlled by strong ego power. For students in low-performing categories, strong ego strength can be a protective factor, helping them stay calm, adaptive, and less likely to give up easily under exam pressure. Therefore, strengthening ego strength from an early age is important as part of a holistic education approach, so that students are not only cognitively prepared but also mentally and emotionally prepared to face academic burdens. In addition, the results of this study can serve as empirical evidence for the development of academic policies, particularly in academic guidance, clinical assessment methods, and psychological support for medical students. Thus, this study not only provides theoretical insights, but also has practical implications that can improve the quality of learning and clinical readiness of medical students as a whole.

METHODS

This study uses a quantitative design with an observational-analytical approach and a cross-sectional design, employing a total sampling technique. The population consists of all preclinical students of the Faculty of Medicine, University of Muhammadiyah Surabaya, class of 2022, with a total sampling technique based on inclusion, exclusion, and dropout criteria. The inclusion criteria for this study were pre-clinical medical students from the class of 2022 who provided informed consent to participate. The exclusion criteria in this study were: respondents who were taking sedatives, undergoing treatment or therapy for mental disorders, absent during data collection, on leave, or ill. The dropout criteria included not completing the research instrument, withdrawing from education, and withdrawing from participation as a respondent. The minimum sample was determined by the Slovin formula (n=49). The sample in this study comprised 66 respondents who completed all questionnaires and met the respondent criteria. Participants are grouped into low- and high-performance categories based on OSCE

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(Objective Structured Clinical Examination) scores derived from academic data. It should be noted that these groupings are not isolated or exclusive, but rather are based on the range of values within the population. The instruments used in this study included the MMPI and TEIQue-SF questionnaires, both of which were measured directly by the researchers. The MMPI questionnaire was scanned at Bhayangkara Kediri Hospital, and the results were categorized into low, medium, and high categories. Meanwhile, the TEIQue-SF score is calculated by summing all questionnaire items and is further classified into three categories: low, medium, and high. Data analysis was carried out statistically using a bivariate test ($p < 0.05$). The research instruments used in this study were the Minnesota Multiphasic Personality Inventory-1 to measure ego strength and the Trait Emotional Intelligence Questionnaire to measure emotional intelligence. The ego strength instrument consists of 68 items with a reliability of 0.71–0.84, and the TEIQue-SF used in this study has a reliability score of 0.981. Data collection begins in November 2024. Research Ethics Letter was 042/KET/II.3/AU/F/2024. The data collected include ego strength and dimensions of emotional intelligence, such as well-being, sociability, emotionality, and self-control. The data are then processed in SPSS 26 using the Kendall Tau correlation test.

RESULTS

Results of the analysis showed that ego strength and emotional intelligence were related to the ability to perform anamnesis and to install infusions, although the correlation strength was relatively weak. The correlation between ego strength and anamnesis ability is $\tau = 0.012$, and between ego strength and the ability to install an infusion, $\tau = 0.014$. Meanwhile, emotional intelligence showed a correlation of $\tau = 0.033$ with the ability to anamnesis and $\tau = 0.463$ with the ability to install an infusion. Although the correlation values are in the weak range, these findings indicate that psychological factors such as ego strength and emotional intelligence continue to play a role in supporting students' clinical abilities. However, these are not the main determinants, so further studies are needed considering other variables that may have a greater impact on overall clinical performance. Based on the spectrum of student performance in this study, the study is divided into two clusters: high-performance and low-performance. Cluster analysis remains relevant, but it should be understood as part of the spectrum of student performance, not as an isolated grouping. Of the 66 respondents, 52 had high performance, and 14 had low performance.

Table 1. Characteristics of high-performance cluster respondents based on gender (n=52)

Gender	Frequency (n)	Percentage (%)
Women	40	77%
Men	12	23%

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Table 2. Frequency distribution of ego strength in high-performance cluster respondents (n=52)

Ego Strength	Frequency (n)	Percentage (%)
Low	35	67%
Moderate	17	33%

Table 3. Frequency distribution of emotional intelligence and age in high performance cluster respondents (n=52)

Characteristics	Frequency (n)	Percentage (%)
Emotional intellegence		
Low	35	67%
Moderate	17	33%
Age		
18 Years	1	
19 Years	2	2%
20 Years	30	4%
21 Years	17	57%
22 Years	2	33%
		4%

By gender, respondents in the high-performance cluster were predominantly women, with 40 out of 52. In this cluster, 35 respondents had low ego strength, 17 had moderate, and none had high. Meanwhile, in this cluster, 13 respondents had low levels of emotional intelligence, 39 had medium levels, and none had high levels. The analysis of respondents' characteristics with high performance data showed that respondents aged 20 had the highest frequency, namely 30 out of 52 respondents with high performance.

Correlation analysis using Kendall's tau showed a significance value of 0.042 (<0.05), which means that there is a relationship between ego strength and emotional intelligence with clinical performance. If the correlation coefficient value is positive, then the direction of the relationship between variables is unidirectional. This means that the higher the value of ego strength and emotional intelligence, the higher the anamnesis score.

There are several issues with the low-performance cluster; it consists of 14 respondents. By gender, respondents in the low performance cluster were dominated by women, with 9 out of 14. In this cluster, 9 respondents had low ego strength, 5 had moderate, and none had high. Meanwhile, in this cluster, 2 respondents had low emotional intelligence, 12 had medium, and none had high. From the data obtained, in the low performance cluster, respondents aged 20 years had the highest frequency, namely 11 out of 14 total respondents with low performance.

The correlation test between emotional intelligence and the OSCE anamnesis score shows a significant relationship, although the correlation is weak (p=0.034). However, this differs from a high-performance cluster. In the high-performance cluster, apart from emotional intelligence, which is related to anamnesis, there is also ego strength, which

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is also related to anamnesis, and these relationships do not include other clinical skills in general. Therefore, further studies are needed to understand the role of psychological factors in various clinical skills. The study did not consider factors such as previous clinical experience, exam stress levels, or variations in learning methods. These factors can significantly influence student performance. Therefore, future research should include controls for these confounding variables to provide a clearer picture of the relationship.

Table 4. Correlation test analysis

Independent variable	Dependent variable	Test value
Ego strength	Anamnesis	R = 0.246 P = 0.042 N = 52
Ego strengh	Infusion installation	R = 0.37 P = 0.777 N = 52
Ego strengh	Average OSCE score	R = 0.189 P = 0.109 N = 52
Emotional intelligence	Anamnesis	R = 0.246 P = 0.042 N = 52
Emotional intelligence	Infusion installation	R = 0.012 P = 0.925 N = 52
Emotional intelligence	Average OSCE score	R = 0.186 P = 0.115 N = 52

Table 5. Gender frequency distribution of clusters in low performance (n=14)

Gender	Frequency (n)	Percentage (%)
Women	9	64%
Men	5	36%

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Table 6. Frequency distribution of ego strength clusters in low performance (n=14)

Ego Strength	Frequency (n)	Percentage (%)
Low	9	64%
Moderate	5	36%

Table 7. Frequency distribution of cluster emotional and Age intelligence in low performance (n=14)

Characteristics	Frequency (n)	Precentage (%)
Emotional intellegence		
Low	2	14%
Moderate	12	86%
Age		
20 Years	11	79%
21 Years	2	14%
23 Years	1	7%

Table 8. Correlation test analysis

Independent variable	Dependent variable	Test value
Ego strengh	Anamnesis	R = 0.374 P = 0.121 N = 14
Ego strengh	Infusion installation	R = 0.049 P = 0.840 N = 14
Ego strengh	Average OSCE score	R = 0.207 P = 0.411 N = 14
Emotional intelligence	Anamnesis	R = 0.512 P = 0.034 N = 14
Emotional intelligence	Infusion installation	R =- 0.310 P = 0.198 N = 14
Emotional intelligence	Average OSCE score	R = 0,000 P = 1,000 N = 14

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DISCUSSION

This study shows that the ego strength of preclinical students of the Faculty of Medicine, Muhammadiyah University of Surabaya, Class of 2022 is dominated by low-level ego strength (67%) and dominated by medium-level emotional intelligence (77%). This is supported by a previous study of students of the Faculty of Medicine, Brawijaya University Class of 2018 that there is a correlation between emotional intelligence and Objective Structured Clinical Examination (OSCE) communication skills (Lianawati, 2021). Another study that supports this study is a study on nurses at Dr. Radjiman Wediodiningrat Lawang Mental Hospital. Based on the results of the analysis, the study concluded that there is a correlation between the level of emotional intelligence and the implementation of therapeutic communication techniques (Selfi Safrida, Kuswantoro Rusca Putra, 2015). In addition, there is also research on the emotional intelligence of nurses and interpersonal communication with patients at Siloam Hospital Bali which shows that the two variables have a significant relationship (Prihandhani and Hakim, 2021). Another similar study conducted on adolescent students in grade X at Senior High School (SMA) 15 Semarang also explained that there is a positive correlation between emotional intelligence and interpersonal communication (Maharani and Rusmawati, 2020).

Statistical analysis showed a significant relationship between emotional intelligence and academic performance, especially anamnesis ($p < 0.05$), as presented in Table 4 and Table 8. However, it is important to note that this correlation does not indicate a causal relationship. This relationship may be influenced by various mediating and moderating factors that were not identified in this study. Longitudinal and experimental research is needed to understand the causal mechanisms underlying this relationship. These findings provide a basis for further exploration of how psychological factors interact with the learning process and academic achievement.

Learning in the Faculty of Medicine emphasizes many aspects, including communication, clinical, and problem-solving skills required of students. Research among health students at the Faculty of Medicine, Hasanuddin University, shows a correlation between emotional intelligence and problem-solving skills. Students with high levels of emotional intelligence have better problem-solving skills (Hasnah, Hendra and Hapsah, 2018). Self-efficacy is very important in medical education because it relates to the ability to choose strategies and set goals, adapt to challenges, and transition from students to competent, professional doctors. Self-efficacy and emotional intelligence are closely related, especially in influencing individual performance, decision-making, and mental well-being. Medical students with high self-efficacy focus on finding solutions and on their perspectives on problems, while students with low self-efficacy tend to focus on their shortcomings and on the implications for their skills. The results of a study at Nusa Nipa University showed that there was an influence of emotional intelligence training on the self-efficacy of emergency nursing clinical practice students (Ode Irman, Anggia Riske Wijayanti, 2021).

Statistical analysis showed no significant relationship between ego strength and academic performance ($p > 0.05$), as shown in Table 4 and Table 8. This finding may be influenced by several factors, namely the complexity of measuring ego strength in an academic context, the possibility of a non-linear relationship that was not detected by the linear analysis used, the influence of moderator variables that were not measured in this study, and the limitations of the

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measurement instrument in capturing variations in ego strength. These results indicate the need for a more nuanced approach to understanding the role of ego strength in academic performance, accounting for the complex interactions among psychological variables. This can be influenced by several things, such as exam readiness, learning type, curriculum factors, social support factors, learning atmosphere factors, learning motivation, internal spiritual beliefs, physical fitness, work experience, and self-directed learning (Atziza, 2015).

Exam readiness or learning readiness is very important. With good learning readiness, ego strength, emotional intelligence, and academic achievement will increase, as shown in the study on the effect of learning readiness on students' learning achievement in the Physics Education Study Program at Maros Muslim University. It can be concluded that there is a significant influence of learning readiness and student learning outcomes (Idamayanti, 2020). Learning type also occupies an equally important position because achievement can be influenced by learning type, or can also be known as learning style. There are three types of learning: auditory, visual, and kinesthetic. If someone can recognize their learning style, they are more able to achieve higher levels of success than someone who learns in a way that is not in accordance with their learning style. There is a study that states that there is a correlation between learning style and Cumulative Achievement Index in students of the Faculty of Medicine, Syiah Kuala University, who suffer from functional dyspepsia (Sakdiah, Taufik Suryadi, 2020). Curriculum factors also affect learning achievement. Research at Sekolah Alam Cikeas shows that the curriculum positively affects student learning achievement. This means that the higher the curriculum, the higher the students' learning achievement at Sekolah Alam Cikeas (Prasetyo, 2020). Social support refers to emotional support, information, and assistance from others that help individuals deal with stress and challenges. This social support can come from close people, such as family, friends, and communities, which play an important role in a person's psychological and physical well-being. Social Support has a significant effect on Academic Achievement in Students of the Faculty of Economics and Business, Syiah Kuala University (Murkhana, 2022).

The learning atmosphere factor, or learning environment factor, is the success of the student's learning process, which is influenced by many factors, one of which is the learning environment factor. This learning environment is important, especially related to facilities and infrastructure in developing student achievement, both in terms of knowledge (cognitive), relative attitudes (affective), and skills (psychomotor). The learning environment can be divided into two, namely the natural environment, including temperature, air, weather, time, place of study, and tools for learning. Then the other learning environment is the socio-cultural environment, namely humans (Muhammad Sandi Ramadhani, 2022). Motivation is everything that encourages someone to do something. If students have high learning motivation, then they tend to have a positive attitude toward achieving success. In contrast, students who lack motivation are less attentive during group discussions, conversations with friends, and other activities while the learning process is taking place. Research on learning motivation with learning outcomes in the Natural Sciences Education Study Program, Lambung Mangkurat University, shows that there is a correlation between learning motivation variables and learning outcomes in the material on traveling waves and sound waves in the Natural Sciences Education Study Program,

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Lambung Mangkurat University (Nanda Fidia Safitri, Syubhan Annur, 2024). Physical fitness helps maintain body health, reduces the risk of disease, and increases endurance. Healthy students tend to have more energy to study and be active. Based on the research results, the conclusion from the T-test is that there is a correlation between physical fitness and physical education learning achievement among XI MIA students at SMA N 2 Siak Hulu (Kadar, 2019).

The attitude of independent learning will create an attitude of responsibility, initiative, self-confidence, and trust as well as the ability to evaluate learning outcomes. Research on the attitude toward independent learning or self-directed learning has been conducted, showing a correlation between independent learning and improved learning achievement among grade III students at Elementary School 109 TUARA Enrekang. The study found a significant positive relationship between independent learning attitude and learning achievement. Which means, the better the attitude of independent learning that students have, the better their learning achievement will be (Aprianty, 2018). Prayer and dhikr are believed to be able to prevent and even overcome stress so that a sense of comfort and calm arises (Akhmad Yanuar Fahmi, Soekardjo, 2022). The results of the study prove that the higher the role of spirituality, the lower the potential for experiencing stress levels (Deea Ayu Wulandari, 2023). Respondents who have a high spiritual role have relationships with themselves, others, the environment, and God. Respondents who have a moderate spiritual role do not get support from others and the environment. Meanwhile, respondents who have a low spiritual role do not get support from themselves, others, the environment, and God. Work experience increases readiness, skills, and expertise. Readiness is important because readiness is a person's response to a condition. Research indicates a positive relationship between fieldwork experience and the readiness of 2016 Faculty of Economics students upon entering the workforce. This means that the broader the field work experience that students get, the more prepared the 2016 Faculty of Economics students are to enter the workforce (Sari *et al.*, 2021).

Based on the findings of this study, several structured interventions are proposed, including: an Emotional Intelligence Development Program with weekly workshops (8 weeks) focusing on self-awareness and emotional regulation; structured reflective practice with emotional journals; case simulations with structured feedback; and pre-post evaluation using validated instruments. Integrated Academic Support System, such as one-on-one mentoring with trained lecturers (minimum 1 hour/month); facilitated discussion groups (2 hours/week); periodic assessments using standardized rubrics. Mental Health Interventions such as semester mental health screening, individual counseling based on needs, monthly stress management workshop, and evaluation of effectiveness using standardized metrics. Each intervention will be evaluated using a pre-post test design with a control group to assess its effectiveness. However, limitations such as a relatively small sample size (n=66), a cross-sectional research design that precludes causal inference, and the lack of control over potential confounding variables limit the generalizability of the results. Therefore, future studies are recommended to adopt a longitudinal design, increase the sample size using adequate power analysis, and consider mixed-method approaches to enrich the data. The practical implications of this study highlight the importance of integrating emotional intelligence into the curriculum,

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developing structured mentoring systems, and conducting regular program evaluations to ensure their effectiveness and relevance in improving students' clinical competencies.

CONCLUSION

Based on this study, it can be concluded that most respondents have low ego strength (67%), medium emotional intelligence (77%), and OSCE scores show a dominant A score (59%). There is a correlation between emotional intelligence and OSCE performance (p = 0.784) and a correlation between ego strength and OSCE performance (p = 0.314). This study provides preliminary insight into the relationship between ego strength, emotional intelligence, and clinical skill performance among preclinical medical students. The findings contribute to the development of more comprehensive medical education programs by emphasizing the importance of psychological and emotional aspects in supporting academic success.

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