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THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND ACADEMIC ACHIEVEMENT OF MEDICAL STUDENTS AT UDAYANA UNIVERSITY

Made Gede Fajar Darmawan[1], Ni Putu Wardani[2], I Gusti Ayu Harry Sundariyati[2], Ida Bagus Amertha Putra Manuaba[2]

[1]Medical Student, Faculty of Medicine, Udayana University
[2]Health and Medical Education Department, Faculty of Medicine, Udayana University
e-mail: fajardarmawan2003@gmail.com

ABSTRACT

Background: Emotional intelligence combines aspects of interpersonal interaction that can improve individual performance and awareness for successful academic development. However, studies linking it to academic achievement in medical students show inconsistent results.
Methods: This quantitative analytical study with a cross-sectional approach aimed to determine the relationship between emotional intelligence and academic achievement among medical students at Udayana University. The sample included 171 students from the 2022 cohort selected via total sampling. Emotional intelligence was measured using the SSEIT questionnaire, while academic achievement was determined by the 5th-semester GPA. Data were analyzed using the Kolmogorov-Smirnov test and Spearman's correlation.
Results: The results indicated an average emotional intelligence score of 116,55 ± 14,13, with 79,5% of respondents falling into the "With Honors" GPA category. Spearman's correlation showed no significant relationship between emotional intelligence and academic achievement (r_s = 0,128, p = 0,094). Furthermore, no significant relationships were found in the specific sub-domains of emotion regulation, appraisal, utilization, or social skills.
Conclusion: There is no significant relationship between emotional intelligence and academic achievement in this group. Further research involving medical students from various batches is recommended to obtain a more comprehensive picture.
Keywords : Emotional intelligence, medical students, academic achievement

INTRODUCTION

Academic achievement is a metric used to assess the extent to which individuals have progressed in their learning.[1] It can also be described as the outcome of the learning process within the education system over a specific period, examined and evaluated to determine the attainment of educational objectives.[2] Academic achievement is determined by various factors, both internal and external. As an internal factor, emotional intelligence is considered to have significant potential to contribute to academic achievement.[3]

Emotional intelligence was originally defined by Salovey and Mayer as a specific subset of social intelligence. These experts defined it as the ability to identify one's own emotions and those of others, to distinguish between these various emotions, and to utilize this knowledge in decision-making.[4] According to Daniel Goleman, emotional intelligence is the ability to motivate oneself and manage emotions effectively, based on an understanding of one's own and others' feelings, for the benefit of social and personal relationships. Emotional intelligence is distinct from, yet complementary to, academic intelligence. Daniel Goleman further categorized emotional intelligence into five components: social skills, motivation, self-regulation, empathy, and self-awareness.[5]

Emotional intelligence can assist students in becoming better physicians by establishing a foundation of professionalism, facilitating productive collaboration within diverse teams, and encouraging constructive patient behaviors that lead to improved health results.[6] Individual performance can be significantly enhanced through emotional intelligence, which fosters self-management competencies like flexibility, mood regulation, and stress reduction by leveraging interpersonal dynamics. This has raised awareness regarding the crucial role of emotional intelligence in fostering educational growth, professional achievement, and effective clinical practice.[7] Previous research identified a substantial relationship between emotional intelligence and academic achievement. High emotional intelligence in students is often correlated with strong communication skills and a robust motivation to achieve their goals. Conversely, low emotional intelligence is closely associated with poor cognitive capacity and inadequate communication skills.[8]

However, other studies indicate that there is no substantial relationship between emotional intelligence and student academic

achievement. High emotional intelligence in students does not necessarily imply that they also possess high academic achievement.[9] This discrepancy in previous findings creates a significant gap in understanding how these variables interact, particularly within the specific and demanding context of medical education in Indonesia. The inconsistency suggests that the role of emotional intelligence might vary across different educational environments and curriculums. Therefore, this study aims to determine the relationship between emotional intelligence and academic achievement specifically among medical students at Udayana University. The findings are expected to provide empirical evidence to support the evaluation of soft-skills training within the medical curriculum.

LITERATURE REVIEW

Emotional Intelligence

Salovey and Mayer conceptualized emotional intelligence as a subset of social intelligence, entailing the capacity to monitor feelings in oneself and others, differentiate among them, and employ this information to direct thoughts and actions. Mayer and Salovey stated that emotional intelligence is a distinct cognitive ability, yet related to general intelligence.[4,10] Daniel Goleman expanded upon the concept established by Salovey and Mayer and raised awareness regarding emotional intelligence by focusing on specific elements distinguishable from intellectual intelligence (IQ). Goleman's theoretical framework encompasses the recognition of personal and interpersonal feelings, an insight into their consequences, and the capacity to manage these emotional states in oneself and others.[11]

Daniel Goleman theorized that there are five primary components of emotional intelligence. First, self-awareness is crucial for recognizing one's own feelings, their causes, and their impact on others. Maturity in this aspect is demonstrated through self-confidence, a sense of humor, and an awareness of self-impression. Second, self-regulation enables impulse control to weigh actions and communicate effectively, reflecting responsibility, adaptability, and the ability to respond to situations without escalating tension. Third, internal motivation is characterized by a desire to learn, commitment, initiative, and persistence in the face of adversity. Fourth, empathy represents the capacity to comprehend the emotions of others, a trait that fundamentally relies on self-awareness, this includes an active interest in the concerns of others and the ability to anticipate social needs. Finally, social skills involve the use of social cues to build networks and manage relationships, manifested in strong communication abilities, leadership, and conflict management through persuasion and negotiation.[11]

Peter Salovey and John Mayer theorized several key components of emotional intelligence. Appraisal and expression of emotion is the ability to accurately recognize and express personal and interpersonal emotional states, enabling appropriate affective responses and sincere social interactions. Regulation of emotion involves managing one's own moods and those of others to achieve specific goals, which can be adaptive for motivation or, conversely, manipulative. Utilization of emotion is the ability to harness emotional experiences to assist in problem-solving, facilitate creative thinking, and integrate emotional considerations into wise decision-making.[10]

Emotional intelligence is influenced by a combination of internal and external factors. Internal factors involve neurobiological structures such as the neocortex, limbic system, amygdala, and prefrontal lobe, while external factors encompass influences from mass media and technology that shape individual behavior and perspectives.[12] Furthermore, life experiences play a significant role, for instance, high academic performance is associated with increased self-confidence and broader social-emotional opportunities, whereas low academic achievement can hinder the development of these skills, fostering negative emotions within the educational environment and lowering expectations for social and emotional competence.[13]

Stein and Goleman described specific characteristics distinguishing individuals with high and low emotional intelligence. Individuals with high emotional intelligence are characterized by the ability to express emotions clearly without fear, remain resilient against negative feelings, and effectively interpret nonverbal communication. They allow their feelings to guide actions by acting out of volition rather than mere obedience, possess strong intrinsic motivation independent of external factors, demonstrate flexibility, and respond to emotions with genuine care for others. Conversely, individuals with low emotional intelligence tend to evade responsibility for their emotional states, frequently shifting blame onto others while remaining unaware of their own feelings. These individuals often exhibit authoritarian, critical, and dishonest behaviors regarding their emotions, coupled with a distinct lack of empathy and sensitivity, as well as a tendency toward rigidity and pessimism.[14]

Emotional Intelligence in Medical Education

Emotional intelligence serves as a protective factor against burnout, allowing students to feel greater fulfillment in their patient care duties and within healthcare teams. High levels of burnout are associated with diminished empathy and professionalism, a critical finding as patients may receive suboptimal care from students experiencing this condition.[15] Furthermore, burnout demonstrates a significant relationship with Grade Point Average (GPA).[16] Conversely, high emotional intelligence is associated with reduced perceived stress among medical students, thereby enabling them to remain more focused and productive in both their learning and clinical practice. [15]

Individuals with high emotional intelligence also tend to possess critical thinking capabilities. This finding is based on the existence of a substantial positive correlation

between the two variables, as well as the discovery that emotional intelligence serves as a significant predictor of critical thinking. Healthcare professionals are required to analyze and solve problems meticulously, therefore they must be able to think critically, utilizing their curiosity and ability to examine facts and judgments. High levels of emotional intelligence correlate with greater cognitive capacity, superior social skills, and more rational behavior. Furthermore, students with high emotional intelligence tend to be more adaptive and tolerant when facing challenging situations, such as academic pressure, social anxiety, or therapeutic issues.[17]

Academic Achievement

Academic achievement is a metric used to assess the extent to which individuals have progressed in their learning.[1] Internal factors, such as readiness, interest, effort, motivation, perception, and enthusiasm, as well as external factors like family, the campus environment, and the social environment, all influence student academic achievement. Compared to other settings, the campus environment plays a significant role in enhancing student achievement, therefore institutions must focus on instructional methodologies capable of improving graduate quality. Various factors influence the learning process, both positively and negatively, either facilitating or hindering individual progress. Suboptimal learning outcomes may result when obstacles are present. These factors encompass positive internal attributes, including readiness, interest, effort, motivation, perception, and enthusiasm, and environmental influences such as the social sphere, family, and campus. While the university environment plays a crucial role in boosting academic achievement, low student motivation can serve as a significant barrier to the learning process, resulting in poor academic performance. Consequently, instructional techniques that enhance motivation and learning quality are essential for achieving higher academic standards.[18]

The Relationship between Emotional Intelligence and Academic Achievement in Medical Students

Several studies have been conducted to determine the existence of a correlation between emotional intelligence and academic achievement among medical students. It was found that emotional intelligence, specifically emotion management, can influence the academic achievement of medical students.[19] Similar results were yielded demonstrating a substantial positive correlation between emotional intelligence and academic achievement of medical undergraduates at Tanjungpura University. The study demonstrated that all five domains of emotional intelligence, including social skills, motivation, self-control, empathy, and self-awareness, showed significant positive correlations with academic achievement. These findings indicate a positive correlation where students possessing elevated emotional intelligence are likely to perform well academically, whereas individuals with limited emotional competencies generally demonstrate poor performance. Furthermore, elevated emotional intelligence scores were more prevalent among students with high academic achievement.[3] Additionally, another study identified a statistically significant link between overall emotional intelligence and academic performance. This positive correlation extended to specific sub-domains, where self-awareness, social skills, and self-regulation all demonstrated a significant relationship with the students' academic results.[20] Similarly, a meaningful association between emotional intelligence and academic performance was observed among fourth to sixth-year medical students at King Saud bin Abdulaziz University for Health Sciences.[21]

Conversely, a significant body of research indicates no substantial correlation between academic achievement and emotional intelligence among medical students.[22] A systematic review further supported this lack of association, specifically noting the absence of correlation within pre-clinical cohorts.[23] This distinction highlights that while emotional intelligence may not predict pre-clinical performance, it emerged as a significant predictor for students in the clinical phase. This discrepancy is likely attributed to the specific demands of the clinical environment, such as intense schedules, exposure to patients' emotional behaviors, and the necessity for complex interpersonal adjustments.[24] Furthermore, statistical evidence revealed no substantial correlation with Cumulative Grade Point Average (CGPA) for either junior students or senior students. It is posited that academic success might be more heavily influenced by Intellectual Quotient (IQ) rather than emotional competencies, suggesting that students with higher IQs may simply utilize emotional intelligence advantageously during examinations.[25] Finally, longitudinal research spanning five years observed no significant relationship between academic scores and emotional intelligence measured either at baseline or after the five-year period, emphasizing the need for further long-term research to draw definitive conclusions.[26]

MATERIALS AND METHOD

This quantitative analytic study utilized a cross-sectional design to investigate the relationship between emotional intelligence and academic achievement among the Class of 2022 students at the Undergraduate Medical Study Program, Faculty of Medicine, Udayana University, with data collection conducted from March to August 2025. The study employed a total sampling technique where inclusion criteria consisted of active students with available prior GPA data, while exclusion criteria applied to those who refused to participate or submitted incomplete responses. The data collection process was conducted using a hybrid approach to maximize response rates. The research information and the Google Form link were distributed online through the official Class of 2022 communication group. Additionally, the researcher visited Small Group Discussion (SGD) sessions offline to distribute QR codes linked to the questionnaire directly to students. Prior to participation, all

respondents were provided with informed consent. Only those who agreed to the consent were able to proceed to the questionnaire items. Based on these parameters, the total population comprised 171 students, resulting in a calculated target sample size between 163 and 180 respondents. The dependent variable was academic achievement, specifically the Cumulative Grade Point Average (CGPA) from the 5th semester, while the independent variable was emotional intelligence, measured using the Schutte Self Report Emotional Intelligence Test (SSEIT) administered online via Google Forms. Notably, the SSEIT was adapted into Indonesian, necessitating subsequent re-testing for validity and reliability to ensure instrument accuracy, using a Cronbach's alpha threshold of > 0,70 for reliability and a p-value of < 0,05 for validity. Data analysis was performed using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS), encompassing univariate analysis, Kolmogorov-Smirnov normality testing, and Spearman's Rank Correlation for bivariate analysis. This study received ethical approval from the Research Ethics Committee of the Faculty of Medicine, Udayana University, under ethical clearance letter number 0710/UN14.2.2.VII.14/LT/2025.

RESULT

The validity and reliability testing was conducted on a sample of 25 respondents.

Table 1. Questionnaire reliability test results

Dimension	Items	Retained Items	α
Managing Emotions	12	10	0,739
Appraisal of Emotion	7	7	0,845
Utilization of Emotion	5	5	0,723
Social Skills	9	8	0,705

Table 2. Questionnaire validity test results

Question	Dimension	*p*
P1	Managing Emotions	0,655
P2	Managing Emotions	0,042
P3	Managing Emotions	0,151
P4	Social Skills	0,005
P5	Appraisal of Emotion	<0,001
P6	Utilization of Emotion	0,003
P7	Utilization of Emotion	<0,001
P8	Social Skills	0,014
P9	Managing Emotions	0,032
P10	Managing Emotions	0,007
P11	Social Skills	0,002
P12	Managing Emotions	0,003
P13	Social Skills	<0,001
P14	Managing Emotions	0,015
P15	Appraisal of Emotion	<0,001
P16	Social Skills	0,023
P17	Utilization of Emotion	<0,001
P18	Appraisal of Emotion	<0,001
P19	Managing Emotions	0,001
P20	Utilization of Emotion	<0,001
P21	Managing Emotions	0,001
P22	Managing Emotions	0,001
P23	Managing Emotions	0,005
P24	Social Skills	0,004
P25	Appraisal of Emotion	<0,001
P26	Social Skills	0,208
P27	Utilization of Emotion	<0,001
P28	Managing Emotions	0,008
P29	Appraisal of Emotion	<0,001
P30	Social Skills	<0,001
P31	Social Skills	0,009

P32	Appraisal of Emotion	<0,001
P33	Appraisal of Emotion	0,001

The total sample in this study consisted of 171 respondents. The majority of respondents were 21 years old (68,4%), followed by those aged 20 years (24,6%), 22 years (3,5%), 23 years (2,3%), and 19 years (1,2%). Based on gender, there were 56 male respondents (32,7%), while female respondents totaled 115 (67,3%).

Table 3. Sample characteristics

Variables	Frequency (n)	Percentage (%)
Age		
19 years	2	1,2%
20 years	42	24,6%
21 years	117	68,4%
22 years	6	3,5%
23 years	4	2,3%
Gender		
Male	56	32,7%
Female	115	67,3%

Table 4. Univariate analysis

Variables	Mean	Standard Deviation	Min	Max
Emotional Intelligence	116,55	14,13	85	146
Managing Emotions	39,85	5,52	26	50
Appraisal of Emotion	26,22	4,12	13	35
Utilization of Emotion	19,85	2,84	13	25
Social Skills	30,71	4,33	19	40

Table 5. Kolmogorov-Smirnov normality test results

Variables	Statistics	*p*
Emotional Intelligence	0,046	0,200
Managing Emotions	0,072	0,031
Appraisal of Emotion	0,087	0,003
Utilization of Emotion	0,110	<0,001
Social Skills	0,101	<0,001
Academic Achievement (CGPA)	0,103	<0,001

Univariate analysis of the emotional intelligence variable among 171 respondents revealed scores ranging from 85 to 146, with a mean of 116,55 and a standard deviation (SD) of 14,13. The Kolmogorov-Smirnov normality test indicated that the data were normally distributed (p = 0,200). Given this normal distribution, emotional intelligence scores were categorized into low, moderate, and high levels based on the mean and standard deviation, as presented in **Table 6**.

Table 6. Emotional Intelligence Categories

Category	Range	Frequency (n)	Percentage (%)
Low	$X < 102$	21	12,3%
Moderate	$102 \leq X < 128$	116	67,8%
High	$128 \leq X$	34	19,9%

Based on the analysis results, the respondent distribution was concentrated in the moderate category, comprising 116 respondents (67,8%), followed by the high category with 34 respondents (19,9%), and the low category with 21 respondents (12,3%). This indicates that the majority of students participating in this study possess a moderate level of emotional intelligence.

Table 7. Cumulative Grade Point Average

Category	Frequency (n)	Percentage (%)
With praise	21	12,3%
Very satisfactory	116	67,8%
satisfactory	34	19,9%

In this study, Academic Achievement was measured using CGPA, which is categorized into three levels: with praise (CGPA > 3,50), very satisfactory (CGPA 3,01 – 3,50), and satisfactory (CGPA 2,76 – 3,00). Based on the academic achievement data of 171 respondents, the majority fell into the "With Praise" category, comprising 136 individuals (79,5%), followed by the "Very Satisfactory" category with 34 individuals (19,9%), and the "Satisfactory" category with 1 individual (0,6%).

To test the hypothesis regarding the relationship between emotional intelligence and academic achievement, a correlation test was required. Since the CGPA data was not normally distributed, the prerequisites for parametric correlation were not met. Therefore, the analysis of the relationship was conducted using a non-parametric correlation test, specifically Spearman's Rank Correlation.

Table 8. Spearman Rank's correlation test

Variables	r_s	*P*
Emotional Intelligence	0,128	0,094
Managing Emotions	0,101	0,187
Appraisal of Emotion	0,054	0,479
Utilization of Emotion	0,147	0,055
Social Skills	0,075	0,327

The analysis results indicated no significant correlation between emotional intelligence and academic achievement (r_s = 0,128, p = 0,094). In addition to the analysis of the total score, Spearman's rank correlation tests were conducted separately to examine the relationship between academic achievement and each specific domain of emotional intelligence. The results showed no significant correlation between academic achievement and the domains of emotion regulation (r_s = 0,101, p = 0,187), emotion appraisal (r_s = 0,054, p = 0,479), utilization of emotion (r_s = 0,147, p = 0,055), or social skills (r_s = 0,075, p = 0,327). These findings are consistent with the primary result, indicating that there is no significant relationship between emotional intelligence and academic achievement.

DISCUSSION

The main finding of this study indicates that emotional intelligence is not significantly associated with academic achievement (r_s = 0,128, p = 0,094). This finding aligns with several prior studies that also noted an absence of correlation linking these distinct factors. Consequently, the current results corroborate the work of Žuljević and Buljan, who observed no meaningful link connecting emotional competence to scholastic success.[22]

These findings align with the work of Vasefi et al., who investigated emotional intelligence among medical students at Shiraz University. Their analysis regarding the link between emotional intelligence and Cumulative Grade Point Average (CGPA) revealed no significant association for either junior or senior student cohorts. The implications of these findings suggest a high degree of variability, pointing to the absence of a meaningful link connecting emotional intelligence with academic achievement as measured by cumulative grades. They further postulated that the connection between emotional intelligence and CGPA is likely driven by intellectual intelligence (IQ), as students achieving high grades typically possess superior IQ levels. This allows students with high intellectual intelligence to utilize emotional intelligence advantageously during examinations.[25]

This outcome corroborates the study of Ranasinghe et al., which likewise demonstrated the absence of a significant association between scholastic success and emotional competence. In this study, they assessed changes in medical students' emotional intelligence over a five-year period. They found no substantial relationship between academic achievement and either the initial or the five-year follow-up emotional intelligence.[26]

Various factors, both internal and external, can influence academic achievement. Internal factors such as motivation, interest, and effort, as well as external factors like the campus environment and family, are known to affect student learning outcomes. In this context, the finding of no significant link connecting emotional intelligence to academic performance indicates that, although it may serve as a supporting factor, its influence is not sufficiently strong to act as a primary predictor when compared to other determinants.

Another possible explanation for the non-significant association between emotional competence and scholastic success is the absence of interventions designed to train students in applying their emotional intelligence. There are no educational programs to assist students in practicing emotional intelligence, such as managing emotions during exams to prevent stress. Consequently, the potential benefits of emotional intelligence may not be reflected in academic achievement.[25] Furthermore, another factor influencing this relationship is that pre-clinical students do

not yet face the high study load and complexity encountered by clinical students. Therefore, the demand to utilize emotional intelligence for emotion management is not yet crucial for academic success.[24]

The non-significant result regarding the link connecting emotional competence to academic performance does not suggest that the significance of these emotional skills in medical education should be ignored. This is because emotional intelligence is essential for competencies that are not fully reflected in the CGPA but are crucial within clinical environments. Possessing these emotional capabilities fosters more effective professional relationships, better social interaction, and the ability to resolve disputes amicably. In fact, clinical performance has demonstrated a clear association with elevated emotional intelligence. Emotional intelligence aids students in becoming better physicians by establishing a foundation of professionalism and mutual respect, facilitating productive teamwork, and promoting beneficial lifestyle modifications among patients that influence health results. Furthermore, emotional intelligence provides protection against burnout and enhances emotional stability.[6]

CONCLUSION AND SUGGESTION

The main finding of this study indicates no significant relationship between emotional intelligence and academic achievement. The domains of emotional intelligence, specifically emotion regulation, emotion appraisal, utilization of emotion, and social skills, also demonstrated no significant relationship with academic achievement. Various factors, both external and internal, can influence academic achievement. Internal factors such as motivation, interest, and effort, as well as external factors like the campus environment and family, are known to affect student learning outcomes. These findings suggest that the role of emotional intelligence is not sufficiently strong to serve as a primary predictor for academic achievement.

A limitation of this study is the use of a sample drawn exclusively from a single academic cohort, specifically the Class of 2022. This limitation potentially affects the study results, as the findings may not be fully representative of the medical student population at Udayana University. Future research is recommended to involve students from multiple cohorts to obtain a more comprehensive overview.

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