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Determination Of Emotional Intelligence Levels Among Medical Undergraduate Students And Its Correlation With Their Mental & Emotional Health

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Abstract

Background: *Emotional Intelligence (EI) is increasingly recognized as a crucial factor influencing an individual's ability to manage stress, maintain interpersonal relationships, and promote overall mental and emotional well-being. Among medical undergraduate students, who often face intense academic and emotional pressures, understanding EI levels can provide valuable insights into their mental health status.*

Aim & Objectives: *This study aims to determine the levels of Emotional Intelligence among medical undergraduate students and to assess the correlation between EI and their mental and emotional health.The Objectives explored the association between emotional intelligence and stress management strategies,the impact of emotional intelligence on interpersonal relationships & gender- and year-specific differences in emotional intelligence levels among medical students.*

Material & Methods: *A cross-sectional study was conducted among medical undergraduate students using a validated Emotional Intelligence questionnaire alongside standardized mental health assessment tools. Data were collected anonymously and analyzed to determine EI scores and their relationship with indicators of mental and emotional health, including stress levels, anxiety, depression, and overall emotional resilience.*

Results: *Data analysis suggests a positive correlation between higher Emotional Intelligence scores and better mental and emotional health outcomes. Students with higher EI demonstrated lower levels of stress, anxiety, and depressive symptoms, along with stronger coping mechanisms and interpersonal skills.*

Conclusion: *Emotional Intelligence plays a significant role in promoting mental and emotional well-being among medical undergraduate students. Incorporating EI development programs into medical education may enhance students' resilience, interpersonal effectiveness, and overall mental health, contributing to their personal and professional success.*

Keywords: *Emotional Intelligence, Medical Undergraduate Students, Mental Health, Emotional Health, Stress, Anxiety, Depression, Resilience, Interpersonal Relationships, Medical Education*

INTRODUCTION

Medical education is often regarded as one of the most demanding academic pursuits, exposing students to significant psychological, emotional, and social challenges. The intense curriculum, frequent assessments, and high expectations can contribute to elevated levels of stress, anxiety, and emotional instability among medical undergraduates. As future healthcare providers, the mental and emotional well-being of these students is not only important for their personal health but also for their ability to deliver compassionate and effective patient care.

Emotional Intelligence (EI) refers to the ability to recognize, understand, manage, and utilize emotions effectively in oneself and others. It encompasses key components such as self-awareness, self-regulation, motivation, empathy, and social skills, which are essential for personal and professional success, especially in healthcare settings where emotional interactions are frequent and critical[1]. Higher EI has been

associated with better stress management, improved interpersonal relationships, greater resilience, and overall enhanced psychological well-being[2].

Recent studies have highlighted a concerning rise in mental health issues among medical students, including burnout, depression, and anxiety disorders[3]. These psychological challenges, if left unaddressed, can negatively impact academic performance, clinical skills, empathy toward patients, and long-term career satisfaction. Understanding the role of Emotional Intelligence in mediating these outcomes can provide valuable insights into preventive and supportive strategies aimed at promoting mental health among medical undergraduates.

Although various factors influence the mental and emotional health of students, Emotional Intelligence is increasingly being recognized as a modifiable trait that can be nurtured and enhanced through targeted interventions[4]. Integrating EI training within the medical curriculum could potentially equip students with better coping mechanisms, emotional regulation skills, and interpersonal competencies, leading to improved academic performance and professional development.

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{d^2} \qquad n' = \frac{n}{1 + \frac{n-1}{N}}$$

Given this background, the present study aims to determine the levels of Emotional Intelligence among medical undergraduate students and to assess its correlation with their mental and emotional health. By identifying this relationship, the study seeks to emphasize the importance of Emotional Intelligence in medical education and advocate for strategies that can foster emotional well-being and resilience in future healthcare professionals.

MATERIAL & METHODS

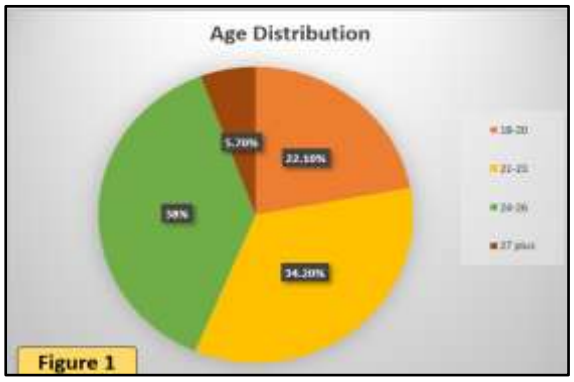
The Study began after receiving the approval from Sumandeep Vidyapeeth Institutional Ethics Committee.It is an observational study examining a cross-section of population.The study included voluntary willing MBBS students across all the professional years,enrolled in Smt Bhikhiben Kanjibhai Shah Medical Institute & Research centre,Sumandeep Vidyapeeth, Piparia,Vadodara,Gujarat.Those who did not provided digital consent & those who were diagnosed with any type of Stress related disorders or any Psychiatric ailment & were on therapy for the same were excluded from participation.The sample size was calculated to be 270 using the formula for cross sectional study

& the adjusted sample size formula for finite population

A comprehensive questionnaire titled "Levels of Emotional Intelligence and Its Correlation with Mental and Emotional Health Questionnaire" was drafted in google form by PI & Co-PI. Upon clearance by IEC the questionnaire underwent pilot testing on 30 students and was validated to ensure its reliability and accuracy in capturing the intended constructs.Thereafter the proposed study commenced.Participant Information Sheet & Informed Consent form was integrated in Section 1 of Google form.Google Form link was shared with all MBBS students All responses were anonymized and stored securely.

Statistical Methods Statistical analysis was performed using SPSS. Mean, median, and standard deviation were derived for EI scores.EI levels categorized into low (EI score=10-20), moderate (EI score=21-40), and high (EI score=41-50). Pearson's or Spearman's correlation to assess the correlation between EI scores and other variables

RESULTS



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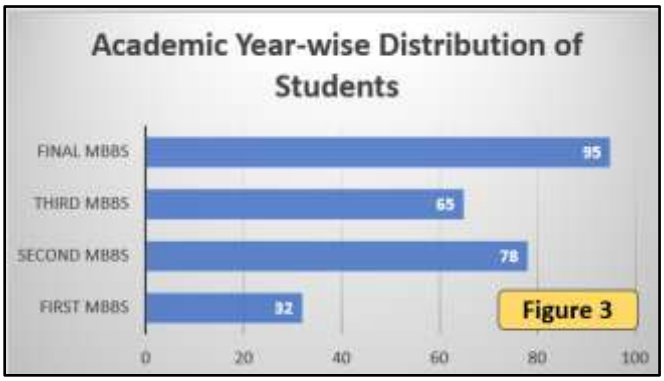

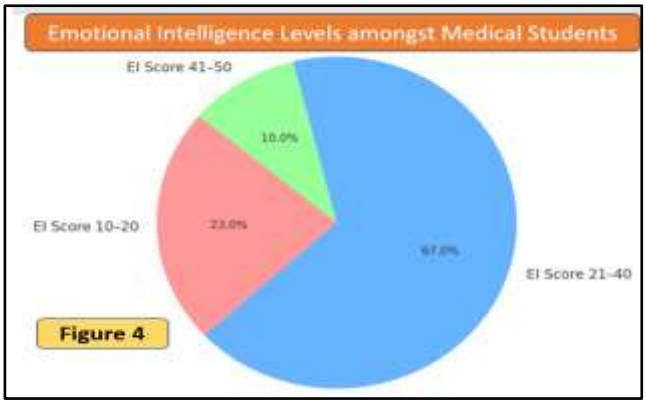

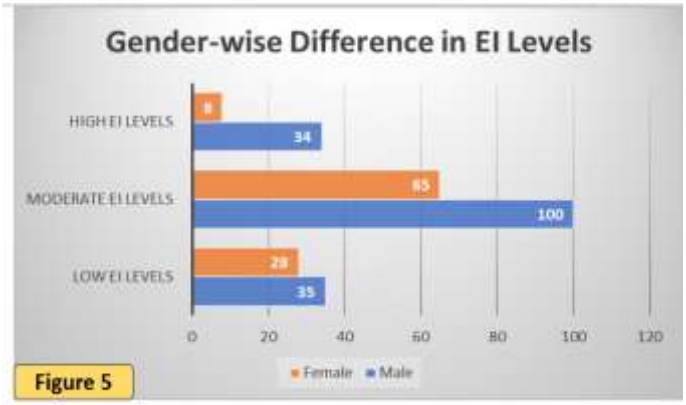

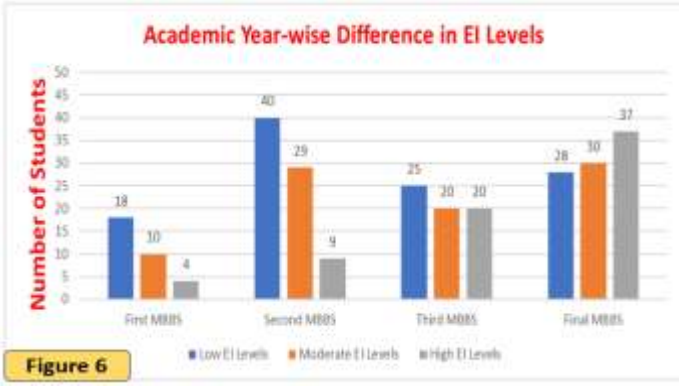

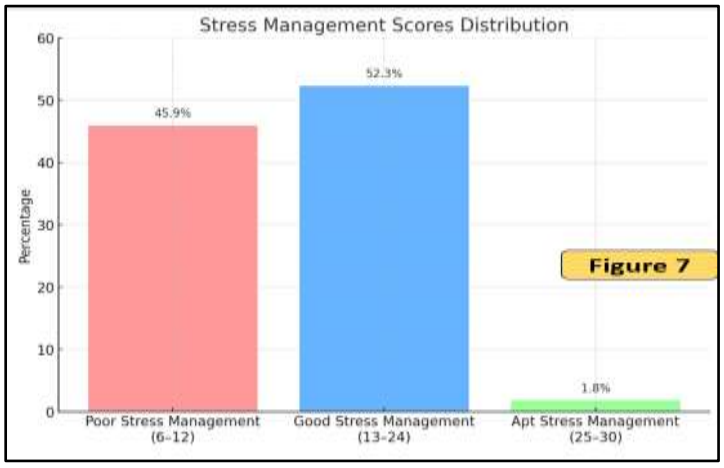

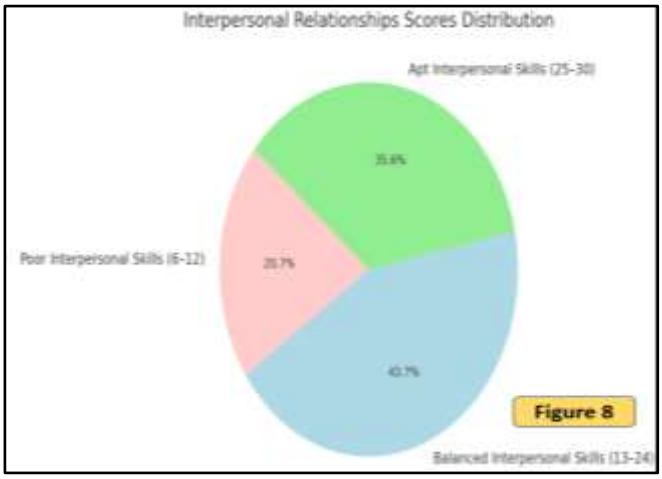

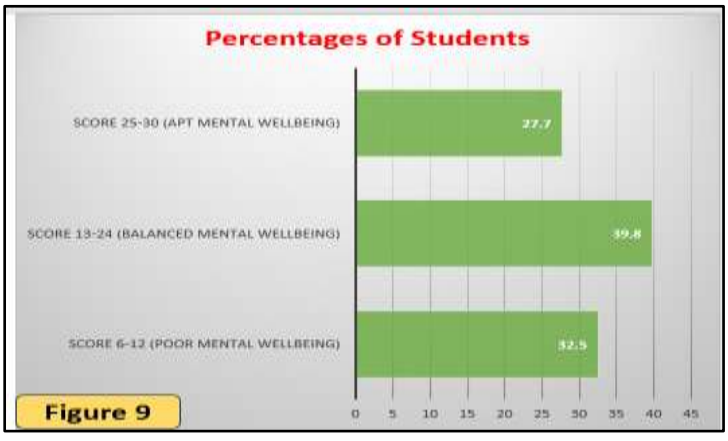

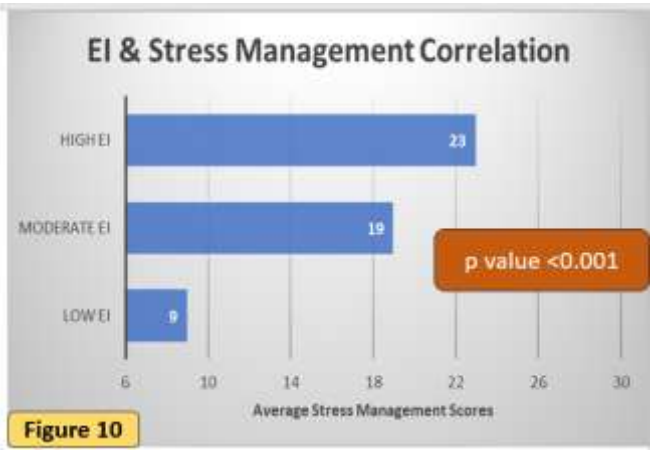

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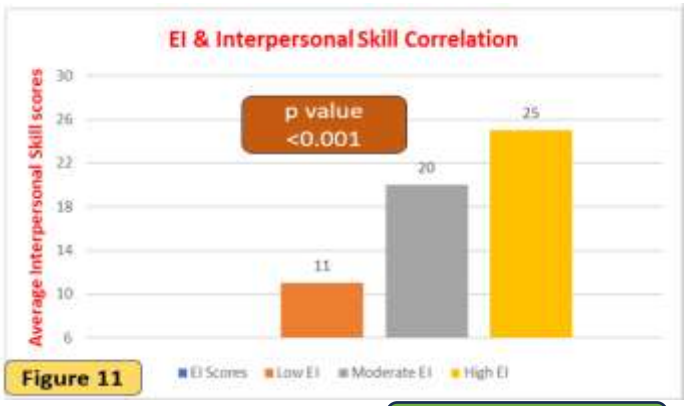

Figure 11

p value=0.0217

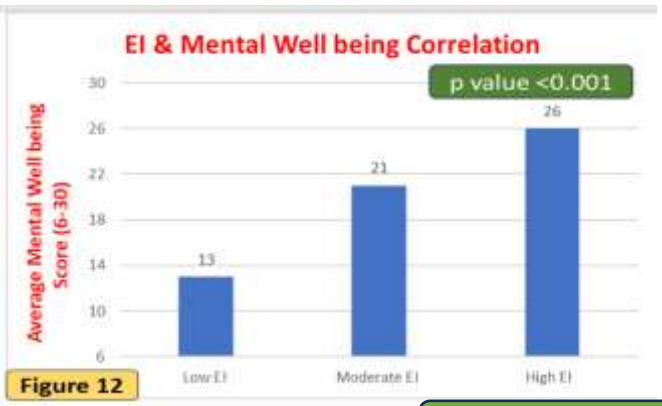

Figure 12

p value=0.00085

Figure 1 represents the percentage breakdown of individuals in different age groups.24-26 years is the largest group, making up 38% of the total population.21-23 years is the second-largest group, accounting for 34.2%.18-20 years.This group comprises 22.1% of the total.27 plus is the smallest group, representing 5.7%.Most individuals fall in the 24–26 age range.The majority (approximately 72.2%) are between 21 and 26 years.Only a small proportion are over 27 or under 21.Figure 2 shows that there are significantly more males (62.6%) than females (37.4%) in this dataset.The male group exceeds the female group by 68 individuals. As we observe in figure 3,that the number of students increases progressively from the First MBBS year to the Final MBBS year. The Final MBBS batch has the largest representation, nearly three times more than the First MBBS batch.The pie chart in Figure 4 visually represents the distribution of Emotional Intelligence (EI) scores among medical students, divided into three score ranges:1.EI Score 10–20:indicates low EI.23% of the population assessed falls into this range.These individuals may have difficulty with emotional regulation, empathy, or social interaction.2.EI Score 21–40: moderate EI category.The majority of individuals (67%) are in this range.It suggests average emotional awareness and interpersonal skills—adequate but with room for improvement.3.EI Score 41–50:indicates high EI.Only 10% of people scored in this top range.These individuals are likely skilled at managing their emotions, understanding others, and maintaining strong relationships. Figure 5 presents a comparative analysis of emotional intelligence (EI) levels among male and female participants, categorized into three levels: High, Moderate, and Low. A notable gender disparity is observed in the high EI category. 34 males exhibit high EI levels, compared to only 8 females. This suggests that a significantly higher proportion of males in the study have a high level of emotional intelligence. The majority of both male and female participants fall into the moderate EI category. However, the number of males (100) is considerably higher than that of females (65) in this group. This reinforces the trend of males being more represented across EI levels in this sample. In the low EI category, the numbers are more balanced, with 35 males and 28 females. While the difference is less pronounced than in other categories, males still slightly outnumber females. Figure 6 presents the distribution of Emotional Intelligence (EI) levels among medical students across four academic years: First MBBS, Second MBBS, Third MBBS, and Final MBBS. A majority of first-year students fall into the low EI category, with only a small number achieving high EI levels. This suggests that newer entrants to medical school may still be in the early stages of developing emotional regulation and maturity. There is a significant spike in low EI levels in second-year students, the highest across all years. Although moderate EI is also relatively high, high EI levels remain low, indicating continued emotional challenges at this stage—possibly due to increased academic pressure and transition into clinical exposure. In the third year, the EI distribution becomes more balanced. Notably, the number of students with high EI levels increases significantly, exceeding those with moderate EI and low EI. This may reflect emotional growth due to clinical experiences and better coping mechanisms.Final-year students show the highest number of high EI levels (37 students), surpassing both low and moderate levels. This indicates a progressive improvement in emotional intelligence over the course of the MBBS program, likely due to

accumulated experience, maturity, and improved interpersonal skills through patient interactions and clinical responsibilities. Figure 7 shows how participants are distributed across three categories based on their stress management abilities, as determined by their scores.Poor Stress Management(6-12): About 45.9% of participants fall in this category. This suggests nearly half of the group is struggling with effectively managing stress.Good Stress Management(13-24): The largest group, with 52.3% of participants. They seem to manage stress reasonably well.Apt Stress Management(25-30): Only 1.8% have excellent stress management skills, which may indicate that very few are highly resilient or consistently applying stress coping strategies effectively. Figure 8 illustrates the distribution of participants based on their interpersonal relationship skills:Poor Interpersonal Skills (Score 6–12): 20.7%. Approximately one-fifth of the participants fall in this category, indicating difficulties in communication, empathy, or building and maintaining relationships.Balanced Interpersonal Skills (Score 13–24): 43.7%.This is the largest group, suggesting that nearly half of the participants maintain satisfactory interpersonal relationships, though there may be room for improvement in certain areas.Apt Interpersonal Skills (Score 25–30): 35.6%.Over one-third of the participants exhibit strong interpersonal competencies, including effective communication, emotional intelligence, and teamwork. Figure 9 visualizes Mental Well Being Scores amongst Medical Students.Score 6–12: Poor Mental Well-being.32.5% of students fall in this range.Indicates these students are struggling with mental health challenges such as stress, anxiety, or lack of emotional balance.Score 13–24: Balanced Mental Well-being-39.8% of students fall into this range.It represents the largest group, suggesting moderate levels of mental health — not thriving, but not severely impaired either.Score 25–30: Apt Mental Well-being-27.7% of students are in this category.These students demonstrate strong mental resilience, emotional regulation, and overall psychological health. Figure 10 depicts the average stress management scores across individuals with varying levels of Emotional Intelligence (EI). High EI Group:Average Stress Management Score = 23.Individuals with high EI levels exhibit the highest average ability to manage stress, indicating a strong link between emotional intelligence and effective coping mechanisms.Moderate EI Group:Average Score = 19. This group performs moderately well in stress management, suggesting steady & balanced stress regulation, but it is not as effective as in the high EI group.Low EI Group:Average Score = 9.Individuals with low EI have the lowest stress management scores, highlighting a potential struggle with regulating stress and emotional responses. Figure 11 illustrates the relationship between Emotional Intelligence (EI) levels and average interpersonal skill scores. Average Interpersonal Skill Scores of Low EI individuals is 11.Moderate EI individuals have a significantly higher score of 20.High EI individuals achieve the highest average interpersonal skill score of 25.There is a clear statistically significant positive correlation between EI levels and interpersonal skills. As EI increases, so does the average interpersonal skill score.The difference in scores between each EI level is notable, suggesting that improvements in EI are associated with meaningful gains in interpersonal effectiveness. Figure 12 displays the relationship between levels of Emotional Intelligence (EI) and average mental well-being scores (on a scale of 6 to 30).Individuals with Low EI have an average mental well-being score of 13.Those with Moderate EI score significantly higher at 21.High EI individuals have the highest score of 26. There is a statistically significant positive linear correlation between emotional intelligence and mental well-being.As EI increases, mental well-being improves substantially.

DISCUSSION:

The present study aimed to assess the levels of emotional intelligence (EI) among medical undergraduate students and explore its correlation with their mental and emotional well-being. Our findings demonstrated statistically significant positive association between higher EI scores and better mental and emotional health, supporting the role of EI as a protective factor against stress and psychological distress.These results align with earlier research by Mayer and Salovey, who first conceptualized EI as the ability to perceive, understand, and manage emotions effectively, contributing to better interpersonal and intrapersonal outcomes[2]. Goleman's model also emphasized the relevance of emotional self-regulation, motivation, empathy, and social skills in professional and personal success[1].

We observed that students in the final years of MBBS had significantly higher EI scores compared to those in the earlier years. This progressive increase could be attributed to greater clinical exposure, emotional maturity, and enhanced communication skills developed over the course of medical education.

Similar findings were reported by Chew et al., who noted higher EI in final-year students compared to first-years[5].The positive relationship between EI and psychological well-being is supported by various studies. For instance, Sánchez-Ruiz et al. found that EI was significantly related to mental health indicators such as stress tolerance and mood[9]. Sharma et al. also reported that students with high EI experienced lower academic stress and anxiety[7]. Likewise, Austin et al. highlighted that emotionally intelligent individuals tend to have fewer symptoms of depression and better overall well-being[8].Statististically significant gender difference was found in EI levels in our study, a finding in contradiction with prior work by Sánchez-Ruiz et al.[9] and Petrides et al.[10], suggesting that EI may be more influenced by personality traits and learning experiences than by gender.

The importance of EI training has been highlighted by Chitkara et al., who argued that incorporating EI into the medical curriculum could enhance student resilience and empathy[15]. Similarly, Nelis et al. demonstrated that EI could be developed through structured intervention, resulting in improved psychological outcomes[16].Furthermore, Birks et al. showed that higher EI was associated with lower levels of perceived stress across multiple healthcare disciplines[11]. These findings are corroborated by Satterfield and Hughes, who emphasized the need for emotional skills training to enhance medical students' coping mechanisms[17].

Our study reinforces the notion that fostering EI in medical students is crucial, not only for their academic and clinical success but also for their mental well-being. As highlighted in earlier literature, EI plays a vital role in the development of communication skills, patient care, and professional behavior[6,12].The statistically significant Gender wise differences in EI and the progressive rise in EI across academic years further underscores the impact of social upbringing,clinical training and experience. Moreover, emotional intelligence appears to serve as a buffer against burnout and emotional exhaustion, a concern increasingly prevalent among healthcare students[13,14].

CONCLUSION:

The findings of this study highlight a significant positive correlation between emotional intelligence (EI) and the mental and emotional well-being of medical undergraduate students. Higher levels of EI were associated with better stress management, emotional regulation, and psychological resilience. Additionally, EI levels appeared to improve progressively with each academic year, likely reflecting increased clinical exposure and emotional maturity through medical training.Presence of significant gender differences in EI were observed, suggesting that EI development is more closely linked to differences in social grooming between the two genders during their period of medical training and their different internal perception towards learning environments. The results emphasize the importance of integrating emotional intelligence development into medical curricula to better prepare students for the emotional demands of their profession.

Given the increasing prevalence of stress, burnout, and mental health challenges in medical education, fostering emotional intelligence can serve as a protective factor and a valuable skill for future healthcare providers. Longitudinal studies and intervention-based research are recommended to further explore how structured EI training can enhance student well-being and professional competence.

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