Emotional Intelligence in Predicting Academic Achievement Among Medical Students in Saudi Arabia

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Abstract: This study aimed to investigate the relationship between Emotional Intelligence (EI) and academic achievement among medical students. A sample of 310 medical students from different educational levels participated in the study. The study utilized a self-administered questionnaire to collect data on students' EI and their academic achievement. The results showed that there was a significant difference in EI scores among different age groups and educational levels. The study also found that self-awareness and social awareness were significantly related to academic achievement, while relationship management showed the least improvement in EI. The study highlighted the need for emotional regulation to minimize the impact of academic stress on medical students. The findings suggested the inclusion of EI training in the medical curriculum to enhance the leadership qualities and academic performance of medical students. However, the study had some limitations, such as the sample size and the use of a self-administered questionnaire. Overall, the study emphasizes the importance of EI in medical education and recommends further research in this area.

Keywords: Emotional intelligence, academic achievement, self-awareness, self-management, social awareness, relationship management.

1. INTRODUCTION

The term emotional intelligence (EI) is the ability to distinguish between different emotions in a way that enables one to use them as a guide to attain one's objectives [1]. According to literature indicates that people with more advance emotional intelligence form capable of long-lasting interpersonal bonds [2], which positively effect on general skill development, thus gives to high academic achievement [3]. Also, the innate character of emotional intelligence is linked to one's motivation and unique abilities, supporting behavioural characteristics that could improve student performance [2, 4]. EI is associated with emotional health, which shows higher academic performance and reduces stress levels in medical students [5-8].

Several health experts, such as the Office of Accreditation for Graduate Medical Education, have acknowledged the significance of anticipated areas that may reflect the fundamental elements of emotional intelligence for healthcare professionals [9]. This showed the importance of having emotional intelligence in the health areas. Many studies have also recognized a strong relationship among emotional intelligence and academic achievement [10], [11], [13],[39]. Emotional intelligence is one the individual trait that leads to better creativity, which is often deliberate to student's grade point average (GPA) [14], Practical work as well as in skills [15]. Those that have high El have positive impact on clinical adaptation during their clinical sessions [16]. Thus, identified a reliable source of academic performance is a key to build their relationship with emotional intelligence.

Although GPA also has statistical limitations, it is one of the most frequently used measure of academic performance, as compared to exam scores and limited subject assessments, it is a reliable and consistent evaluation [17],[18]. Regarding academic achievement is a variable that is related to hypothetical aspects that may have influence on performance [19-21].

Worldwide, several research indicated that a good relationship between emotional intelligence and academic performance, however, some studies found no correlation [22-25]. Such a study was already conducted in the Middle East [26], indicating the necessity for additional thorough studies in the Middle Eastern situation. And this study was carried out in order to have a better understand the relationship between emotional intelligence and academic achievement and their performance among Saudi Arabian medical students.

Aims: To study it is strong correlation between Emotional Intelligence (EI) and academic performance with respect to emotional awareness, management, social awareness, and the stress management among medical students from King Faisal University, Hofuf, Alhassa.

Objectives

1. To find out if there is any relationship between Emotional intelligent and academic achievement.

2. To find out significant relationship between demographic variables and academic performance.

3. To find out significant associate between demographic variable and EI.

2. Literature review

Emotional intelligence is the ability to handle emotional components from the surroundings and construct appropriate response strategies in order to achieve better personal and professional outcomes. [27]

In Saudi Arabia, only a few studies on EI and its influence on educational outcomes among med graduates have been conducted. Some studies were conducted among English language college students in KSA to examine the connection between EI and educational success. [28]

Many past studies, however, were conducted in countries in the West possibly not applicable to non-West nations because of the possible effect of sociocultural background on emotional intelligence. Some studies have shown a direct correlation exists betwixt EI and Academic achievement and other studies reposted no relation. [29-30]

One study revealed that students with higher EI understand and gather information in ways that are appropriate for their socio-educational environments. These students were also more likely to abstain from engaging in behaviours that might jeopardize their educational performance, [31] while moderate emotional intelligence is linked to lack intellectual abilities (e.g., attentiveness, remembrance, and information recapture) and unsuccessful communication skills. [32] Another study showed inconsistent results with the previous findings that elevated emotional intelligence enhances patient contentment and an individual's control of therapeutic environment, the study found no link between emotional intelligence, scholastic achievement, level of study, and expertise. [33] There are some studies discussing the importance of sex and its relation with emotional intelligence and scholastic achievements. One study reported that both academic achievement and emotional intelligence were unrelated to gender which substantiate studies conducted in Pakistan and Sri Lanka. [34] In contrary, according to studies from the UK and India, woman doctors, as well as students from medicine and dentistry, have increased emotional intelligence than their opposite gender counterparts [35]. Previous research findings vary depending on the control variables included in the research models.

3. Methodology

Sample Design and participants

310 students from King Faisal University's, college of medicine involved in cross-sectional research using questionnaires (Emotional Intelligence self-assessment adopted for the San Diego City College questionnaires

MESA). The investigation was carried out in between January and March of 2023 at King Faisal University in Saudi Arabia featured medical students from first year through fourth years. It has a separate section both for males and females. The Colleges of Basic and Clinical Sciences are equally liable for the curriculum, which includes lectures on patients, professional behaviour development courses, problem-based learning (PBL), and other related subjects.

Procedure

Data Collection Instrument and Procedure:

Academic achievements were assessed using a self-reported GPA on each student's last test. The self-assessment for emotional intelligence that we employed was taken from Emily A. Sterrett, Ph. D.'s The Manager's Pocket Guide to Emotional Intelligence, published in 2000 by HRD Press. It is composed of 20 items, with the final grade being (Always) -5, and is further broken into four categories: self-awareness, self-management, social emotional awareness, and relationship management. Each item is rated on a scale of Never, Rarely, Occasionally, Usually, and Always.

All of the students who are eligible got questionnaires, and explained the goal of the research to each one of them. After that, we distributed the link to the questionnaires via an official email, WhatsApp group, etc.

Hypotheses

1. There is a positive relationship between IE and Academic achievement among medical students.

2. There is a negative significant relationship between IE and academic performance with low esteem (emotional awareness)

3 There is positive significant relationship with high IE among medical students with better adaption skill (relationship management)

4 There is negative significant relationship between less IE with stress environment (Social awareness).

Data analysis

Statistical analysis was performed on the acquired data using SPSS version 26. Descriptive statistics, including means, standard deviations, and frequencies were calculated for each variable. Bivariate correlations was conducted to examine the relationship between emotional intelligence and academic achievement, self-awareness, self-management, social emotional awareness, and relationship management. Lastly, independent-samples t test conducted to examine potential gender differences in emotional intelligence and academic achievement. The significance level will be set at $p < 0.05$.

4. Results

Table 1 Demographic and Educational Distribution of Survey Respondents**.**

		n	%
Age	15-17	2	0.6
	18-20	280	90.3
	21-23	18	5.8
	24-26	2	0.6
	5.00	8	2.6
level of education	first year	282	91.0
	second year	22	7.1

	third year	2	0.6
	fifth year	2	0.6
	intern	2	0.6

Table (1) shows that out of 310 students (90.3%) were found the highest percentage scores within the aged group 18–20 years, next is the 21-23 years. and the least is 24-26 years among the students. Whereas in of term of education level first year student shows the highest percentage (91) %, and the second year (7.1%) and the third-year students show the least percentage among the education level of students. (In terms of age, the majority of the respondents (90.3%) were in the 18-20 age group, followed by the 21-23 age group (5.8%). The other age groups had very low representation, with less than 1% of respondents in each group.

Regarding the level of education, the majority of respondents (91.0%) were in their first year of study, with only a small percentage in their second, third, or fifth year of study, or doing an internship. This suggests that the study was mainly focused on first-year students.

Table 2 (a) Emotional Intelligence Assessment Results by Category

		Frequency	Percent
EI categories	need improvement	161	51.9
	good	149	48.1
Self-awareness	need improvement	166	53.5
	good	144	46.5
Self-Management	need improvement	153	49.4
	good	155	50.0
Social Awareness	need improvement	146	47.1
	good	163	52.6
Relationship management	need improvement	125	40.3
	good	185	59.7

Overall, 48.1% of respondents reported having good EI, while 51.9% reported needing improvement in this area. This suggests that there is room for growth in terms of emotional intelligence among the study population.

In terms of self-awareness, slightly more respondents reported needing improvement (53.5%) than reported having good self-awareness (46.5%). This indicates that a significant proportion of the sample may not have a clear understanding of their own emotions and how they affect their behavior.

Regarding social awareness, the results were more evenly split, with 50.0% of respondents reporting good social awareness and 49.4% reporting needing improvement. This suggests that the study population may have some strengths in understanding others' emotions and perspectives, but there is still room for improvement.

In terms of relationship management, a majority of respondents (59.7%) reported having good skills in this area, while 40.3% reported needing improvement. This suggests that the study population may be more skilled in managing relationships with others than in other areas of emotional intelligence.

Finally, in the self-other awareness category, a slight majority of respondents (52.6%) reported having good skills, while 47.1% reported needing improvement. This indicates that the study population may have some strengths in understanding how their own emotions affect others, but there is still a room for improvement. Table 2(a)

Table 2 (b) Emotional Intelligence and its Components Scores for Participants

	Mean	SD	Minimum	Maximum
EI score	70.7774	8.41628	42.00	96.00
Self-awareness	17.3226	2.58684	10.00	24.00
Self-management	17.5032	2.83590	8.00	25.00
Social awareness	17.7832	2.63004	11.00	25.00
Relationship management	18.2000	3.05060	8.00	25.00

The mean EI score of the study population was 70.7774, with a standard deviation of 8.41628. The minimum EI score was 42, and the maximum score was 96, suggesting a wide range of emotional intelligence skills among the respondents.

In terms of the different components of emotional intelligence, the mean score for self-awareness was 17.3226, with a standard deviation of 2.58684. The minimum score was 10, and the maximum score was 24. For self-management, the mean score was 17.5032, with a standard deviation of 2.83590. The minimum score was 8, and the maximum score was 25. The mean score for social awareness was 17.7832, with a standard deviation of 2.63004, and the minimum and maximum scores were 11 and 25, respectively. Finally, the mean score for relationship management was 18.2000, with a standard deviation of 3.05060. The minimum score was 8, and the maximum score was 25. Table 2(b)

Table 3: GPA distribution

	Frequency	Percent
D+	24	7.7
C	14	4.5
C+	4	1.3
B	54	17.4
B+	36	11.6
A	76	24.5
A+	102	32.9
Total	310	100.0

The total sample size is 310, and the GPA grades are presented in ascending order, from D+ to A+. The table shows that the majority of individuals (57.3%) have a GPA of B+ or higher, with A+ being the most frequent grade (32.9%). In contrast, only a small percentage of individuals have a GPA lower than B, with D+ being the lowest grade (7.7%). Table 3

Table 4. Summary Statistics of GPA Data

	GPA
Mean	4.41
Std. Deviation	0.49
Minimum	3.25
Maximum	5.00

The mean GPA is 4.4112, which is a measure of the central tendency of the variable. This indicates that, on average, the individuals in the sample have a GPA of approximately 4.41. The standard deviation of GPA is 0.49442, which provides information about the variability of the GPA variable within the sample. This indicates that the GPA scores tend to be fairly tightly clustered around the mean GPA value, with relatively little variability.

The minimum GPA is 3.25, which represents the lowest value in the sample. The maximum GPA is 5.00, which represents the highest value in the sample. The range between the minimum and maximum GPA values is 1.75, indicating that there is some variability in the GPA scores within the sample. Table 4

Table 5. Relationship between Emotional Intelligence (EI) and Demographic Factors (Age and Level of Education) with significant p-values

	p-value
Age with	
1. I am aware of the physical reactions (twinges, aches, sudden changes) that signal a "gut reaction."	0.006
2. I readily admit mistakes and apologize.	0.000
7. I can engage in an interaction with another and pretty well size-up that person's mood based on non-verbal signals.	0.001
8. Others feel encouraged after talking to me.	0.003
9. I consider my "emotional temperature" before I make important decisions.	0.041
10. When I feel a strong impulse to do something, I 4 pause to reflect and decide whether I really want to act on it.	0.003
14. I can show empathy and match my feelings with those of another person in an interaction.	0.012
16. I am respected and liked by others, even when they don't agree with me.	0.009
20. I can effectively persuade others to adopt my point of view without coercing them.	0.019
Level of education with	
1. I am aware of the physical reactions (twinges, aches, sudden changes) that signal a "gut reaction."	0.011
12. I can identify the emotion I am feeling at any given moment.	0.046
14. I can show empathy and match my feelings with those of another person in an interaction.	0.003
age * EI categories	0.259
level of education * EI cat	0.157

Several variables are significantly associated with the EQ categories. Item 2 ("I readily admit mistakes and apologize") is significantly associated with EQ in the age group 18-20 (p = 0.000), as are items 7, 8, and 10. Similarly, item 14 ("I can show empathy and match my feelings with those of another person in an interaction")

is significantly associated with EQ in both the first year of education group (p = 0.003) and the age group 24-26 (p = 0.012).

However, the interaction between age and EQ categories (p = 0.259) and the interaction between level of education and EQ categories (p = 0.157) are not statistically significant. (table 5)

GPA with	p-value
Age	0.027
level of education	0.589

Table (6) revealed that there is significant different found within the age group of 18-20 high grade. That means first year students within the age of 18-20 had excellent academic performance.

Table 7. The relationships between EI and GPA

GPA with	p-value
Self-Awareness	0.003
1. I am aware of the physical reactions (twinges, aches, sudden changes) that signal a "gut reaction."	0.020
2. I readily admit mistakes and apologize.	0.000
3. When I feel angry, I can still stay composed.	0.035
4. I generally have an accurate idea of how another person perceives me during a particular interaction.	0.002
5. In assessing a situation, I look at my biases and adjust my assessment accordingly.	0.000
6. I can keep going on a project, despite obstacles.	0.000
8. Others feel encouraged after talking to me.	0.000
9. I consider my "emotional temperature" before I make important decisions.	0.047
10. When I feel a strong impulse to do something, I 4 pause to reflect and decide whether I really want to act on it.	0.000
11. I can deal calmly, sensitively, and proactively with the emotional displays of others.	0.000
13. I am able to honestly say how I feel without getting others upset.	0.000
14. I can show empathy and match my feelings with those of another person in an interaction.	0.000
15. I think about the emotions behind my actions.	0.000
16. I am respected and liked by others, even when they don't agree with me.	0.001
18. I am good at managing my moods, and I refrain from bringing negative emotions to work.	0.000
20. I can effectively persuade others to adopt my point of view without coercing them.	0.000

Table 8. Correlation between Emotional Intelligence components and GPA.

		EI score	Self-awareness	Self-management	Social awareness	Relationship management
GPA	Pearson Correlation	.175**	.168**	0.111	0.093	.155**
	p-value	0.002	0.003	0.051	0.103	0.006

The above result showed that there is a strong significant relationship within GPA and Emotional Intelligent scores among the students. But Some of the questionnaires also shows that there was both positive and negative relationship found in self-management and relationship- management. However, the results also revealed that there is strong significant relationship between Self-awareness and Relationship management among the students with respect to emotional intelligent. Table 8

5. Discussion

The present research aimed to assess the relationship between Emotional intelligent with the Academic Achievement. The results also revealed that there is a significant difference found in different age group as well as in education level. At the mean time we can also identified that there is significant different found in the two components that is in Self-awareness, Social awareness among the respondents. However, we can finally say from the results that age factor and grades highly depend on emotional intelligent.

However, the result also revealed that out of 310 students (90.3%) were found the highest percentage scores within the aged group 18–20 years, next is the 21-23 yrs. and the least is 24-26 years due to social activity need to experience in any type of situation (Emotion). This also confirm that higher the percentage GPA shows among students is better adaption skill along with the better grade in year the education level. Therefore, it shows that the students had strong emotional control despite having society pressure whether its personal or social issues. Our studies proved Hypotheses 2 and 3. One of the social cognitive functions, self-efficacy is the belief that one will accomplish goals. EI may be connected to self-efficacy. Effective leadership also requires the development of self-awareness, self-regulation, drive, empathy, and social skills. EI can enhance the qualities required for a deserving and powerful leader.[36]. However, medical students are exposed to many stresses, especially the academic stress, which may affect EI [37] From the finding we can at least have an idea that medical students need good adaption, social kill, awareness of the surrounding, management, good motivation, empathy and good communication skill etc.

Whereas in of term of education level first year student shows the highest percentage (91) %, and the second year (7.1%) and the third-year students show the least percentage among the education level of students with respect to emotional intelligent.

Further, our research also found that Emotional Intelligent and its four components were needing improvement first is 53 % in Self-awareness, 49% in self-management, 47% shows social awareness and 40.3% shows in relationship management. From this viewpoint highest improvement need is self-awareness and least improvement is the relationship management. Our study also clarified every that human being needs to improve any kind of experience whether it's a personal or professional in life. Although numerous studies around the world have found a correlation between EI and academic achievement that is generally good, some studies have not found any correlation.[21],[22], [23]and [24].

Also, our research reveals a significant correlation between student Emotional Intelligence scores and GPA. But some of the questionnaires also shows that there was both positive and negative relationship found in self-management and relationship- management. However, the results also revealed that there is strong significant relationship between Self-awareness and Relationship management among the students with respect to emotional intelligent. Our study was supported with Brackett, et.al. [2]

Also, a number of earlier studies [10, 21, 38] have shown a negative correlation between EI and perceived stress, which supports our findings. Thus, efficient emotional regulation is essential for minimizing the effects of stress. [9] and stress reduction can raise emotional Intelligent. Therefore, there is negative significant relationship between less IE with stress environment (Social awareness). Hence proved our first and fourth hypothesis too.

6. Conclusion

From our results and discussion, it showed that emotional intelligent and greater academic performance are positively correlated, which is congruent with many previous studies. [37, 41, 42, 43] Emotional intelligent can be seen of as an ability-based talent that allows training in particular abilities, which minimizes learning difficulties and

increases academic performance. [40] Likewise, self-awareness, self-regulation, motivation, empathy, and social skills are essential elements of effective leadership. Emotional intelligent was favourably connected with improved academic achievement. Emotional Intelligent can enhance the qualities required for a deserving and powerful leader. [8] Nonetheless, medical students are subject to a variety of pressures, especially academic stress, which can have an influence on EI.[6] Perceived stress was negatively associated with it. The present curricula must include this training as a comprehensive, multidisciplinary component. Practical and applicable preparation can help with this. Students also require the chance to practice their EI skills. It essential to conduct EI intervention research by integrating EI into medical education.

In addition, more training is required for improving students' adaption skill in stress situation. Conduction of stress management courses are also required.

Limitations of the Study:

While this study provides valuable insights into the relationship between emotional intelligence and academic achievement, several restrictions should be acknowledged. **Firstly**, The cross-sectional design of this study restricts our capacity to establish causal relationships between emotional intelligence and academic success. It is possible that other factors, such as personality traits, socioeconomic status, or previous academic performance, could have influenced the results.

Secondly, this study relied on self-report measures to assess emotional intelligence and academic achievement. Self-report measures can be prone to response bias, such as social desirability bias or recall bias, which could affect the accuracy of the results.

Thirdly, this study's sample size was relatively small, and it is possible that it is not representative of the whole population. Additionally, the study was carried out in a particular geographic and cultural setting, which would have limited how broadly the results could be applied.

Finally, this study only examined the relationship between emotional intelligence and academic achievement among medical students. It is unclear whether these results would generalize to students in other fields or to individuals outside of an academic setting. Further research is needed to explore the relationship between emotional intelligence and academic achievement in a more diverse range of populations and contexts.

Recommendations

1. Revision and modification of current curriculum by including stress management training to help students.

2. Provide counselling to students who struggle with emotion management.

3. Design specialized centres at educational facilities to offer assistance to those with limited communication skills.

4. Undertaking more extensive research with a bigger sample size on the connection between academic achievement and ET.

5. More instruction is also needed to increase pupils' self-efficacy and leadership potential through curriculum and extracurricular activities.

Institutional Review Board Statement: "The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of King Faisal University (KFU-REC-2023-FEB-ETHICS529, data of approval 01/02/2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest: The authors declare no conflict of interest.

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