Correlation of Emotional Intelligence with Academic Performance among Medical Undergraduates of Nishtar Medical University Multan

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ABSTRACT

Background: Emotional intelligence (EI) is associated with the success of healthcare professionals. Mental health, physical health, academic performance, and stress management are all linked to high EI. The academic achievement relies on one's social skills and emotional stability. This study aimed to determine the correlation between emotional intelligence scores and academic performance in medical undergraduates.

Subjects and methods: A cross-sectional study was conducted among second to final-year MBBS students at Nishtar Medical University (NMU). A total of 302 medical students were divided into two groups including 145 males and 157 females. Academic performance was assessed by using the last professional examination percentage and Emotional Intelligence (EI) was calculated by the Emotional Intelligence Scale [EIS] (comprising ten components: self-awareness, empathy, self-motivation, emotional stability, managing relations, integrity, self-development, commitment, value orientation, and altruistic behaviour). The data was analyzed using SPSS version 26. The overall EIS score was correlated with Academic performance using Spearman's correlation test.

Results: Among a total of 302 medical students, 145 (48%) were male and 157 (52%) were female with a mean (SD) of age 21.8 ± 1.396. A significant correlation was identified between overall EI and academic scores (r=0.204, p-value = 0.000) of medical students. The academic score of female students showed a significant correlation with all components of EIS (p-value = 0.000) while the academic score of male students was only correlated with one component of EIS [emotional stability] (p=0.049).

Conclusion: This study highlights the significant correlation among EI and academic performance, and suggests that EI needs to be integrated with academic practices and culture. Thus, more attention should be given to the development of EI in medical students to improve their academic performance, clinical skills, emotional stability, and stress management.

Keywords:
Emotional intelligence, Academic performance, Medical undergraduates

INTRODUCTION

Emotional intelligence is the ability to identify and manage the emotions of oneself and other people and respond to them accordingly.[1] This statement comprises two subtypes of personal intelligence that are intrapersonal and interpersonal intelligence. Emotional intelligence consists of four skill dimensions; perceiving,, understanding, managing and facilitating thoughts with emotions.[2] The score of emotional intelligence is referred as emotional quotient (EQ). One of the core areas of EQ is the creation of social skills and to improve academic performance.[3]

Previous studies endorse that emotional intelligence is learnable and depends on various demographic characteristics such as gender, age, social background, financial background and academic level.[4] It is also stated that while gender may determine differences in EI, age arbitrates this relation such that these differences may decrease or disappear altogether.[5] Bar-On endorses that EI is irrespective of cognitive intelligence and it changes along with age and personal experiences.[6] Thus, EI can be modified through training and relates to the potential of a person to achieve one's aim.[5,6] Academic achievement refers to the extent to which the student or the educator receives his aims in the respective field. Academic score of a student is an indicator of his performance in the institute in which he is currently studying. The literature suggests that the emotions build up the cognition.[7] The person with higher EI scores form better interpersonal relationships which build up

intellectual development and improves higher academic performance.[8] Several studies have identified a significant correlation between EI and academic performance.[9-11] Students with higher EQ are more able to cope stress of the medical education and to solve problem-based questions than the students with lower EQ.[12] Thus, various studies have shown both positive and negative correlation of EI with academic performance.[13] However, the gender-based correlation of EI with academic performance is not studied extensively. The objective of this study was to determine gender-based association between scores of emotional intelligence and academic performance in medical undergraduates.

SUBJECTS AND METHODS

This cross sectional, descriptive study was conducted in the Nishtar Medical University and Hospital, Multan during the months of November and December 2022. Approval of research was obtained from the ethical review committee of Nishtar Medical University (NMU), Multan. Data was collected by using Google forms after obtaining fully informed consent of the subjects.

The sample size for this study was calculated by following formula: $n' = \frac{n}{1 + \frac{zz^2 \times p'(1-p')}{\varepsilon^2 N}}$. Where n is sample size = 302, z is the z score for a 95% confidence level is 1.96, ⊠ is the margin of error = 5%, and N is the population size = 1400 (Total students from first year to final year MBBS at NMU) and $\hat{p}$ is the population proportion = 50%. The study population comprised 302 male and female medical undergraduates divided into 2 groups. Group 1 comprised 145 male students between 18 and 25 years of age and Group 2 had 157 female students between 18 and 25 years of age.

Only MBBS students were included in our study. First-year MBBS students were not included because they did not have any previous MBBS academic record. Students with previous history of psychiatric ailment, psycho-psychiatric and/or recreational drugs or any other psychiatric ailment were excluded from the study because these conditions may alter the outcome of the study.

To calculate the academic score, percentage marks obtained in the immediate previous annual professional examination were used. The emotional Intelligence Scale (EIS) was used for measuring the emotional intelligence of students.[13] EIS contains 34 statements, each to be rated on a five-point Likert scale ranging from 'strongly agree' (5) to 'strongly disagree' (1). The statements relate different components of emotional intelligence like self-awareness (4 items), empathy (5 items), self-motivation (6 items), emotional stability (4 items), managing relations (4 items), integrity (3 items), self-development (2 items), value orientation (2 items), commitment (2 items), and altruistic behavior (2 items).[14] The final score ranges from 34 to 170 where higher score indicates higher level of emotional intelligence. Individual subscales scores are obtained by summing the scores belonging to a particular subscale. Thirty NMU medical students participated in pilot research to pretest the questionnaire (in our population), and its Cronbach's Alpha was 0.73.

The data was entered and analyzed by using SPSS version 26. Data was analyzed first for normality distribution by Shapiro-Wilk's and Kolmogorov Smirnov's test. The median (IQR) of variables were calculated as most of the variables were non normally distributed. The overall EIS score was corelated with Academic performance (% Academic score of previous score) using Spearman's correlation test. The variables of EIS were also corelated with academic performance using Spearman's correlation test.

RESULTS

Of the 302 medical students, 145 (48%) were male and 157 (52%) were female. The academic year distribution was reported as 65 (21.5%) second year, 64 (21.2%) third year, 113 (37.4%) fourth year and 60 (19.9%) final year. The mean age was 21.8 ± 1.396. Based on the OEI category students were reported as 0.3% below average EI, 7.4% average EI, and 94.3% above average EI. The mean of total OEI was determined as 122.82 ± 19.195 in female students and 126.42 ± 17.239 in male students. Score of male students was high in all variables of OEI as compared to female students. The mean academic score was 73.51 ± 4.725 for female students and 71.62 ± 6.814 for male students.

Table 1: Median (IQR) of variables of both groups

Study Parameters	Males Median (IQR)	Females Median (IQR)
Age	22 (2)	22 (2)
Academic Score	70 (10)	74 (6)
Total OEI Score	129 (16)	125 (18)
Self-Awareness	16 (3)	15 (4)
Empathy	19 (3)	18 (4)
Self-Motivation	213 (4)	23 (4)
Emotional Stability	15 (3)	14 (4)
Managing Relations	15 (3)	14 (3)
Integrity	12 (2)	12 (2)
Self-Development	8 (1)	8 (1)
Value Orientation	8 (1)	8 (2)
Commitment	8 (2)	8 (2)
Altruistic Behavior	7 (2)	7 (2)

Table 2: Bivariate co-relation of subdimensions of EIS with academic performance by Spearman correlation.

Variables	SA	E	SM	ES	MR	I	SD	VO	C	AB	AP
SA	1.000										
E	.457**	1.000									
SM	.602**	.551**	1.000								
ES	.629**	.571**	.651**	1.000							
MR	.644**	.475**	.564**	.567**	1.000						
I	.578**	.508**	.543**	.521**	.498**	1.000					
SD	.380**	.444**	.371**	.445**	.361**	.358**	1.000				
VO	.374**	.450**	.356**	.406**	.368**	.453**	.357**	1.000			
C	.463**	.409**	.421**	.458**	.371**	.429**	.257**	.415**	1.000		
AB	.475**	.411**	.514**	.541**	.498**	.368**	.277**	.291**	.356**	1.000	
AP	.186**	.147*	.204**	.202**	.164**	.181**	.171**	.145*	.119*	.174**	1.000

**Correlation is significant at 0.01 level (2-tailed).
* Correlation is significant at 0.05 level (2-tailed).
Key: SA = Self-awareness; E = Empathy; SM = Self-Motivation;
ES = Emotional Stability; MR = Managing Relations; I = Integrity; SD = Self-Development; VO = Value Orientation; C = Commitment; AB = Altruistic Behavior;
AP=Academic performance

Female students were better in their academic scores as compared to male students.

The Spearman correlation was done among the total OEI® score and academic score of participants. There was significant correlation among both variables with p-value = 0.000 and correlation coefficient = 0.204. The subdimensions of EIS were correlated with academic performance via bivariate Spearman correlation. The level of significance was set at p value less than 0.05 and the results are summarized in Table 2.

In female students, academic score was significantly correlated with all subscales of OEI (p-value = 0.000), results are shown in Table 3. In Male students, Academic score was only correlated with emotional stability (p-value = 0.049). There was no significant correlation between AS of male and all other variables of EI such as self-awareness, self-motivation, empathy, relations managing, integrity, self-development, value orientation, commitment and altruistic behavior.

DISCUSSION
This cross-sectional descriptive study was conducted among medical undergraduates from second year to final year MBBS and positive association was found between academic performance and all subdivisions (self-awareness, empathy, self-motivation, emotional stability, managing relations, integrity, self-development, value orientation, commitment, altruistic behavior) of overall emotional intelligence (OEI) in females, which is consistent with study conducted at Kohat University of Science and Technology.[15] In this study, academic performance in male students was only related to only one subdivision (emotional stability) of their OEI. A study conducted in recently showed that

high level of Emotional Intelligence is related to better time- management, inter- personal and intra- personal skills while low level of Emotional Intelligence is associated with health depreciating attitudes.[16] Emotional Intelligence has also been linked with better clinical performance, good patient care and developing empathy for patients which is a need of the hour.[17] Positive associations were also found between emotional intelligence, job satisfaction and overall health of nurses during Covid-19 pandemic which was a difficult time for healthcare professionals.[18] In current study, EI was found high in both male and female medical undergraduates irrespective of gender whereas previous studies differ in this aspect, showing males to have more EI as compared to females and other suggesting females to have more EI as compared to males.[19,20] There has also been a direct relation of EI with depression, students who have low EI tend to be more depressed and fail to perform academically.[21] One previous study has shown strong negative association between EI and psychological health of medical students.[22] In present study it was noted that majority of medical students had high EI scores it may be due to their interaction with people who are suffering from disease which develops their emotional skills. A study conducted in Mashhad University of Medical Sciences has revealed that OEI is directly proportional to age and older students have more empathy as compared to younger students.[23] EI has also been found related to academic resilience which is a mental capacity to adapt and manage difficult situations in medical life. In this way students manage their external and internal difficulties by managing stressful events.[24] Recent research published in Cambridge Journal of Education highlights the importance of OEI by showing that some of its sub-divisions

Table 3: Bivariate Co-relation of subdimensions of EIS with academic scores of male and female medical students

Components of EIS	Female (undergraduates)		Male (undergraduates)	
	Spearman's co-relation	p-value	Spearman's co-relation	p-value
Self-awareness	0.312	0.000*	0.094	0.261
Empathy	0.242	0.002*	0.096	0.250
Self-motivation	0.301	0.000*	0.134	0.107
Emotional stability	0.292	0.000*	0.164	0.049*
Managing relations	0.285	0.000*	0.083	0.321
Integrity	0.287	0.000*	0.102	0.222
Self-development	0.257	0.001*	0.094	0.263
Value orientation	0.189	0.018*	0.103	0.219
Commitment	0.118	0.042*	0.102	0.149
Altruistic behavior	0.302	0.000*	0.081	0.334

*Correlation is significant at 0.05 level (2-tailed).

(Empathy, Self-awareness, Self-management) are directly related to development of leadership qualities in school life.[25] EI has been found to protect students against academic fatigue and burnout as the students with high EI effectively manage their work life balance and optimizing their educational environment.[26]

A study shows that there is strong significant relationship between EI and communication skills in nurses due to increase in self-efficacy which helps nurses do their job properly with better conflict resolving capabilities.[27] High trait EI individuals are capable of regulating their emotions and channeling them in a better way which makes them less susceptible to develop anxiety and are in a better position to cope with stress.[28]

CONCLUSION

Medical students were found emotionally intelligent irrespective of their gender. They were emotionally intelligent with respect to all subdivisions of OEI (Self-development, Integrity, Managing relations, Altruistic behavior, Empathy, Value orientation, self-motivation, Emotional stability, Self-awareness & commitment). The male students were good in OEI score but their academic score was not correlated with their OEI except its one subdivision (emotional stability). Male students with high emotional stability score were good in their academic performance. The female students with high OEI score scored higher grades.

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