Original Research Article

EMOTIONAL INTELLIGENCE AND ACADEMIC PERFORMANCE OF UNDERGRADUATES IN A MEDICAL COLLEGE OF WESTERN RAJASTHAN, 2024

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A B S T R A C T

Background: Emotional intelligence is the ability to monitor one's emotions and feelings and those of others, to distinguish between them, and to use this information to guide one's thoughts and actions. A growing body of evidence suggests that highly emotionally intelligent student groups have better academic performance, better emotional awareness, and relationship management. We set forward to determine if any such positive relation exists among medical students.

Materials and Methods: A descriptive cross-sectional study was conducted on 384 undergraduate medical students of GMC Pali using a pre-tested pre validated Emotional Intelligence self – assessment checklist, which assess six domains of emotional intelligence, namely, self-awareness, self- confidence, self-control, empathy, motivation and social competency. The data was tabulated and analysed using SPSS 22.0 (IBM Corp., Armonk, NY, USA).

Results: More than 65% of medical students scored below 20 for all the components of emotional intelligence, while more than 15% of students scored below 15 for components of EI, Participants with urban background and nuclear family have higher values of EI components, however, not found to be significant. Statistically significant positive correlation was found between most of components (self-awareness, empathy, self-confidence, motivation and social competency) of EI and academic performance of students (p –value <0.05). Regression analysis showed that self- confidence and social competency improved with consecutive batches and academic success, but motivation was influenced by academic performance only. Thematic analysis emerging from the Focused Group Discussion with students also highlighted the role of parents, family, gender, age and peer motivation in EI, which is important for transition of a medical student to a medical graduate.

Conclusions: Emotional management affects the academic performance of medical students. There should be strategies to improve the emotional intelligence of the students so that it can aid in their academic performance.

Keywords: Emotional Intelligence, Medical Students, Academic Performance.

INTRODUCTION

Emotional intelligence (EI) is defined as the ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behaviour and to manage and/or adjust emotions to adapt to environments or achieve one's goals.[1] Emotional intelligence comprises interpersonal and intrapersonal intelligence. Interpersonal intelligence is the outer intelligence one uses to understand and

manage relationships with other people. This is important for developing qualities like empathy and building up effective relationships. Intrapersonal intelligence is the inner intelligence one uses to know and understand oneself, which is important for self-awareness, self-regulation and self-motivation. It can be postulated that management of interpersonal and intrapersonal emotions is vital for an individual's academic and professional success. Those with higher EI are more likely to understand, regulate and manage emotions better both in themselves and in others.[2]

The importance of Emotional Intelligence is increasingly being recognized and assessed across various professions. Managing emotions in social contexts is clearly important for success in a variety of interpersonal relationships as well as career-related domains.[3] According to recent studies, a good deal of our successes and failures in life are not attributable to our cognitive abilities as measured by tests of IQ, but rather are attributable to our abilities to form and maintain social relationships, portray ourselves positively, and manipulate how others perceive us.[4]

Studies have found that emotional intelligence (EI) is related to academic and professional success and contributes to individual cognitive-based performance over and above the level attributable to general intelligence.[5] In general, individuals, especially college students with higher emotional intelligence show more positive social functioning in interpersonal relationship and are regarded by peers as prosocial, less antagonistic and conflictual.[6] These improved social competence and quality relationships could facilitate cognitive and intellectual development leading to better academic performance.[7]

The medical undergraduates learn and work in a high-stress environment created by a multitude of factors, which include intense studies, practical in laboratories in groups, demanding workloads, long hours of working and having to interact with different personnel ranging from patients to healthcare teams of varying hierarchy. High levels of stress and psychological distress among medical students are well documented,[8] Studies have shown that higher EI is associated with lower levels of stress and better coping ability among medical students and other healthcare workers.[9] Emotional intelligence, one of the psycho-affective domains, in medical education, has also been related to better clinical competence and higher academic achievement.[10] In clinical practice, it has been related to improved empathy in medical consultation, doctor-patient relationships, critical thinking and decision-making abilities and better patient satisfaction.[11,12,13] These findings highlight that EI plays a critical role in making a balanced doctor who is competent in practicing both the art and the science of medicine.

MATERIALS AND METHODS

Study Design: Mixed analytical cross-sectional study.
Study Setting: The survey was conducted among undergraduate medical students more than 18 years old pursuing the MBBS degree in Government Medical College Pali, Rajasthan.
Study Period: 6 months
Sample Size: Considering the prevalence rate of adequate EI to be 50% among medical students, the sample size was determined using allowable error of 5% of prevalence after the substitution of values, n = $4pq/d^2$, p = 50 (participants with Adequate EI), q= (100-p) = 50, d =relative permissible error = 5% of p, n = sample size, (n = 384). Three hundred and eighty-four undergraduates were interviewed
Sampling Procedure: Purposive sampling
Data Collection and Analysis
For the measurement of EI, we use a pre-tested pre validated Emotional Intelligence self – assessment checklist.[14] It consists of 30 statements, five each for the domains of self-awareness, self- confidence, self-control, empathy, motivation and social competency. Scoring was done based on the response of participants on 5-point Likert scale ranging from 1 to 5 for each item. This questionnaire had good psychometric properties in terms of reliability (Crohnbach's alpha = 0.82). For Academic performance, we used the main university examination result of each respective batch.
Inclusion Criteria
1. Students who appeared in the main University examination of MBBS Phase I, Phase II and Phase III in 2023 and gave their consent.

Exclusion Criteria
1. Students who did not appear in the main University examination of the three phases
2. Students who did not give their consent to participate
3. Any student diagnosed to have psychiatric disorders.

DATA ANALYSIS
Quantitative Analysis
Data entered in Microsoft Excel was analyzed using SPSS version 20.0 (Armonk, NY: IBM Corp). Qualitative variables were expressed by frequency and proportion and Quantitative variables were expressed using Mean and Standard deviation. Chi square test was used to find the significant association between groups. p value less than 0.05 considered statistically significant.
Qualitative Analysis
For deeper interpretation of various aspects of emotional intelligence in relation to academic performance three focused group discussions were conducted with a group of 12 students each as per a structured FGD guide. The proceedings were recorded, and thematic analysis was done by trained faculty using the software QD miner lite and key narratives were quoted in the results

Ethical Considerations

The study was approved by the Institutional Ethical committee approval of Government Medical College, Pali. Written Informed Consent was obtained after explaining the objectives of the study to the participants where they were assured about confidentiality of their information.

RESULTS

Quantitative Analysis

The present study was an online (google form based) survey, wherein 480 students from different academic years participated. After removal of missing data, responses from 384 participants were included as final data, which had 203 (52.86%) female and 181 (47.14%) male students. A brief socio-demographic profile of the participants has been presented in Table 1. The mean age of the participants was 22 (±1.615) years. Majority of the students belonged to nuclear families (64.58%) and to urban background (62.76%). Most of the students were from Batch 2022 (114, 29.69%) and Batch 2020 (104, 27.08%). Only a few students, 31 (8.07%) from the most senior Batch 2018 participated in the study. The academic performance of the students was inferred from the marks obtained by them in the last university exams they appeared. 241 (62.76%) students scored between 60 and 70 percent marks, whereas 7 (1.82%) students could not score passing marks (50 percent).

Table 2 shows that more than 65% of medical students scored below 20 for all the components of emotional intelligence, while more than 15% of students scored below 15 for components of EI, which underscores urgent need to improve EI.

Table 3 shows sociodemographic variables did not differ significantly among various components of EI. Participants with urban background and nuclear family have higher values of EI components, however, not found to be significant.

Table 4 shows statistically significant positive correlation between most of components (self-awareness, empathy, self-confidence, motivation and social competency) of EI and academic performance of students.

Qualitative analysis

Three focused group discussions were held with 12 students each and thematic analysis was done using QD miner lite software.

The thematic map, which emerged regarding perspectives on Emotional intelligence as per the subthemes generated is as under.
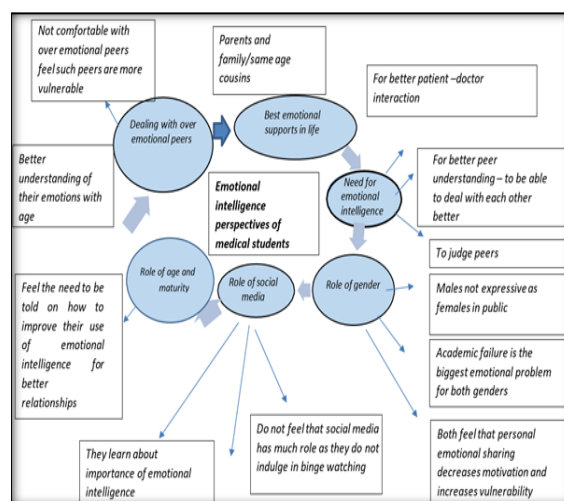

Figure 1: Thematic analysis on perspectives of students on Emotional Intelligence

Table 1: Socio-demographic profile of participants: numbers (percentages). [N=384]

Variables	Male	Female	Total
Gender	181(47.14)	203(52.86)	384(100)
Mean Age	22.02±1.574	22.01±1.663	22.02±1.615
Type of family			
Nuclear	115(29.94)	133(34.63)	248(64.58)
Joint	65(16.92)	66(17.18)	131(34.11)
Background			
Urban	99(25.78)	142(36.97)	241(62.76)
Rural	82(21.35)	57(14.84)	139(36.19)
Batch			
2018	10(5.52)	21(10.34)	31(8.07)
2019	24(13.26)	24(11.82)	48(12.50)
2020	52(28.73)	52(25.62)	104(27.08)
2021	40(22.10)	47(23.15)	87(22.66)
2022	55(30.39)	59(29.06)	114(29.69)
Academic Performance			
Less than 50%	44(24.31)	29(14.29)	73(19.01)
50% to 60%	116(64.09)	125(61.58)	241(62.76)
60% to 70%	15(8.29)	48(23.65)	63(16.41)
70% to 80%	6(3.31)	1(0.49)	7(1.82)

Table 2: Score across different components of EI

EI Components	Percentage of Subjects with EQ below 20	Percentage of Subjects with EQ below 15
Self-awareness	72.1	15.9
Self- confidence	100.0	15.9
Self-control	80.7	31.8

Empathy	66.1	16.1
Motivation	69.0	15.9
Social competency	78.4	30.5

Table 3: Results of Independent t Test and Univariate ANOVA between socio-demographic variables and components of emotional intelligence

	Emotional intelligence components	Self-Awareness	Empathy	Self Confidence	Motivation	Self-Control	Social Competence
Gender	**Male**	17.03 ±3.5	17.55 ±3.5	16.86 ±3.26	17.46 ±3.6	16.73 ±3.6	16.5 ±3.9
	Female	17.78 ±3.08	18.09 ±3.26	17.22 ±2.73	17.84 ±3.3	16.1 ±3.36	16.45 ±3.47
95% Confidence Interval	**Lower**	-1.406	-1.22	-0.962	-1.083	-0.069	-0.7
	Upper	-0.084	0.149	0.24	0.315	1.33	0.77
P Value		0.027*	0.125	0.239	0.28	0.63	0.92
Background	**Rural**	17.18 ±3.54	17.21 ±3.6	16.8 ±3.2	17.25 ±3.6	16.32 ±3.47	16.04 ±3.72
	Urban	17.6 ±3.17	18.27 ±3.23	17.24 ±2.86	17.9 ±3.4	16.5 ±3.5	16.77 ±3.6
95% Confidence Interval	**Lower**	-1.11	-1.76	-1.07	-1.37	-0.9	-1.5
	Upper	0.275	-0.35	0.181	0.085	0.56	0.04
P Value		0.237	0.003**	0.163	0.083	0.651	0.064
Type of Family	**Joint**	17.2 ±3.46	17.5 ±3.23	16.94 ±3.04	17.44 ±3.56	16.0 ±3.53	16.1 ±3.5
	Nuclear	17.57 ±3.22	18.08 ±3.47	17.14 ±2.96	17.78 ±3.45	16.65 ±3.46	16.7 ±3.74
95% Confidence Interval	**Lower**	-1.078	-1.31	-0.84	-1.085	-1.387	-1.39
	Upper	0.327	0.125	0.43	0.397	0.09	0.161
P Value		0.294	0.105	0.525	0.362	0.087	0.12
Batch	**2018**	18.16 ±2.84	18.45 ±3.08	17.77 ±2.37	18.84 ±3.06	16.52 ±2.94	17.52 ±3.54
	2019	17.75 ±2.86	18.33 ±3.17	17.42 ±2.78	17.81 ±3.27	16.62 3.7±	17.00 ±3.84
	2020	17.61 ±3.4	18.04 ±3.33	17.57 ±2.6	17.85 ±3.5	16.80 ±3.86	16.57 ±3.72
	2021	17.23 ±3.25	17.89 ±3.38	17.02 ±3.16	17.38 ±3.5	16.51 ±3.08	16.52 ±3.6
	2022	17.08 ±3.53	17.24 ±3.64	16.24 ±3.2	17.32 ±3.57	15.82 ±3.44	15.82 ±3.56
F		0.966	1.48	3.609	1.4	1.217	1.8
P Value		0.426	0.205	0.007*	0.233	0.303	0.128
Performance in last Academic Examination	**<50%**	14.86 ±2.48	17.43 ±3.82	17.29 ±3.35	18.29 ±2.98	15.14 ±3.8	15.57 ±2.07
	50-60%	16.84 ±3.42	16.81 ±3.43	15.86 ±3.07	16.38 ±3.43	15.96 ±3.6	15.58 ±3.65
	60-70%	17.60 ±3.4	18.10 ±3.5	17.33 ±2.99	17.80 ±3.4	16.58 ±3.6	16.66 ±3.7
	70-80%	17.73 ±2.65	18.06 ±2.88	17.32 ±2.54	18.52 ±3.5	16.35 ±2.8	16.87 ±3.5
F		2.622	2.85	4.84	4.93	0.9	2.06
P Value		0.05*	0.037*	0.003*	0.002*	0.44	0.104

Table 4: Correlation between components of Emotional intelligence and academic performance

		Last Acad perform	Self-Awareness	Empathy	Self Confidence	Motivation	Self-Control	Social Competency
Age	PC	.076	.040	.074	.121*	.062	.075	.036
	S	.139	.440	.145	.017	.229	.142	.481
Gender	PC	.238**	.112*	.079	.060	.055	-.090	-.005
	S	.000	.029	.125	.239	.281	.077	.920
Background	PC	.140**	-.011	-.023	-.035	.050	-.053	-.031
	S	.006	.824	.648	.493	.327	.300	.550
Family Type	PC	.052	-.015	-.054	-.058	.032	-.021	-.035
	S	.306	.777	.295	.254	.527	.677	.489
Batch	PC	-.192**	-.098	-.118*	-.173**	-.108*	-.084	-.132**
	S	.000	.054	.020	.001	.034	.100	.010
Last Acad performance	PC	1	.119*	.112*	.134**	.160**	.053	.113*
	S		.020	.029	.009	.002	.297	.027
Self-Awareness	PC		1	.561**	.622**	.601**	.470**	.577**
	S			.000	.000	.000	.000	.000
Empathy	PC			1	.586**	.630**	.542**	.613**
	S				.000	.000	.000	.000
Self Confidence	PC				1	.607**	.557**	.584**
	S					.000	.000	.000
Motivation	PC					1	.569**	.643**
	S						.000	.000
Self Control	PC						1	.513**
	S							.000
Social	PC							1

Competency	S							

PC: Pearson Correlation
S: Sig. (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 5: Regression analysis for Socio-Demographic Factors with Academic Performance & Emotional Intelligence

Dependent Variable	Independent Variable	R Square	β Coefficient	Standard Error	P Value	95% Confidence Interval	
						Lower	Upper
Self-Awareness	Gender	0.027	0.59	0.345	0.089	-0.089	1.269
	Batch		-0.208	0.136	0.126	-0.476	0.059
	Academic Performance		0.419	0.27	0.121	-0.11	0.95
Empathy	Batch	0.022	-0.273	0.14	0.05*	-0.548	0.003
	Academic Performance		0.484	0.27	0.074	-0.048	1.016
Self-Confidence	Age	0.041	0.037	0.126	0.769	-0.21	0.284
	Batch		-0.332	0.164	0.044*	-0.655	0.009
	Academic Performance		0.486	0.236	0.04*	0.022	0.95
Motivation	Batch	0.032	-0.223	0.142	0.117	-0.502	0.056
	Academic Performance		0.772	0.274	0.005*	0.233	1.31
Self-Control	Gender	0.016	-0.655	0.355	0.066	-1.353	0.044
	Batch		-0.243	0.141	0.086	-0.52	0.034
Social Competency	Batch	0.025	-0.333	0.15	0.027*	-0.629	-0.038
	Academic Performance		0.512	0.29	0.079	-0.059	1.082

DISCUSSION

The present study was aimed to study emotional intelligence and its relationship with academic performance of medical undergraduates. Most students had low EI (more than 65% of students scored below 20, whereas more than 15% scored below 15). The findings are in line with that of another Indian study by Faye et al, in which the authors had used similar tool to assess EI among medical postgraduates in Mumbai.[15] These findings underscore the need to include training methods in the MBBS curriculum to enhance EI of students. Although, over last few years, several amendments have been made in medical curriculum, such as, inclusion of foundation course, which incorporates communication skills, doctor patient relationships, etc., which may foster emotional skills among students, however, there is further need for ongoing modifications in the curriculum so that emotion management can be overemphasized. In the present study, EI of participants did not differ significantly across socio-demographic variables. It is consistent with results of earlier study by Ravikumar R et al on medical postgraduates, in which mean EI scores were not found to differ on the basis of gender, marital status, or residential status.[16] On the other hand, Sundararajan and Gopichandran, in their study found medical undergraduates women were more emotionally intelligent in their response to emotional vignettes than men were (p = 0.056).[17] The qualitative analysis aspect of present study; which included focused group discussion (FGD) among participants in presence of authors; revealed, males are emotionally not as expressive as females

in public, although, academic failure is the biggest emotional problem for both males as well as females. Other themes which emerged were, "Role of age in EI", "Need for EI", and "Parents/family as best emotional supports in life". It was acknowledged that EI is needed for better patient-doctor interaction and for better peer understanding, and thus better overall relationships in life.

Our study found emotionally intelligent students had better academic performance. Students who were more self-aware and had more empathy, self-confidence, motivation and social competency performed well academically. In our study statistically significant positive correlation was found between most of components (self-awareness, empathy, self-confidence, motivation and social competency) of EI and academic performance of students (p –value <0.05). Regression analysis showed that self- confidence and social competency improved with consecutive batches and academic success but motivation was influenced by academic performance only. In their study,[18] Unnikrishnan B et al found academic performance of the students was statistically significant (p=0.001) with EI. In a Sri Lankan study,[19] Wijekoon CN et al found, total EI score was an independent predictor of final MBBS results [Ordinal regression analysis: β-0.018 (95% CI 0.005-0.031); p = 0.006]. Findings of present study are consistent with above studies. Similarly, a study,[20] of Saudi Arabia found the emotional management score was highest among those medical undergraduates with a CGPA >4.50 (p=0.048). The authors concluded emotional management affects the academic performance of medical students.

Limitations

The findings should be generalized with caution, as the data was gathered from a single medical college. However, they might still apply broadly, considering that many medical colleges in India use similar teaching methods and curricula. Another limitation is that emotional intelligence was assessed using a self-report method, which could be complemented by an external evaluation for a more comprehensive understanding.

CONCLUSION

The present study suggests apart from general intelligence, emotional intelligence specifically predicts academic performance among medical students. As MBBS curriculum incorporates theory, practical and clinical components and all these carry significant weightage, a medical student is expected to perform well in all these, for which he is required to develop sound communication skills and empathy. FGD conducted by us also highlighted the role of these soft skills in transition of a medical student to a medical graduate.

Recommendations:

Incorporation of effective mentor mentee programme with proper guidelines can enhance emotional stability of the undergraduates

For preparing students to cope with the dynamic and stressful environment it is essential to integrate emotional intelligence training into the medical curriculum by trained experts.

Suggestions for Future Research

In this study, emotional intelligence was measured through self-reported perceptions of students regarding their behaviours, rather than through direct assessment of emotional intelligence. These reflect perceived abilities rather than actual skills. It would be beneficial for future research to measure actual emotional intelligence abilities. Additionally, future studies should explore the long-term or longitudinal impact of emotional and social competencies on academic achievement.

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