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Emotional intelligence among medical students: a cross sectional study from central Kerala, India

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ABSTRACT

Background: The term 'emotional intelligence' describes the ability 'to monitor one's own and others' feelings and emotions, to discriminate between them and to use the information to guide one's thinking and actions. The significance of emotional intelligence in the successful practice of medicine has long been recognized. The present study intends to assess the level of emotional intelligence among medical students, in Central Kerala and to determine the factors that influence emotional intelligence of medical students.

Methods: A quantitative, cross sectional, questionnaire-based study conducted among 251 medical students belonging to two medical colleges in Central Kerala, India using the Schutte self report emotional intelligence test (SSEIT), which is a standardized semi-structured questionnaire. Data was coded and entered in Microsoft excel worksheet. Descriptive statistics like percentage was used. Inferential statistics were applied as needed using licensed version of SPSS 20, and was expressed statistically significant at p-value less than 0.05.

Results: Among the total 251 study participants, mean age of the participants were 21.5 ± 1.14 . Majority were females (67.7%). The mean score of EI among the study participants were 121.43 ± 19.06 . Out of the total study participants 63.3% had average EI score. The present study showed a statistically significant association between age category of the study participants and EI scores.

Conclusions: The mean EI scores of the study participants were in an agreeable range with 63.3% having average EI scores

Keywords: Emotional intelligence, Medical students, Central Kerala, Ernakulam district

INTRODUCTION

The term 'emotional intelligence' (EI) describes the ability 'to monitor one's own and others' feelings and emotions, to discriminate between them and to use the information to guide one's thinking and actions. The ability to express and control emotions is essential, but so is the ability to understand, interpret, and respond to the emotions of others. Psychologists refer to this ability as emotional intelligence (EI), and some experts even suggest that it can be more important than IQ.¹

Main domains of emotional intelligence are Self-awareness, Self-regulation, internal motivation, empathy, social skill.

Self-awareness means individuals with high levels of emotional intelligence are comfortable with their own thoughts and emotions and understand how they impact on others. Understanding and accepting the way you feel is often the first step to overcoming it. Self-regulation is also important to be able to control and manage our impulses and emotions. Internal Motivation leads to sustained motivation, clear decision making and a better understating of the organization's aims. Not only must you understand your own emotions, but understanding and reacting to the emotions of others is also important. This point towards 'empathy', which plays a crucial role in it. Social Skill refers to emotional intelligence skills to properly manage one's and others' emotions, to connect, interact and work with the others. Thus, developing EI helps everyone to be treated with respect and politeness and thus helps in building strong relationships which can be leveraged for personal and organizational gain.²

The intelligence quotient or IQ, a score derived from one of several different standardized tests to measure intelligence was thought to be the only determinant to life's success but now experts identify the significance of emotional intelligence, which is more and more relevant to important work-related outcomes such as individual performance, organizational productivity, and developing people. It has an increasingly important consideration in human resource planning, job profiling, recruitment interviewing and selection, learning and development, and client relations and customer service, among others. People who possess a high degree of emotional intelligence know themselves very well and are also able to sense the emotions of others. They are affable, resilient, and optimistic.³

Emotional intelligence in medical education plays a pivotal role in creating sensitive and empathetic physicians for the future. The previous medical curriculum was overloaded with subject content, with very little time allotted for skill development. Much of the skills especially soft skills such as effective interpersonal communication, empathy etc. were left to subconscious learning by observation of senior colleagues in action at the bedside and the outpatient clinics. In recent times, active teaching-learning methods are advocated for imparting empathy, emotional intelligence and communication skills in the medical curriculum in many countries. The newly updated CBME curriculum by NMC (National Medical Commission), India has introduced AETCOM module (Attitude Ethics and Communication) for developing emotionally competent medical professionals by imparting education on communication skills, empathy, emotional intelligence and ethics. Not only does EI helps to impart good clinical care but also helps the medical professionals to work as a team.⁴ In recent years, there has been an upsurge in the disputes between doctors and patients in India. In such a situation, the importance of physicians' ability to recognize patients' emotions, worries, and needs cannot be overstated. Furthermore, in the realm of medical education, it has been discovered that EI has a direct relationship with medical students' academic accomplishment.⁵ With the above background, as upcoming doctors of tomorrow, understanding that emotional intelligence is the need of the hour and also this topic being less explored in Indian Scenario, this study intends to assess the emotional intelligence among medical students.

Aims and objectives

Aims and objectives of current study were to assess the level of emotional intelligence among medical students, in Central Kerala and to determine the factors that influence emotional intelligence of medical students.

METHODS

Study design, location and duration

Current study was a cross sectional study conducted at Sree Narayana institute of medical sciences (SNIMS) Chalakka and at Government medical college, Ernakulam in central Kerala. These two medical colleges were selected randomly by lottery method. Study was conducted from September 2021 to October 2021

Inclusion and exclusion criteria

Inclusion criteria for current study were; 2nd year, 3rd year and 4th year undergraduate MBBS students belonging to the two medical colleges and those who were willing to participate in the study by answering the questionnaire through google forms. Student investigators involved in the study was excluded.

Sample size and sampling method

Sample size was calculated using the formula

$$n = \frac{Z_{(1-\frac{\alpha}{2})}^2 \times \sigma^2}{d^2}$$

(Where, $Z_{\left(1-\frac{\alpha}{2}\right)}$ is taken from standard normal distribution for a 95% CI; σ is the expected standard deviation and d is the precision), Z value for 95% CI=1.96, standard deviation =16.44.6 Taking precision value as 3 sample size was calculated to be 116. Considering a nonresponse rate of 20%, so the final sample size will be 139. Simple random sampling method was selected in current study.

Study tools and data collection

Study tool used for data collection was a semi structured validated questionnaire containing socio demographic details and questions on Emotional Intelligence Test. The questionnaire was given to the students in the form of Google form from second years to final years. First year students were excluded considering their less clinical exposure. The students were asked to answer the questionnaire and respond within two days. The questionnaire was divided into two parts: cociodemographic background and the Schutte self report emotional intelligence test (SSEIT).

The Schutte self report emotional intelligence test (SSEIT) questionnaire contains a total of 33 questions. The total score ranges from 33 to 165. The participants were asked to rate the extent to which they agree or disagree with each statement on a 5 point scale (1=strongly disagree and 5=strongly agree). Three of the questions (5, 28, and 33) are reverse scored. The sum of the individual score gives th

e total EI score of the individual. Those who scored more than 80% of the maximum score, i.e., a score of 132, were considered as having good EI, those who scored between 60% and 80% were considered to have average EI, and those who scored <60% of the maximum score were considered to have poor EI. The cut off was selected from a validated study with Cronbach's alpha=0.90.4 The socioeconomic status of the family was assessed by revised modified B. G. Prasad Scale 2020. Informed consent was obtained from students prior to data collection. Confidentiality was maintained through anonymity of the questionnaire.

Statistical analysis

The collected data was entered in Microsoft excel and was analyzed using SPSS version 20 software. Descriptive statistics was expressed in percentage and frequencies. Chi square test of significance was applied for categorical variables and t- test/ Man- Whitney U test was done for continuous variables, p value less than 0.05 was considered as statistically significant.

RESULTS

Sociodemographic details

The mean ages of the participants were, 21.51 ± 1.143 . Out of 251 students participated in the research, 210 (83.67%) belongs to the age group of 19-22 and 41(16.33%). belongs to age group of 23-26 (Table 1).

Table 1: Age distribution of study population (n=251).

Age (years)	N	%
19-22	210	83.67
23-26	41	16.33

Among the 251 students participated in the research, 170 (67.7%) are females and 81 (32.3%) are males (Figure 1). Out of 251 students participated in the research, 133(53%) belongs to rural area and 118 (47%) belongs to urban area (Figure 2). Among the study participants majority is nuclear family 210(83.7%), 14 (5.6%) participants belonged to joint family and 27(10.8%) belongs to three generation family (Figure 3). Out of the 251 students participated in the study, majority of the students was from upper class (34.5) and 2.7% belonged to lower class (Table 2). As per the study results, 36.3% of the participants father's completed undergraduate

education and 23.9% completed post-graduation, while 32.3% of the mother's completed under graduation and post-graduation respectively (Figure 4).

Table 2: Socioeconomic status of study participants (Modified B G Prasad classification) (n=251).

Socioeconomic status	N	%
Upper class	87	34.5
Upper middle class	37	14.6
Middle class	84	33.3
Lower middle class	37	14.6
Lower class	7	2.7

The Schutte self report emotional intelligence test (SSEIT)

On analysing the Schutte's questionnaire as seen in (Table 3), it was found that 39.85% knew when to speak about their personal problems to others and 2.78% finds it difficult to share about their personal problems to others. 48.70% responded that when faced with obstacles, they remember the times they faced similar ones and overcome them while 2% find it difficult. Less than half (40.63%) had a positive attitude to the things they try while 3.19% cannot to the same. 40.24% found that others can easily confide in them and 28.30% responded that they find it difficult to understand the nonverbal messages of other people which implies poor capability in managing others emotion. About 39.06% was able to prioritize the needs in their lives and 35.87% (90) were able to see new possibilities when their mood changes. 38.26% responded that they value their emotions in life and 47.41% easily recognize the emotions as they experience them which shows good emotional awareness. 38.64% responded that they expect good things to happen in life while 3.58% (9) do not believe so. The study results also showed that 29.88% liked to share emotions with others and 36.25% knows how to make a positive emotion last longer once they experienced it whereas 6.37% find it hard to do so. Out of 251 participants analyzed, 39.84% like to arrange events that others enjoy and 45.81% seek out activities that make themselves happy whereas 1.99% (5) refrain from doing so. These all points towards emotional regulation/ emotional control domain of EI. Less than half of the respondents (39.84%, 37.84%) responded that they were aware of the nonverbal messages they send to others and presented themselves in a way that makes good impression on others respectively. Solving problems was easy for 45.41% when they are in a good mood which signifies the role of emotion in day-today life. By looking at others facial expressions, more than half of the participant's i.e., 51.79% were able to recognize the emotions people were experiencing, which helps in better interpersonal communication. 41.43% participants know why their emotions change i.e they have emotional awareness. Among the study participants, 47.01% responded that they were able to come up with

new ideas when they were in a positive mood and a small percentage 0.79% are opposed to the same.

Table 3: Response of the study participants based on the Schutte self-report emotional intelligence test questionnaire (n=251).

	Scale				
Question	Strongly disagree N (%)	Disagree N (%)	Neither disagree nor agree N (%)	Agree N (%)	Strongly agree N (%)
I know when to speak about my personal problems to others	7 (2.78)	26 (10.35)	39 (15.54)	100 (39.85)	79 (31.48)
When I am faced with obstacles, I remember times I faced similar obstacles and overcame them	5 (2)	19 (7.48)	45 (17.92)	122 (48.70)	60 (23.9)
I expect that I will do well on most things I try	8 (3.19)	26 (10.35)	55 (21.91)	102 (40.63)	60 (23.9)
Other people find it easy to confide in me	15 (5.97)	23 (9.16)	70 (27.9)	101 (40.24)	42 (16.73)
I find it hard to understand the non-verbal messages of other people*	40 (15.92)	71 (28.3)	66 (26.31)	58 (23.12)	16 (6.35)
Some of the major events of my life have led me to re- evaluate what is important and not important	3 (1.19)	17 (6.77)	37 (14.74)	96 (38.24)	98 (39.06)
When my mood changes, I see new possibilities	15 (5.97)	38 (15.14)	54 (21.51)	90 (35.87)	54 (21.51)
Emotions are one of the things that make my life worth living	12 (4.78)	17 (6.77)	54 (21.51)	96 (38.26)	72 (28.68)
I am aware of my emotions as I experience them	5 (2)	19 (7.56)	31 (12.36)	119 (47.41)	77 (30.67)
I expect good things to happen	9 (3.58)	16 (6.37)	39 (15.54)	97 (38.64)	90 (35.87)
I like to share my emotions with others	22 (8.76)	45 (17.92)	72 (28.68)	75 (29.88)	37 (14.7)
When I experience a positive emotion, I know how to make it last	16 (6.37)	36 (14.34)	91 (36.25)	74 (29.48)	34 (3.54)
I arrange events others enjoy	8 (3.18)	31 (12.35)	63 (25.09)	100 (39.84)	49 (19.52)
I seek out activities that make me happy	5 (1.99)	20 (7.96)	38 (15.13)	115 (45.81)	73 (29.08)
I am aware of the non- verbal messages I send to others	7 (2.78)	25 (9.96)	67 (26.69)	100 (39.84)	52 (20.71)
I present myself in a way that makes a good impression on others	9 (3.58)	28 (11.15)	70 (27.88)	95 (37.84)	49 (19.52)
When I am in a positive mood, solving problems is easy for me	6 (2.39)	15 (5.94)	33 (13.14)	114 (45.41)	83 (33.06)
By looking at their facial expressions, I recognize the emotions people are experiencing	4 (1.59)	19 (7.56)	39 (15.53)	130 (51.79)	59 (23.50)
I know why my emotions	12 (4.78)	26 (10.35)	57 (22.70)	104 (41.43)	52 (20.71)

Continued.

Question	Scale				
change					
When I am in a positive mood, I am able to come up with new ideas	2 (o.79)	15 (5.97)	42 (16.73)	118 (47.01)	74 (29.48)
I have control over my emotions	27 (10.75)	43 (17.13)	61 (24.32)	75 (29.88)	45 (17.92)
I easily recognize my emotions as I experience them	5 (1.99)	22 (8.76)	61 (24.32)	100 (39.84)	63 (25.09)
I motivate myself by imagining a good outcome to tasks I take on	8 (3.18)	18 (7.14)	49 (19.53)	115 (45.81)	61 (24.32)
I compliment others when they have done something well	6 (2.39)	11 (4.34)	28 (11.15)	110 (43.72)	96 (38.42)
I am aware of the non- verbal messages other people send	5 (1.99)	27 (14.68)	74 (29.48)	102 (40.68)	43 (17.17)
When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself	5 (1.99)	24 (9.56)	73 (29.08)	106 (42.23)	43 (17.14)
When I feel a change in emotions, I tend to come up with new ideas	6 (2.39)	21 (8.36)	28 (11.15)	120 (47.8)	46 (18.32)
When I am faced with a challenge, I give up because I believe I will fail	59 (23.07)	69 (27.89)	61 (24.3)	43 (17.13)	19 (7.56)
I know what other people are feeling just by looking at them	8 (3.18)	37 (14.74)	96 (38.24)	83 (33.06)	27 (10.78)
I help other people feel better when they are down	3 (1.19)	18 (7.19)	29 (11.55)	138 (54.98)	63 (25.09)
I use good moods to help myself keep trying in the face of obstacles	5 (1.99)	24 (9.56)	40 (15.93)	132 (52.58)	50 (19.94)
I can tell how people are feeling by listening to the tone of their voice	4 (1.59)	23 (9.16)	51 (20.31)	124 (49.4)	49 (19.53)
It is difficult for me to under stand why people feel the way they do	24 (9.56)	55 (21.91)	75 (29.88)	74 (29.48)	23 (9.17)

It was found that 29.88% have really good control over their emotions. 39.84% of the total participants responded that they could easily recognize the emotions as they experience them while 1.99% found it difficult to do so. Among the 251 participants, 45.81% feels like they can motivate themselves by foreseeing a positive outcome to the tasks they take upon and 3.18% fails in it, which signifies the internal motivation domain of EI. 43.72% people responded that they complement others while a very small percentage (2.39%) do not practice it and 40.68% were clearly aware of the non-verbal message's others send and 42.23% of people could easily empathize

with others which helps them to connect, interact and work with others. When considering the utilization of emotion for internal motivation and social skills 47.8% responded that new ideas often pop up in the mind when they are in a good mood while 2.39% people find it difficult to come up with new ideas. 27.89% responded that they do not easily give up when faced with a challenge while 7.56% tend to easily give up when faced with difficulties. 38.24% people can easily understand what others feel just by looking at them and more than half of the participants (54.98%) responded that they help

others feel better when they are down, while 1.19% are

hesitant to help others.

Table 4: Categorisation of emotional intelligence of the study participants (n=251).

Category	N	%
Good EI	69	27.5
Average EI	159	63.3
Poor EI	23	9.2

Table 5: Association between socio demographic variables and EI score level.

		EI score level				
Variables	Category	Good EI	Average EI	Poor EI	P value	
		N (%)	N (%)	N (%)		
A	19-22	48 (23)	142 (67.9)	19 (9.1)	0.001*†	
Age	23-26	21 (50)	17 (40.5)	4 (9.5)	0.001	
Gender	Male	17 (21)	56 (69.1)	8 (9.9)	0.281	
Gender	Female	52 (30.6)	103 (60.6)	15 (8.8)	0.281	
	Nuclear family	58 (27.6)	132 (62.9)	20 (9.5)	_	
Type of family	Joint family	4 (28.6)	10 (71.4)	0 (0)	0.900†	
	Three-generation family	7 (25.9)	17 (63)	3 (11.1)		
Place of	Rural	40 (30.1)	80 (60.2)	13 (9.8)	0.533	
residence Urban		29 (24.6)	79 (66.9)	10 (8.5)	0.555	
Father's	10 th or below & higher secondary school	24 (27.6)	54 (62.1)	9 (10.3)		
educational	Under graduation	20 (22)	62 (68.1)	9 (9.9)	0.492	
status **	Post-graduation & doctoral studies/ Ph.D level education	25 (34.2)	43 (58.9)	5 (6.8)		
Mother's	10 th or below & Higher Secondary school	21 (26.6)	48 (60.8)	10 (12.7)		
educational	Under Graduation	18 (22.2)	58 (71.6)	5 (6.2)	0.285	
status **	Post-Graduation & Doctoral studies/ Ph.D level education	30 (33)	53 (58.2)	8 (8.8)	- 0.283	
Socioeconomic	Upper class & upper middle class	37 (30.1)	77 (62.6)	9 (7.3)		
status**	Middle class	20 (23.8)	52 (61.9)	12 (14.3)	0.357†	
status	Lower middle & Lower class	12 (27.3	30 (68.2)	2 (4.5)		

^{**}Chi square test *statistically significant, p< 0.05, † Fisher's exact test, ** for analysis purpose, Socioeconomic status and parent's educational status has been grouped in to three classes

Table 6: Comparison of the EI scores with Government and private medical college (n=251).

Groups	Mean rank	Mann- Whitney U test value	P value
Government college	121.52	7319.00	0.334
Private college	130.37	7319.00	

It was found that more than half of the study participants (52.58%) use good moods to help themselves in the face of obstacles which signifies the importance of utilization of emotions. Among the study participants about half of them (49.4%) responded that they can understand the feelings of other people by merely listening to the tone of their voice which shows that they were able to act empathetically and thus helps in building strong

interpersonal relationships. Mean score of EI among the study participants were 121.43±19.065. Majority, 63.3% of our study participants had average EI (Table 4). Association between the age of the participants and EI scores was statistically significant as shown in (Table 5). The average EI scores of males were higher when compared to females, even though it was not statistically significant. Those participants from joint family had higher average EI score. It also shows that, those people from urban area had higher average EI scores when compared with those from rural area. Association between parents' educational level and EI score of the participants, showed that participants whose parents having an undergraduate educational level were found to have higher average score. Those belonging to lower middle and lower class socioeconomic status was found to have higher average EI scores, which was not statistically significant. On comparing the EI scores

between the two colleges (Private and Government), the mean EI score value is higher for private medical college when compared to Government medical college, which is not statistically significant (Table 6). There is no correlation between the mean age of the study participants with the total EI score (Spearman correlation coefficient, r_s =0.020) and the p value is 0.752, which is statistically nonsignificant.

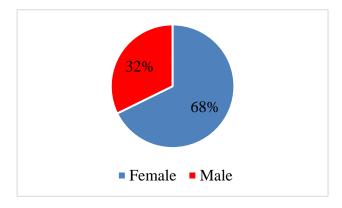


Figure 1: Gender distribution of study population (n=251).

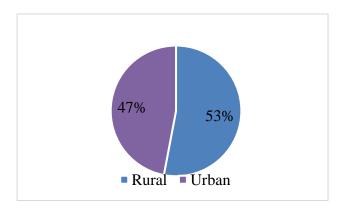


Figure 2: Place of residence of study participants (n=251).

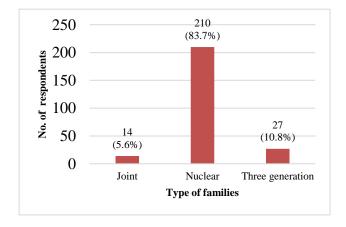


Figure 3: Type of families of study participants (n=251).

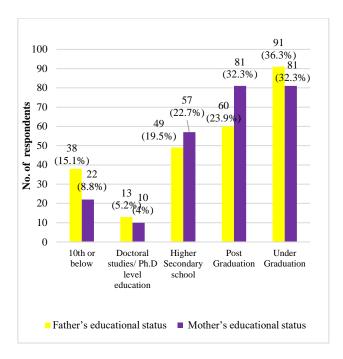


Figure 4: Parent's education status of the study participants (n=251).

DISCUSSION

In the present study among the 251 participants, 210 (83.67%) belongs to age group of 19-22 and 41 (16.33%) belongs to age group of 23-26, with a mean age of the participants being 21.5±1.14 and there was a statistically significant association between age and the EI scores of the participants. Similarly, two other studies among medical students shows that age has a statistically significant association with the EI scores. 17,22 It revealed that as age increases the EI scores increases. On the contrary another cross-sectional study by Mathew Todres shows no significant association between the age and EI scores. 18 This difference might be due to difference in the study population. In our study, majority 67.7% were females and 32.3% were males and association between gender of the participants and EI scores showed that males had a higher average EI score when compared to females, which was not statistically significant. In a similar study among medical students from Chennai conducted by Subhashini Sundararajan et.al showed that gender had no significant influence on EI score.¹⁹ Our study showed no statistical significance between the place of residence and EI scores where 53% were from rural area and 47% from urban area. A study titled "emotional intelligence of medical students of Shiraz university done during the year 2018 shows that place of residence has a significant association with the EI scores.¹³ As shown in Table 5, there was no statistically significant association between the type of family and the EI scores in the present study. A similar study conducted in the year of 2020 on emotional intelligence of medical students of Al Quds university by Bashair Ewaiwe showed similar finding.²⁰ Various studies have explored the link between social class and emotional intelligence, generating mixed

findings. According to some researchers, people with higher SES are more self-sufficient because they are less dependent and are less inclined to seek help from others. As a result, they have lower emotional intelligence and have less of a need to bond to others. Present study also found that those participants from lower middle and poor SES had higher average EI scores when compare to other social class, which was not statistically significant. On the contrary, a study by Chitra A shows that those students belonging to low SES had very low emotional intelligence when compared to those from higher socioeconomic status which was statistically significant.²¹ Among the 251 students participated 36.3% of the participants father's completed undergraduate education and 23.9% completed post-graduation, while 32.3% of the mother's completed under graduation and postgraduation respectively. A study conducted by Coskum shows that students whose mothers had higher level of education had more emotional intelligence performance which was found to be statistically significant.²² Majority,63.3% of our study participants had average EI whereas 27.5% had good EI and 9.2% had poor EI. Mean score of EI among the study participants were 121.43±19.065. Similarly in a study conducted by Puliyakkadi s et.al in a tertiary care centre in Kerala revealed the total EI score of 116.08±14.76 with majority (72.9%) doctors having average EI.7 The strength of the current study was The study was done in two colleges, one private and one government with adequate sample size.

Limitations

Being a cross-sectional study, causal associations could not be established between the factors and EI. Considering the pandemic situation data collection was done through google forms, therefore there was an increased chance of hiding actual information by the participants due to lack of face-to-face interaction. This study did not focus on the qualitative aspects of emotional intelligence.

CONCLUSION

The rising attacks against medical professionals have called in the need for more awareness on the importance about emotional intelligence among the medical students. The study done showed that 63.3% of our study participants had average EI score and 27.5% had good EI scores. EI scores and the age category showed statistically significant association. The mean EI scores were higher among private medical college when compared to government medical college, which was not statistically significant.

Recommendations

Emotional intelligence is an extremely important factor for academic and organizational success. In order to mold competent medical professionals, they need adequate

skills, which include soft skills (interpersonal communication, empathy, friendliness etc) and hard skills along with knowledge and attitude. It is stated that one's response to a stimulus has been filtered through one's underlying attitudes. As a result, one's attitude toward oneself and others has a significant impact on EI. The newly updated CBME curriculum by NMC (National medical commission), India has introduced AETCOM module (attitude ethics and communication) which will help the students in improving the EI of medical students. Providing continuous emotional support to the students and giving much significance to community oriented medical education (COME) will instill a sense of social responsiveness and motivation to students which helps in improving their EI. Conducting future studies with other variables like academic performance, involvement of students in extracurricular activities, substance usage, mental stress and involving multiple departments etc would help us to explore more about the emotional intelligence.

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Institutional Ethics Committee

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