Research Article

FOUNDATION COURSE: A CROSS-SECTIONAL STUDY OF WHETHER THIS RIPPLE EFFECT WILL LEAD TO THE PROMISED TIDAL CHANGE IN THE FUTURE OF INDIAN UNDERGRADUATE MEDICAL EDUCATION

Rohini Motwani[1] and Nikhil Ravindranath Tondehal[2]*

[1]Department of Anatomy, AIIMS, Bibinagar
[2]Department of Psychiatry, ESIC Medical College, Hyderabad

ABSTRACT

Background: Foundation course has been introduced by the Medical Council of India (MCI) in the new curriculum to prepare a student to study medicine effectively. Emotional intelligence is one's ability to assess, express and control emotions and feelings in oneself and others, and differentiate among them and use them to solve any complex situations

Objectives: To evaluate the Emotional Intelligence of newly joined medical students after their two-month foundation course. To evaluate and compare the Emotional Intelligence of medical students of different years.

Methodology: A descriptive, cross‑sectional, questionnaire-based survey was conducted using a pre-designed, pre-validated questionnaire, which included Wong Law Emotional Intelligence Scale and Davis interpersonal reactivity index. Undergraduate medical students (newly joined first-year, second, and third-year medical students) who consented for the study, were the participants. Statistical analysis was done using SPSS-22.

Results: In our study, a total of 160 students participated. The first-year students scored higher on all domains [Total Emotional intelligence (p = 0.007)] compared to their colleagues except the Personal Distress domain (p = 0.005). Female students scored higher on Personal Distress (p = 0.016) and Empathic Concern (p = 0.026). The year of medical of education had a positive correlation with Personal distress domain (r = .212, p = 0.007)

Conclusion: Foundation Course is a step in the direction as could be seen by the changes in the Emotional intelligence of the first-year students. They were seen to be more perceptive of their own as well as other's emotions. It was also seen that the first-year students fared better on conflict resolution skills.

INTRODUCTION

Emotional intelligence (EI) has been 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 behavior"(1). Goleman, in his research, has identified a set of competencies that differentiate children with EI. The competencies fall into four clusters. These are Self Awareness (understanding of their own emotions, powers, weaknesses, needs, and awareness of self-existence) and Self Management (managing their emotional behavior). They also additionally include Social Awareness (ability to understand emotions, needs of others and thus to put oneself into others' shoes) and Relationship Management (ability to establish relationships with other individuals and to ensure the sustainability of such relationships, creating and managing a team)(2).EI can make a unique contribution to a better understanding of people and also use their potential for

success(3). The emotional state of mind of an individual is the factor that decides about their intelligent behavior. After many decades, medical education in India is entering a new era with the MBBS curriculum being revised. More emphasis is being placed on soft skills and defining the roles and expectations of an Indian Medical Graduate (IMG). The Medical Council of India (MCI) has rolled out a mandatory two-month Foundation course for all the IMGs across the country published in the "Regulations on Graduate Medical Education, 2012"(4).This bridge course, which is termed as "Foundation Course," is to orient medical students to the MBBS program, and provide them with the requisite knowledge, communication (including electronic), technical and language skills required. This course is implemented from the academic year 2019-20, which focuses mainly on the soft skills, emotional intelligence, and interpersonal relations development part of the student and continuing throughout the curriculum.

Corresponding author: **Nikhil Ravindranath Tondehal**
Department of Psychiatry, ESIC Medical College, Hyderabad

EI is considered as one of the most critical competencies of modern practice where there is a multidisciplinary and more complex approach with a narrow safety margin (5). EI plays a crucial role in the training of medical students as it is related to interpersonal and communication skills(6). EI enables a person to understand, and evaluate their own, and others' emotional and social contexts and to guide one's own and others thoughts(7)It also is effective in dealing with stress related to the medical profession and improves job satisfaction by improving their performance(8). Also, EI plays a pivotal role in improving patient care as physicians can understand their patients and their problems in a better way(9)

Aims & Objectives

1. To assess the Emotional Intelligence of the first-year medical students after the two months of the foundation course.
2. To evaluate the Emotional Intelligence of the second and third year medical students.
3. To compare Emotional Intelligence between male and female medical students of the same year.
4. To compare the results among all MBBS students, including the new students.

MATERIAL AND METHODS

Study Design and Data Collection

The present study is a cross-sectional study, which included a total of 160 undergraduate medical students (newly joined first-year medical students, second, and third-year medical students) after taking their informed consent. The second-year and third-year medical students have been following the MBBS curriculum as per old regulations, while the newly joined first-year medical students were part of the newly introduced curriculum foundation course which stressed on developing and inculcating soft skills. The foundation course included several seminars, interactive sessions on professionalism, ethics, and also hands-on workshops on IT, Communication Skills, Interpersonal relations, Conflict resolution, as suggested by the MCI guidelines.

The questionnaire was designed in the English language using online Google forms. The questionnaire addressed all areas that we aim to investigate after reviewing similar studies and consulting several experts in the field. One of the authors described the objective of the study, and standard instructions were given to the students. Consent was taken before administering the questionnaire. The questionnaire included were Wong Law Emotional Intelligence Scale (10) and Davis interpersonal reactivity index(11). The said scales were chosen for this study as the authors desired to assess if there was a significant improvement in the soft skills (interpersonal relations, communicational skills, Conflict management), which was what the foundation course was introduced mainly. Students were asked to sit in the e-library of our institute, and the link was shared with them. Each student had to fill in the questionnaire independently.

Assessment tools

1. Demographic data
2. Wong Law Emotional Intelligence Scale(12): This scale consists of 16 short statements measuring four aspects of EI: an appraisal of one's own emotions (SEA), appraisal of others' emotions (OEA), use of emotion (UOE) and regulation of emotion (ROE). Responses are given using a seven-point Likert scale, ranging from 1 (totally disagree) to 7 (totally agree)
3. Davis Interpersonal Reactivity Index(11): a 28-item questionnaire answered on a 5-point Likert scale ranging from "Does not describe me well" to "Describes me very well." The measure has four subscales, each made up of 7 different items. These subscales are (taken directly from Davis, 1983): Perspective Taking – the tendency to spontaneously adopt the psychological point of view of others. Fantasy – taps respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays. Empathic Concern – assesses "other-oriented" feelings of sympathy and concern for unfortunate others. Personal Distress – measures "self-oriented" feelings of personal anxiety and unease during intense interpersonal settings

Ethical Approval: Institutional Ethics Committee clearance was obtained before releasing the questionnaires (ESICMC/SNR/IEC-F0157/11-2019, version no. V01).

Inclusion Criteria: Undergraduate medical students of a medical college of all years who consented for the study.

Exclusion Criteria: Those who have not consented for the study and Invalid or incomplete responses.

Data analysis

Statistical analysis was done using SPSS-22. The demographic distribution is described using frequencies, percentages, means, histogram charts. A comparison of means among two groups is done using independent sample t-test and paired t-test. When more than two groups were seen, the Anova test was used. Pearson Correlation test was done for testing the nature of the association. Statistical significance is set at $p < 0.05$.

Hypothesis

Null-Hypothesis: There is no difference in emotional intelligence among the various study groups.

Alternate-Hypothesis: There is a statistically significant difference in emotional intelligence in the group that has attended the foundation course.

RESULTS

A total of 160 students participated in the study who provided consent for participation. Four students did not provide consent and were excluded from During our study period, only 32 students had joined in the first year and were part of the new curriculum foundation course. Concurrently, 59 students from the second year and 69 students from the third year consented to be a part of the study. The mean age of males (n = 47) in the sample was 19.72 ± 2.35, and females (n = 113) were 19.37 ± 1.11. The mean age for the sample was 19.47 ± 1.58. The mean age for the first year (n = 32) was 18.00 ± .95, second year (n = 59) was 19.49 ± 1.95, third-year (n = 69) was 20.14 ± .86.

Means were calculated and then compared for the subdomains of Wong Law Emotional intelligence scale (WLEIS). Subsequently, ANOVA analysis was also done to identify the differences among groups. The mean scores for the sample (n = 160) were 5.32 ± 1.18 (Self emotions appraisal), 5.44 ± 1.01 (Regulation of Emotions), 5.33 ± 1.18 (Use of Emotions), 4.96

± 1.27 (Others Emotions appraisal), 5.26 ± .85 (Emotional Intelligence). The means for individual batches are as shown in Table 1. The differences in means among the groups were statistically significant for Others Emotions Appraisal (F = 5.553, p = .005), Total Emotional Intelligence (F = 5.168, p =.007). Further post hoc analysis revealed significant differences between first-year and third-year students on Self - Emotions Appraisal (p = 0.047), Regulation of Emotions (p = 0.022), Others Emotions Appraisal (p = 0.002), Total Emotional intelligence (p = 0.002). Additionally, significant differences were found between first-year and second-year students for Others Emotions Appraisal (p = 0.005), Total Emotional Intelligence (p = 0.013). No statistically significant differences were found between second and third-year students.

Table 1 Means and Anova test between domains of WLEIS and Year of study; WLEIS: Wong Law Emotional Intelligence Scale

Subdomain	Year			F Value	Sig. (p-value)
	1st (n = 32)	2nd (n = 59)	3rd (n = 69)		
Self – emotions Appraisal	5.66 ±1.09	5.33 ± 1.16	5.15 ±1.22	2.006	.138
Regulation of Emotions	5.75 ± .93	5.48 ± 1.04	5.26 ± .99	2.783	.065
Use of Emotions	5.67 ± .01	5.22 ± 1.25	5.26 ± .99	1.761	.175
Others – Emotions Appraisal	5.61 ± .37	4.84 ± 1.33	4.77 ± 1.19	5.553	.005
Emotional Intelligence	5.67 ± .74	5.22 ± .93	5.11 ± .77	5.168	.007

Means were calculated and then compared for the subdomains of Davis Interpersonal Reactivity Index (DIRI). Subsequently, ANOVA analysis was also done to identify the differences among groups. The mean scores for the sample (n = 160) was 3.50 ± .67 (Fantasy), 3.17 ± .52 (Personal Distress), 3.69 ± .52 (Empathic Concern), 3.44 ± .51 (Perspective Taking). The means for individual batches are as shown in Table 2. The differences in means among the groups were statistically significant for Personal Distress (F = 5.409, p = .005), Perspective Taking (F = 5.250, p =.006). Further post hoc analysis revealed significant differences between first-year and third-year students on Personal Distress (p = 0.002), Perspective Taking (p = 0.004). Additionally, significant differences were found between first-year and second-year students for Personal Distress (p = 0.004), Perspective Taking (p = 0.003). No statistically significant differences were found between second and third-year students.

Table 2 Means and Anova test between domains of DIRI and Year of study; DIRI: Davis Interpersonal Reactivity Index

Subdomain	Year			F Value	Sig. (p-value)
	1st (n = 32)	2nd (n = 59)	3rd (n = 69)		
Fantasy	3.54 ±.68	3.49 ± .70	3.49 ±.63	.066	.936
Personal Distress	2.91 ± .62	3.23 ± .51	3.25 ± .43	5.409	.005
Empathic Concern	3.70 ± .58	3.69 ± .57	3.68 ± .47	.019	.981
Perspective Taking	3.70 ± .47	3.37 ± .53	3.39 ±.48	5.250	.006

Table 3 Correlation test between domains of WLEIS, DIRI and Year of study

Variable	Year
Perspective Taking	r = -.190, p = 0.016
Regulation of Emotions	r = -.185, p = 0.019
Others Emotions Appraisal	r = -.222, p = 0.005
Total Emotional Intelligence	r = -.229, p = 0.004
Personal Distress	r = .212, p = 0.007

The differences between male and female groups were found to be statistically significant for Personal Distress (p = 0.016), Empathic Concern (p = 0.026). No statistical differences were found between other subdomains for male and female groups. Pearson Correlation test was done between the year of MBBS, subdomains of the Davis interpersonal reactivity index, Wong Law Emotional Intelligence Scale as seen in Table 3 and Figure 1 - 2. The year of MBBS was found to be having a statistically significant negative correlation with Perspective Taking (r = -.190, p = 0.016), Regulation of Emotions (r = -.185, p = 0.019), Others Emotions Appraisal (r = -.222, p = 0.005), Total Emotional Intelligence (r = -.229, p = 0.004). There was a statistically significant positive correlation with Personal Distress (r = .212, p = 0.007).
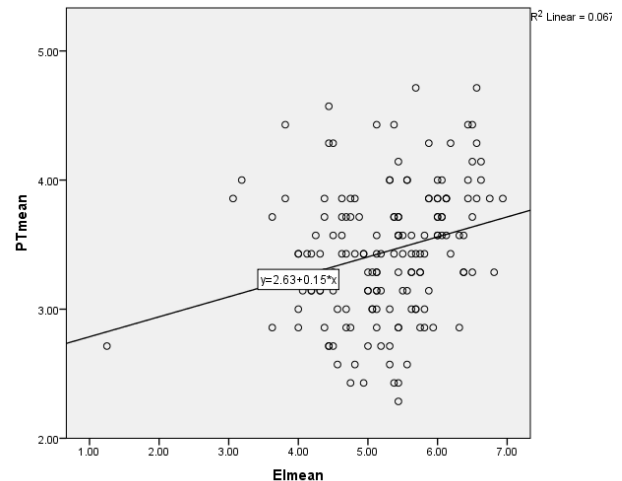

Figure 1 Correlation between PT domain and EI; PT = Perspective Taking, EI = Emotional Intelligence
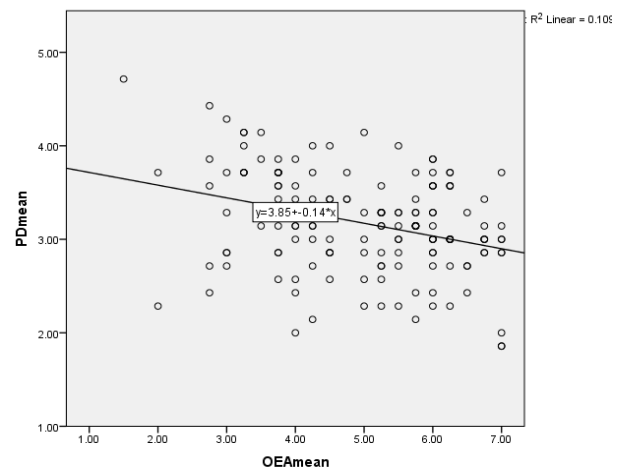

Figure 2 Correlation between PD domain and OEA; PD = Personal distress, OEA = Other's Emotions Appraisal

It was also observed that Total EI had a statistically significant negative correlation with Fantasy Scale (r = -.192, p = 0.015) and positive correlation with Perspective Taking (r = .259, p = 0.001). Correlation tests between the individual domains of Emotional Intelligence Scale and Davis Interpersonal Reactivity Index was done. It was seen that Self Emotions Appraisal (SEA) had a statistically significant positive correlation with Fantasy Scale (r = .214, p = 0.006), Regulation of Emotions had a statistically significant positive correlation with Empathic Concern (r = .215, p = 0.006) Others Emotions Appraisal had a statistically significant negative correlation with Personal Distress (r = -.330, p =

<0.0001), Perspective Taking had a statistically significant positive correlation (r = .313, p = <0.0001).

DISCUSSION

As per the Indian Medical Council (Amendment) Act, 2016,in a medical college in India, students get admission based on their merit rank at the qualifying National Eligibility-Cum-Entrance Test Undergraduate examination(4). Students of age between 17-19 years, from different religious, sociocultural, economic, and geographic backgrounds, enter a completely new environment to pursue their MBBS career at a medical college. These students have a varying psychological framework and may find it challenging to adapt to the new academic environment(13). The introduction of the foundation course is a requirement added as a part of the medical curriculum, which may act as a building block in their medical career and help them to acclimatize to the campus environment. Also, it would help them to familiarize themselves with teaching programs. Thus, evaluation of EI in these newly joined medical students becomes crucial, with the help of which we, as a faculty, can help them to cope up with the new environment. Also, we wanted to evaluate the EI of the students of previous batches who did not undergo the foundation course so that EI can be compared among them, and accordingly, counseling can be done.

A total of 160 students participated in our study. During our study period, only 32 students had joined in the first year and were part of the new curriculum foundation course. Concurrently 59 students from the second year and 69 students from the third year consented to be a part of the study. The mean age for the sample was 19.47 ± 1.58. In the Wong Law Emotional Intelligence Scale, the first-year students scored higher than the other two years among all domains. Statistically, a significant difference was seen in the Others Emotions Appraisal (p = .005) and Total Emotional Intelligence (p = 0.007) among the three years. Some authors also observed significantly lower EI among senior medical students than junior medical students; hence, they concluded that EI decreases in the course of medical education(14). Although the exact cause for the decrease in EI in senior batches is not specific, Kerasidou *et al* suggest that as students grow in their medical curriculum, they tend to be "emotionally detached" from their patients as amongst doctors it is considered unprofessional and as a result, this leads to decreasing empathy (which is a part of EI) (15). The above was referred to as the hidden curriculum(16) by another author.

Further post hoc analysis between the groups showed statistically significant differences between the first year and the third-year students in Self - Emotions Appraisal (p = 0.047), Regulation of Emotions (p = 0.022), Others Emotions Appraisal (p = 0.002), Total Emotional intelligence (p = 0.002). The results signify that first-year students at the end of the foundation course were generally able to understand their emotions/perceive their emotions towards an event or person accurately. They were also seen to be able to balance their emotions better comparatively. When involved in an interaction, it was also seen that the first-year students were able to understand other's emotions better through the verbal or non-verbal form of communication. The first-year students scored significantly higher in being able to understand other's emotions when compared to both second year and third year and also in Total Emotional Intelligence.

In the Davis Interpersonal Reactivity Index, the first-year students scored higher than the other two years among all domains except the Personal Distress domain. Statistically, a significant difference was seen in Personal Distress (p = .005) and Perspective Taking (p = 0.007) among the three years. The third-year students scored significantly higher on the Personal Distress sub domain signifying experience of intense distress in complicated situations involving/requiring interpersonal interactions. The high score may also signify poor communication/conflict resolution skills. Meanwhile, the first-year students scored significantly higher in Perspective Taking subdomain. This result signified that first-year students were able to 'get into the other's shoes' or 'see from other's point of view' when involved in an interpersonal interaction/conflict leading to better handling and resolution of conflicts.

The differences between male and female groups were found to be statistically significant for Personal Distress (p = 0.016), Empathic Concern (p = 0.026), with females shown to be scoring higher in both the subdomains. No statistical differences were found between other subdomains for male and female groups. Other studies also suggest that EI, at some forms of empathy on an average, is better for women than men, but managing distressing emotions is better by men than women(17,18). Also, when emotional clinical scenarios are presented to men and women, they respond to it differently. It was found that women performed better in responding to these scenarios compared to men (19).

With the help of this study, an attempt is made to assess the effectiveness of introducing training of soft skills training into undergraduate medical education, especially as a part of the foundation course itself. Few institutions have made several attempts to teach EI as an undergraduate teaching program (20). Several methods have been adopted like practical role-play scenarios, cognitive reflection exercises, socio-drama techniques, and conflict resolution methods to train EI to these students and to make them understand their own and others emotions(21)

CONCLUSION

Three batches of medical students were taken into the study. The first year underwent a focused soft skills training as part of the 'foundation course' for two months as recommended by the MCI guidelines while the second and third-year students were part of the old MBBS curriculum. It was seen that the course with its workshops based on communication skills, interpersonal relations, conflict resolution, and more was a step in the right direction. First years at the end of the foundation course were seen to be better equipped with soft skills as compared with their colleagues in being able to understand one's own emotions, understanding others emotions, considering others perspectives and having least amount of tendency to experience personal distress while resolving conflicts. While the changes in Indian Medical education towards making doctors, who are empathetic and effective communicators is a step in the right direction, the foundation course lays down only the basics of soft skills development. The soft skills will still need to be practiced and 'honed' upon further during the course.

Limitations

The small sample size limited the study. Emotional intelligence varies in individuals from diverse backgrounds and upbringing. These demographic variables were not

considered. Future studies may be considered with the demographic backgrounds and larger samples

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