International Journal of Contemporary Pediatrics
*Singh H et al. Int J Contemp Pediatr. 2022 Apr;9(4):337-341*
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20220758

**Original Research Article**

# Assessment of the emotional intelligence and its dimensions of students at beginning of their medical profession education

**Harmesh Singh[1]*, Ishneet Singh[2], R. K. Soni[3]**

[1]Department of Pediatrics Punjab Institute of Medical Sciences, Jalandhar, Punjab, India
[2]Dayanand Medical College and Hospital, Ludhiana, Punjab, India
[3]Department of Community Medicine, Dayanand Medical College and Hospital, Ludhiana, Punjab, India

**Received:** 26 January 2022
**Revised:** 28 February 2022
**Accepted:** 03 March 2022

***Correspondence:**
Dr. Harmesh Singh,
E-mail: harmesh.bains@gmail.com



## ABSTRACT

**Background:** Medicine involves not only prescriptions but also a well-developed emotional intelligence (EI). The assessment of EI of students at their entry to medical professional training may identify weaknesses, if any, so as to be taken care during the course. Thus, it may be relevant to explore it and its dimensions because it is still a nascent field of research, hence this study was planned.
**Methods:** Objectives were to assess the EI and its dimensions of first year MBBS students. Study design was a descriptive and cross-sectional study. Study sample were 150 first year MBBS students. Ethical approval from institutional ethics committee and informed written consent from participants obtained; administered a questionnaire based EI test. Data obtained was analysed by ANOVA.
**Results**: The 53.1 % participants were females and 46.9% males. The 73.1% were 17-18 years of age and 26.9% were 19-21 years old. The mean total EI score was 353.01. Among the emotional dimensions sensitivity was significantly low (p=0.047) in males (87.35±15.34) than females (92.49±9.071). The emotional competency was significantly low (p=0.055) in the elder group (153.59±26.99) than the younger one (160.61±15.762).
**Conclusions:** The study identified certain gender and age differences in the EI and some weaknesses among first year medical students. Emotional sensitivity was significantly low in males and emotional competency was significantly low in the elder age group.

**Keywords**: EI, Medical education, Emotional dimensions, Maturity, Sensitivity, Competency

## INTRODUCTION

The major role of medical education is to train doctors with not only knowledge and clinical skills but also many other attributes including EI. The EI is the skill to recognize, perceive and understand emotions of our own and others and the ability to apply emotions to critical thought and act appropriately. It is a multidimensional construct with three main dimensions including maturity, sensitivity and competency. Intellect and clinical expertise are certainly helpful but represent only a part for successful healthcare leaders.[1,2] There is a positive correlation between EI and clinical performance.[3] It is also a known fact that more than prescriptions, medicine involves communication, tolerance, flexibility, listening, hard work and a passion for the practice.

The medical profession these days has become more stressful because of not only patient care but also various factors outside the hospital environment that present special challenges such as complex external factors like insurance and regulation, evolving new technologies, challenging management of a professional workforce and potentially competing care delivery goals e.g., "the

tension between expense reduction, clinical care, and patient quality".[4]

EI can help healthcare professionals to deliver better service while achieving superior outcomes. The concept of EI is well established in the business though some studies suggest that EI training should be offered throughout health care professionals (HCP) career to build these competencies and ultimately provide enhanced patient care.[5] It is also important to understand that EI is not an innate skill but an ability which can be developed and enhanced.[6] Teaching EI may help medical educators to create better doctors. An understanding of the relevance of EI is very useful to each and every physician for improving the effectiveness of patient care and patient compliance.[7] The medical education has been aimed mainly at the cognitive knowledge. The new competency based curriculum has considered some elements like attitude and communication and there is increasing interest in the role that EI has in medical training.[8] Furthermore assessment of EI of first year medical students at the beginning of medical training and incorporating teaching strategies based on identified weakness, may contribute in fulfilment of objective of medical education to ensure enrichment of the learner with desired communicative and altruistic skills with proper orientation pertaining to ethics, professionalism and leadership skills. The assessment of EI and its dimensions of students at beginning of their medical profession seems to be important and relevant[1] so as to address the weaknesses, if any, by medical educators during the course, hence this study was planned to assess EI and its dimensions of first year MBBS students at entry to their profession.

## METHODS

### *Inclusion criteria*

All the first professional medical students who consented for participation in the study.

### *Exclusion criteria*

Participants who did not complete the questionnaire based EI test were excluded from the study.

This descriptive and cross-sectional study was approved by the institutional ethics committee of Punjab institute of medical sciences. (Registration number ECR/1413/Inst./PB/2020 approval number PIMS/IEC/21/22). Medical students were included in the study after explaining the nature and purpose of the study and an informed written consent was taken from all of them. The cross-sectional study was conducted in January 2021 at the Punjab institute of medical sciences. One hundred fifty first year MBBS students of the academic year 2021 at the beginning of their profession were included by purposive sampling method.

The participants were then administered a questionnaire based EI test which measures 3 psychological dimensions: emotional sensitivity, emotional maturity and emotional competency.[9] There were 22 situation-based questions including 5 situations on sensitivity, 7 on maturity and 10 on competency. The range of total scores was 110-440, in sensitivity 25-100, in maturity 35-140, and in competency 50-200. This test has already been standardised for various categories including students and has a test retest and split-half reliability of 0.94 and 0.89, respectively and validity of 0.89.

### *Statistical analysis*

Five participants did not complete the questionnaire and were excluded, thereby the analysis was done for 145 subjects. The EI and its three dimensions were compared between male and female students and also between students of 17-18 years versus 19-21 years of age. Both descriptive and inferential statistics were used for data analysis in this study. For descriptive statistics this study employed frequency, percent, mean and standard deviation. Analysis of variance (ANOVA) technique was applied to compare means between two groups. The analysis was carried out using SPSS 20.0. A $p \leq 0.05$ was considered as significant. The total emotional score and dimensions of EI were calculated; age and gender wise comparison was done.

## RESULTS

Of the 145 participants 77 (53.1%) were females and 68 (46.9%) males.106 (73.1%) were 17-18 years of age and 39 (26.9%) in 19-21 years of age. 114 (78.6%) participants were from urban areas and 21.4% had rural background. The type of family was nuclear in 94 (64.8%) and joint in 51 (35.2) of cases. The education and occupation of parents is depicted in Figure 1 and Figure 2 respectively. The mean total EI score was 353.01 with a range of 130-405.

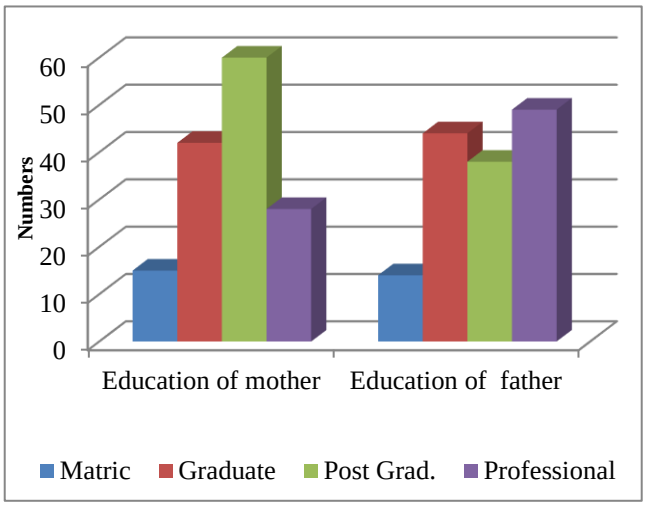


**Figure 1: Education of mother and father of participants.**

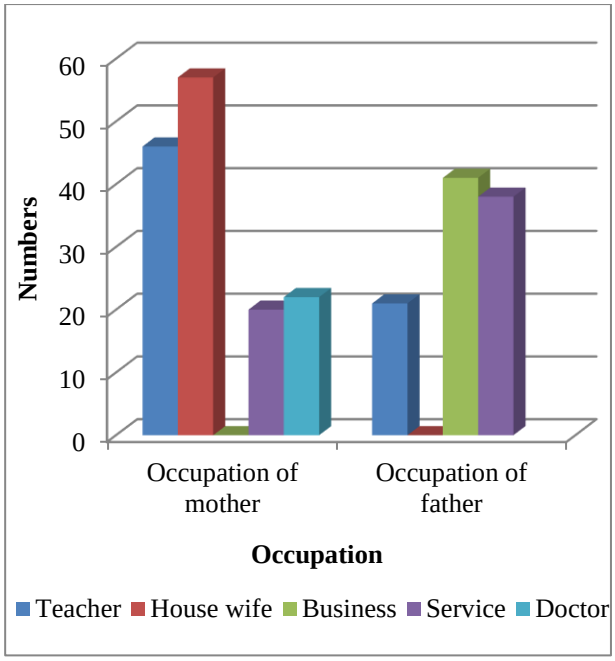


**Figure 2: Occupation of mother and father of participants.**

The Table 1 depicts gender wise means of emotional quotient (EQ) dimensions. The sensitivity score was 91±9.07 among female subjects and 87.35±15.34 in male subjects. The difference between males and females was found to be statistically significant (p=0.047). The maturity score though marginally low among females (102.99±18.19) than male (106.71±18.24); difference was not significant. The competency dimension score was 159.12±22.67 in males as compared to 158.38±16.51 in females with a non-significant difference (p=0.821).

The mean score for EI dimensions according to age is presented in Table 2. The mean sensitivity score in 19-21 years of age was 90.70±13.93 whereas for the age group 17-18 years it was 89.10±12.02, and the comparison shows a significant difference (p=0.048). For the maturity dimension the mean scores in younger and elder age group was 105.00±18.34 and 103.74±18.18, respectively and the difference was non-significant (p=0.694). The emotional competency score was significantly low (p=0.055) in the elder age group (153.59±26.99) than in the younger age group (160.61±15.76).

The gender wise mean score for three EI dimension in 17-18 years age group showed that the sensitivity score among females was 90.44±9.17 as compared 87.55±14.61 in males. The maturity scores were 106.22±18.64 among males and 104.12±18.20 in females. The competency scores were 162.14±16.83 among male subjects and 159.30±14.80 in females; the difference was found to be non-significant.

The Table 3 shows mean values of EI dimensions in 19-21 years of age with respect to gender. The sensitivity score was 94.50±8.25 in females and 86.84±17.49 in males with nearly significant difference (p=0.086). The comparison of maturity dimensions between males (107.95±17.62) and females (99.75±18.24) shows a non-significant difference (p=0.162). In the competency dimension female score (155.75±20.85) was substantially higher than male subjects (151.32±32.69). However, the difference was not statistically significant (p=0.615).

**Table 1: Mean values for EQ dimensions in male and females.**

| EQ dimension | Males, n=68 | | Females, n=77 | | P value |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | |
| **Sensitivity** | 87.35 | 15.34 | 91.49 | 9.07 | 0.047 * |
| **Maturity** | 106.71 | 18.24 | 102.99 | 18.19 | 0.222 |
| **Competency** | 159.12 | 22.67 | 158.38 | 16.51 | 0.821 |

*Significant

**Table 2: Mean values for EQ dimensions according to age.**

| EQ dimension | 17-18 years, n=106 | | 19-21 years, n=39 | | P value |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | |
| **Sensitivity** | 89.10 | 12.02 | 90.77 | 13.93 | 0.0480* |
| **Maturity** | 105.09 | 18.34 | 103.74 | 18.18 | 0.694 |
| **Competency** | 160.61 | 15.76 | 153.59 | 26.99 | 0.055 * |

*Significant

**Table 3: Mean values for EQ dimensions in male and females in 19-21 years.**

| EQ dimension | Males | | Females | | P value |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | |
| **Sensitivity** | 86.84 | 17.49 | 94.50 | 8.25 | 0.086 |
| **Maturity** | 107.95 | 17.62 | 99.75 | 18.24 | 0.162 |
| **Competency** | 151.32 | 32.69 | 155.75 | 20.85 | 0.615 |

## DISCUSSION

This study provides some interesting preliminary information about the EI and its dimensions in the medial students during the foundation course at their entry level to this novel profession. There is hardly any study on EI in the medical students during foundation course specially from the region. The available studies are on EI and HCP burnout, EI and job performance, EI of pediatric residents, EI and gender differences in youth, EI and caring behaviour of nurses, and medical educators.[10-15] EI emerged as an independent attribute in the study by Wolf et al on foundational non-clinical attributes necessary for successful transition to residency: a modified Delphi study with experienced medical educators.[15]

Analysis of data with regard to EI dimensions and age and gender of the medical students showed interesting observations. The sensitivity dimension score was higher among female subjects than males. McLeod et al found no significant differences in overall scores between females and males but reported a significant difference in the subcategory of emotional expression with females outperforming males.[12] Elizabeth et al found that the female medical students scored statistically significantly higher than male medical students on overall EI, each EI subscale.[16] Some other studies have also shown that female medical students had higher EI than males while in clinician on only one subscale of EI.[17-19]

In the present study the emotional maturity score was marginally high among males. Narayana and Narasimham in their study of dynamics of EI and job performance found that the male and female employees differed significantly in total EI as well as in two of the three dimensions of EI. There was no significant difference in mean scores of different age groups. However, the oldest group was relatively more emotionally competent.[20]

In the present study comparison between two age groups showed a higher mean emotional sensitivity score in 19-21 years of age whereas the emotional competency score was high in the younger age group. These findings of present study are consistent with some of the earlier studies.

The gender wise analysis of mean score for three EI dimension in younger age group showed a higher maturity and competency scores in males. In the 19-21 years age group sensitivity and competency scores were higher in females. Female resident physicians scored higher than men in impulse control in the study by Sophia et al.[21]

The benefits of EI development as part of residency have also been demonstrated in a study where a formal EI training program for residents including a one-day seminar, simulation and faculty mentoring resulted in higher EI scores and higher measures of patient satisfaction.[22]

The present study was constrained in being limited to one batch of medical students. After identifying the weaker dimensions, it sensitises about the need of further such studies in the subsequent years for longitudinal monitoring of EI of medical students after incorporating EI in the under graduate medical education. Understanding about most relevant aspects of EI requiring appropriate and hence provides direction for further large-scale study.

## CONCLUSIONS

This study provides insight about the EI and its dimensions during the entry level in the medical stream After identifying the weaker dimensions and understanding about most relevant aspects of EI requiring improvement; appropriate teaching strategy can be incorporated. Further it sensitises about the need of further such studies in the subsequent years for longitudinal monitoring of EI of medical students after incorporating EI in the under graduate medical education.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Singh H, Singh I, Soni RK. Assessment of the emotional intelligence and its dimensions of students at beginning of their medical profession education. Int J Contemp Pediatr 2022;9:337-41.