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Assessing Emotional Intelligence among Dental Undergraduate Students: An Institutional Insight from Western India in the Postpandemic Context

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Abstract

Background: Emotional intelligence (EI) plays a pivotal role in academic success, especially in challenging fields such as dentistry. The COVID-19 pandemic has revolutionized education, necessitating a fresh examination of EI among dental students in the postpandemic era. **Materials and Methods:** This cross-sectional study involved undergraduate dental students and employed a structured questionnaire comprising 21 questions to assess EI, gather demographic data, and explore learning behaviors. The gathered data underwent rigorous statistical analysis using SPSS, including Chi-square tests. **Results:** Among the 525 students, 168 participated, representing a 32% response rate. Notably, the majority of respondents were female (67%) and exhibited EI scores predominantly in the moderate range. Significantly, the study revealed noteworthy correlations between EI and family income ($P = 0.03^*$) and study hours ($P = 0.00^*$). However, no substantial link was identified between EI and work completion behavior. **Discussion:** This study illuminates the intricate relationship between EI, socioeconomic factors, and study habits within the context of dental education. It implies that greater family income and increased study hours positively influence EI. The practical implications extend to tailored EI programs and addressing educational disparities. **Conclusion:** This study significantly advances our comprehension of EI among dental students. It underscores the relevance of EI in dental education and advocates for equitable educational strategies in a post-COVID landscape.

Keywords: Dental students, education, emotional intelligence, post-COVID era, socioeconomic factors

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INTRODUCTION

Emotional intelligence (EI), a cornerstone of an individual's capacity to navigate their own emotions and those of others, harness cognitive awareness to steer their actions, and adapt emotional responses in the face of adversity, stands as a critical enhancer of cognitive reasoning and adeptness in unraveling the intricacies of human interactions.^[1] This attribute, notably, wields a substantial influence over learning behaviors and reliably prognosticates forthcoming academic achievements.^[2]

Moreover, empirical evidence has illuminated a distinctive finding: stress levels among dental students exceed those within the broader populace.^[3,4] The demanding sphere of dentistry mandates a multifaceted skill set, spanning academic prowess, clinical proficiency, and finely honed social competencies, thus cementing its reputation as one of the most exacting

and arduous fields of study.^[5] In the context of India's dental curriculum, students embark on a rigorous 2-year preclinical phase, which encompasses didactic instruction and hands-on laboratory work. Subsequently, they delve into an immersive 3-year clinical training program.

The emergence of the COVID-19 pandemic has led to a notable transformation in the way students engage with their education, exerting a profound psychological impact on them. While extensive research has explored these effects in

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developed countries, there remains a noticeable scarcity of studies investigating the situation in developing nations.^[6,7] Critically, EI hinges on core facets such as self-awareness, self-motivation, and social skills.^[8]

A paucity of research in the scientific literature regarding the EI of dental undergraduates in India, particularly in the Western region, where no studies have been conducted on this subject. In response to the evolving educational landscape, we have meticulously crafted a comprehensive questionnaire poised to gauge and elucidate the nuanced realm of EI. This instrument aims to unravel its correlation with the learning habits of undergraduate dental students in the post-COVID era.

MATERIALS AND METHODS

This cross-sectional study was conducted after obtaining ethical approval from the institutional review board.

A questionnaire comprising 21 questions organized in three sections: demographic information (Q.1–4), self-evaluation questions (Q.5–19), and inquiries about learning habits (Q.20, 21) was designed [Annexure 1]. The self-evaluation section incorporated a structured questionnaire derived from Sterrett's EI assessment tool.^[9] This section encompassed 15 questions (Q.5–19), with each of the three core aspects – self-awareness, motivation, and social skills – comprising 5 questions. Participants rated their responses using a 5-point Likert scale, ranging from 1 to 5. The questionnaire was evaluated for face validity and content validity by subject matter experts. It was then converted into a Google Form and distributed for a pilot study, which aimed to refine the questionnaire based on feedback to improve its clarity and reliability. Thirty responses were collected, and these responses were reviewed and validated. The responses were cleared before further distribution.

After providing a comprehensive briefing to all undergraduate students from 1st year to the interns about the study's objectives, this digital questionnaire was then distributed to the students through e-mail and WhatsApp during the timeframe spanning from October 2022 to November 2022. We selected participants based on convenience sampling, that is, their voluntary expression of interest in joining the study. Following the collection and processing of responses, statistical analyses were employed to assess the study's outcomes. Participant data remained strictly confidential, with the primary purpose of serving research and publication requirements.

Statistical analysis

The gathered data were organized onto an MS Office Excel spreadsheet and statistical analysis was performed on the same the frequency (*n*) and percentage (%) of categorical data, the mean and the standard deviation of numerical data in each group were all descriptive statistics. The Chi-square test was used to determine the associations between the variables (two categories). An alpha error of 5%, a beta error of 20%, and a power of 80% were maintained, and a result of $P \leq 0.05$ was deemed statistically significant.

RESULTS

In the 1st-year class, there were 125 students, and each of the other academic years also had 100 students each year, resulting in a total of 525 students. Following the survey, an aggregate of 168 responses was collected from these students, reflecting a response rate of 32%.

Among the 168 responses, 112 (67%) were from female participants, and 56 (33%) were from male participants [Figure 1]. The age distribution of the respondents ranged from 18 to 22 years [Figure 2] with a mean age of 20.898 years. The respondents' annual family income distribution ranged as follows: the majority ($n = 42$) fell within the 3 to 8 lakhs range, followed by 1 to 3 lakhs ($n = 40$), >12 lakhs ($n = 26$), 25,000–1 lakh ($n = 24$), and <25,000 ($n = 10$) [Figure 3]. Table 1 summarizes the responses given by the participants to the questions of a 5-point Likert scale. Table 2 summarizes the EI scores. The majority of participants ($n = 124$) exhibited a moderate level of EI, while an equal number of respondents ($n = 22$) demonstrated both low and high scores in EI as described in Table 3. The distribution of respondents' study hours revealed a majority ($n = 62$) dedicating 1–2 h, followed by 2–4 h ($n = 60$), over 4 h ($n = 40$), and < 1 h ($n = 6$) [Figure 4]. The analysis of respondents' work completion behaviors unveiled a significant majority ($n = 100$) accomplishing their tasks before the deadline, followed by ($n = 50$) individuals who finished their work on the day of the deadline, with an additional $n = 18$ respondents completing their tasks after the stipulated deadline had transpired [Figure 5]. The Chi-square test was employed to independently assess the correlation between EI scores and family annual income, study hours, as well as work completion behavior. The analysis unveiled notable and statistically significant associations between EI and family annual income ($P = 0.03^*$) as well as EI and study hours ($P = 0.00^*$). Nevertheless, the examination of the connection between EI and work completion behavior yielded outcomes that were not statistically significant [Table 4].

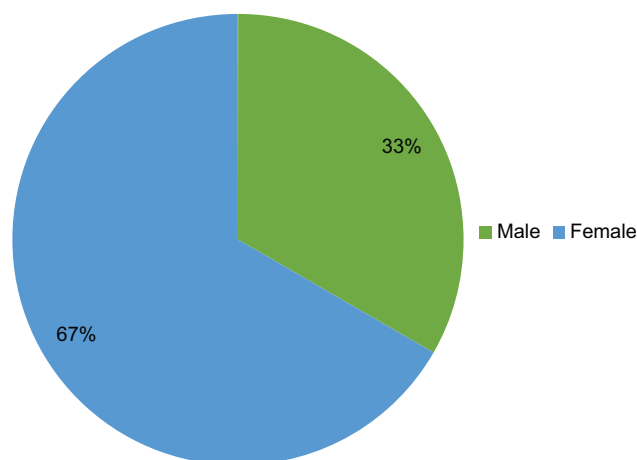


Figure 1: Gender distribution of the respondents

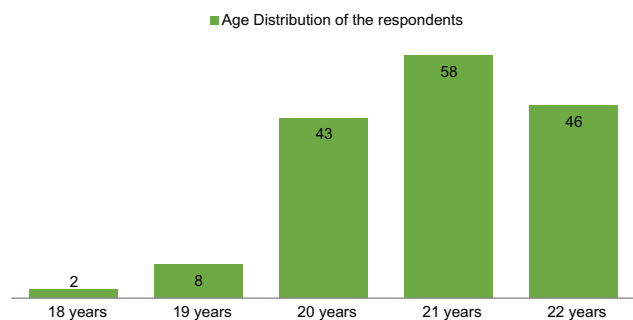


Figure 2: Age distribution of the respondents

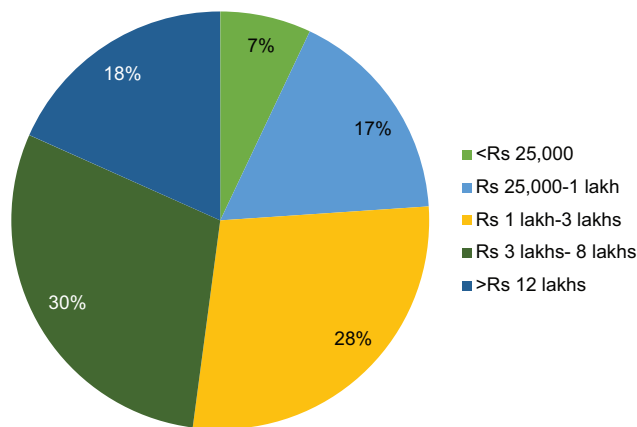


Figure 3: Distribution of family annual income among the respondents

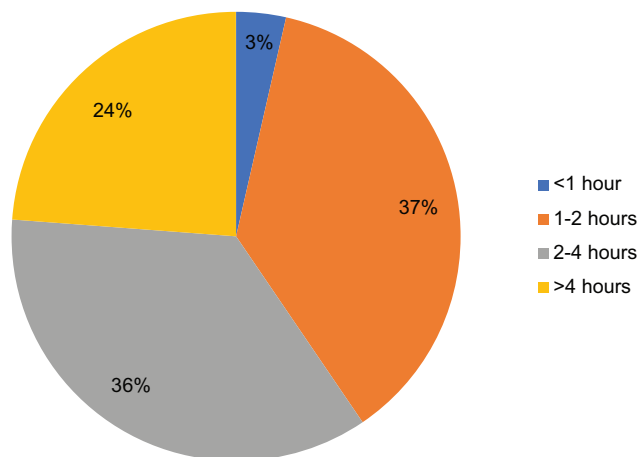


Figure 4: Distribution of study hours among the respondents

DISCUSSION

EI is a crucial factor in academic achievement, especially in the context of the COVID-19 pandemic.^[6] Cleary *et al.* articulated that EI plays a guiding role in shaping students' cognitive motivation throughout their academic endeavors^[10] only countable studies on EI among dental undergraduates exist^[11,12] and none have focused on the Western part of India.

In summary, this study uncovers key insights into EI among undergraduates. It reveals a diverse range of EI scores,

Table 1: Summary of distribution of responses on 5-point Likert scale from questions 5–19

Score	Self-awareness					Self-motivation					Social skills				
	Q5, n (%)	Q8, n (%)	Q11, n (%)	Q14, n (%)	Q17, n (%)	Q6, n (%)	Q9, n (%)	Q12, n (%)	Q15, n (%)	Q18, n (%)	Q7, n (%)	Q10, n (%)	Q13, n (%)	Q16, n (%)	Q19, n (%)
1	26 (15.47)	16 (9.52)	22 (13.1)	26 (15.47)	20 (11.90)	16 (9.52)	16 (9.52)	8 (4.76)	14 (8.33)	8 (4.76)	18 (10.71)	22 (13.09)	18 (10.71)	18 (10.71)	12 (7.14)
2	30 (17.85)	18 (10.71)	24 (14.3)	12 (7.14)	10 (5.95)	42 (25)	28 (16.67)	30 (17.86)	12 (7.14)	34 (20.23)	36 (21.42)	12 (7.14)	36 (21.42)	16 (9.52)	28 (16.67)
3	56 (33.34)	42 (25)	44 (26.19)	58 (34.52)	38 (22.61)	50 (29.76)	54 (32.14)	64 (38.09)	50 (29.76)	58 (34.52)	58 (34.52)	54 (32.14)	62 (36.90)	66 (39.28)	62 (36.90)
4	36 (21.43)	52 (30.95)	36 (21.42)	56 (33.33)	46 (27.38)	44 (26.19)	42 (0.25)	44 (26.19)	54 (32.14)	42 (25)	32 (19.04)	46 (27.38)	30 (17.86)	42 (25)	46 (27.38)
5	20 (11.91)	40 (23.81)	42 (25)	16 (9.52)	54 (32.14)	16 (9.52)	28 (16.67)	22 (13.09)	38 (22.62)	26 (15.47)	24 (14.28)	34 (20.23)	22 (13.09)	26 (15.48)	20 (11.90)

Question 5, 8, 11, 14, 17-related to self-awareness, Question 6, 9, 12, 15, 18-related to self-motivation, Question 7, 10, 13, 16, 19-related to social skills, Refer Annexure 1 for the questionnaire

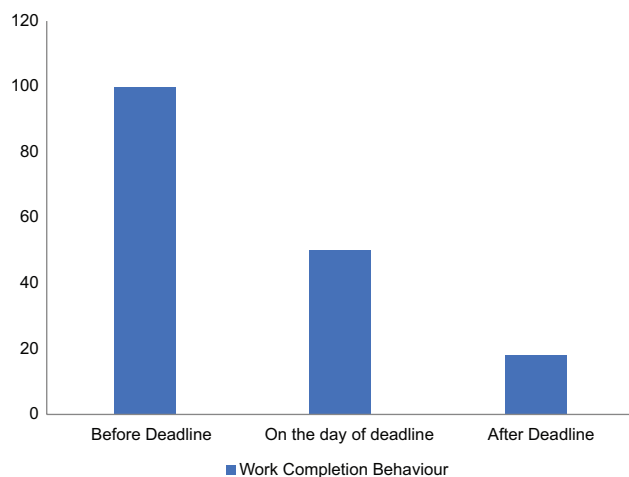


Figure 5: Work completion behaviour of the respondents

primarily in the moderate category. Similar results were obtained in a study conducted by Ravichandra *et al.* in Gannavaram, Andhra Pradesh, India. Their study demonstrated that the majority of participants exhibited moderate EI.^[11]

Notably, a significant association is established between EI and family income. In addition, a positive link between EI and study hours is evident, indicating that more academic commitment aligns with greater EI. However, no significant correlation is found between EI and work completion behavior. These findings shed light on the complex interplay of EI, socioeconomic factors, and study habits among undergraduates, offering a foundation for further exploration and application.

The significant variation in EI scores across different family income groups highlights a notable socioeconomic influence among undergraduate dental students. Higher-income individuals tend to exhibit superior EI, likely due to better access to educational resources and a supportive learning environment. These students may have benefited from additional emotional development opportunities, including extracurricular activities and counseling services. Conversely, lower-income students may face unique stressors that affect their EI.^[13,14] Equivalent outcome was documented by Kant in a questionnaire-based study involving 200 university students in Gaya, Bihar, India.^[15] Similarly, in a study led by Haralur *et al.* which involved 113 internship students from five dental colleges in Pakistan, several sociodemographic factors, including family income, displayed a notable positive correlation with EI.^[16]

Study habits represent fundamental skills that play a pivotal role in students' academic achievement. These habits are characterized as the inherent inclinations and behaviors individuals employ when acquiring new knowledge. Furthermore, study habits encapsulate the manner, in which students navigate the learning journey.^[17] Students with higher EI might have an edge when it comes to study habits because they excel at understanding and managing emotions, staying motivated even during challenges, and being skilled in social

Table 2: Measures of central tendency in relation to emotional intelligence

	Self-awareness	Self-motivation	Social skills	Total
Mean	16.52381	16.2857	15.8571	48.6667
Median	17	17	15.5	49
SD	4.36	4.414	4.383	12.4365
Minimum	5	5	5	15
Maximum	25	25	25	75

SD: Standard deviation

Table 3: Distribution of emotional intelligence scores in three tiers

High EI - >61 (>mean±SD)	Moderate EI - 31–61 (within limits of, mean±SD)	Low EI - <31 (<mean±SD)
22	124	22

SD: Standard deviation, EI: Emotional intelligence

Table 4: Relationship between emotional intelligence and family annual income, study hours, and work completion behavior

	Chi-square test					
	Family annual income		Study hours		Work completion behavior	
	Test value	P	Test value	P	Test value	P
EI	19.32	0.03*	46.59	0.00*	5.82	0.213

*Statistically significant. EI: Emotional intelligence

interactions. These qualities likely play a role in helping them develop more effective study routines.^[18] Consistent findings have emerged from studies conducted by Iqbal *et al.* in China and Kumar *et al.* in India^[6,12]

The lack of a significant relationship between EI and work completion behavior implies that EI may not be the primary factor influencing how students handle their tasks and deadlines. Work completion is influenced by a complex interplay of multiple factors, such as time management skills,^[19] personal motivation,^[20] and external pressures.^[21]

The study's practical implications are multifaceted. Educational institutions and policymakers can contemplate tailored programs to nurture EI, especially among students from lower-income backgrounds, fostering both academic success and well-being. Students and parents could gain awareness of EI's significance in education and seek resources for its development. Counselors and psychologists can provide personalized support to students with lower EI, aiding them in building vital emotional skills. In the professional realm, employers and career development programs may increasingly value EI in hiring and training. Ultimately, this study highlights disparities tied to socioeconomic factors, urging more equitable educational approaches.

Limitations and future scope

This study does present several significant limitations that require careful consideration. First, the relatively small sample size and the study's focus on a particular institution or program could potentially limit the broader applicability of the findings, making it challenging to generalize them to a larger population. Moreover, the study's concentration on a single institution, coupled with a response rate of 32%, may introduce biases stemming from nonresponse and the desire to provide socially desirable answers. Furthermore, the study may not have factored in a range of external variables, temporal fluctuations, or cross-cultural nuances that could influence the observed relationships. Recognizing and acknowledging these limitations is vital to obtaining a comprehensive understanding of the study's scope and implications.

Future research in this domain should consider longitudinal studies to track changes in EI over time, interventions aimed at enhancing EI, and cross-cultural comparisons to explore cultural influences and investigations into additional socioeconomic factors. Assessing specific academic performance outcomes, integrating EI into the curriculum, and studying its impact in the workplace are also promising avenues. A developmental perspective and neuroscience approaches could provide deeper insights into EI development and its cognitive implications. These diverse research directions will contribute to a comprehensive understanding of EI's role in student success and well-being.

CONCLUSION

This study offers significant insights into the subject matter, augmenting the existing knowledge base and presenting prospects for future investigations. The implications of this research extend across multiple domains, although it is essential to acknowledge the inherent limitations that should inform subsequent studies. Ultimately, this study enriches the discourse surrounding EI, emphasizing the imperative for continued exploration and inquiry in this field.

Ethical statement

Ethical approval obtained from institutional review board (Reference:Gdc&h Mumbai/Ethical committee/4126/2020).

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Nil.

Conflicts of interest

There are no conflicts of interest.

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ANNEXURE

Annexure 1: “Emotional Intelligence Assessment and Study Behavior among the dental undergraduates in post-COVID-19 era”

1. Age
2. Gender
3. Residence
4. Family Income
5. I am aware of my strengths, weaknesses, opportunities and threats score 1–5
6. I strive to improve or meet a standard of excellence score 1–5
7. I owe skill at the art of persuasion score 1–5
8. I am ready to accept mistakes and learn from the experience score 1–5
9. I was willing to make personal sacrifices and actively seek out opportunities to achieve the goal. Score 1–5
10. I foster open communication and stay receptive to both good and bad news. Score 1–5
11. I take fresh perspectives and am bold enough to express my views honestly. Score 1–5
12. I stay persistent in pursuing my goals despite obstacles and setbacks. Score 1–5
13. I am a champion in initiating or managing change. Score 1–5
14. I can think clearly and can control my impulsive behavior under pressure. Score 1–5
15. I have the achievement drive and stay committed toward my goal. Score 1–5
16. I am capable of creating group synergy and nurturing instrumental relationship. Score 1–5
17. I am very innovative. Score 1–5
18. I have developed leadership qualities and take a lot of initiative to work toward our goals. Score 1–5
19. I manage conflicts incase of difference of opinion. Score 1–5
20. Study hours allotted <1 h 1–2 h 2–4 h >4 h
21. I submit all the assignments and projects before deadline, on the day of deadline, after deadline