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ASSOCIATION BETWEEN DENTAL GRADUATE'S EMOTIONAL INTELLIGENCE AND ACADEMIC PERFORMANCE IN PATNA, BIHAR

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ABSTRACT

Aim: was to assess students' Emotional intelligence (EI) and its associated factors and to determine if there is an association between their Emotional intelligence and Academic achievement. **Material and method**: It was a descriptive Cross- Sectional study conducted among the dental students from Dental Institutes in Patna city. All the students were pre informed about the survey. The data is collected using a close-ended questionnaire. The first part included demographic variables were age, gender, marital status, and educational institution. The second part included 30 structured EI questions, five each to assess self-awareness, empathy, self-confidence, motivation, social control, and self-competence. Response options to each question ranged from 1=virtually never to 5=virtually always. Chi-Square test was used for estimation of statistical significance. **Results**: Overall mean of the self-awareness domain was 18.34±2.83, self-confidence mean was 18.71± 2.16, self-control mean was 18.64±2.55, empathy mean was 19.51±2.12, motivation mean was 19.33±2.03 and social competency mean was 18.88±2.81. Among males 29% had low EI and 5% had high EI whereas among females 21% had low EI and 45% had high EI. The association between life style factors and emotional intelligence was found to be statistically significant with p value <0.01. **Conclusion**: The result of this study provides an insight into individuals EI and its relationship with professional, interpersonal and life style factors in dental students. Gender and lifestyle habits were associated with emotional intelligence, which in turn showed significant association with high academic performance.

KEYWORDS: Emotional intelligence, Questionnaire, Dentist, Students.

INTRODUCTION

Being able to recognize what we and other people feel, and finding ways to deal with those emotions is an important facet of what psychologists generally call Emotional Intelligence (EI).[1] The concept of emotional intelligence was introduced in the early 1990s by Salovey and Mayer, who defined it as 'a type of social intelligence that involves the ability to monitor one's own and other's emotions, to discriminate between them, and to use this information to guide one's thinking and actions[2] and wrote that an emotionally intelligent person is skilled in four areas: identifying, using, understanding, and regulating emotions.[3] EI helps one to build stronger relationships, succeed at work and achieve career and personal goals.[4] A wide range of important life outcomes that are not adequately predicted by traditional measures of cognitive intelligence can be predicted by EI.[5]

The stressful nature of the dental profession is well established. Dental education has been asserted as one of the most challenging, demanding and stressful fields of study, as dental students are expected to acquire diverse competencies such as academic and clinical competencies and interpersonal skills. Studies have found that emotional intelligence is related to academic and professional success and contributes to individual cognitive – based performance over and above the level attributable to general intelligence.[6]

Emotional intelligence, one of the psycho–effective domains, in dental education, has also been related to clinical performance and higher academic achievement and in clinical practice has been related to empathy in consultation, doctor – patient relationships, clinical performance and patient satisfaction.[7] The aspect of doctor-patient relationship can be strengthened by stressing the importance of EI among dental students.[8]

In the five-year dental education program in India, dental students pursue four years of study, followed by a clinical internship in the final year. Hence, assessment

during the internship is a cumulative indicator of academic performance as well as other factors associated with it.[5]

Emotional intelligence is the ability that posits four related skills; perceiving emotions, using emotions to facilitate thinking, understanding emotions, and managing emotions. Hence, the present study is a humble effort to assess students' Emotional intelligence and its associated factors and to determine if there is an association between their Emotional intelligence and Academic achievement.

MATERIAL AND METHODS
1) Study design: It is a descriptive Cross- Sectional study.
2) Source of data and study group: Data had been obtained from the study group comprises of dental students from Dental Institutes in Patna city.
3) Approval from authorities: Prior to scheduling the survey, official permission was obtained from; Head of Buddha Institute of Dental Sciences and Hospital, Patna.
4) Ethical clearance: The proposed study was reviewed by the Ethical committee of Buddha Institute of Dental Sciences and Hospital, Patna and clearance was obtained.
5) Prescheduling: Prior to scheduled collection of data the investigator visited the respective departments to obtain permission with the heads of the departments and fix the scheduled date and time for data collection.
6) Schedule of the survey: A survey was systematically schedule and it was conducted in the month of August, 2018. Duration for data collection for each subject ranged from 10-12 minutes.
7) Sample size: 100 dental students pursuing internship were selected for the study by simple random sampling.
8) Pilot study: A pilot survey was undertaken to test the feasibility of the study including the assessment of clarity, validity, and applicability of the questionnaire Based on the pilot study certain modifications were done in the proforma and the required numbers of proforma were procured.
9) Collection of data: All the students were pre informed about the survey. The data is collected using a close-ended questionnaire. The questionnaire consisted of the following variables.
a) The First Part included demographic variables were age, gender, marital status, and educational institution. For assessing lifestyle factors, questions encompassed sleeping habits, exercise, and recreational activities. Professional factors were career choice, relationship with colleagues/teachers, and academic performance.
b) The second part included a structured questionnaire on EI adapted from Sterrett's EI questionnaire.[9] It consisted of 30 questions, five each to assess self-awareness, empathy, self-confidence, motivation,

social control, and self-competence. Response options to each question ranged from 1=virtually never to 5=virtually always.
10) Courtesy report: Survey findings were translated to a report in a simple, understandable language and sent to all the departments of institution. This is done to create awareness about the prevailing situation while respecting their right for information.
11) Statistical procedures: The data so obtained was compiled systematically. A master table was prepared in MS Excel worksheet. Data comparison was done by applying specific statistical tests to find out the statistical significance of the comparisons. Chi-Square test was used for estimation of statistical significance. Significance for statistical tests was predetermined at probability values of 0.05 or less.

RESULTS
Out of 116 interns invited to participate in the study, a total of 100 participated for a response rate of 86%. Females comprised 66% and males 34%. The mean ages of male and female study participants were 23.19 ± 0.93 and 23.89 ± 1.17, respectively (Table 1).

Table 2 shows the distribution of study subjects according to academic performance, among males, majority 70.59% of study subjects were having high academic performance and rest 29.41% had low academic performance. Among females, majority 80.30% of study subjects were having high academic performance and rest 19.69% had low academic performance.

Table 3 shows the emotional intelligence scores according to 6 domains. In the domain self – control, 58% scored ≥ 20, 33% scored between 16-19, and 9% study participants scored ≤15. In the domain empathy, 71% scored ≥ 20, 26% scored between 16-19, and 3% study participants scored ≤15. In the domain motivation, 66% scored ≥ 20, 29% scored between 16-19, and 5% study participants scored ≤15. In the domain social-competence, 69% scored ≥ 20, 14% scored between 16-19, and 17% study participants scored ≤15.

Overall mean of the self-awareness domain was 18.34 ± 2.83, self confidence mean was 18.71 ± 2.16, self-control mean was 18.64 ± 2.55, empathy mean was 19.51 ± 2.12, motivation mean was 19.33 ± 2.03 and social competency mean was 18.88 ± 2.81. When male and female are statistically compared it was found to be significant with p value<0.01 (Table 4).

Table 5 shows the gender-wise distribution of study subjects according to emotional intelligence score. For EI analysis, the score for each domain was obtained by adding the scores for that specific domain. The total score was the sum of all six domain scores. The minimum and maximum scores for each domain were 5 and 25, respectively, with an overall score ranging from 30 to 150. Scores of less than 120 were considered low

and ≥120 high. Among males 29% had low EI and 5% had high EI whereas among females 21% had low EI and 45% had high EI.

Table 6 shows association between lifestyle factors and emotional intelligence: of all study subjects, 28% of the study subjects had low EI and 40% had high EI who agreed that they have joined this profession by choice and 23% of the study subjects had low EI and 9% had high EI who said 'no' to the same. High emotional intelligence was observed in 28% of the study subjects who spent every-day for recreational activities, 13% occasionally and 8% not at all does recreational activities. The association between life style factors and emotional intelligence was found to be statistically significant with p value <0.01.

Table 7 shows the association of emotional intelligence and academic performance, Low emotional intelligence was observed in the 15% of the study subjects who have scored less than 65% in their final BDS as well as Low emotional intelligence was observed in the 37% of the study subjects who have scored as more than or equal to 65% in their final BDS. High emotional intelligence was observed in the 8% of the study subjects who have scored less than 65% in their final BDS as well as high emotional intelligence was observed in the 40% of the study subjects who have scored as more than or equal to 65% in their final BDS.

Table 1: Distribution of the study subjects according to Gender and Age:

Variable	Male	Female	Total
Gender	34(34%)	66(66%)	100(100%)
Age (Mean age ±SD)	23.19 (±0.93)	23.89(±1.17)	23.62(±0.97)

Table 2: Distribution of the study subjects according to Academic performance:

Gender	Academic performance(final BDS%)	
	Low (<65%)	High (≥65%)
Male	10 (29.41%)	24 (70.59%)
Female	13 (19.69%)	53 (80.30%)
Total	23(23%)	77(77%)

Table 3: Distribution of study subjects according to domain wise Emotional scores (%):

Domain	Score ≤15	Score 16-19	Score ≥20
Self-awareness	22 (22%)	12 (12%)	66 (66%)
Self-confidence	13 (13%)	25 (25%)	62 (62%)
Self-control	9 (9%)	33 (33%)	58 (58%)
Empathy	3 (3%)	26 (26%)	71 (71%)
Motivation	5 (5%)	29 (29%)	66 (66%)
Social competence	17 (17%)	14 (14%)	69 (69%)

Table 4: Gender wise comparison of mean score in domains of emotional intelligence:

Domain	Males		Females		Total		p value
	Mean	SD	Mean	SD	Mean	SD	
Self-awareness	16.34	2.99	20.11	2.19	18.43	2.83	<0.01*
Self-confidence	17.12	2.67	20.05	1.98	18.71	2.16	<0.01*
Self-control	18.02	2.88	19.17	2.07	18.64	2.55	<0.01*
Empathy	18.35	2.43	20.37	1.60	19.51	2.12	<0.01*
Motivation	18.22	2.28	20.08	1.88	19.33	2.03	<0.01*
Social competence	17.11	2.94	19.94	2.31	18.88	2.81	<0.01*
Overall score	105.16	9.32	119.72	10.39	114.67	10.93	<0.01*

Table 5: Gender-wise distribution of study subjects according to emotional intelligence score:

Variable	Low EI(<120)	High EI(≥120)	Total (100)
Male	29(29%)	5(5%)	34(34%)
Female	22(22%)	44(44%)	66(66%)
Total	51 (51%)	49 (49%)	100

Table 6: Association between lifestyle factors and emotional intelligence.

Category	Variable	Low EI(<120)	High EI(≥120)	p value
Joined profession by choice	Yes	28	40	<0.01
	No	23	9	
Staying with family	Yes	30	29	<0.01
	No	20	21	
Sleep in hours	<6	13	2	<0.01
	>6	32	53	
Meeting friends	Everyday	27	44	<0.01
	Occasionally	8	3	
	Not at all	16	2	
Physical exercises	Everyday	3	31	<0.01
	Occasionally	21	11	
	Not at all	27	7	
Recreational activities	Everyday	2	28	<0.01
	Occasionally	13	13	
	Not at all	36	8	

Table 7: Association of emotional intelligence and academic performance:

Emotional intelligence	Academic performance		p value
	Final year percentage		
	Low (<65%)	High (≥65%)	
Low EI	15	37	
High EI	8	40	<0.01*
	Relationship with teachers		
	Fair/poor	Good	
Low EI	30	8	
High EI	20	42	<0.01*
	Relationship with colleagues		
	Fair/poor	Good	
Low EI	31	20	
High EI	18	31	<0.01*

DISCUSSION

The health professions have been described as an amalgam of clinical competence and a service orientation towards caring. EI can assist health professionals in managing their own and their patients' emotions, showing genuine emotional responses, being empathetic, communicating emotions without introducing conflict, and managing instinctive emotions such as disgust, annoyance, and frustration in professional-patient interactions. EI has been measured in various ways. Studies have concentrated on EI, its associated factors, and clinical performance, while it has not been clear whether EI has an impact on academic performance. Hence, this study sought to determine whether gender and lifestyle factors variable affected EI and whether EI in turn affected academic performance.

Of the 100 participants, 66 were female and 34 were male. This is in accordance with the trend in most of the colleges in India, as most of the females are choosing dentistry as their career.9 It has been observed that dentistry has been attractive to women as their stature in the society is better financially and professionally which is in accordance with Birks Y et al[10], Aggarwal A et al[11], Banabilh SM et al[12], dos Santos BF et al.[13]

In the present study, majority 53% of the female were having better academic performance than male which is in accordance S.Azimi et. Al[2] who found significant relationship between gender and academic performance which suggests that female students are more anxious, self conscious and focused towards study with no or less distractions whereas males have better social skills and stress management but with more distractions.

In the present study EI scores greater than 20 in self-awareness domain was 66%, self- confidence domain was 62%, self-control domain was 58%, empathy domain was 71%, motivation domain was 66% and social competence was 69%. Our finding is in line with the study conducted by Faye et al[18], but lower than in the study by Shetty et al[9], in which only 33.6% of the participants had scores less than 20 in each domain. Such low EI scores also show a lack of importance given to soft skills. For the average EI score, the participants were in the range of 12% to 31.5%, while for poor it ranged from 4% to 22.5%. Average EI meant that there is a need for improvement in that domain, while poor EI required immediate intervention.

In the present study, the mean scores in all the domains and overall EI were significantly higher for the females

than males. Females had a mean score around 20 in each domain which is in accordance with Amit Kumar et al[5], Azimi et al[2] and Katyal A et al.[14] The probable reason for this finding may relate to the fact that EI primarily deals with managing and expressing one's emotions as well as social skills. Since females often tend to be more willing than males to express emotion and intimacy in their relationships with parents, friends, and siblings, their EI would likely be higher than that of males. The difference can also be explained in terms of some of personality characteristics.

Our study found a significant association between career choice and EI. Participants who joined the profession by choice had higher EI scores than their counterparts, suggestive of informed choices. Career choices seemed to influence academic performance also. Those who chose a dental career themselves were 2 times more likely to have a higher academic percentage than those who felt their career had been imposed on them.

In our study, significant association was seen between sleep and EI. Those who slept for more than six hours were more likely to have a higher EI score than the counterpart. Spending time everyday on physical exercise and recreational activities also correlated with higher EI scores, which is similar to previous studies.[9,15] Emotional competencies are thought to be important for social interaction because emotions serve communicative and social functions, conveying information about people's thoughts and intentions and coordinating social encounters.[16] Some preliminary findings suggest that higher EI is related to positive outcomes such as social behavior, parental warmth, and positive peer and family relations.[17] In our study, a significant association was seen among staying with family, meeting friends, and EI. This finding parallels that found in previous studies of Lopes P N et al[16], Shetty et al[9], Hsieh MC et al[18], Shutte et al.[19] Developing a better understanding of emotion management strategies may contribute to the quality of social interactions.

Performance on final examinations reflects continuous assessments of staff mentors, clinical tutors, and students themselves of technical and interpersonal skills and professional qualities that can be attributed to the characteristics related to EI. Assessment methods include written assignments, examinations, and clinical assessment. The significant relationship between EI and academic performance found in our study supports that in two previous studies of Darshan et al[20], Shah CJ et al.[21] EI as an independent variable in influencing academic performance was assessed. In our study, participants with high EI had higher academic percentage than those with variable low EI. Emotional and social competence is vital in developing and maintaining healthy interpersonal relationships, including those of health care professionals with their patients. Our study's findings align with those in two previous studies that

those who have high EI also have good relationships with teachers and colleagues.[9,15]

The study focused on some of the personal factors affecting EI in dentistry. Future research should first explore other factors that predispose EI in dental students. Second, EI can be taught and acquired over a period of time. Therefore, we recommend that short-term training courses or workshops based on the concepts of EI for students should be designed. Third, curriculum designers should consider implementing and evaluating components designed to help students develop EI competencies. Since EI plays a pivotal role in academic performance, we therefore recommend that personality and emotional characteristics be considered in the selection procedure of students and faculty members. Healthy lifestyle habits were associated with EI, which in turn influenced these interns' academic performance.

CONCLUSION
The result of this study provides an insight into individuals EI and its relationship with professional, interpersonal and life style factors in dental students. Gender and lifestyle habits were associated with emotional intelligence, which in turn showed significant association with high academic performance. Hence, there is a need for orientation programs for students when they enter dental school, with periodic reinforcements for enhancing emotional intelligence. Understanding emotional intelligence and its relationships with career needs and demands in dentistry needs to be explored further for better treatment outcomes, professional success, and gratification. Training of dental students with regards to EI either in the form of inclusion in the routine curriculum or through workshops can be considered. Further research should be conducted in this area to increase our understanding.

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