

Emotional Intelligence: A predictor of undergraduate student's academic achievement in altered living conditions

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Abstract

Objective: To compare the impact of trait emotional intelligence between students of different faculties and associated factors.

Methods: The cross-sectional analytical study was conducted from August 2016 to March 2017 at the University of Faisalabad, Faisalabad, Pakistan, and comprised undergraduate students, both boarders and day scholars, from seven different faculties. Data was collected using the trait emotional intelligence questionnaire–short form. Student's yearly test scores were obtained as a measure of academic achievement. Data was analysed using SPSS 20.

Results: Of the 498 students, 109(21.9%) were studying medicine, 56(11.2%) dental sciences, 76(15.2%) optometry, 83(16.6%) nutrition and dietetics, 109(21.9%) physiotherapy, 35(7%) pharmacy, and 30(6%) social sciences. The overall mean age was 19.84±1.30 years. There were 210(42.2%) boarders compared to 288(57.8%) day scholars. There was significant difference in emotional intelligence based on student's faculty ($p<0.0001$). Significant impact was seen on test scores of faculty residing status ($p<0.05$). Significant relation of emotional quotient and residing status with student's test scores ($p<0.05$).

Conclusion: Emotional intelligence was found to be an important factor in academic achievement and important variable in different faculties and different living conditions.

Keywords: Achievement, Emotional intelligence, Faculty, Medical students, Social conditions.

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Introduction

Emotional intelligence (EI) is individuals' ability to perceive and process the emotional aspects of their own selves as well as other individuals that may alter their behaviour.¹ Our actions are mainly dependent upon our emotions.² When we measure a person's EI level, we call it their emotional quotient (EQ).³ Initially, scientists only focussed on intelligence quotient (IQ), but after a study in one of the leading universities of the world it was found that graduates in different disciplines, such as medicine, business and teaching, showed no association between their IQ indicators and subsequent success in careers.⁴ They were also of the view that IQ helped initially, but self-control had academically unique long-term benefits.⁵ These researches enabled psychologists to come to a common point that success was mainly dependent on EI.⁶ The five major categories of EI are self-awareness, self-regulation, motivation, empathy and social skills. These five categories are not static or fixed as these can be up-skilled or improved.^{2,7}

People with high EI tend to be more optimistic, satisfied, empathetic, have high self-efficacy and more leadership skills.^{8,9} Researchers elaborated the role of EI on education and concluded that teachers with high EI have good control over class compared to those with low EI. Also, leadership skills require high EQ.⁸ Medical and allied health undergraduates are expected to develop these leadership qualities, especially as they move from basic sciences towards clinical sciences where they are expected to emerge as true leaders who can take correct decisions in difficult situations in order to save lives.¹⁰ Students with higher EQ are more confident and possessed higher ability to solve problem-based questions in day-to-day life and during their medical education, and such students also have inner motivation and the ability to lead a better life.¹¹ Similarly, medical students with higher EI perceive less stress compared to those with lower EI, and it is, therefore, important to train medical students to increase their EI in order to improve their overall wellbeing so that they can bear the stress of medical studies.^{12,13}

EQ involves complex behavioural sciences. Students with different academic background at different faculties do not share same personality traits and EI may have an important impact on their behaviour and performance in academics owing to different social and living conditions. Research has shown no relationship between EQ and academic achievement alone¹⁴ or a negative relationship between EI and academic achievement.¹⁵

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The current study was planned to compare trait EI and EI factors between students of different faculties and their residing status and compare their test scores.

Subjects and Methods

The cross-sectional analytical study was conducted from August 2016 to March 2017 at the University of Faisalabad, Faisalabad, Pakistan. The university offers various courses in seven different faculties, including medical sciences (MBBS), dental sciences (BDS), optometry (OD), nutrition and dietetics (DND), physiotherapy (DPT), pharmacy (DPH), and social sciences (BSCS).

After approval from the institutional ethics review committee, the sample size was calculated using the proportions of boarders (33.9) and non-boarders (66.1) in the light of literature.⁹ The formula¹⁶ used for the comparison of proportions was: $n = (Z_{\alpha/2} + Z_{\beta})^2 * (p_1(1-p_1) + p_2(1-p_2)) / (p_1 - p_2)^2$, where $Z_{\alpha/2}$ was the critical value of the normal distribution at $\alpha/2$ (for a confidence level of 95%, α is 0.05 and the critical value is 1.96), Z_{β} was the critical value of the normal distribution at β (for a power of 80%, β is 0.2 and the critical value is 0.84) and p_1 and p_2 were the expected sample proportions of the two groups.

The sample was raised using stratified random sampling. The total number of students enrolled in the university undergraduate programmes was calculated based on various faculties. A list of these students was collected from students' record. The total number of students in the seven faculties was 2,118, and a list of these students was entered into Microsoft Excel 2016. The generated random numbers were sorted in ascending order. Students from each strata were selected by simple random sampling technique.

After taking informed consent, general information of the student was taken regarding age and residing status. Students residing in the hostels of the university were termed boarders. Hostels are supervised by hostel wardens and consist of hundreds of students and have students from different social, geographical and economical

background. Students who go back to their homes after the university time were termed day scholars. Student assessment scores in percentage (performance of the student in their particular subjects during the year 2016) were taken from the examination department of the university after due approval. EI of the selected population was assessed using the self-reported Trait emotional intelligence questionnaire-short form (TEIQue-SF). It is 30-item scale that is particularly designed to measure global trait EI, consisting of 15 different facets organised into four factors: wellbeing, self-control, emotionality and sociability.¹⁷ The Cronbach's alpha showing the internal reliability of the data for all the 30 items was 0.88. Responses were made on a seven-point Likert scale, ranging from 1-completely disagree to 7-completely agree. Global trait EI was calculated by summing the responses of the 30 items. Reverse scoring was done for negative items. Mean value was calculated for trait EI and the four factors, higher values representing higher EI and lower values representing lower EI.

Data was analysed using SPSS 20 and R for Windows Graphical User Interface (GUI) front-end. Percentages and proportions for qualitative and mean $\pm$ standard deviation (SD) for quantitative variables were calculated. Comparisons between the proportions of groups based on faculty strata with student's residing status, were seen using chi square test. Analysis of variance (ANOVA) was used for multiple comparisons between the groups. To see the interaction of various variables on students' test scores, univariate factorial ANOVA was performed and multivariate analysis of variance (MANOVA) was carried out for a detailed analysis of the dataset and to examine possible factor-level differences. $P \leq 0.05$ was considered statistically significant.

Results

Of the 498 students, 109(21.9%) were studying MBBS, 56(11.2%) BDS, 76(15.2%) OD, 83(16.6%) DND, 109(21.9%)

Table-1: Comparison of global trait emotional intelligence (EI), four trait EI factors and other parameters between the university faculties.

	MBBS (n=109)	BDS (n=56)	OD (n=76)	DND (n=83)	DPT (n=109)	DPH (n=35)	BSCS (n=30)	Total (n=498)	p-value
Age	19.53±0.82	19.20±0.81	19.83±1.52	20.33±1.43	20.08±1.51	19.56±1.10	20.43±1.04	19.84±1.30	<0.001
Well being	4.92 ±0.94	4.58 ±0.92	4.65 ±1.01	4.77 ± 0.91	4.78 ±0.96	4.84 ±1.01	4.85 ±0.97	4.78 ±0.96	0.382
Self-control	4.26 ±0.87	4.21 ±0.98	4.25 ±0.73	4.15 ± 0.94	4.26 ±0.91	4.11 ±0.73	4.20 ±1.04	4.22 ±0.88	0.961
Emotionality	4.34 ±0.84	3.97 ±0.78	4.17 ±0.85	4.16 ±0.97	4.26 ±0.99	4.22 ±1.00	4.47 ±0.82	4.23 ±0.91	0.165
Sociability	4.24 ±0.92	3.96 ±0.79	4.14 ±1.00	4.13 ± 1.02	4.23 ±0.76	4.08 ± 0.78	4.02 ± 0.76	4.15 ± 0.89	0.503
Global trait EI	4.62 ±0.59	4.20 ±0.53	4.33 ±0.60	4.27 ±0.62	4.60 ±0.57	4.53 ±0.59	4.39 ±0.56	4.45 ±0.61	<0.001
Assessment scores	69.80±6.66	60.82±6.89	74.48±5.42	73.54± 7.01	69.98± 7.89	77.96±3.94	75.39±5.99	71.08±7.99	<0.001
Residing status									
A	32 (29.4)	32 (57.1)	48 (63.2)	55 (66.3)	73 (67.0)	27 (77.1)	21 (70.0)	288 (57.8)	<0.001
B	77 (70.6)	24 (42.9)	28 (36.8)	28 (33.7)	36 (33.0)	8 (22.9)	9 (30.0)	210 (42.2)	

MBBS: Faculty of medical sciences; BDS: Faculty of dental sciences; OD: Faculty of optometry; DND: Faculty of nutrition and dietetics; DPT: Faculty of physiotherapy; DPH: Faculty of pharmacy;

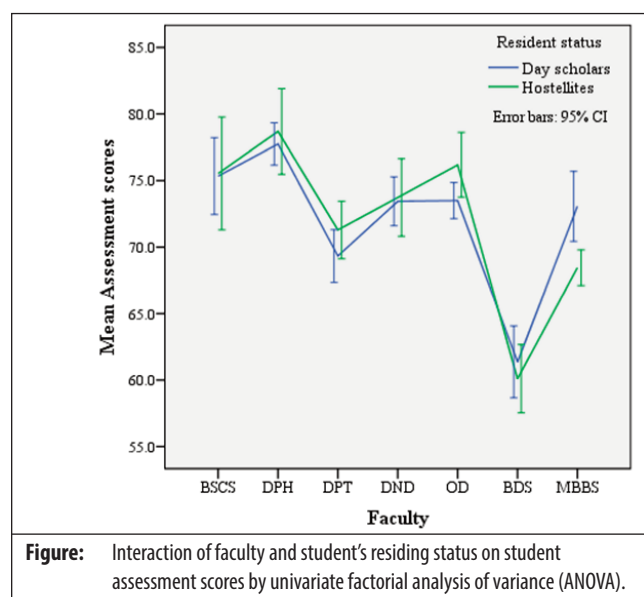
BSCS: Faculty of social sciences; A: Day scholars, B: Boarders; Values are given as mean $\pm$ SD; Comparison was performed using one-way analysis of variance (ANOVA);

For student's residing status, values are given as percentages and compared using chi-square test; *p-value ≤ 0.05 was considered statistically significant.

Table-2: Univariate factorial analysis of variance (ANOVA) showing interaction of faculty and student's residing status on student assessment scores and interaction of emotional quotient (EQ) and student's residing status on student assessment scores.

Source	df	Mean Square	F	p-value*
<i>Interaction of class and student's residing status on student test scores</i>				
Faculty	6	1521.35	34.69	<0.001
Student's residing status	1	0.06	0.001	0.97
Faculty × Student's residing status	6	121.46	2.77	0.01
<i>Interaction of emotional quotient and student's residing status on student test scores</i>				
Global trait Emotional Intelligence (EI)	1	21.19	0.33	0.56
Student's residing status	1	373.97	5.92	0.01
Trait EI × Student's residing status	1	277.17	4.38	0.037

*p-value ≤ 0.05 was considered statistically significant.



DPT, 35(7%) DPH, and 30(6%) BSCS. The overall mean age was 19.84 ± 1.30 years. There were 210(42.2%) boarders compared to 288(57.8%) day scholars ($p < 0.001$). The EI mean values and student assessment scores were noted (Table 1).

There was a statistically significant difference in trait EI based on student's faculty ($p < 0.0001$). Also, there was a statistically significant interaction between the effects of faculty and student's residing status on the test scores ($p = 0.01$). The scores of medical students residing in the hostel differed significantly from medical day scholars ($p = 0.05$). This interaction was not found significant between boarders and day scholars of other faculty students (Figure).

There was statistically significant interaction between the effects of EQ and student's residing status on student's test scores ($p = 0.037$). The scores of all students having relatively lower EQ differed significantly between day scholars and boarders ($p = 0.05$). No such significance was found in

students having relatively higher EQ ($p = 0.98$) (Table 2).

Discussion

The current study demonstrated that trait EI and global trait EI varied in different faculties, and there was a significant linkage of faculty and student's residing status on test scores. Also, interaction of EQ and student's residing status showed significant changes in test scores.

Trait EI is the perception of an individual about his/her emotionality. It is a predictor of scholastic achievement, personality development, leadership growth and many other psychological factors which cannot be explored in the cognitive domain.¹⁸

In the current study, the choice of questionnaire was important, as TEIQue is a standardised and validated questionnaire to check trait and global EI, and it has consistently outperformed all other EI measures which it has been pitted against in various independent studies and a major meta-analysis.¹⁹

As the full form of the questionnaire was lengthy and would have been tedious for students to fill, the TEIQue-SF(short form) was our instrument of choice for this study.²⁰

Results suggested that both trait and global EI varied based on faculty. MBBS students had the highest EI values followed by DPT students compared to other faculties. This finding was consistent with previous studies which demonstrated that trait EI profiles can vary with different faculties,²¹ however to our knowledge, this was the first study which demonstrated the differences in EI between medical students, students of allied health sciences, like DPT, OD, DND, and students of dentistry as well as of social sciences. The higher emotional intelligence of medical students may be attributed to the fact that they are in constant interaction with people suffering physically, mentally and emotionally from the very beginning of their course, and these factors may develop more emotive skills.

Many studies correlating faculties and EI have reported that global trait EI showed stronger correlation than its four factors amongst different groups²² and this was also observed in our results. No previous study has explored the role of trait EI subcomponents in such relationships in faculties of allied health sciences previously, hence, we cannot comment on this finding without further investigation.

Faculty and student's residing status interacted significantly as predictors of test scores in the case of medical students only. This has also been reported in previous studies and possible explanations include the workload, stress and burnout experienced by medical

students being far greater than some other faculties.²³

Interestingly, our results showed that medical day scholars were high scorers compared to boarders, which is in contrast with previous studies that mostly demonstrated higher test scores of boarders.²⁴ This could be due to social and environmental variations in living conditions at various places and psychological attributes of student populations of different areas. The EI of day scholars can be a contributory factor here also, as these students have a better EQ, being satisfied with their atmosphere and being able to learn in a favourable environment.

EI is already an established predictor of scholastic achievement than conventional measures, like the grade point average (GPA), which is liable to manipulation by variability in grading on the part of the teacher.²⁵

We attempted to explore how EI of students combined with their residing status affected results. To our knowledge, this was the first study exploring such roles of EI and student's residential factors on scholastic performance. In our local Pakistani context, a study demonstrated how EI took precedence in medical college success over other factors, but it also showed alarmingly low levels of EI in its overall sample population, which was not distinguished by residence.²⁶

Overall, our day scholars exhibited a slightly better EQ score than boarders (3.9%), and the students who had lower EQ and were boarders had lower test scores compared to lower EQ day scholars, but students with higher EQ did not show any significant variations in test scores based on student's residing status, suggesting that it is actually EI which is a predictor of test scores in different living conditions. Previous studies also corroborated this premise that students with greater EI scores performed better academically owing to their ability to better understand and react to their emotional needs.²⁷ They become mentally stronger and are able to pursue their careers better because EI develops resilience. Hence, it is safe to assume that EQ of students will overshadow other contributing factors in academics such as their residing status.¹⁷

The limitations of the current study include its cross-sectional design, monocultural and gender-specific setup and a small sample size.

Despite the limitations, however, the study can be used as a starting point to guide students for future careers, in assessments and in their selection and placement in hostels based on their EI scores.

Conclusion

EI was found to be an important factor in academic achievement and it varied in different faculties and with respect to different living conditions.

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Conflict of interest: None.

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