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Original Article

Professionalism in Medical Students: Emotional Intelligence Matters

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ABSTRACT

Emotional intelligence (EI) and professionalism are the core competencies that medical education requires; however, their interconnection is still not explored much. **Objectives:** To identify the relationship between EI and professionalism in clinical-year medical students, as well as to investigate the differences based on gender and academic year. **Methods:** A comparative cross-sectional study was performed among 191 MBBS students of Aziz Fatima Medical and Dental College, Faisalabad. All the participants filled out the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) and a modified version of the Professionalism Mini Evaluation Exercise (PMEX). Statistical techniques such as Pearson's correlation, independent t-tests, ANOVA, and multiple linear regression were employed for data analysis. **Results:** Global EI and professionalism relationship was weak but positive and significant (r=0.216, p=0.003). EI domains displayed opposite correlations: emotionality (r=0.285) and sociability (r=0.371) were positively correlated, and well-being (r=-0.419) and self-control (r=-0.306) were negatively correlated with professionalism, all at $p < 0.01$. Third-year students had significantly higher well-being scores as compared to fourth-year students (p=0.021). Regression analysis revealed global EI to be an independent predictor of professionalism (B=0.657, p=0.005), explaining 7.7% of the variance. **Conclusions:** Emotional intelligence significantly predicts professionalism, with global EI emerging as an independent predictor. Emotionality and sociability showed positive associations, while self-control and well-being showed negative associations with professionalism. Well-being declines significantly from the third to fourth year, while no gender differences were observed.

INTRODUCTION

Medical educators and accrediting bodies have increasingly put more emphasis on the cultivation of non-technical attributes over the last few decades, which then complement scientific knowledge. Among these, emotional intelligence (EI) and professionalism have been recognized as the main foundations upon which the "good" and "competent" physician development relies. Emotional intelligence, which enables a person to recognize, comprehend, control, and direct not only his/her emotions but also those of other people, has been correlated with improved communication, reduced burnout, and better clinical performance [1]. Simultaneously, professionalism, a term that includes clinical competence, ethical practice, reliability, and respect, is still a central point of medical practice and a required result in undergraduate medical education [2]. Globally, research shows a positive link between EI and professionalism among medical students. Western studies, particularly in the United States and Europe, reported moderate to strong positive correlations between them [3]. For example, a study on dental students in the U.S. has found that professionalism domains like ethical practice and interpersonal communication are significantly related to EI [4]. Likewise, study from Japan reported similar results regarding higher EI with better

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patient communications and ethical decision-making process [5]. Nevertheless, there are instances where certain research has pointed out very little or no connection at all, thus indicating the possible effect of cultural, curricular, and methodological factors [6]. Despite the fact that the Pakistan Medical and Dental Council (PMDC) recognizes professionalism as a major competency, the formalized training and assessment of EI in undergraduate classes are not very common [7]. The recent studies in Pakistan have opened a new area of research concerning the EI levels of medical students, giving a report of moderate scores along with the differences among institutions [8]. However, the evidence to support the link between EI and professionalism in Pakistan is scanty. A study conducted in Karachi showed a moderate positive correlation between students' EI and their professionalism, but it involved only one institution and did not consider differences in academic years or demographics [9]. The present study has three main parameters to address these research gaps. The first parameter involves including students from multiple academic years for the purpose of studying developmental trends. The second parameter requires using the TEIQue-SF multi-domain EI assessment tool to measure how different EI domains relate to professional behavior. The third parameter uses the modified PMEX professionalism scale, which has been adapted for use in Pakistan [10]. These parameters enable researchers to examine how different EI components display professional behavior patterns across various stages of medical training.

To this time, there has been no published research that investigates this relationship across MBBS years, nor is there any study that has used a multi-domain EI tool along with a validated professionalism scale. The socio-cultural and educational contexts in Pakistan - marked by high patient load and lack of resources - may have a special impact on the traits of EI and professionalism in medical students [10]. Knowing for sure if and how EI is related to professionalism in this environment is necessary to create the appropriate educational interventions. Consequently, the research will be done to explore the relationship between emotional intelligence and professionalism of the undergraduate medical students of Aziz Fatimah Medical and Dental College, Faisalabad. Therefore, this study aimed to find out the relationship between EI and professionalism scores, to investigate the differences between the two genders concerning these variables, and to look at the differences among academic years.

METHODS

A comparative cross-sectional study was conducted over a period of seven months from July 2025 to December 2025 in Aziz Fatima Medical and Dental College, Faisalabad. Ethical approval by the Institutional Ethics Committee (Ref No.: IEC/368-25; dated 6th May 2025) was taken. The study included third, fourth, and final-year students as its main subject since these groups are the most involved in the clinics and their professional identity and emotional skills are more developmentally influenced by the interactions with patients and clinical duties than the pre-clinical students (first and second years), who have almost no patient contact [11]. According to the formula for correlation studies, the sample size was calculated based on an expected correlation coefficient of r = 0.412 obtained from a previous local study with a significance level of 0.05 and power of 90% [12]. The resulting number was 62 as the minimum required sample size. To improve the representation of subgroups and compensate for possible non-response, we intended to recruit a total of 191 participants by the same proportion as in the third, fourth, and final academic years. Each student was asked for voluntary participation and provided with written informed consent. The data collection process was anonymous, with online forms used and distributed through the institutional social media platforms. To measure emotional intelligence, the 30-item Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) was used, a self-report tool that is freely accessible and has good psychometric properties [13]. The responses were obtained through a 7-point Likert scale, where 1 means completely disagree, and 7 means completely agree. After reversing the scores of certain items, four domain scores - well-being, self-control, emotionality, and sociability - were calculated, and a global EI score was deduced as the average of all items. The Professionalism Mini Evaluation Exercise (PMEX) is a 20-item assessment. A modified version of this tool, developed by Rehman and Mehmood for Pakistani medical students, was used with permission [12, 14]. The researchers made language easier to understand and created assessment items that matched local cultural and educational practices while maintaining the primary professional conduct assessment elements. Responses were recorded on a 5-point frequency scale (1=never to 5=always). For each participant, total professionalism score (20-100) and mean professionalism score (1-5) were computed. The data were evaluated through IBM SPSS version 25.0 software. Continuous variables were presented with mean ± standard deviation, while categorical variables were presented with frequencies and percentages. The use of Pearson's correlation coefficient uncovered the degree to which the EI scores were related to professionalism scores. The male-female comparisons were done with independent t-tests, and the academic year comparisons with one-way ANOVA. To identify whether EI was a predictor of professionalism or not,

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multiple linear regression analysis was done after controlling for demographic variables. The level of significance for the test was set at $p<0.05$.

RESULTS

The sample included a balanced gender distribution with 91 (47.6%) males and 100 (52.4%) females. The participants included students from the third academic year (35.1%), fourth academic year (36.1%), and final academic year (28.8%), More, The scores of emotional intelligence domains were generally moderate to high, with self-control having the highest mean (4.31 ± 1.16) and well-being the least (3.69 ± 0.96). The global EI score was 3.96 ± 0.26, the score for professionalism was 3.80 ± 0.85 on a 5-point scale, which signified that the participants considered their professionalism to be at a moderate level (Table 1).

Table 1: Socio-Demographic Characteristics of the Study Participants and Descriptive Statistics of Emotional Intelligence and Professionalism Scores (n=191)

Variables	Categories / Min-Max	n (%) / Mean ± SD
Gender	Male	91 (47.6%)
	Female	100 (52.4%)
Year of Study	3rd Year MBBS	67 (35.1%)
	4th Year MBBS	69 (36.1%)
	Final Year MBBS	55 (28.8%)
Family Income (PKR)	< 50,000	16 (8.4%)
	50,000 – 99,999	15 (7.9%)
	100,000 – 149,999	21 (11.0%)
	150,000 – 199,999	42 (22.0%)
	≥ 200,000	97 (50.8%)
Current Residence	Day Scholar	147 (77.0%)
	Hostelite	44 (23.0%)
Permanent Residence	Urban	145 (75.9%)
	Rural	46 (24.1%)
Age (Years)	Mean ± SD	22.52 ± 1.37
Factors of TEIQue-SF		
Well-being	1.60-6.00	3.69 ± 0.96
Self-control	1.00-7.00	4.31 ± 1.16
Emotionality	2.56-6.11	4.17 ± 0.60
Sociability	1.00-6.63	3.90 ± 1.14
Global EI Score	3.37-4.60	3.96 ± 0.26
Total Professionalism	19-95	72.12 ± 16.18
Mean Professionalism	1.00-5.00	3.80 ± 0.85

Professionalism had negative correlations with both well-being and self-control, which were significant ($r=-0.419$ and -0.306, respectively). On the other hand, emotionality and sociability showed positive significant correlations ($r=0.285$ and $.371$, respectively). The association between global EI and professionalism was very weak, yet positive ($r=0.216$, $p=0.003$) (Table 2).

Table 2: Pearson correlations between emotional intelligence domains, global EI, and professionalism (n=191)

Variables	Well-being	Self-control	Emotionality	Sociability	Global EI	Mean Professionalism
Well-being	1	0.591**	-0.571**	-0.742**	-0.427**	-0.419**
Self-control	0.591**	1	-0.262**	-0.819**	-0.414**	-0.306**
Emotionality	-0.571**	-0.262**	1	0.382**	0.581**	0.285**
Sociability	-0.742**	-0.819**	0.382**	1	0.725**	0.371**
Global EI	-0.427**	-0.414**	0.581**	0.725**	1	0.216**
Mean Professionalism	-0.419**	-0.306**	0.285**	0.371**	0.216**	1

** Correlation is significant at the 0.01 level (two-tailed)

There were no statistically significant differences between male and female medical students in any area of emotional intelligence or self-reported professionalism (all $p>0.05$). Still, males were slightly higher than females on self-control and emotionality scores. In contrast, females were slightly higher than males on sociability and professionalism scores, though these differences were not statistically significant (Table 3).

Table 3: Comparison of Emotional Intelligence and Professionalism Scores by Gender

Variables	Male (n=91) Mean ± SD	Female (n=100) Mean ± SD	t	df	p-value
Well-being	3.66 ± 1.05	3.73 ± 0.88	-0.508	189	0.612
Self-control	4.48 ± 1.15	4.16 ± 1.16	1.906	189	0.058
Emotionality	4.23 ± 0.60	4.12 ± 0.59	1.246	189	0.214
Sociability	3.80 ± 1.18	4.00 ± 1.10	-1.196	189	0.233
Global EI	3.94 ± 0.29	3.98 ± 0.23	-0.917	189	0.360
Mean Professionalism	3.69 ± 0.89	3.89 ± 0.81	-1.650	189	0.101

The academic years had an influence on the well-being scores, and the difference was significant ($F=3.93$, $p=0.021$), with the third-year students being reported to have well-being significantly higher than fourth-year students. There were no such big differences in the other areas of EI, the global EI, or professionalism scores over the three academic years (Table 4).

Table 4: Comparison of Emotional Intelligence and Professionalism Scores Across Academic Years

Variables	3rd Year (n=67) Mean ± SD	4th Year (n=69) Mean ± SD	Final Year (n=55) Mean ± SD	F-value	p-value
Well-being	3.95 ± 1.03	3.51 ± 0.90	3.60 ± 0.90	3.93	0.612
Self-control	4.51 ± 1.32	4.21 ± 0.98	4.20 ± 1.16	1.48	0.058

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Emotionality	4.07 ± 0.55	4.26 ± 0.58	4.19 ± 0.65	1.82	0.214
Sociability	3.70 ± 1.30	4.03 ± 1.03	4.00 ± 1.06	1.74	0.233
Global EI	3.94 ± 0.27	3.98 ± 0.26	3.97 ± 0.25	0.51	0.360
Mean Professionalism	3.70 ± 1.00	3.78 ± 0.78	3.93 ± 0.73	1.06	0.101

Note: p<0.050 indicates a significant difference

The regression model was statistically significant (F=3.07, p=0.011) and accounted for 7.7% of the variance in professionalism ratings. Global emotional intelligence had the sole significant influence (B=0.657, β=0.200, p=0.005), meaning that with a one-point rise in global EI, professionalism ratings would be nearly 0.66 points up, adjusting for gender, age, year of study, and place of living. The influence of demographic factors on professionalism was not significant. To identify which specific EI domains impact professionalism, a second regression model was used to test all four EI domains as predictive factors. The model showed statistical significance and accounted for 18.7% of the variation in professionalism scores. The individual domains showed that well-being functioned as the only significant negative predictor (Table 5).

Table 5: Multiple Linear Regression Analysis Predicting Professionalism from Emotional Intelligence and Demographic Factors (n=191)

Predictor	B	SE	β	t	P	95% CI for B
Model 1 (Demographics + Global EI)						
Constant	1.510	1.477	—	1.022	0.308	[-1.40, 4.42]
Global EI	0.657	0.234	0.200	2.809	0.005	[0.20, 1.12]
Gender	0.137	0.124	0.080	1.103	0.271	[-0.11, 0.38]
Age	-0.034	0.061	-0.055	-0.562	0.575	[-0.15, 0.09]
Year of Study	0.128	0.106	0.120	1.209	0.228	[-0.08, 0.34]
Current Residence	-0.205	0.143	-0.102	-1.430	0.154	[-0.49, 0.08]
Model 2 (EI Domains)						
Constant	3.971	1.070	—	3.710	<0.001	[1.86, 6.08]
Well-being	-0.239	0.098	-0.270	-2.424	0.016	[-0.43, -0.05]
Self-control	-0.023	0.085	-0.031	-0.269	0.788	[-0.19, 0.14]
Emotionality	0.112	0.116	0.079	0.970	0.333	[-0.12, 0.34]
Sociability	0.086	0.103	0.115	0.829	0.408	[-0.12, 0.29]

DISCUSSION

The current study presents a detailed analysis of the correlation between emotional intelligence (EI) and professionalism in clinical-year medical students in Pakistan, showing both similarities to and differences from the existing literature. The observed moderate levels of global EI and professionalism are, in general, in line with the findings of previous regional and international studies, thereby supporting the idea that these traits are still in the process of development throughout medical education and not only during the initial clinical exposure [8, 12]. This development-based viewpoint is in harmony with the latest theories that perceive professionalism as a process that takes a long time to yield results and is influenced by emotions, cognition, and context [2, 11]. The main takeaway from this research is the finding of a statistically significant but weak positive correlation between global EI and professionalism, where global EI turned out to be an independent predictor in the multivariable analysis. This finding supports earlier studies from Pakistan and other parts of the world that likewise report small effect sizes when examining EI as a factor determining professional behavior [3, 9]. Notably, the small percentage of variance accounted for by EI highlights that professionalism is not simply a matter of emotional skills but is also affected by factors such as institutional culture, role modeling, assessment systems, and the hidden curriculum [7]. This observation concurs with the latest systematic reviews that argue that while EI enables the conduct of professionals, its influence varies according to the environment and organizational factors [14, 15]. One of the big theoretical benefits the study offers is its area-specific examination of EI, which uncovered different links with professionalism. Traits like emotionality and sociability were positively correlated with professionalism, while well-being and self-control had an opposite relationship that was very strong. The connection between the EI domains of the interpersonal type and professionalism was backed by a lot of evidence, as these domains consist of empathy, emotional awareness, communication, and relationship management—the key components of professional medical practice [6, 10]. Researchers in the fields of medical and dental education have recently observed that students who master the emotional skills of interpersonal type are more sensitive to ethical issues, have better patient interactions, and are more cooperative in their teams than their peers with less developed emotional skills [3, 6]. On the other hand, the negative association of well-being and self-control with professionalism is hard to understand and requires a careful look. The somewhat controversial view of Trait EI theory considers well-being to be one's perception of oneself as happy, optimistic, and confident, and self-control means the regulating of one's emotions and withholding of one's impulses [13]. It is equally crucial to recognize, though, that these negative correlations may not actually reflect inverse connections but rather methodological artefacts such as cultural response tendencies, social desirability, or self-report bias. In very challenging clinical environments, such as those with a very high level of stress due to heavy workloads, limited resources, and strict hierarchies—these are the very conditions one typically finds in medical training in Pakistan—students with a lot of emotional self-awareness may be too critical of themselves and recognize their ethical dilemmas and shortcomings [7, 11]. Their increased reflexivity may ironically result in poor self-

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assessments of professionalism, which is a phenomenon that has been described in the past as self-evaluative stringency [16]. Apart from that, self-control to an addictive extent may exhibit emotional suppression as a confounding factor rather than a positive regulation, especially in societies where emotional constraint is a social norm [17]. Emotional suppression results in two negative outcomes, which include emotional exhaustion and decreased authentic self-presentation during doctor-patient relationships [14, 18]. Research on health professions students' quality of life and patient safety in Pakistan and other countries found similar results [19, 20]. The above-mentioned keeps indicating that not all fields of EI are of the same quality regarding the good effects and points to the necessity to differentiate between adaptive emotional regulation and maladaptive emotional inhibition in medical education. The study found no significant gender-based differences between EI and professionalism scores. It may be because of three specific methodological issues. First, our sample size of 191 proved sufficient to identify moderate correlations but may have failed to identify small effect sizes. Second, the within-group variance in our study reached a substantial level, which decreased our ability to identify significant differences between the groups. Third, the measurement sensitivity of the instruments may play a role. Since the TEIQue-SF and modified PMEX are self-report tools, they might not be sensitive enough to pick up on subtle, gender-specific manifestations of professionalism and emotional intelligence [10, 18]. Literature from the past often pointed out female students as the ones with more empathy and emotionality, while nowadays it has been argued that the presence of the same standardized curricula, similar clinical responsibilities, and common stress factors for both genders might lead to the attenuation of gender-based differences during clinical years [21, 22]. Analysis of the academic years has shown that the fourth-year students' well-being has decreased significantly compared to the third-year students—a result that corroborates the "clinical transition effect" reports. The non-existence of continuous development in EI or professionalism over the years is another sign that clinical exposure is not enough to nurture these attributes. As our study design prevents us from identifying whether fourth-year students experience reduced well-being because of their academic requirements or clinical training, or other untested variables, these findings show that students will maintain their well-being when universities implement specific wellness programs that include structured clinical rotation orientation, mentorship initiatives, and student workload management during their clinical year transition process. This trend supports the recent suggestions for planned adoption of structured, longitudinal interventions, such as reflective practices, mentorship, and EI-centered curricula, that will specifically aid in emotional and professional development [4, 15]. Regression analysis provided strong evidence that global EI is an independent predictor of professionalism even after demographic variables have been accounted for, thus firmly establishing its educational relevance. Yet its limited explanatory power should be seen as a signal to apply a more extensive pedagogical approach that combines emotional skills training with institutional strategies that deal with workload, assessment cultures, and professional role models [23]. This is a particularly pertinent situation in the context of medical education in Pakistan, since there the policy-makers officially stress the professionalism issue, but it is only applied in the curricula in a patchy manner [7, 11].

Several limitations need to be recognized. The cross-sectional design does not permit causal inference, and the use of self-reports may result in the presence of social desirability and response bias. The confines of a single-institution setting make it difficult to generalize the findings. Also, the modified professionalism instrument might not have captured all the professional behaviors that were observed fully. However, among the study's strengths are the use of validated tools, an adequate sample size, and a domain-specific analytical approach that provides novel insights into the EI–professionalism relationship.

CONCLUSIONS

Emotional intelligence significantly predicts professionalism, with global EI emerging as an independent predictor after adjusting for demographics. Of the four interpersonal EI domains (emotionality, sociability, self-control and well-being), emotionality and sociability showed positive associations with professionalism. However, self-control and well-being both showed negative associations. Using domain-level regression analysis, only well-being was a significant negative predictor of professionalism. Additionally, no significant gender differences existed, and a significant decline in well-being occurred in the third to fourth year, indicating a potential critical time for student support.

Authors' Contribution

Conceptualization: II
Methodology: MUD, AA, CMUA, TM, MMT, KY, MTI
Formal analysis: AH, II, AA, CMUA, TM, MMT
Writing and Drafting: AA, CMUA, TM, MMT, KY, MTI
Review and Editing: MUD, AH, II, AA, CMUA, TM, MMT, KY, MTI

All authors approved the final manuscript and take responsibility for the integrity of the work

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Conflicts of Interest

All the authors declare no conflict of interest.

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