

# CORRELATIONAL STUDY OF EMOTIONAL INTELLIGENCE AND ACADEMIC PERFORMANCE OF UNDERGRADUATE MEDICAL STUDENTS

Hina Zahoor<sup>1</sup>, Kajal Hayat<sup>2</sup>, Tahir Hayat<sup>3</sup>

Department of Dermatology, Lady Reading Hospital, Peshawar - Pakistan

Department of Medical Education, Khyber Medical University, Institute of Medical Sciences, Kohat, KP - Pakistan

Pediatric ward, North West General Hospital, Peshawar - Pakistan

## ABSTRACT

**Objective:** To determine the correlation between emotional intelligence and academic performance in the practical exam of fourth and final-year medical students at Pak International Medical College, Peshawar.

**Materials and Methods:** This is a cross-sectional correlational study and was conducted on fourth and final-year Bachelor of Medicine, Bachelor of Surgery (MBBS) students of Pak International Medical College, Peshawar, from 14th March 2020 to 10 August 2020. Data was collected with a non-probability convenience sampling technique by using a leadership toolkit emotional intelligence questionnaire. The academic performance in practical exams of students was measured from percentage marks scored in previous annual examinations. The relationship between emotional intelligence and practical academic performance was measured by multivariate analysis.

**Results:** A total of 176 students (88 from each year) participated with male to female ratio of 2.4:1. Students with poor academic performance maximally showed emotional competencies in the range of 10-17, which means that this area needs to be developed on a priority basis in medical students. The maximum number of students with fair and good academic performance showed all their emotional competencies in the range of 18-34, which means that there is a need to pay attention to these emotional competencies. The statistically significant p-value ( $< 0.05$ ) indicates that students with higher emotional intelligence are least likely to fail in their examinations.

**Conclusion:** Emotional intelligence can be a predictor of academic success. Students with higher emotional intelligence perform better in practical assessments. The academic performance of medical students can be improved by developing emotional intelligence-related competencies in them.

**Keywords:** Emotional intelligence, self-awareness, empathy, motivating one-self, social skills.

---

**This article may be cited as:** Zahoor H, Hayat K, Hayat T. Correlational Study Of Emotional Intelligence And Academic Performance Of Undergraduate Medical Students. *J Med Sci* 2024 january;32(1):99-104

---

## INTRODUCTION

Emotional intelligence is defined as the ability to understand emotions and regulate them. It has a reflective role in emotional and intellectual self-growth. In the 1990s, emotional intelligence was defined as a form of intelligence that assists individuals in managing their own emotions as well as those of others, enabling them to utilize emotional cues in their decision-making and behavior.

<sup>1</sup> Emotional intelligence gives meaningful expressions to

the emotions thereby using them in intellectual thought processes. <sup>2</sup> Goleman explained that knowing one's own emotions, ability to control emotions, motivating oneself, having interpersonal skills, and ability to understand other's emotions are the five basic principles of emotional intelligence. <sup>3</sup>

The interpersonal relationship skills of people with higher emotional intelligence are better and it is found to have a positive role in social dealings such as beneficial in conflict resolution. <sup>4</sup> Their enhanced ability to build purposeful relationships and their competency in social environment helps them to develop intellectual and cognitive capabilities which lead them to better performance in their academic field. Academic performance has been seen to be promoted by the quality of prioritizing thoughts, regulation of behavior, and adaptation of lifestyle choices. These qualities are refined by emotional intelligence. <sup>5</sup> Students

---

Correspondence

**Dr. Kajal Hayat**

Lecturer

Department of Medical Education, Khyber Medical University, Institute of Medical Sciences, Kohat, KP - Pakistan

**Cell:** +92-336-9107782

**Email:** kajalhayat@yahoo.com

**Date Received:** 16/10/2023

**Date Revised:** 17/02/2024

**Date Accepted:** 21/02/2024

with enhanced emotional intelligence have better academic performance. Higher emotional intelligence has a positive effect on empathy in medical consultation during practice, clinical performance, and patient satisfaction.<sup>6</sup> Today's doctors must be compassionate communicators who act morally and skillfully to increase patient safety.<sup>7</sup>

According to the researchers, the emotional reactions of doctors and medical students get blunt during socialization in their profession. To stay objective and intellectual, they do not trust the emotions.<sup>8</sup> Emotional intelligence is considered a counterpart of communication skills, and it helps to assess the capabilities of the learners which cannot be measured by any other reliable tool.<sup>9</sup> Dealing with educated patients, and providing standard healthcare facilities demands a physician who is smart, dedicated and prioritizes the personal values of patients in their health decisions.<sup>10</sup> That is the reason, why many medical schools look into the personal qualities of the students before their selection and admission.<sup>11</sup> Emotional intelligence can be enhanced by the workshops or training programs designed to enhance the emotional competencies of the students.<sup>12</sup>

During admission to the medical colleges, emotional intelligence can also be included in the psychological assessment tests of the applicants and emotional intelligence instruments can be used to quantify the quantitative characteristics of the applicant.<sup>13</sup> Emotional intelligence can be used to predict the academic performance of medical students predominantly in psychomotor and affective domains. There is limited data available on the effect of emotional intelligence on academic performance in medical education, and the findings are inconsistent.<sup>14, 15</sup> This study aimed to investigate how emotional intelligence influences the academic performance of fourth and final-year medical students in practical exams conducted during annual examinations at a private medical college. These academic years are known to be more demanding, with increased clinical exposure to patients. The practical exams will evaluate both psychomotor and affective domain skills, which are significantly influenced by emotional intelligence.

## MATERIALS AND METHODS

A cross-sectional correlation study was conducted on fourth-year and final-year medical students of Pak International Medical College, Peshawar, from 14th March 2020 to 10<sup>th</sup> of August 2020. With the approval of the institutional ethical review board and permission from the administration with Ref no 06/20/DMR/PIMC (Appendix-I),

data was collected by non-probability convenience sampling technique from 176 students (88 from each fourth year and final year). The correlation sample size formula  $N = [(Z_{\alpha} + Z_{\beta})/C]^2 + 3$  was applied for sample size calculation.<sup>16</sup> Correlation coefficient *r* value of 0.21. was used.<sup>3</sup> A brief presentation was first delivered to the students which included the clarification of difficult questions, and an open discussion session was conducted for student's queries. The leadership toolkit emotional intelligence questionnaires were then distributed and filled out by the students after taking written informed consent (Appendix II).<sup>17</sup> Students who refused to participate, and who were ever diagnosed with psychiatric disorders were excluded from the study. Students' participation was voluntary, fulfilling the objective, irrespective of age and gender. Emotional intelligence-related five competencies of self-awareness, managing emotions, motivating oneself, empathy, and social skills were measured by a paper-based questionnaire (Appendix III). Academic performance of the students was measured by calculating percentage marks students obtained in the previous practical annual examination i.e., percentage marks scored in third year MBBS annual practical examination of fourth-year medical students and percentage marks obtained in fourth year MBBS annual practical examination of final year medical students. Good academic performance was defined as examination marks of > 70 %, fair academic performance was taken as examination marks from 61-70%, and poor academic performance was defined as examination marks of ≤60%.

Data was saved into an Excel sheet and later, converted into SPSS-23 for statistical analysis. Participants' demographic characteristics were presented in frequencies, percentages and mean ± SD where applied. Emotional intelligence was calculated and compared with the practical academic performances of students in previous annual examinations students attended. The chi-square test was utilized for the categorical variables. The test of significance was two-tailed and the P-value of <0.05 was considered significant showing a positive relationship between emotional intelligence and academic performance. Moreover, for standardization, findings were compared with published data.

## RESULTS

A total of 176 students participated in the study, 88 students each from fourth and final year MBBS. This included 124 (70.5%) male and 52 (29.5%) female students with male to female ratio of 2.4:1 (Table I). The age range of students involved in the study was 20 to 28 years, with a

maximum (118) number of students belonging to the age group of 23-25 years (Table I). The mean age of students involved in the study was 23.24 years ( $\pm 1.597$  SD).

A total of 11 (6.25) students showed poor academic performance during the annual practical examination, securing a percentage of  $\leq 60\%$ . 104 (59.09%) students showed fair academic performance i.e., scoring 61-70% in the annual examination, and 61 (34.65%) students showed good academic performance with a percentage of more than 70% in the annual practical examination (Table II). A maximum number of students showed the qualities of self-awareness, managing emotions, motivating

oneself, empathy, and social skills in the range of 18-34. The students with poor academic performance on practical exams maximally showed emotional competencies of managing emotions, motivating oneself and empathy in the range of 10-17, which means that this area needs to be developed on a priority basis in medical students. The maximum number of students with fair and good academic performance showed all their emotional competencies in the range of 18-34. This means that there is a need to pay attention to these emotional competencies of the medical students. (Table II)

A correlational analysis between emotional intelligence and academic performance showed that there was

**Table 1: Demographic characteristics of fourth-year and final-year MBBS students**

Demographic characteristics		Fourth Year		Final Year		Total (n=176)	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Gender	Male	58	32.95%	66	37.5%	124	70.45%
	Female	30	17.04%	22	12.5%	52	29.54%
Age	20-22 years	43	24.43%	6	3.40%	49	27.84%
	23-25 years	41	23.29%	77	43.75%	118	67.045%
	26-28 years	4	2.27%	5	2.84%	9	5.11%

**Table 2: Emotional competencies and academic performance of MBBS students (n=176)**

Emotional competencies	Grading	Poor performance ( $\leq 60\%$ )	Fair performance (61-70%)	Good performance ( $> 70\%$ )	Total (%age)
Self-awareness	10-17 Development priority	4	7	3	14 (7.95%)
	18-34 Need attention	7	69	24	100 (56.81%)
	35-50 Strength	0	28	34	62 (35.22%)
Managing emotions	10-17 Development priority	6	5	1	12 (6.81%)
	18-34 Need attention	5	84	32	121 (68.75%)
	35-50 Strength	0	15	28	43 (24.43%)
Motivating one self	10-17 Development priority	7	12	1	20 (11.36%)
	18-34 Need attention	1	70	28	99 (56.25%)
	35-50 Strength	3	22	32	57 (32.38%)
Empathy	10-17 Development priority	5	9	2	16 (9.09%)
	18-34 Need attention	5	68	28	101 (57.38%)
	35-50 Strength	1	27	31	59 (33.5%)
Social skills	10-17 Development priority	3	8	1	12 (6.818%)
	18-34 Need attention	7	71	30	108 (61.36%)
	35-50 Strength	1	25	30	56 (31.8%)
Total (%age)		11 (6.25%)	104 (59.09%)	61 (34.659%)	176 (100%)

**Table 3: Correlation between emotional intelligence and academic performance, success rate, year of graduation and demographic characteristics of MBBS students (n=176)**

Demographics characteristic	Emotional intelligence competencies									
	Self-awareness		Managing emotions		Motivating oneself		Empathy		Social skills	
	r	p	R	p	r	p	R	P	r	p
Academic performance	0.320	0.001	0.434	0.001	0.375	0.001	0.342	0.001	0.299	0.001
Pass/Fail	0.221	0.003	0.332	0.001	0.419	0.001	0.283	0.001	0.258	0.001
Year of graduation	0.171	0.023	0.096	0.203	0.100	0.188	0.066	0.386	0.180	0.017
Age	0.103	0.173	0.151	0.046	0.193	0.010	0.133	0.079	0.177	0.019
Gender	0.059	0.439	0.020	0.795	0.41	0.588	0.006	0.936	0.066	0.387

P= P value r= Correlation Coefficient

a significant correlation between all emotional competencies with the academic performance of the students in the practical component of the annual examination (Table III). There was also a significant correlation between the emotional intelligence and success of students in the annual examination which means that students with higher emotional intelligence are least likely to fail in their practical examination (Table III). The failure rate was higher in the students with low emotional intelligence. A correlational analysis also showed that self-awareness and social skills had a positive correlation with the year of graduation of the students. This correlation was however insignificant for the emotional competencies of managing emotions, motivating oneself and empathy (Table III). The students with higher age in the study group showed a statistically significant correlation with emotional competencies of managing emotions, motivating oneself and social skills. However, gender had no statistically significant correlation with emotional intelligence (Table III).

## DISCUSSION

The study showed that emotional intelligence is a predictor of academic success in the practical examination of both fourth-year and final-year medical students. Chew et al proved that the students with higher emotional intelligence perform better during the summative assessment.<sup>3,5</sup> The emotional intelligence affects the ability of the students to perceive and manage emotions and motivate oneself. It also helps to improve social skills in the students which in turn help them to perform well during practical and OSPE (Objective Structured Practical Examination) examinations.<sup>3</sup>

Schuttle et al mentioned that measurement of emotional intelligence at the beginning of the academic year can help to predict their GPE (Grade Point Equivalent) at the end of their course which favors the findings of this study.<sup>18</sup> This result is supported by a study conducted at

Sri Lankan University, which found that final-year medical students who were more emotionally intelligent performed better academically.<sup>19</sup> However, Bastain et al showed that there was no statistically significant correlation between the emotional intelligence and academic performance of the students which was contrary to the finding of this study.<sup>20</sup> The possible reason for this lack of correlation has been explained by the fact that the emotions and emotional abilities of the students are not taken into account by traditional assessment techniques. The assessment techniques used by the traditional educational system measure the ability of students to memorize and reproduce the information correctly.<sup>3</sup>

The study revealed that the emotional competencies of self-awareness and social skills were higher in the students of final year, as compared to the fourth-year students. This showed that the level of emotional intelligence of students increases during the progress in the academic years. Similar findings were seen in another study, which showed that the students in the early academic year had a positive correlation between formative assessment and emotional intelligence, while the student of the final year showed a positive correlation between summative assessment and emotional intelligence.<sup>3,21</sup> This is probably because the final year students become more mature by facing their formative assessments of practical skills over the years. The influence of emotional intelligence in facing final examination is more apparent in students of the final year as compared to the fourth year because it involves multiple tests and more practical examinations, and it spans over several days. An explanation for this significance could be that the final year of study is particularly emotionally demanding due to the packed academic curriculum and intensive clinical rotations. This phase serves as a crucial period for students to cultivate emotional competencies.<sup>3</sup>

Gender had no statistically significant correlation

with emotional intelligence in this study. A study on Iranian nursing students showed that female students got higher empathy scores than male students.<sup>21</sup>

Malik et al explain the positive relationship of emotional intelligence with age.<sup>22</sup> This study also showed similar findings. There was a positive correlation between emotional competencies of managing emotions, motivating oneself, empathy, social skills, and the age of students. In this study, the value of Pearson correlation for all the emotional competencies related to emotional intelligence showed a positive relationship between academic performance and emotional intelligence. Another study showed that a weak relationship existed between trait emotional intelligence and academic performance.<sup>22</sup>

In this study, the level of emotional intelligence was found to be lowest in the students who performed poorly during the annual practical examination and the students who had good and fair performance during the annual practical examination showed more strength in their emotional competencies. Another study, however, showed that the students with higher and lower GPAs had no difference in emotional intelligence.<sup>22</sup>

The study was conducted on only fourth-year and final-year MBBS students of one private medical college, which lacked generalizability. There is a need to collect data from junior classes as well and interpret the results related to the effect of age and year of graduation on the emotional intelligence of the students. One other limitation was that the questionnaire was filled out by the students themselves and was based on collecting their views about their behavior and emotional abilities.

## CONCLUSION

This study concludes that emotional intelligence is an important factor that affects the medical student's academic performance in practical examinations. Medical students with higher emotional competencies perform better during academic evaluation exams. Students with low emotional intelligence have lower grades with poor academic performance. Further studies can be conducted by determining the emotional intelligence of medical students with their theory exam scores and practical exam scores separately and doing a comparison of the two.

## REFERENCES

- Mayer JD, Salovey P. The intelligence of emotional intelligence. *Intelligence*. 1993 Oct 1;17(4):433-442.
- Chew BH, Zain AM, Hassan F. Emotional intelligence and academic performance in first and final year medical students: a cross-sectional study. *BMC Med Educ*. 2013 Mar 27;13:44-54.
- Bhounick P. It's Really Matter: Review of the book, Emotional Intelligence: Why it can matter more than IQ by Daniel Goleman. *Research Journal of Humanities and Social Sciences*. 2018;9(3):639-44.
- Roth CG, Eldin KW, Padmanabhan V, Friedman EM. Twelve tips for the introduction of emotional intelligence in medical education. *Medical teacher*. 2019 Jul 3;41(7):746-9.
- Libbrecht N, Lievens F, Carette B, Côté S. Emotional intelligence predicts success in medical school. *Emotion*. 2014 Feb;14(1):64.
- Ashwini AP, Kumar N, Gunasegeran P, Sivagamy SM, Rong LZ, Sujatha PP. A survey-based study of emotional intelligence as it relates to gender and academic performance of medical students. *Education for Health*. 2016 Sep 1;29(3):255-8.
- Brock D, Abu-Rish E, Chiu CR, Hammer D, Wilson S, Vorvick L, Blondon K, Schaad D, Liner D, Zierler B. Republished: interprofessional education in team communication: working together to improve patient safety. *Postgrad. Med. J*. 2013 Nov 1;89(1057):642-51.
- Shapiro J. Perspective: does medical education promote professional alexithymia? A call for attending to the emotions of patients and self in medical training. *Acad Med*. 2011;86(3):326-32.
- McNaughton N. Discourse (s) of emotion within medical education: the ever-present absence. *Med Educ*. 2013;47(1):71-9.
- Murinson BB, Agarwal AK, Haythornthwaite JA. Cognitive expertise, emotional development, and reflective capacity: clinical skills for improved pain care. *J Pain*. 2008;9(11):975-83.
- Yingling S, Park YS, Curry RH, Monson V, Girotti J. Beyond cognitive measures: Empirical evidence supporting holistic medical school admissions practices and professional identity formation. *MedEdPublish*. 2018 Dec 5;7(274):274.
- Grant L, Kinman G, Alexander K. What's all this talk about emotion? Developing emotional intelligence in social work students. *Soc. Work Educ*. 2014;33(7):874-89.
- Cook CJ, Cook CE, Hilton TN. Does emotional intelligence influence success during medical school admissions and program matriculation?: a systematic review. *J. Educ. evaluation health Prof*. 2016 Nov 8;13.
- Elliott DD, May WIN, Schaff PB, Nyquist JG, Trial J, Reilly JM, et al. Shaping professionalism in pre-clinical medical students: Professionalism and the practice of medicine. *Med. Teach*. 2009;31(7):e295-302.
- Pandey PK, Gupta N, Pandey P, Giri P. The Impression of Emotional Intelligence on University Students' Academic Performance. *Int J Recent Technol Eng*. 2019 Sep 1;8(3):2171-76.
- Hulley SB, Cummings SR, Browner WS, Grady D, Newman TB. *Designing clinical research: an epidemiologic approach*. Fourth edition. Philadelphia, PA: Lippincott Williams & Wilkins; 2013. Appendix 6C, page 79.
- National Health Service. Leadership toolkit (El) Emotion-

- al intelligence questionnaire. England: National Health Service. Available from: [https://www.drugsandalcohol.ie/26776/1/Emotional\\_intelligence\\_questionnaire-LAL1.pdf](https://www.drugsandalcohol.ie/26776/1/Emotional_intelligence_questionnaire-LAL1.pdf)
18. Schutte NS, Malouff JM, Wendorf G, Bobik C, Coston T, Greeson C, et al. Emotional intelligence and interpersonal relations. *J Social Psychol.* 2001;141(4):523-36.
  19. Wijekoon CN, Amaratunge H, de Silva Y, Senanayake S, Jayawardane P, Senarath U. Emotional intelligence and academic performance of medical undergraduates: a cross-sectional study in a selected university in Sri Lanka. *BMC medical education.* 2017 Dec;17(1):1-1.
  20. Bastian VA, Burns NR., Nettelbeck T. Emotional intelligence predicts life skills, but not as well as personality and cognitive abilities. *Pers. Individ. Differ.* 2005;39:1139-45.
  21. Hajibabae F, Farahani MA, Ameri Z, Salehi T, Hosseini F. The relationship between empathy and emotional intelligence among Iranian nursing students. *International journal of medical education.* 2018;9:239.
  22. Malik SZ, Shahid S. Effect of Emotional Intelligence on Academic Performance among Business Students in Pakistan. *Bull. Educ. Res.* 2016;38(1):197-208.

**Authors Contribution:**

Following authors have made substantial contributions to the manuscript as under

Authors	Conceived & designed the analysis	Collected the data	Contributed data or analysis tools	Performed the analysis	Wrote the paper	Other contribution
Zahoor H	✓	✗	✓	✗	✓	✗
Hayat K	✓	✓	✗	✓	✓	✗
Hayat T.	✓	✗	✗	✓	✗	✗

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

**Ethical Approval:**

**This Manuscript was approved by the Ethical Review Board  
Pak International Medical College Hayatabad, Peshawar Vide  
No. 06/20/DMR/PIMC. Dated: 14 03 2010**



This work is Licensed under a Creative Commons Attribution-(CC BY 4.0)