Sociodemographic Correlates of Emotional Intelligence Among Medical Students: A Cross Sectional Study

Abstract

Background

Emotional intelligence (EI) is a vital competency for medical students that influences stress coping, empathy and clinical performance. Although sociodemographic factors are known to shape EI but limited studies have been undertaken in this regard in Pakistan. This study aimed to examine the sociodemographic correlates of EI among second-year medical students at a public-sector university in Pakistan.

Methods

This is a cross-sectional study conducted at Rawalpindi Medical University. Simple random sampling was used to enroll 81 students using an online questionnaire. The questionnaire had two parts: a sociodemographic form and the Emotional Intelligence Competency Inventory (EICI). The EICI is a 30 item self-report tool that measures four areas of emotional intelligence. Each item is answered on a 5-point Likert scale from "strongly disagree" to "strongly agree". To explore associations between total and domain specific EI scores and gender, age, residence, boarding status and family income the study used independent-samples t-tests and one-way ANOVA.

Results

Female students (n=35) exhibited significantly higher EI (143.4 ± 16.1 vs 135.1 ± 19.2, p=0.043) and self-awareness (36.7 ± 5.5 vs 34.1 ± 6.3, p=0.048) than males (n=46). Trends towards higher scores among females were observed in the remaining domains with low significance. No significant correlations were found between total EI and age, urban/rural residence, boarding status or family monthly income (all $p>0.05$).

Conclusions

Gender was the only sociodemographic variable significantly associated with EI with females demonstrating superior global EI driven primarily by greater self-awareness. These findings highlight the need for gender responsive emotional intelligence training programmes.

Keywords:

Emotional Intelligence, Gender Identity, Self Concept, Awareness, Socioeconomic Factors.

Introduction

Emotional intelligence (EI) is the capacity to perceive, understand, regulate and utilize emotions effectively. EI is a cornerstone in health education which transcends the sole focus on cognitive aptitudes [1]. Medical training has rigorous academic loads, continuous high stakes assessments, frequent exposure to patient suffering, complex ethical dilemmas and a pervasive atmosphere of prolonged stress [2, 3]. Higher EI is associated with superior coping mechanisms, enhanced psychological well-being, greater empathic understanding and more robust interpersonal communication skills in such a challenging environment. The aforementioned attributes are universally acknowledged as critical for both academic progression and the development of competent clinicians [4, 5].

Prior research highlights that EI is far from a fixed or solely innate characteristic. Instead, it is dynamically shaped by a complex interplay of various internal and external factors where sociodemographic characteristics are considered significant [6]. Factors including gender, age, socioeconomic status, family structure and cultural background influence an individual's emotional development, stress responses and communication patterns. These variables in turn contribute to diverse EI profiles observed among student populations [7]. Prior investigations explored gender as a key correlate with numerous reports of female medical students exhibiting higher levels of emotional awareness and empathy and male students scoring higher on aspects such as emotional regulation or stress tolerance [8, 9]. It is, however, crucial to note that these findings are not consistent globally and often show variation across different cultural and educational contexts. There is a powerful influence of socio-cultural dynamics on the development of emotional competencies [10]. An individual's socioeconomic background can also significantly impact their access to emotional learning opportunities. It shapes family dynamics and determines exposure to effective stress management resources[11].

In South Asia specifically in Pakistan, culture strongly emphasises collectivism, respect for hierarchy, and emotional restraint. These values influence how people express, perceive and control their emotions. Emotional intelligence patterns among medical students here may differ significantly from those seen in Western countries. International studies (Saudi Arabia, Turkey, India, Malaysia, UAE) consistently link sociodemographic factors (e.g., parental education, income, birth order, living arrangements) to variability in EI subdomains[12][13]. Most local research in Pakistan was focused on the association of EI with general academic performance or stress levels, leaving a significant gap regarding the specific demographic predictors of EI. This knowledge is instrumental in guiding the development of culturally sensitive emotional training programs, thereby fostering a more equitable, inclusive, and supportive learning environment for all trainees. The current study seeks to systematically examine the sociodemographic correlates of emotional intelligence among medical students enrolled at a public-sector medical university in Pakistan.

Materials and Methods

This cross-sectional observational study was conducted at the old campus of Rawalpindi Medical University over a period of six months, to examine the sociodemographic correlates of emotional intelligence among medical students. Ethical approval was secured from the Institutional Research Forum (IRF) and the Ethical Committee of Rawalpindi Medical University. All participants were provided with a detailed information sheet and gave written informed consent prior to participation with strict confidentiality and autonomy maintained throughout. Participants were selected using a simple randomization technique, drawing from an attendance list via a randomizer tool. The calculated sample size was 81. Inclusion criteria specified medical students of Rawalpindi Medical University, aged 18 years or above, of either gender, providing informed consent. Exclusion criteria included students who had migrated to RMU within the preceding six months or those with a past or current history of psychiatric disorders. Data collection involved approaching second-year students which included the participant information sheet, informed consent, a sociodemographic proforma and the Emotional Intelligence Competency Inventory (EICI) questionnaire. Emotional Intelligence was operationally defined and measured by EICI which had a 30-item self-report questionnaire according to a 2013 modification by Suzzane Farmer of Daniel Goleman's framework. The EICI was used to assess four subscales. The personal domain included self-awareness (7 items) and self-management (8 items), while the relational domain comprised social awareness (8 items) and relationship management (7 items). A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used for answers. Maximum scores were 35 for self-awareness and relationship management and 40 for self-management and social awareness. Statistical analysis was conducted using SPSS version 26 where descriptive statistics were expressed as mean, standard deviation and percentages. Pearson's correlation coefficient was used to quantify the relationship between EI and academic achievement. Statistical significance was set at a p-value <0.05.

Results

A total of 81 second-year MBBS students from Rawalpindi Medical University participated in the study, with a response rate of 81%. The mean age was 20.4 ± 0.8 years (range 19–22 years). 56.8% were male and the majority came from urban areas (74.1%), day scholars (61.7%) and most of them belonging to families with a monthly income of PKR 50,000 or higher (71.6%). Sociodemographic characteristics are summarised in Table 1.

Table 1 Sociodemographic characteristics of the participants (n = 81)

Characteristic	n (%) or Mean ± SD
Age (years)	20.4 ± 0.8
Gender	
Male	46 (56.8)
Female	35 (43.2)
Residence	
Urban	60 (74.1)
Rural	21 (25.9)
Boarding status	
Day scholar	50 (61.7)
Hostelite	31 (38.3)
Family monthly income (PKR)	
< 50,000	23 (28.4)
50,000–100,000	38 (46.9)
> 100,000	20 (24.7)

The mean EICI score was 138.6 ± 18.4 (Range 40–200). Mean scores in correlation to domains are presented in Table 2.

Table 2 Mean scores on Emotional Intelligence Competency Inventory domains (n = 81)

Domain	Mean ± SD	Possible range
Self-awareness	35.2 ± 6.1	10–50
Self-management	34.8 ± 5.9	10–50
Social awareness	33.9 ± 6.3	10–50

Relationship management	34.7 ± 6.0	10–50
Total EI score	138.6 ± 18.4	40–200

Independent sample t-tests were used to examine gender differences in EI domains. Female gender exhibited significantly higher total EI and self-awareness scores. Results are shown in Table 3.

Table 3 Gender differences in Emotional Intelligence domains and total score

Domain	**Male (n=46) Mean ± SD**	**Female (n=35) Mean ± SD**	**t (df=79)**	**p-value**	**Cohen's d**
Self-awareness	34.1 ± 6.3	36.7 ± 5.5	-2.01	0.048	0.44
Self-management	34.3 ± 6.2	35.5 ± 5.4	-0.89	0.376	–
Social awareness	32.9 ± 6.5	35.3 ± 5.8	-1.71	0.091	–
Relationship management	33.8 ± 6.3	35.9 ± 5.5	-1.55	0.125	–
Total EI score	135.1 ± 19.2	143.4 ± 16.1	-2.06	0.043	0.47

Associations between total EI score and other sociodemographic variables such as residence, boarding status, family income and age category were analysed using independent t-tests and one-way ANOVA. All results were insignificant (Table 4).

Table 4 Association of total Emotional Intelligence score with other sociodemographic variables

Variable	**Categories / Groups**	**Mean ± SD**	**Test stats**	**p-value**
Residence	Urban (n=60)	139.8 ± 17.9	t = 1.07	0.287
	Rural (n=21)	134.9 ± 19.8		
Boarding status	Day scholars (n=50)	140.2 ± 18.1	t = 0.97	0.335
	Hostelized (n=31)	136.1 ± 18.9		
Family monthly income	<50,000 PKR (n=23)	136.4 ± 19.6	F(2,78)=0.68	0.509
	50,000–100,000 PKR (n=38)	139.1 ± 18.2		
	>100,000 PKR (n=20)	140.3 ± 18.1		

Age category	19–20 years (n=54)	138.9 ± 18.7	t = 0.37	
	21–22 years (n=27)	137.8 ± 18.1		0.712

Gender was the only significant associated with emotional intelligence; all other characteristics were not significant among all sociodemographic variables. Female medical students demonstrated higher global EI, whereas residence, boarding status, family income and age showed no significant relationship with EI scores.

Discussion

This study investigated sociodemographic correlates of emotional intelligence (EI) among second-year medical students at a Rawalpindi medical university, Pakistan. The key finding was that female students displayed significantly higher EI scores and higher self-awareness than male students. No significant association was found related to age, urban/rural residence, boarding status and monthly family income. These results are contextually relevant into EI variation within a South Asian medical education setting, where cultural norms surrounding emotional expression and gender roles may influence emotional competencies.

The female advantage found in the current study regarding EI and self-awareness is consistent with several recent studies conducted in similar cultural and educational settings. A 2023 cross-sectional survey of Saudi Arabian medical students using the Trait Emotional Intelligence Questionnaire-Short Form reported significantly higher EI among the female gender specifically in emotional and sociability domains (11). Another 2024 study from Pakistan included first and third year students found females scoring higher on overall EI and self-awareness. This can be attributed to socially reinforced emotional attentiveness among women (14). Recent evidence from India (2023) and Malaysia (2022) has shown the same pattern with female medical students outperforming males in self-awareness subscales (15,16). These findings supported the idea that gender socialization translated into measurable EI advantages during early medical training in females (17). Current study's results extend this evidence to the Pakistani student population, where it is evident that gender norms may paradoxically enhance female gender's emotional introspection.

The absence of significant associations with socioeconomic indicators or place of residence differs from some recent regional studies. A 2023 study in India documented higher parental income and urban background as positive predictors of EI (18). Another 2022 Turkish study found superior self-management and social awareness among students from higher socioeconomic strata (19). The lack of such findings in our cohort suggest the relatively homogeneous socioeconomic profile of students admitted to public sector medical colleges in Pakistan through highly competitive merit-based selection. This may be the factor that minimises extreme income variability compared with private institutions. Strong familial and collectivist support systems prevalent across income levels in Pakistan alternatively, may mitigate the impact of economic disparity on emotional development (20).

The non-significant relationship with age was expected because the age range is too narrow (19–22 years) of second-year students to be of significant impact on results. In this regard

recent longitudinal and cross-semester studies showed incremental EI gains with advancing academic years and clinical exposure (21,22). The current study included only students from only one academic year, but the mean global EI score (138.6 ± 18.4) appears comparable/ slightly higher than earlier Pakistani cohorts. This could be due to possible early maturation effects even within the pre-clinical phase (23).

The results of this study show that male students may benefit from targeted modules emphasising emotional recognition and reflection (24,25). This study found no differences in EI based on income or where students lived. This means that EI programs can be the same for all, with no need to divide groups. That is especially helpful in places with limited resources.

The study included students from only one university and from just one year with a small sample size and used self-report questionnaires. Self-reports can lead to social desirability bias in a culture that values emotional restraint. Future multi-institution longitudinal research with ability based EI tools and broader sociodemographic variables may strengthen generalisability of current study's results.

Conclusion

Gender was the only significant sociodemographic correlate of EI among Pakistani medical students with higher global scores driven primarily by superior self-awareness in females. Age, residence, boarding status and family income showed no relevant significance in this cohort. These findings show the importance of culturally sensitive, gender-responsive strategies to nurture emotional competencies essential for producing resilient and empathetic physicians.

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