Predictive Value of Emotional Intelligence and Correlation Between Emotional Intelligence and Academic Achievement Among Medical Students

ABSTRACT

Background: People with higher levels of emotional intelligence appear to be happier, healthier, and more emotionally stable, excel in key areas of their lives. These findings prompted the researcher to investigate the relationship between academic success and emotional intelligence in students. The objective of the study was to determine the predictive value of emotional intelligence for academic achievement, and correlation between academic achievement and various domains of emotional intelligence among second year medical students at Rawalpindi Medical University (RMU). **Method:** Observational research design was used in this study. The sample size for the study was 81 MBBS second-year students. Data was collected by usingSocio Demographic Performa andEmotional Intelligence Competency Inventory. **Result:** The results obtained exhibit that a significant negative correlation exists between self-awareness and academic achievement. However, self-management, social awareness, as well as relationship management showed an insignificant weak negative correlation with academic achievement. **Conclusion:** These results showed very weak nature of the relationship between emotional intelligence and academic achievement, suggesting that other factors not explored in this research might contribute more substantially to the academic performance of medical students.

Key words: academic achievement, emotional intelligence, medical students

Introduction

A fundamental aspect of human experience, emotion is inescapably linked to both thought and action, it is not surprising that comprehending and utilizing emotion is proving essential to altering not only the way that impacts but includes behavior and cognition[1]. Emotions have various dimensions[1] Thoits define emotion, stating that it consists of four interrelated elements: situational cues, physiological changes, expressive gestures, and an emotion label designating the arrangement of the elements[2.] Solomon's multifaceted definition of emotions as holistic constructs consisting of behavioral expression, physiological substrates, phenomenological experience, cognitive processes, and a social context[3]

Intelligence is part of a total organic attitude involving attitudes of mind, emotional conditions, ingrained habits, and conditioned behavior[4]. Intelligence research has been a popular field of study[5]. Academics have defined intelligence in a various ways, including how well a person can comprehend their environment toreflect and reason[5,6] to do goal-oriented tasks and to create new things using a variety of cognitive abilities.

Dr. Howard Gardner's Theory of Many Intelligences was made popular in the 1980s. Peter Salovey and John Mayer were the ones who originally operationalized the ideas of emotional intelligence[7].

Our comprehension of emotional intelligence has been aided by the work of psychologist Dr. Daniel Goleman[8]. Emotional intelligence is defined as the ability to understand, respond[9,10]. It encourages natural impulses for both short- and long-term success in students of all ages, genders, races, and socioeconomic backgrounds, and is recognized as a predictor and prerequisite for academic accomplishment[11,12]. EQ promotes interpersonal skills, highlights innate, unrealized abilities, strengths,

and potentials, and promotes self-actualization. This makes identifying one's personality, attributes, moods, and sentiments, as well as the consequences they have on others, easier[13]. The higher EI relates to stronger social skills, more dependable long-term relationships, and a greater ability to problem-solve[8].EI is a component of intrapersonal interactions and is associated with both physical and mental well-being[14]**.** Those with higher EI have better mental and physical health, according to a study[15,16]. According to[17] individuals with strong intrapersonal traits and self-awareness develop internal drives that support high learning performance. Moreover, it enhances memory, cognition, and learning[18.] The development of social skills is an important component of EQ because it provides students with the ability to adopt study strategies, encourage social behaviors, and improve academic achievement [19,20.]

Nonetheless, there is a severe lack of information regarding the influence of emotional intelligence on academic success among medical students worldwide. By considering this point our study is going to investigate the correlation between emotional Intelligence and academic achievement among students of Rawalpindi Medical University.

Materials and Methods

Objectives

The objectives of the study were to

- To find the predictive value of emotional intelligence in academic achievement among medical students at Rawalpindi Medical University within 6 months after approval of synopsis.
- To estimate the correlation between emotional intelligence and academic achievement among students at Rawalpindi Medical University.

Hypothesis

The above-mentioned objectives provide us with the following hypothesis to better explore the relationship between Emotional Intelligence and Academic Achievement among Medical students at Rawalpindi Medical University.

Null Hypothesis (H_0):

Higher Emotional Intelligence (EI) does not significantly predict or correlate with academic achievement among medical students at Rawalpindi Medical University.

Alternate Hypothesis (H_1):

Higher Emotional Intelligence (EI) significantly predicts and correlates positively with academic achievement among medical students at Rawalpindi Medical University.

Subjects and Methods

Research Design

Observational Study

Study Duration

Six months after approval of synopsis.

Setting

Old campus of Rawalpindi Medical University

Sampling Technique

The simple randomization technique was used for sampling. We collected the attendance list from the student section of RMU. A randomizer was used to select participants randomly.

Sample Size

The sample size is calculated by the following formula

Total sample size = N = [(Zα +Zβ)/C]^2 +3

The standard normal deviate for α = Zα = 0.050

The standard normal deviate for β = Zβ = 0.200

Correlation coefficient = 0.305 (ShokofehRadfar,2013)

C = 0.5 * in [(1+r)/ (1-r)] = 0.315

The sample size was 81.

Sample selection

Inclusion Criteria

- Age 18 years or above
- Students of RMU
- Both gender
- Students will give informed consent to participate in the study.

Exclusion Criteria

- Students who have migrated to RMU within the last 6 months.
- Students who have a past or current history of psychiatric disorders.

Data Collection Procedure

The researcher focused on students at Rawalpindi Medical University enrolled in the second year of M.B.B.S.The Institutional Research Forum approved the research proposal.Written informed consent was taken from the students, demographic sheet 'Students completed the Socio-demographic Performa, online EICI'**.** Due to COVID-19, manual data collection was not possible; therefore, the online form was created on Google. Relevant information about the study, confidentiality, and informed consent were attached to the form. Then a link to the form was generated and forwarded to the class representative who further disseminated the form among the randomly assigned students. The result of the

latest professional examination was obtained from the student section of RMU. The data obtained was kept confidential

Instruments

Demographic Sheet

Participants' demographic information was gathered using a demographic sheet. The participant's age, gender, birth order, marital status, monthly income, family structure, employment situation, and drug use were all listed on the demographic sheet. In addition, information was gathered about their level of religiosity, whether they board, whether they are from a village, and the results of their most recent professional exam.

Emotional Intelligence Competency Inventory

The emotional intelligence competency inventory is modified from Daniel Goleman’s emotional intelligence. The modified questionnaire was developed by Suzzane Farmer in 2013. EICI is a self-reported assessment tool that measures different emotional competencies. The scale is divided into two domains, personal and relational. A behavioral situation is given, and the participant has to choose how much they agree to that statement.

Statistical Analysis

Data was analyzed by using Statistical Program for Social Sciences (SPSS) version 21. Descriptive statistics (mean, standard deviation, and percentages) were used for summarizing the study and variables (age, gender, and marital status). Pearson’s correlation coefficient was used for observing and quantifying the correlation between emotional intelligence and academic achievement. Simple linear regression analysis was used to determine the predictive value of emotional

intelligence for academic achievement. A p-value <0.05 was considered as significant.

Results

A total of 110 students were approached, out of 8 refused to participate, 9 didn't fill in informed consent, 6 didn't return and 6 wereincomplete remaining results were compiled with 81 students.

Table 1 ***Demographic Characteristics of the participants***

Sample Characteristics	***N***	***%***	***M***	***SD***
Gender				
Males	25	30.9		
Females	56	69.1		
Age			20.44	1.33
Birth Order				
Eldest	34	42.0		
Middle	32	39.5		
Youngest	15	18.5		
Marital Status				
Single	80	98.8		
Engaged	1	1.2		
Married	0	0		
Family System				
Joint	19	23.5		
Nuclear	56	69.1		
Single Parent	6	7.4		
Employment Status				
Employed	4	4.9		
Unemployed	77	95.1		
Married	0	0		
Monthly Family Income				
10,000-25,000	3	3.7		
25,000-50,000	9	11.1		
50,000-75,000	19	23.5		
75,000+	50	61.7		
Substance Use				
Yes	1	1.2		
No	80	98.8		
Practice Religious Activities				
Yes	77	95.1		
No	4	4.9		

Boarding Status				
Day-Scholar	58	71.6		
Hostelite	23	28.4		
Permanent Residence				
Rural	8	9.9		
Urban	73	90.1		

Note: *N=81*

Table 1 here shows the mean age is M=20.44 with a SD=1.33. The results reveal that there are around 30.9 % females and 69.1% males participants who took part in the study. A total of 23.5% belong to a joint family, 69.1% come from a nuclear, and 7.4% live with single parent.

Table 2 ***Psychometric properties for scales***

Scales	*M*	*SD*	Range	Cronbach's α
Self-awareness	27.32	3.70	15-35	.63
Self-management	28.23	5.17	17-40	.71
Social awareness	28.81	4.90	16-40	.72
Relationship-management	25.80	4.47	11-35	.75

Table 2 shows the psychometric properties of the instruments utilized in the study. The total number of items in each subscale was less than ten, hence, Cronbach's α > .5 indicates that the scale is reliable. The reliability of the self-awareness scale is found to be .63 (> .5), for Self-Management it is .71 (>.7), for Social Awareness the value is .72 (>.7), and for Relationship Management it is .75 (>.7). These values indicate that all the instruments used show a great consistency, are reliable, and fit to collect data.

Table 3 ***Regression Coefficients of Self-Awareness, Self-Management, Social Awareness, and Relationship Management on Academic Achievement***

Variables	*B*	*SE*	*T*	*p*	95%CI
Constant	702.73	48.37	14.53	.000	[606.38, 799.07]
Self-Awareness	-4.62	2.17	-2.13	.036	[-8.95, -.30]
Self-Management	1.52	1.45	1.05	.297	[-1.37, 4.40]
Social- Awareness	-.19	1.75	-.105	.916	[-3.68, 3.31]
Relationship Management	-.271	2.01	-.135	.893	[-4.27, 3.73]

*Note:*CI = Confidence Interval

Table 3 showsthe R^2 value of .07 indicates that the predictors in our study explained the 7% variance observed in the outcome variable with F (4, 76) = 1.57, p > .001. The findings revealed that self-awareness has a negative relationship with the prediction of academic achievement (β = -.31, $p < .05$), self-management is a non-significant indicator of academic achievement (β = .14, $p > .05$), while social awareness (β = -.01, p > .05) and relationship management (β = -.02, p > .05) are also non-significant predictors of academic achievement.

Table 4 ***Correlations for Study Variables***

Variable	M	SD	1	2	3	4	5
Marks obtained	606.95	54.76	-				

Self-Awareness	27.32	3.70	-.26*	-			
Self-Management	28.23	5.17	-.05	.57**	-		
Social-Awareness	28.81	4.91	-.13	.48**	.37**	-	
Relationship Management	25.80	4.48	-.14	.53**	.43**	.70**	-

Note.: *p< .05. ** p < .01. (N=81)

Table 4 represents the results of the correlation produced through Pearson's r. The correlation was calculated between Marks obtained during the last proof, Self-awareness, Self-management, social awareness, and Relationship management. The results obtained exhibit that a significantly negative relationship exists between self-awareness and scores obtained, r (79) = - .26, p= < .05. However, self-management; r (79) = - .05, p > .05, social awareness; r (79) = -.13, p > .05, as well as relationship management; r (79) = - .14, p > .05, show an insignificantly weak negative correlation with scores obtained.

Table 5 ***Differences obtained on different domains of Emotional Intelligence across both genders.***

Gender							
	Females *n=56*	*Males* *n= 25*				*95% CI*	

Scales	*M*	*SD*	*M*	*SD*	*T*	*df*	*p*	*LL*	*UL*	*Cohen's d*
Self-awareness	26.77	3.61	28.56	3.69	2.05	79	.044	.05	3.53	0.45
Self-Management	27.52	5.23	29.84	4.76	1.90	79	.061	-1.14	4.76	0.42
Social-Awareness	28.95	5.14	28.52	4.42	-.36	79	.720	-2.79	1.94	-0.08
Relationship Management	25.68	4.86	26.08	3.55	.37	79	.712	-1.76	2.56	0.08

Note: Mean parameter values for each of the analyses are shown for females (*n*=56) and males (*n*=25), as well as the results of *t*-tests (assuming equal variance) comparing the parameter estimates between the two genders.

Table 5 shows the results of the t-test obtained; significant gender differences were obtained in Self-awareness.The differences found on the self-management scale between males (M= 29.84, SD= 4.76) and females (M= 27.52, SD= 5.23) were insignificant but the effect size had a moderate size. Statistically insignificant results were obtained on social awareness whereby male (M=28.52, SD=4.42) respondents and female (M=28.95, SD=5.14) had a very small effect size. Similarly, males (M=26.08, SD=3.55) showed insignificant differences from females (M=25.68, SD=4.86)

Discussion

In our study, we discovered a very slight negative correlation between academic performance and EI based on the results of the year-end exam. This could be because first-year medical students are less likely to experience negative emotions than other students, or it could be because the positive emotions they experience after being accepted into medical school serve as a stress reliever. Low EI may also be caused by students who are overly critical of their teachers' abilities or who are less concerned with their studies because they never intended to pursue a career in medicine, according to Brackett and Salovey[21].

A meta-analysis reported thatcorrelation between EI and academic performance is stronger in eastern countries while the sociodemographic variables of sex and age do not play a mediating role[22]

In our study, we discovered weak associations between various EI traits and academic success. Self-awareness had a significant yet weak negative correlation with exam scores, in contrast to the other three domains of self-management, social awareness, and relationship management, which all had insignificantly weak negative correlations with year-end exam scores. Suleman and colleagues, on the other hand, discovered in their study that all EI domains were moderately positively correlated with academic success [23,24]

The disparity between our findings and those of other studies may be explained by the inclusion of additional factors influencing academic success, such as academic motivation, which has been shown in several studies to significantly correlate with emotional intelligence[25].

There were no statistically significant gender differences among the four emotional intelligence subscales, except for self-awareness, where men

outperformed women. Women outperformed men on the EI performance measure in a Spanish sample, but the differences were mediated and lost significance when age was factored in[26]

According to this study, despite a slightly higher mean difference between male and female students, there was no discernible difference in overall Emotional Intelligence. These findings are supported by the study, which found no difference between male and female students[27]

Conclusion

The contradictory findings from what is commonly thought to be a significant correlation between EI and academic achievement demonstrate that there is still much to learn about the two variables' relationship. We can gain a better understanding of the role that EI can play in assisting academic institutions in improving their performance and leading to higher academic achievement by conducting extensive research in this area.

Limitations

Our findings add to the growing body of evidence demonstrating the link between ability-type emotional intelligence (EI) and academic performance in a medical undergraduate program. However, this study had several flaws. The first limitation is the sample size within each academic year. Second, as with any voluntary study, there may be selection bias; non-participating students may be less motivated or discouraged given their already poor academic standing. Third, because the EI test was administered in English, not all the subjects were fluent in the language. Data was specifically gathered from one medical institute, Rawalpindi Medical Institute. This threatens the generalizability power of study. Toenhance generalization, the data should be collected from a larger sample from different medical institutes and

from those which are in other cities. Another limitation to this study is the data collection instrument which is a self-report inventory.

A qualitative study would have provided a more comprehensive understanding of the phenomenon than quantitative study did. The lockdown and COVID restrictions made it impossible for anyone to approach the students physically. The small sample size of the study gave the impression that the findings were unimportant. The problem could be solved by expanding the sample. As a result, extreme caution should be exercised when extrapolating the findings.

Suggestion For Future Work

More research using various Emotional Quotient tools should be conducted to learn more about the emotional intelligence of adolescents. More research should be done on the discriminant, concurrent, and incremental validity of the scale. Future research in Pakistan should focus on performance measures for children because the developmental years of 7 and 8 are critical.

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