Original Article

Emotional Intelligence and Academic Achievement among College Students of Pre-Medical and Pre-Engineering

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ABSTRACT

Aim of the Study: Emotional intelligence (EI) has been gaining increasing attention as an important factor that can influence academic achievement among college students. The ability to recognize, understand and manage one's own emotions as well as those of others has been linked to improved academic performance and overall success in life. The current research purported to examine the association between emotional intelligence and academic achievement of female college students of pre-medical and pre-engineering.

Methodology: The present correlational research was consisted of 100 participants including 50 female students of pre-medical and 50 female students of pre-engineering. Emotional intelligence was measured by Schutte Self Report Emotional Intelligence Test (SSEIT) developed by Schutte in 1998 (SSEIT, a= 0.96). Academic achievement was measured through pre-medical and pre-engineering grades of female students.

Findings: ANOVA was used to measure difference of emotional intelligence among female students of different academic grades p < 0.01. Independent t-test was used to measure difference of emotional intelligence among female students of pre-medical and pre-engineering t=7.05 with p<0.01 and also used to measure difference of emotional intelligence among students of nuclear and joint family system t = -2.30 with p<0.01.

Conclusion: The findings showed that female college students' academic performance and emotional intelligence differed significantly. The results indicated that undergraduate students' academic performance might be further improved by further enhancing their emotional intelligence.

Keywords: Emotional Intelligence, Academic Achievement, Pre-medical, Preengineering, College Students.

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1. INTRODUCTION

The concept of emotional intelligence has received a lot of attention in study, particularly in psychological research, and has been the subject of increased discussion in the field of social psychology. Research has shown that emotional intelligence (EI) has a significant effect in an individual's cognitive performance and is associated with both professional and academic success (Achuff, 2001). Peers view college students with higher emotional intelligence as prosocial, less hostile, and less conflictual, and they exhibit more good social relationships (Annie et al., 1996). Positive connections and improved social skills may help people grow cognitively and intellectually, which will ultimately lead to better academic performance (Anderson & Gerbing, 1984; Atkinson & McClelland, 1953; Ames, 1992).

Salovey and Mayer first introduced the concept of emotional intelligence, which refers to an individual's ability to effectively identify, comprehend, and utilize emotions for optimal reasoning and problem-solving capabilities (Bear et al., 2006).

College students who possess higher emotional intelligence may be better equipped to handle the stresses and demands of their academic programs, which could lead to higher academic achievement (Bar-On, 1997). Pre-medical and pre-engineering programs are known for their demanding nature, requiring students to possess strong critical thinking, problem-solving, and analytical skills. Emotional intelligence plays a crucial role in developing such skills, particularly in areas such as self-awareness, self-regulation, and motivation, which can help students maintain focus and enthusiasm for their studies. As a result, it is reasonable to hypothesize that female college students with higher emotional intelligence levels may achieve higher academic success in pre-medical and pre-engineering programs than those with lower emotional intelligence.

The present study investigates potential differences in academic achievement among female college students based on their emotional intelligence levels. Additionally, this research aims to explore variances in emotional intelligence among female students pursuing pre-medical and pre-engineering programs, as well as those from nuclear and joint family systems.

Academic achievement of college students refers to their level of success in their academic pursuits, such as their grades, GPA (Grade Point Average), and overall academic performance. This may also include their involvement in extracurricular activities, research projects, internships, and other educational experiences. The measurement of academic achievement can vary depending on the specific academic program or course, but it generally reflects the extent to which a student has acquired the knowledge and skills relevant to their chosen field of study. Academic achievement is a measure of college student's achievement as determined by their academic grades of FSc (Bar-On, 2000).

In a study conducted by Mathur, Dube and Mallhotra (2003), the correlation between emotional intelligence and academic achievement was examined using data gathered from a sample of 83 male and female adolescents attending a local public school. The findings indicated that emotional intelligence positively influences academic success and complements it. Furthermore, the data showed that adolescents who possess a higher sense of responsibility exhibit better academic performance, demonstrate greater adaptability, and display higher levels of self-confidence (Bar-On, 2006).

Goleman (1995) emphasized that intelligence quotient (IQ) alone is an insufficient measure of success. He argued that IQ only accounts for 20% of overall success, while the remaining 80% can be attributed to emotional and social intelligence (Bar-On, 2002).

Schutte's (1998) study on first-year students revealed a positive correlation between emotional intelligence and academic performance. The results suggested that students who possess higher levels of interpersonal emotional intelligence skills, as well as intrapersonal emotional intelligence skills such as stress management, are better equipped to handle the transition from high school to university. It remains unclear, however, whether the intra- or interpersonal aspects of emotional intelligence are more critical or

if both play an equally significant role in the successful adjustment of first-year students (Bar-On, & Parker, 2000).

1.1 Hypotheses

H 1: There is likely to be a relationship between emotional intelligence and academic achievement of premedical and pre-engineering students.

H 2: College students with higher emotional intelligence will have higher academic achievement in both pre-medical and pre-engineering fields as compared to those with lower emotional intelligence.

H 3: There is likely to be a difference of emotional intelligence among students of different academic achievement.

H 4: There is likely to be a difference of emotional intelligence among students of pre- medical and preengineering.

H 5: There is likely to be a difference of emotional intelligence among students of nuclear and joint family system.

2. METHODOLOGY

2.1 Research Design

A correlational research strategy employing within group research design was used in the present study.

2.2 Sample

A non-probability purposive sampling strategy was utilized to draw a purposive sample consisted of 100 female students out of which 50 were pre-medical and 50 were pre-engineering (N = 100, n1=50, n2= 50). The sample was selected through following inclusive and exclusive criteria.

2.2.1 Inclusive Criteria

- Only female students were included
- Only students of pre-medical and pre-engineering were included
- Students with the age range of 17-21 years were included in the study

2.2.2 Exclusive Criteria

- Male students were not included
- Students other than pre-medical and pre-engineering were not included
- Students under age of 17 years and above 21 years were not included in this study

2.3 Demographic Form

To gather demographic and other pertinent data about the sample, such as age, education, marital status, number of family members, and number of dependents, the researchers created a demographic form.

2.4 Tools

2.4.1 Schutte Self Report Emotional Intelligence Test (SSEIT)

2.4.2 Description of Measure

A valid and reliable tool was used to assess emotional intelligence.

The initial notion of emotional intelligence by Salovey and Mayer (1990) served as the foundation for the Schutte Self Report Emotional Intelligence Test (SSEIT), which was created by Schutte et al. (1998). The

33 self-report items on the test gauge how well respondents can recognize, comprehend, control, and manage their own and other people's emotions. A 5-point Likert scale, with strongly disagree and strongly agree as the extremes, is used by participants to answer. The scale consists of Things like (a) Emotions are among the things that give my life meaning. (b) I know how to prolong happy feelings when I feel them. The test's items cover the three facets of emotional intelligence: evaluating and expressing emotions, controlling emotions, and using emotions.Schutte et al. (1998) reported high content validity and internal consistency reliability (r = 0.87 to .90) and test-retest reliability (r = 0.78).

2.5 Academic Achievement

Academic achievement was measured through pre-medical and pre-engineering grades of female students.

2.6 Procedure

Permission letter was provided by Department of Applied Psychology explaining the nature of research (Appendix-A). The sample was drawn from Islamia College for Women Cooper Road Lahore with the endorsement of Principal and concerned head of departments. The sample consisted of those female students who had done Fsc in pre-medical and pre-engineering. Some participants refused to fill the forms but some participants were willing and showed good cooperation. The willing participants were individually instructed. The questionnaire consists of 33 self-report items that assess the extent to which respondents characteristically identify, understand, harness, and regulate emotions in themselves and in others. The maximum time taken by each participant is 20-30 minutes. Approximately 30 - 40 days were consumed during the collection of data.

Emotional intelligence of participants was measured through Schutte self-report emotional intelligence test developed by Schutte in 1998. Considering ethical issues, proper permission was taken from the author. Before the administration of SSEIT scale the consent was taken from the participants and assured that their identifying information will be kept confidential and it will be only used for research purpose.

2.7 Ethical Considerations

The author's consent to use the scale was obtained through mail. Permission was obtained from the relevant authorities, including the department heads and the principal. After informing the participants of the purpose and nature of the study, their consent was obtained. Participants were free to leave the activity at any moment and withdraw from it. Participants received guarantees that their personal data would be kept private and used exclusively for study purposes.

3. RESULTS

The purpose of this study was to investigate the difference between emotional intelligence and academic achievement among female college students. ANOVA used to measure difference of emotional intelligence among students of different academic grades. Independent t-test was used to measure difference of emotional intelligence among students of pre-medical and pre-engineering and also used to measure difference of emotional intelligence among students of nuclear and joint family system.

Table 1: Descriptive statistics of Schutte Self Report Emotional Intelligence Test (SSEI) (N=100)

Scales	М	SD	α	
SSEIT	76.94	36.14	0.96	

Note: $SSEIT = Schutte Self Report Emotional Intelligence Test, M = Mean, SD = Standard Deviation, <math>\alpha = Cornbach's$

Table 2: *ANOVA* comparing emotional intelligence of female college students and their academic grades (N=100)

Emotional Intelligence								
Total. AB	df	MS	F	р				
Between groups	2	15164.74	14.86	.000				
Within groups	97	1020.27						
Within groups	97 97	1020.27						

* p < 0.05, df = degree of freedom, MS = Mean square, F = Frequency

Results of ANOVA demonstrated that a significant difference of emotional intelligence was found among students of F.Sc with academic grades A, B and C p< 0.01. Further analysis was run for the comparison of these three groups.

Table 3: Hochberg's GT2 for Comparison of emotional intelligence of different academic grades of female college students (N=100).

(I)	(J)	Mean	Std.Error	Sig.	95% Confidence Interval		
Academic	Academic	Difference			LB	UB	
Grades	Grades	(I-J)					
С	В	13.75	10.15	.368	-10.40	37.92	
	А	42.00	8.58	.000	21.56	62.43	
В	С	-13.75	10.15	.368	-37.92	10.40	
	Α	28.24	7.96	.002	9.29	47.19	
А	С	-42.00	8.58	.000	-62.43	-21.56	
	В	-28.24	7.96	.002	-47.19	-9.29	

*p< 0.05

The results of the table 3 showed that a significant difference found between grades C and A, but no significant difference between academic grades C and B was formed. The table also showed that no significant difference between academic grades B and C was formed but a significant difference between grades B and A was formed. The table also showed that a significant difference between academic grades A and C & A and B was formed p < 0.05.

Table 4: Independent sample t-test comparing emotional intelligence among students of pre- medical and pre- engineering (N=100)

Variables	P.M	P.M (<i>n</i> =50)		P.E (<i>n</i> =50)		р	df	95% CI	
	M	SD	М	SD	_			LL	UL
EI	97.80	41.37	56.08	6.24	7.05	0.00	98	29.97	53.46
*n<0.05 Note	$\cdot P M = Pre - Me$	dical $PE=$	Pre- Fnoin	eerino CI=	Confiden	re Intervo	$n = \infty$	imple t=	difference

p<0.05 Note: P.M=Pre-Medical, P.E= Pre- Engineering, CI=Confidence Interval, n=sample, t=difference, p=significant, df= n-1, LL=Lower Limit, UL=Upper Limit

The results of this table revealed that a significant difference of emotional intelligence among academic grades of pre- medical and pre-engineering students was formed t=7.05, p<0.01. As indicated by the mean values the students who have done pre- medical have high emotional intelligence than those students who have done pre-engineering.

Table 5: Independent sample t-test comparing the emotional intelligence among nuclear and joint family system. (N=100)

Variables	N.FS (<i>n</i> =23)		J.FS (<i>n</i> =77)		t	P	df	95% CI	
	M	SD	M	SD			_	LL	UL
EI	72.35	32.18	91.45	44.21	-2.30	0.00	98	-35.54	-2.66

*p<0.05 Note: N.FS =Nuclear Family System, J.FS= Joint Family System, CI=Confidence Interval, n=sample, t=difference, p=significant, df=n-1, LL=Lower Limit, UL=Upper Limit

It was hypothesized that there is a difference of emotional intelligence among nuclear and joint family system. The results revealed that there is significant difference of emotional intelligence among nuclear and joint system t =-2.30, p<0.01. As indicated by the difference in the mean values, the students of joint families have high emotional intelligence than those students who have nuclear family system.

3.1 Summary of the Results

The overall results of this research revealed a significant difference between emotional intelligence and academic achievements of female college students. The results showed a difference of emotional intelligence among academic grades of pre- medical and pre-engineering students. The results also revealed that a significant difference of emotional intelligence was formed among students with nuclear and joint family system.

4. **DISCUSSION**

Emotional intelligence is the ability to recognize and understand one's own emotions and those of others. It also involves the ability to regulate emotions effectively, as well as the ability to use emotions to guide thought and behavior. Academic achievement refers to the level of success achieved by a student in their academic pursuits. Pre-medical and pre-engineering programs are both challenging academic fields that require a high level of intelligence and commitment.

Researches have found that emotional intelligence is positively correlated with academic achievement among college students. Students with high emotional intelligence are better equipped to manage stress and anxiety related to their academic performance, leading to improved mental health and higher academic achievement. These students are also more likely to engage in effective study habits and time management, which leads to higher academic achievement. This study examines the difference of academic achievement of female college students due to difference in the level of emotional intelligence. This study examines that those students who have high academic grades have high emotional intelligence. The results of this study supports that a difference between level of emotional intelligence and academic achievement of female college students was formed.

The first hypothesis of this study was that there is likely to be a difference of emotional intelligence among female students of different academic achievement. The results of this hypothesis showed that a difference of emotional intelligence among students of pre-medical and pre-engineering was formed with academic grades A, B and C. The results showed that there is a difference of emotional intelligence between academic grades A and B and A and C.

A study by Goleman (1995) showed that a difference between emotional intelligence and the academic success of college students was found. In a study by Austin et al. (2005) examined the role of emotional intelligence and academic success in first year medical students. It is determine that there is a difference between emotional intelligences of students studying at different majors (Austin & Evans, 2005). A recent research by Zeidner (2002) correctly found that there has been a difference between emotional intelligences and academic achievement of college students. The research conducted to fully understand the impact of emotional intelligence on academic success.

The second hypothesis of this study was that there is likely to be a difference of emotional intelligence among female students of nuclear and joint family system. As the results of this hypothesis showed that the students who have done pre-medical have high level of emotional intelligence than those students who have done pre-engineering. Emotional intelligence helps individuals to achieve the life quality that will make them successful in their lives. A recent study by Szkutnik (2001) found that there is a difference between emotional intelligence of pre- medical and pre-engineering students. The results revealed that the pre-medical students have high emotional intelligence than the students of pre-engineering. A further study by Landau and Meirovich (2011) explains the role of emotional intelligence in academic performance of postgraduate students. The findings informed that there is a positive relationship between emotional intelligence and academic performance of male students whereas not associated with emotional

intelligence of female students. The environment has positive relationship with emotional intelligence. Also, the study did not determine a relationship between the emotional intelligence and grade averages of the students.

A recent study has been done by Pakistani scholars Tariq, Majoka and Hussain (2011). They researched on the emotional intelligence of university students, comparing female and male students and establishing a relationship between the academic achievements and perceived emotional intelligence. The findings showed no connection between academic success and kids' emotional intelligence. According to a study by Vural (2010), there is a positive and significant correlation between university students' emotional intelligence and their problem-solving abilities when they are enrolled in the Department of Early Childhood Education.

Connor and Little's (2003) study used an emotional intelligence scale based on both self-report and skill to investigate the association between university students' academic performance and emotional intelligence. The study came to the conclusion that emotional intelligence is not a strong predictor of academic success, regardless of the scale employed to measure the type of emotional intelligence.

The third hypothesis of this study was that there is likely to be a difference of emotional intelligence among female students of pre-medical and pre-engineering. The results of this hypothesis showed that there is a difference of emotional intelligence among nuclear and joint family system. It was indicated that the students who belong to joint families have high emotional intelligence than those students who have nuclear family system. The results are in line with a study by Eliot and Gray (2000) investigates the influence of Nuclear and Joint Family System on the academic achievements of the students of intermediate level. The results explore that there is a difference of emotional intelligence among female students with nuclear and joint family system.

Pakistani researcher Parveen (2006) did a study on the relationship between students' home environments and their personalities and academic performance. She discovered a link between academic success and home environment and came to the conclusion that students' home environments have an impact on their personalities and academic performance. Asia (2008) investigated several orientations and the impact of the home environment on students' performance in a follow-up research. Students' accomplishment patterns are significantly impacted by their family structure. The study examined how joint and nuclear family structures affected students' academic performance and came to the conclusion that there was a connection between students' academic performance and their family structure.

A recent study by Qaiser et al., (2012) similarly looked at how family structure affected kids' academic achievement. However, they considered the size and number of siblings in a family and suggested that a small family size and few siblings, together with parental involvement, improve student achievement. Aneesa, Najma, and Noreen (2013) investigated the effects and ramifications of family dynamics on the development of adolescents in a follow-up study. They believed that effective family functioning is supported by family communication. They found a correlation between family system and family communication as indicators of adolescent family satisfaction. They discovered that the likelihood of academic success is positively correlated with family pleasure.

5. CONCLUSION

In the light of results and discussion it is concluded that there is a difference of emotional intelligence and academic achievement of female college students. The results revealed that a significant difference of emotional intelligence among academic grades of pre- medical and pre-engineering students was formed. The results showed that those students who have done pre-medical have high emotional intelligence than those students with pre-engineering. The results also revealed that a significant difference of emotional intelligence among students with nuclear and joint family system was formed. The students who belong to joint family system have high level of emotional intelligence than those students who belongs to nuclear family system. Hence large size of family badly affects student's academic achievement.

5.1 Limitations

Following are the limitations of this study

- The research was limited due to sample size, which yields the responses from only 100 female college students. A large sample can provide more valid differences.
- There was a lot of hardship in collecting data from students. They were not easily convinced.
- The results are specific to educational institutions in one geographical area and may or may not be generalizable to other areas.
- Respondents in this study were female college students, and these findings may not be applicable to the other areas.
- The research was also time limited therefore only female college students were included in this study.

5.2 Suggestions

There are some suggestions for future research

- If in future the same topic is picked again for research purposes, it should be expanded to more areas. This will enable the researcher to have enough data and information related to emotional intelligence.
- Other variables which could affect emotional intelligence can also be studied.
- As data related to current study is lacking in Pakistani perspective so it will open new horizons for upcoming researchers. It can be used as a basis of future research.
- Data should be gathered from other areas and institutions of the whole country for the generalization of the results.

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Conflict of Interest

Authors declared NO conflict of interest.

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