Original Article

The relationship between emotional intelligence and academic stress in students of medical sciences

Mohammad Reza Miri, Tayyebe Kermani¹, Hoda Khoshbakht², Mitra Moodi³

Department of Health Sciences, Family Health Research Center ¹Department of Anatomical Sciences, Traditional and Complementary Medicine Research Center ²Department of Nursing, ³Department of Health Sciences, Family Health Research Center, Birjand University of Medical Sciences, Birjand, Iran

ABSTRACT

Background and Aim: Emotional intelligence (EI) theory provides a view about predicting effective factors in people's lives whether in education or profession. According to earlier studies, people who have higher emotional skills are more successful in many of life aspects :e.g., reaction to stress and controlling stress situations. Since students are the future of society, this study was carried out to evaluate the relationship between EI and education stress in the students of Birjand University of Medical Sciences (BUMS). **Materials and Methods:** In this cross-sectional study, 260 students were selected by proportional sampling in four faculties: Medicine, Nursing and Midwifery, Paramedical Sciences, and Health. Data were collected using two questionnaires: The standardized EI Shering's (33 questions, five domains) and the Student-Life Stress Inventory (57 questions, nine domains). The obtained data were analyzed by independent *t*-test, Pearson's correlation coefficient, and linear regression at the significant level of $\alpha = 0.05$. **Results:** Totally, 65.8% of participants were females and 31.1% were males. The educational level of the participants included Associate's degree (44.6%) Bachelor's degree in science (31.2%), and medical science (23.1%). There was no significant correlation between EI scores and educational stress in students. But there was a significant relationship between EI with sex ($P = 0.02$) and mean of EI scores with three domains of academic stress: Personal favorites ($P = 0.004$), reaction to stressors ($P = 0.002$), and performance in stressful situations ($P = 0.001$). **Conclusion:** Although EI growth in different individuals can promote their success, it cannot decrease academic stress by itself which was particularly significant in females. Therefore, other causes of stress such as individual differences must be taken into consideration.

Key words: Academic stress, emotional intelligence, individual differences, students

Address of correspondence: Dr. Tayyebe Kermani, Department of Anatomical Sciences, Traditional and Complementary Medicine Research Center, Birjand University of Medical Sciences, Birjand, Iran.
E-mail: kermani_t@bums.ac.ir

INTRODUCTION

The concept of emotional intelligence (EI) as a part of individual talents has grown over the last two decades. Its development can answer many problems not only in theoretical and psychological aspects, but also in health, education, and management problems.[1-6] As Goleman suggested, EI includes ability to solve emotional problems, capacity to accept reality, flexibility, and ability to regulate and alter the affective reactions of stress and crisis. He thought that EI forms a better way to use Intelligent Quotient (IQ) through self-control, perseverance, and self-motivation. He believed that a person should

wisely face emotions instead of ignoring them.[5] Bar-On represented a model for intelligence and believed that EI is an assortment of various skills that contribute to successful performance and effective environmental adaptation in life.[1]

Mehrabian in a study considered four factors and evaluated EI and individual successes in life.[7] He stated that EI predisposes success in people's lives and helps them to deal with stress. Regarding the relationship between EI and health, earlier studies indicated that individuals with higher EI had significantly better levels of physical and mental health than others.[1-3,7,8] In other words, EI may be a part of positive psychology.[1] Academic stress is defined as that generated by the proper demands in an academic context along with an individual recognition about spending sufficient time to achieve that context.[9-11]

Coping with stress requires adaptation to new social norms and situations.[9] Also, both academic stress and environment are important and determinative to form the students' experiences beside five variables including age, sex, motivation, self-esteem, and academic self-concept.[12] The scale of EI can be used to identify individuals who may need education of special skills to deal with stress. Ciarrochi *et al.* believed that some forms of EI can keep people safe from stress and lead to better compliance.[13] In another study, Ciarrochi *et al.* suggested that emotional indicators and stressor factors impacted on socio-psychological health status.[14] Moreover, it is reported that perceived EI on depression is moderated to some degree by culture.[11] Salovey., concluded that EI was associated with health, and individuals with higher EI were able to deal better with stress and were less vulnerable in stress conditions.[3,1-15] Srivastava and Misra,[16] and Shabani *et al.*[17] stated that the organization has to nurture Physical Quotient/bodyPQ, IQ, Emotional Quotient (EQ), and Spiritual Quotient (SQ) of its employees. University entrance is a very critical stage in the life of the young and active force in every society. Students after entering university start a new life with new models of education, social, and emotional expectations and stresses, then they are subjected to more tensions, particularly medical students who are studying in clinical courses.[18-23] Studies have shown that EI can be taught, developed, and increased.[24-33] Thus, health can be promoted through development of required skills such as EI skills. The present study aimed at evaluating the relationship between EI and academic stress in medical students of Birjand University of Medical Sciences (BUMS).

MATERIALS AND METHODS

In this cross-sectional study, 260 students were included. The quota sampling method was performed according to the number of students in four faculties including Medicine, Nursing and Midwifery, Health, and Para medicine. students were free to fill or reject questionnaires. The necessary data was gathered by two standard questionnaires including

Sheering Emotional Intelligence Questionnaire (EIQ) and Student-Life Stress Inventory (SLSI). EIQ was a 33-item scale covering five components including self-awareness, self-control, self-motivation, social consciousness, and social skills.

The SLSI was a 51-item questionnaire with a Likert type response format (1 = never, 2 = seldom, 3 = occasionally, 4 = often, 5 = most of the time) and consisted of two sections: Types of stressors and reactions to stressors. The types of stressors section comprised five categories which include frustrations, conflicts, pressures, changes, and self-imposed with a reported internal consistency of 0.69, 0.75, 0.68, 0.71, and 0.73, respectively. The reactions to stressors section comprised four categories including physiological, emotional, behavioral, and cognitive with a reported internal consistency of 0.79, 0.85, 0.88, and 0.71, respectively. The higher scores indicated high rate of academic stress and its related reactions. Data were analyzed using SPSS software (Version 15) (IBM SPSS Statistics) and independent *t*-test, Pearson's correlation coefficient, one-way ANOVA, Chi-square test, and linear regression. $P \leq 0.05$ was taken as the significant level.

RESULTS

Out of 260 students, 65.8% were females and 33.1% were males. Students with associate's degree were 44.6%, 31.2% were undergraduates, and 23.1% were graduates. Mean age of the participants was 20.66 ± 1.94 and most of them lived in the university dormitories. Medical score of EI was 130.31 ± 26.42 (from the total score of 165). The levels of EI were measured as poor (12.7%), moderate (76.2%), and strong (11.2%). The level of academic stress was low, moderate, and high in 13.5%, 73.5%, and 13.1% of them, respectively. There was no correlation between mean of EI and academic stress. However, there was a significant difference in mean of EI between the two genders. The girls had a higher mean of EI than boys ($P = 0.03$). Besides, there were significant differences between girls and boys regarding self-awareness, self-motivation, social consciousness, and social skills [Table 1]. Although there was no relationship between gender and total score of academic stress, there were some significant differences in its subsequent other aspects including pressures/stressors and individual interests [Table 1].

There were significant differences between the score of EI of students in various faculties ($P = 0.03$), but this was not true for the academic stress score [Table 2]. Moreover, the birth orders of participants were associated with some EI level subscales (experience of stressor conditions and functioning in stressor conditions), but not with the academic stress score [Table 3]. There was a significant correlation between all EI components among the students [Table 4]. Results obtained from linear regression indicated that EI was related to three academic stress sub-scales including individual interests ($P = 0.04$), reaction to stressors ($P = 0.002$), and functioning in stressed conditions ($P = 0.001$) [Table 5].

DISCUSSION

The findings of the present study indicated that the students of BUMS had a moderate to high level of EI. The results showed that the total score of EI was not correlated with academic stress, but there was a relationship between some subscales of academic stress and EI. Based on this, it can concluded that EI may influence academic stress components.

The obtained results is similar to the results of Ciarrochi *et al.* study on the relationship between EI and stressor agents.[13,14] They demonstrated that there was an association between EI score and three subscales of academic stress; so that higher level of EI was associated with individual interests, reaction to the stressor agents, and function in stressor conditions. In addition, higher level of emotional attention was associated with self-awareness; thus, academic stress can be reduced due to emotional rehabilitation in higher levels which is similar to the studies by Bar-On[1] and Ghorbani *et al.*[15] Study on dentistry students indicated a reverse correlation between EQ score and level of stress.[22] Salovey found a relationship between high EI level and ability for coping with stress.[3] In another study, Miri and Akbari[9] suggested that paying attention to EI had a great impact on the improvement of mental health and functioning status among students. Furnham[34] stated that women in EI subscales had higher score in social skills. Similarly, present results indicated a significant relationship between EI and gender with a greater EI scores among female students. This is also in accordance with studies by Pau and Croucher[22] and Nasir and Masrur[30] However, Bar-On and Parker found no difference between the level of EI in girls and boys.[6] Studies of Ciarrochi *et al.* about EI and stress adjustment stated that individuals with more ability in stress controlling represented a higher level of adjustment.[14] In the present study, people with higher level of self-awareness and social skills acted better against stressors and pressure factors. Fernandez-Berrocal *et al.* showed that individuals with higher EI level were stronger against depression.[11]

Table 1: Comparison between two genders about emotional intelligence, academic stress, and their sub-scales

Questionnaires	Gender		P value
	Female	Male	
EIQ			
Self-awareness	27.77±4.09	25.53±4.87	0.001
Self-control	19.20±3.11	19.51±3.34	0.46
Self-motivation	31.38±5.05	29.39±6.58	0.008
Social consciousness	17.33±2.78	16.09±2.57	0.001
Social skills	26.30±4.41	23.77±4.52	0.001
Total EI score	122.00±14.87	114.3±17.42	0.001
SLSI			
Pressures/stressors	18.18±4.72	20.44±4.58	0.001
Experience of conflicts	7.18±3.53	7.68±2.84	0.25
Self-imposed	12.14±3.97	12.12±3.64	0.98
Self-experience	8.43±2.60	8.50±3.01	0.86
Individual interests	20.97±4.64	19.59±4.83	0.02
Reaction to stressors agents	28.67±9.47	28.43±10.49	0.85
Experience of stressor condition	11.83±4.21	10.90±3.95	0.09
Reaction to stress	16.32±5.86	15.86±5.88	0.54
Function in stress or condition	6.64±2.29	6.39±2.38	0.42
Total academic stress score	130.39±27.45	129.94±24.79	0.89

EIQ = Emotional intelligence questionnaire, SLSI = Student-life stress inventory, EI = Emotional intelligence

Table 2: Comparison between faculties about emotional intelligence, academic stress, and their subscales

Questionnaires	Faculty				P value
	Medicine	Nursing and Midwifery	Paramedicine	Health	
EIQ					
Self-awareness	27.16±4.33	26.58±4.62	28.14±3.98	25.44±5.16	0.01
Social skills	25.76±4.36	25.27±4.29	26.52±4.48	23.70±5.14	0.009
Total EI score	118.96±13.07	119.81±17.03	112.40±15.35	113.80±18.69	0.03
SLSI					
Pressures/stressors	17.28±3.74	20.12±4.62	18.51±4.87	19.56±5.38	0.003
Total academic stress score	126.37±22.93	135.82±25.11	128.28±28.84	128.88±28.08	0.14

EIQ = Emotional intelligence questionnaire SLSI = Student-life stress inventory, EI = Emotional intelligence

Table 3: Comparison between the orders of birth about emotional intelligence, academic stress, and their subscales

Questionnaires	Birth order			P value
	First	Second	Third and more	
EIQ				
Total EI score	119.80±14.45	116.13±19.35	120.38±15.70	0.27
SLSI				
Experience of stressor condition	12.15±4.27	9.96±3.89	11.97±4.07	0.006
Function in stressor condition	16.05±2.28	5.45±2.50	6.68±2.20	0.001
Total academic stress score	131.83±29.20	123.19±27.51	132.17±23.96	0.05

EIQ = Emotional intelligence questionnaire, SLSI = Student-life stress inventory, EI = Emotional intelligence

Table 4: The intrinsic correlation of emotional intelligence subscales among studied population

EIQ	Self-awareness	Self-control	Self-motivation	Social consciousness	Social skills
Self-awareness	-	r=0.41 *P*=0.001	r=0.64 *P*=0.001	r=0.46 *P*=0.001	r=0.64 *P*=0.001
Self-control	-	-	r=0.45 *P*=0.001	r=0.30 *P*=0.001	r=0.26 *P*=0.001
Self-motivation	-	-	-	r=0.45 *P*=0.001	r=0.56 *P*=0.001
Social consciousness	-	-	-	-	r=0.55 *P*=0.001
Social skills	-	-	-	-	-
Total EI score	r=0.85 *P*=0.001	r=0.59 *P*=0.001	r=0.85 *P*=0.001	r=0.67 *P*=0.001	r=0.80 *P*=0.001

EIQ: Emotional intelligence questionnaire, EI: Emotional intelligence

Table 5: Linear regression model of emotional intelligence

Academic stress subscales	B coefficient	*P* value
Pressures/stressors	–0.022	0.74
Experience of conflicts	0.003	0.95
Self-imposed	0.039	0.68
Self-experiences	0.111	0.11
Individual interests	0.205	0.004
Reaction to stressors agents	–0.215	0.002
Experience of stressor condition	0.015	0.85
Reaction to stress	–0.122	0.11
Function in stressor condition	0.211	0.001

The present findings demonstrated that the total score of EI, respectively, decreased among paramedical, nursing and midwifery, medical, and health students. However, high score of academic stress was respectively seen among the nursing and midwifery, health, paramedical, and medical students. Thus, it can be concluded that nursing is a stressful occupation and its students face clinical stressors in addition of educational tensions.[25-29] However, medical students had a lower level of stress which may be due to their employment chance and social acceptability. The present study population consisted of three levels of education including associate's degree (paramedical and health students), undergraduate (nursing and midwifery students), and postgraduates (medical students) and this may have influence on the students' EI skills developed through more proficient studies. In a similar study on EI, grade point average reported a relationship between self-controlling and the mean score of EI in students.[35]

The social skill scores were respectively high among paramedical, medical, nursing and midwifery, and health students, respectively. Although health students because of their occupation, need more social skills, they had a lower score. In other words, individuals with higher level of EI were more developed in social skills.

The present results indicated that girls had a higher score in all stress components. Sanches-Nunez., *et al.*, in a review study that there is a different between the two sexes regarding empathy and self-control. The girls are more stressful than boys because they are more influenced by self and ideal self.[35] Besides, women have skills in understanding and revealing their feelings, but men have more ability in controlling impulse and tolerating stress. They add women underestimate their abilities.[35] Of course, studies on gender differences of EI (EQ) showed that there exists a different between boys and girls regarding EI and grade-point averege.[36] The results of the present study is in accordance of Misra *et al.* study about gender difference in the 9-score of SLSI questionnaire.[10] Although older siblings of a family had higher stress level, EI score was not different with respect to birth order. It could be, according to this theory, said that EI is a mental capacity to implicate and apply the emotional information which is partly intrinsic and partly acquired during life experiences. Thus, contradictory to the IQ which is a constant value, EI can be developed.[24,28] However, it was reported that some factors like other quotients including SQ[16,17] and adversity quotient[16] were effective in the adjustment of EI.[32]

CONCLUSION

Although EI development in different individuals can promote their success, it cannot decrease academic stress, which was particularly significant in females by itself., Therefore, other stress causes such as individual differences (e.g., IQ, SQ, Adversity Quotient (AQ), PQ, etc.) must be taken into consideration.

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