# A study of the academic performance of medical students in the comprehensive examination of the basic sciences according to the indices of emotional intelligence and educational status

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## ABSTRACT

**Background:** Considering the increasing importance of emotional intelligence (EI) in different aspects of life, such as academic achievement, the present survey is aimed to predict academic performance of medical students in the comprehensive examination of the basic sciences, according to the indices of emotional intelligence and educational status. **Materials and Methods:** The present survey is a descriptive, analytical, and cross-sectional study performed on the medical students of Isfahan, Tehran, and Mashhad Universities of Medical Sciences. Sampling the universities was performed randomly after which selecting the students was done, taking into consideration the limitation in their numbers. Based on the inclusion criteria, all the medical students, entrance of 2005, who had attended the comprehensive basic sciences examination in 2008, entered the study. The data collection tools included an Emotional Intelligence Questionnaire (standardized in Isfahan), the average score of the first to fifth semesters, total average of each of the five semesters, and the grade of the comprehensive basic sciences examination. The data were analyzed through stepwise regression coefficient by SPSS software version 15. **Results**: The results indicated that the indicators of independence from an emotional intelligence test and average scores of the first and third academic semesters were significant in predicting the students' academic performance in the comprehensive basic sciences examination. **Conclusion**: According to the obtained results, the average scores of students, especially in the earlier semesters, as well as the indicators of independence and the self-esteem rate of students can influence their success in the comprehensive basic sciences examination.

**Key words:** Academic performance, comprehensive examination of basic sciences, emotional intelligence, medical students

## INTRODUCTION

Emotional intelligence, in recent decades, has been considered as an achievement elixir in the various comprehensive aspects of life and include perception capacity, expression, understanding, cognition, application, and self-management of the emotions of self and others.[1,2]

Emotional intelligence will help an individual to apply his skills in the best way, in social relations, and in particular circumstances, will help him/her recognize an inappropriate

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| Access this article online | |
|---|---|
| **Quick Response Code:** | **Website:** www.jehp.net |
| | **DOI:** 10.4103/2277-9531.162387 |

action from an appropriate action, be hopeful, empathize with others, listen to the others' emotions, ignore smaller rewards to achieve much larger rewards, persist against the problems and maintain the motivation in all circumstances, attract others' trust,[3] be accountable, convinced, lively, be a novelty seeker, be in balance emotionally,[4] and be optimistic and goal-oriented in life.[5,6]

Having an emotional intelligence quotient rate causes one to spend less psychological energy in negative incidents and to achieve more benefits from the positive incidents.[7] With regard to these features, some of the references pointed out that people's destiny to obtain many achievements is dependent on their emotional intelligence. In this regard, emotional intelligence is a decisive determinant, for example, the unsuccessfulness of some people with high IQ (intelligence quotient) or unexpected success of some others with average and normal IQ. Thus, emotional intelligence is the predictor of individuals' success in life, education, and so on.[8]

Dewey correlated this issue to the education system; in this system, only academic ability is emphasized and EI is disregarded.[9]

Therefore, Austin *et al.*, believe that social and emotional competence is considered as a determinant for academic achievement.[10] Hence, emotions have consistently been seen as essential components of learning, along with the emphasized cognitive capacity of the psychologists and instructors of educational sciences.[11]

Many evidences indicated the association between EI and academic achievement in many different surveys.[12-16]

However, considering the importance and impact of emotional intelligence on different aspects of life, such as the educational life, the mentioned survey tried to predict the academic performance of medical students in the basic sciences comprehensive examination, based on EI indicators and their educational status in this period; especially medical students who required a higher commitment level, a more complete performance, and more accountability, of the service providing type.

In the following section, relevant domestic and foreign researches in this regard have been mentioned briefly:

Besharat *et al.*, in separate researches on students reported that there was a significant and positive correlation between some of the components of EI and academic achievement. Haddadi *et al.* in a study on Shahed and non-Shahed students of Tehran University concluded that there was no correlation between EI and academic achievement.[17-25]

It has been reported that emotional skills have a long-term effect on success. The American Psychiatrists Association, studied the educational experiences of 21 women and came to a conclusion that those with higher EI had higher academic achievement. Gumora and Arsenio, Diguseppe, Robert, Parker, Petrides *et al.*, Abdollah *et al.*, Parker *et al.*, Wraight, Rice, and Bradshow, in separate researches, reported that there was a positive and negative correlation between EI and academic achievement. Moreover, Woitasze and Alsama, Drago, and Bastian *et al.*, illustrated an inconsistent result in different researches based on the fact that there was no correlation between emotional intelligence and academic achievement. Stratton *et al.*, in a study that had reviewed EI in medical students, had come to realize that with increase in the academic semester of the students, they showed considerable reduction in emotions, mood modification, sympathy, and increased distress on account of the EI indicators. Lazaguirre, when studying freshmen, had concluded that the variables of problem solving and social accountability of EI indicators were in association with academic achievement.[14-16,26-39]

Studies conducted in different countries have emphasized the impact of various emotional intelligence indicators on students' academic performances. The present study aims to investigate this subject in medical students, based on their biomedical examination, and show that this examination plays a decisive role in a student's ability to continue his/her education in this major, and then it answers the research question of whether the educational function of medical students, according to excitable intelligence indices, is a predictable method.

## MATERIALS AND METHODS

This study was a survey that was performed on the medical students of the Isfahan, Tehran, and Mashhad Universities of Medical Sciences, Iran, in 2008. The mentioned students had participated in a comprehensive basic sciences examination, in September 2008. Students who were guests or transferred to these schools were excluded. The universities were randomly selected and the students underwent census ($n = 182$).

Following coordination with the Dean of the colleges and universities and contact with student representatives, the standardized emotional intelligence questionnaires were distributed, after explaining the study objective. On the other hand, accurate accessibility of the students' average scores was conducted by obtaining the user ID and code through the SAMA software affiliated to the Research Deputy of the University. Thereafter, the score of comprehensive basic sciences examination of each of the students was received with the coordination of the Research Chancellor of the universities from the Educational Section of the schools (colleges).

The emotional intelligence questionnaire had 90 questions with 15 Likert scales of, problem-solving, happiness, using stress tolerance, self-actualization, emotional self-awareness, realism, interpersonal relationships, optimism, self-esteem, impulse control, flexibility, social responsibility, empathy, and self-expression by responding. Reliability was reported to be 0.93 through the Cronbach's alpha coefficient and 0.87 by the split-half method.[40] After collecting the data, they

were analyzed by the SPSS software version 15 and stepwise regression test.

## RESULTS

The results showed that the predicted coefficients of the three independent variables including average scores of the third semester, the first semester, and the independence score (one of the 15 scales of the EI questionnaire) were significant toward the academic performance of the students in the comprehensive basic sciences examination [Tables 1 and 2].

According to the results of the statistical test, the three predictive academic performance variables were, average scores of the third semester, the first semester, and independence scale, from the EI questionnaire.

## DISCUSSION

With the aim to widen the varied effects of emotional intelligence on different dimensions of the individual, social, academic, occupational, family life and so on, the present study predicted the academic performance of the medical students in a comprehensive examination of the basic sciences, according to the indices of emotional intelligence and educational status. According to the results of the regression coefficient, among the independent variables (a mean of the five semesters of basic sciences and 15 EI scales), three predictive academic performance variables of the students included average scores of the third semester, the first semester, and the independence scale from the EI questionnaire.

The correlation between EI and academic performance also was indicated in many researches, like those of: Zare, Mansouri, Yousefi and Kheir, Haddad Kouhsari, *et al*., Razavian Shad, Besharat, *et al*., Dehshiri., Samari and Tahmasbi, La`lifaz and Asgari, Elias, APA, Gumora and Arsenio, Digiuseppe, Rice, Holt, Bradshaw, and Lizagairre.[17-19,25,21,12,22,13,24,26,28,29,34,16,39]

However, Bastin *et al*., and Haddad Kouhsar *et al*., in their studies, found no correlation between emotional intelligence and academic achievement.[25,37]

In this study, out of 15 components of EI, only the independence scale was a significant predictor for academic performance of medical students in the comprehensive basic sciences examination. The finding of this study was compatible with the study findings of Dehshiri, and supported it; while in the Rice's study, out of 11 EI components, 10 components showed a significant correlation with academic performance and in the study by Lisa Cuir, responsibility and problem-solving had the highest correlation with academic performance. One of the major causes of difference in results and in the type of scales associated with the predictor of academic performance of the students could be the difference between the individual characteristics of the study samples in Iran and other countries.

On the other hand, with regard to the independence component (that was a significant predictor in this study), the ability to recognize the inner capacity, talent, and the capability for doing the things someone is able to do, wants to do, and enjoys doing, will be reviewed. The prerequisite for being accepted in the medicine course also is to try and work hard. Therefore, individuals must use their own capacity, talent, effort, and abilities independently, to achieve success.

## CONCLUSION

Taking into consideration the influence of emotional intelligence on individual, social, occupational, and educational life aspects, as well as the fact that emotional intelligence is a skill that can be learned, it is imperative to

**Table 1: Multiple correlation coefficients of the emotional intelligence subscale and average score of the five semesters of basic sciences in predicting the academic performance of medical students in comprehensive basic sciences examination**

| Statistic indicate | Ind. V. | M.C.C. | (M.C.C.)$^2$ | Adjusted (M.C.C.)$^2$ | F | *P* |
|---|---|---|---|---|---|---|
| Step 1 | Term 3 | 0.646 | 0.417 | 0.413 | 59.824 | 0.0001 |
| Step 2 | Terms 3 and 1 | 0.686 | 0.471 | 0.463 | 59.197 | 0.0001 |
| Step 3 | Terms 3 and 1 | 0.702 | 0.493 | 0.482 | 42.790 | 0.0001 |
| | Independence | | | | | |

**Table 2: Reviewing significant coefficient predictors of the academic performance of medical students**

| Statistic indicate | Ind. V. | *N. Standard* | | Standard | *t* | *P* |
|---|---|---|---|---|---|---|
| | | | Standard error | | | |
| Step 1 | Term 3 | 6.808 | 0.695 | 0.646 | 9.789 | <0.0001 |
| Step 2 | Terms 3 and 1 | 7675 | 0.722 | 0.547 | 7.983 | <0.0001 |
| | | 3.525 | 0.957 | 0.252 | 3.685 | <0.0001 |
| Step 3 | Terms 3 and 1 | 6.450 | 0.612 | 0.612 | 8.433 | <0.0001 |
| | Independence | 2.556 | 1.023 | 0.183 | 2.498 | 0.014 |
| | | −0.752 | 0.314 | −0.166 | −2.398 | 0.018 |

provide students with the related training during the academic semesters, which will help improve their academic performance and enhance their occupational skills and abilities.

## Financial support and sponsorship
Medical Science University of Isfahan.

## Conflict of interest
There are no conflict of interest.

## REFERENCES

1. Mayer JD, Salavey P. What is emotional intelligence: In: Salovey P, Sluyter D, editors. Emotional development and emotional intelligence: Implications for educators. New York: Basic Books; 1997. p. 3-31.
2. Mayer JD, Salavey P, Caraso DR, Sitarenios G. Emotional intelligence as a standard intelligence. Emotion 2001;1:232-42.
3. Bar-on R. The bar- on emotional quotient inventory. A test of emotional intelligence. Toronto, Canada: Health System; 1997.
4. Salovey P, Mayer J, Varaso D. Emotional intelligence: Conceptualization psychology: Interpersonal process. London: Blackwell; 2002. p. 279-307.
5. Saarni C. Issues of Cultural meaning fullness in emotional development. Dev Psychol 1998;34:647-82.
6. Mayer JD, Cobb CD. Educational policy on emotional intelligence. Does it make Sense? Educ Psychol Rev 2000;12:103-83.
7. Baron R. The handbook of emotional intelligence. New York: Jossey-Bass; 2000.
8. Golman D. Emotional intelligence. New York: Bantam Books; 1995.
9. Ciarrochi J, Forgas JP, Mayer J. Emotional intelligence and everyday life. London: Psychology Press Ltd; 2006.
10. Austin EJ, Saklofske DH, Egan A. Personality, well – being and health correlates of trait emotional intelligence Personality and individual Difference. Pers Individ Dif 2005;38:547-58.
11. Liff S. Social and emotional intelligence: Applications For development. J Dev Educ 2003;26:28-35.
12. Besharat MA, Shalchi B, Shamsi PH. Reviewing the relationship of emotional intelligence with academic achievement of the students. New Educ Thoughts 2006;2:83-4.
13. Samari A, Tahmasbi A. The study of Emotional Intelligence and Academic Achievement in University Students. Q J Fundamentals Ment Health 2007;9:121-8.
14. Perker JD, Creque RE, Barnhart D, Harris JI, Majeski S, Wood LM, *et al*. Academic achievement in high school: Does emotional intelligence matter. J Pers Individ Dif 2004;37:1321-30.
15. Petrides KV, Frederickson N, furnharna. The role of trait emotional intelligence in academic performance and deviant behavior at school. J Pers Individ Dif 2004;36:277-93.
16. Bradshaw F. Collage of notredame of Maryland, Emotional intelligence in everyday life. New York: Psychology Press; 2008. p. 202-26.
17. Zare A. Comparing Emotional intelligence quotient and general intelligence in predicating academic achievement of the 3rd high-school students in Shiraz. MSc thesis. Iran: Iran University of Medical Sciences; 2001.
18. Mansouri B. Standardizing Cyberia-shrink emotional intelligence test of for MSC students of the public universities in Tehran. MSc thesis Psychology. Iran: Allameh Tabatabaei University; 2001.
19. Yousefi F, Kheir M. Reviewing the formal reasoning, emotional awareness and academic achievement in a group of students in intelligent and ordinary schools in Shiraz. Psychol Educ Sci J 2003;33:177-202.
20. Khalil Arjmandi F. Comparing emotional intelligence, social skills and academic achievement in intelligent and ordinary students. MSc thesis. Iran: School of Psychology and Educational Sciences of Tehran University; 2004.
21. Razavian Shad M. The association of emotional intelligence with social adjustment and academic achievement of the second guidance-school students in Tabriz. MSc thesis, Psychology. Iran: Tabriz University; 2005.
22. Dehshiri GH. Standardization the Bar-On Emotional Quotient Inventory (EQ-I) to assess different aspects of emotional intelligence of Tehran Universities' students. School of psychology and educational sciences of Allameh Tabatabaie University. Tehran 2006.
23. Miri MR, Akbari BM. The association between emotional intelligence and school anxiety in high school students of South Khorarsan Province. Sci J Birjand Univ Med Sci 2007;14:54-60.
24. La'liFaz A, Asgari A. The ability to predict emotional intelligence and demographic variables on academic achievement of the intelligent pupils. Educ Psychol Stud 2008;9:167.
25. HaddadiKouhsar AA, RoushanChesli R, AsgharNejadFarid AA. A Comparative study on relationship of emotional intelligence with mental health and academic achievement in Shahed and non-shahed students of Tehran University. J Psychol Educ Sci 2004;37:97-111.
26. Elias MJ, Gara MA, Schuyler TF, Branden Muller LR, Sayette MA. The promotion of social competence; longitudinal study of a preventive school-based program. Am J Orthopsychiatry 1991;61:409-11.
27. American Psychiatrics Association. Achievement and intellectual development patterns. J Coll Stud Dev 1998;36:468-78.
28. Gumora G, Arsenio F. Emotionality, emotion regulation, and school performance in middle school children. J Sch Psychol 2002;4:395-413.
29. Digiuseppe BR. The Emotional intelligence and success in professional graduate programs in psychology. Paper presented at international society for research on emotion. Cuenca, Spain; 2002.
30. Robert VH. The role of emotional intelligence in the academic achievement of first year college students. Doctoral thesis. Texas A and M University – Kingsville and Corpus Christi: A and M University; 2003. p. 16-21.
31. Abdollah MC, Elias H, Mahyuddin R, Uli J. Emotional intelligence and achievement among Malay sian secondary student. Pak J Psychol Res 2004;19:105-22.
32. Parker JD, Hogan MJ, Eastabrook JM, Oke A, Wood LM. Emotional intelligence and student retention: Predicting the successful transition from high school to university. J Pers Individ Dif 2006;7:1329-36.
33. Wraight ME. The impact of trait emotional intelligence and cognitive style on the academic achievement and life satisfaction of college students. Doctoral thesis. New York: State University of New York at Buffalo; 2006. p. 17-27.
34. Rice D. An examination of emotional intelligence: Its relationship to academic achievement in Army JROTC and the implications for education. Doctoral thesis. Minnesota, USA: Capella University, IV-VII; 2007.
35. Woitaszewski SA, Aalsama MC. The contribution of emotional intelligence to social and academic success of gifted adolescence as measured by the multifactor emotional intelligence scale. Roeper Rev 2004;27(1):25-30.
36. Drayo J. The relationship between emotional intelligence and academic achievement in contraditional college students, Doctoral thesis. Minnesota, USA: Walden University; 2004. p. 12-36.
37. Bastian VA, Jurns NR, Nettelbeck T. Emotional intelligence predicts life skills, but not as well as personality and cognitive abilities. Pers Individ Dif 2005;39:1135-45.
38. Stratton TD, Saunders JA. Changes in medical study. Teach Learn Med 2008;20:279-84.
39. Lazaguirre R. The relationship among emotional intelligence, academic achievement, and demographic characteristics in first-year community college students. Doctoral thesis. USA: University of The Incarnate Word; 2008. p. 22-3.
40. Samouei R. Standardization Emotional intelligence Questionnaire. Tehran, Iran: Sina Research Institute; 2002.