



*Original article*

# The Relation between Academic Achievement and Emotional Intelligence in Iranian Students: A Meta-Analysis

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## SUMMARY

Academic achievement is one of the most important concepts in the field of education. Although emotional intelligence, as a key factor in academic achievement, has been studied in various studies, yet the results obtained are not in harmony with each other and the topic is yet under debate. In order to fill in this informational vacuum, the present research was undergone using a meta-analysis method.

In order to make a thorough search to find articles within the Iranian context, key words such as "Emotional Intelligence" AND (Emotional OR Intelligence) AND "academic achievement" OR "academic status" AND "Student" AND "Iran", were used without limitation in dates or language in the following sites: Medline, Scopus, ScienceDirect, Web of Knowledge, Ovid, Wiley, Google Scholar, and Persian databases such as SID, Irandoc and Magiran. The random effect model was utilized for statistical pooling.

A total of 23 articles were chosen to enter the meta-analysis. The pooled results showed a meaningful relationship between emotional intelligence and academic achievement (Pooled Correlation = 0.157; 95% CI, 0.081-0.231). The Cochran Q ( $Q = 145:126$ ,  $p = 0.000$ ) and  $I^2 = 84.84\%$  index indicated a high heterogeneity among the articles entering the meta-analysis. In subgroup analysis, the students in state universities had more summary effect (0.177; 95% CI, 0.085 - 0.267) compared to the ones studying in private ones (0.118; 95% CI, 0.024-0.255). No sign of publication bias was found.

A weak correlation was seen between emotional intelligence and educational achievement in the context of Iranian university students. It seems that the relationship of these concepts may be affected by other factors in this setting, so this calls for further studies in this field.

**Key words:** academic achievement, emotional intelligence, academic status, student

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## INTRODUCTION

Academic achievement is regarded as one of the most important concepts within the realm of education that can be a measure of the achievement of the end goals of an individual's and an educational system's success in the future (1). In line with the same, many studies have been carried out with the aim of identifying the factors related to academic achievement such as cognitive factors and their role in this success (2-4) as well as peer relationship, socio-economic condition, the quality of university education (5-7) and especially the effect of emotional intelligence on academic achievement (8).

This subject was proposed for the first time in 1990 by Salvy and Meyer (9) and quickly found an important spot in the factors under study within educational systems, so much so that it has been presented by many experts and educational systems in the world as an important theoretical and scientific structure (10, 11).

Emotional intelligence, a subcategory of social intelligence, gives the individual the power to control the emotions of themselves and others. Moreover, it empowers them with the ability to distinguish the data and to use it as a guide to direct their thoughts and actions (9). Emotional Intelligence includes important aspects of individual's internal and external relationships, stress management skills, and mood and temperament adaptation, all of which have an important effect on academic achievement of university students (12). With regards to the same, several studies have been undergone all over the world on the topic of academic achievement and emotional intelligence in university students. However, their results are conflicting (13-15).

In Iran, too, considering the difference in context, many studies have been undergone; however, their results are inconsistent and the topic is yet under debate (12, 16-18). A meta-analysis has demonstrated a significant relationship between emotional intelligence and academic achievement in Iranian university students, but the strength of this relationship is also unknown (19).

Thus, in order to fill in this informational vacuum, the current study was carried out to assess the association of academic achievement with emotional intelligence among Iranian students by using meta-analysis of the literature.

## METHODS

### Search strategy

In order to find published articles, a comprehensive search with no time or language limitations was done in the databases of Medline, ScienceDirect, Web of Knowledge, Scopus, and Google scholar plus in Iranian scientific databases published in Persian such as SID, Irandoc and Magiran until March 30<sup>th</sup> 2016.

The algorithm of the following search terms were utilized: "Emotional Intelligence" AND (Emotional OR Intelligence) AND "academic achievement" OR "academic status" AND "Student" AND "Iran".

The obtained article references were examined for further search options and for finding the maximum number of published articles possible. Articles were investigated by two researchers separately. Also in case of any disagreement, the issue was cleared and solved through the consensus of the third researcher.

### Study Selection

All published studies on the subject of correlation between emotional intelligence and academic achievement in Iranian students were considered for inclusion in this research.

Inclusion criteria in study selection were: 1) the study design had to be observational showing correlation, 2) the focus of the studies had to be on the relationship between emotional intelligence and academic achievement among students, 3) it had to provide an overall score illustrating the emotional intelligence of each participant, and 4) it had to show the relationship between academic achievement and emotional intelligence through correlation ( $r$ ). Or the article had to contain information which could be used for calculating the correlation coefficient.

Exclusion criteria consisted of studies that only provided a correlation subscale between academic achievement and emotional intelligence without giving the overall score on emotional intelligence scale, 2) the studies that had reported on correlation between emotional intelligence and academic achievement in school students, and 3) review studies, letter to the editor and duplicate articles.

### Data Extraction

For meta-analysis, two researchers extracted the

following data: the author's name, year of publication, number of samples, gender of participants, mean age, type of instrument for measuring emotional intelligence, measurement scale of academic achievement, control/lack of control with regards to participants' mental health status, their field of study, type of university they were studying at, and quality assessment of the included articles.

Moreover, any disagreements on any issue between the two researchers were solved with the consensus of the third researcher. In order to evaluate the articles entering the meta-analysis, the tools of quality assessment related to observational studies having 22 statements were used (20).

Any article containing 50–75% of the criteria related to the desired tools was placed in Group B, whereas any article showing higher than 75% was placed in Group A.

#### Statistical analysis

As the studies entering the meta-analysis had been undergone in different academic system backgrounds and also contained certain other differences, the statistical analysis of this research was undergone using the random effect model. This model allows the researcher to investigate the variables that may differ among several articles under study (21).

In order to assess heterogeneity, the Cochrane Q test with significance level of  $p < 0.05$  was used plus

for quantification of heterogeneity among the studies in the meta-analysis the  $I^2$  index was applied. This index shows the proportion of the actual variance observed among the studies.

Subgroup and meta-regression analyses were used to define the real heterogeneity existing in the studies and its possible relationship with covariates of gender, age, emotional intelligence assessment tool, measurement scale of academic achievement, control/lack of control of participant on their mental health, and quality assessment of article included in the study. Plus to assess publication bias, funnel plots, Egger's regression intercept (22) and Begg and Mazumdar's rank correlation (23) were applied.

The Funnel plot is a graph in which the standard errors of studies in meta-analysis are placed on the Y-axis and the amount of their effect is shown on the X-axis. Asymmetry in this plot can be due to publication bias of studies included in meta-analysis (21). Data analysis was executed using comprehensive meta-analysis software (version 3).

## RESULTS

By performing a comprehensive search using searching strategies in databases 2,022 studies were obtained. Of these, due to a lack of subject relevant, 1,906 studies were excluded through screening titles and abstracts. The full text of the remaining 116 articles was thoroughly evaluated in further details (Figure 1).

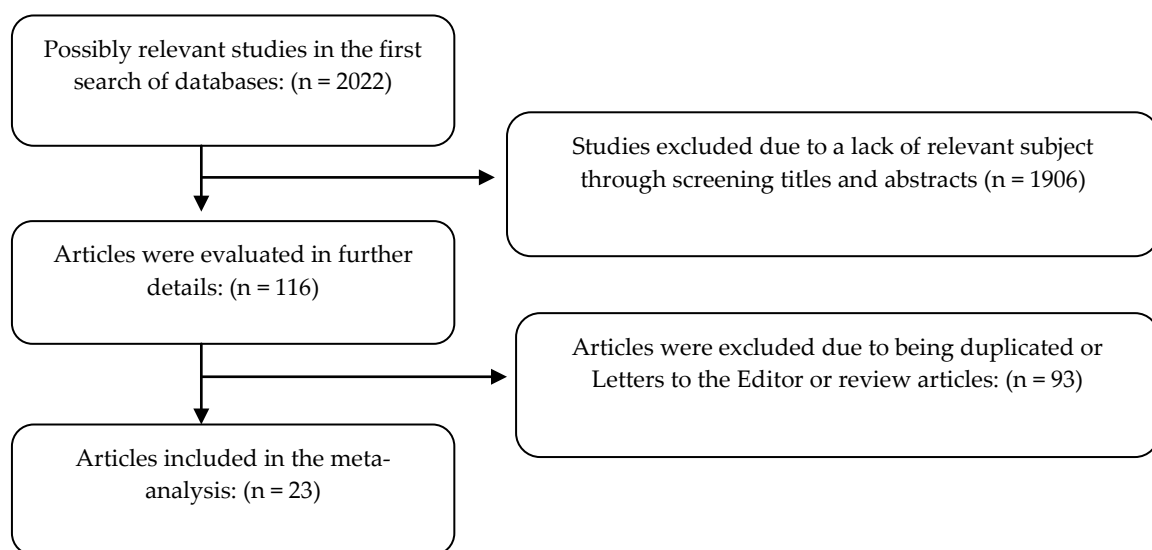


Figure 1: The process of study inclusion in the meta- analysis

Table 1. Characteristics of studies included in the meta-analysis

	N	Gender	Mean age (years)	†MSOEI	‡MSOAA	¥PMHS	Field of Study	Type of University	Quality Assessment
Adib-Hajbaghery et al. (2016)	180	Male/ Female	21.10	Sibria Shiring	GPA	Lack of control	Medical sciences	state	A
Barkhordari & Rostambeygi (2013)	87	Female	21.59	Bar-On	GPA	Lack of control	Medical sciences	state	A
Berenji (2010)	110	NA	NA	Bar-On	Comprehensive exam scores	Lack of control	Non-medical sciences	private	B
Chinipardaz et al. (2012)	70	Male/ Female	NA	Bar-On	Comprehensive exam scores	Lack of control	Medical sciences	state	B
Dastjerdi (2013)	300	Male/ Female	NA	Pytraydz & Farnham	GPA	Lack of control	Non-medical sciences	NA	B
Fallahzadeh (2011)	223	Male/ Female	22.73	Bar-On	GPA	Lack of control	Medical sciences	state	A
Ghaderi et al. (2013)	303	Male/ Female	23/35	Bradbury-Graves	GPA	Lack of control	Medical & Non-medical sciences	private	A
Hashemi et al. (2014)	337	Male/ Female	NA	Rain	GPA	Lack of control	Non-medical sciences	private	B
Hassan Tehrani et al. (2012)	107	Male/ Female	21.70	Bar-On	GPA	Control	Medical sciences	state	A
Hossein Mardi & Hossein Mardi (2015)	376	Male/ Female	NA	Bradbury-Graves	GPA	Lack of control	Non-medical sciences	private	A
Izadi yazdan abadi et al. (2011)	250	Male/ Female	NA	Sibria Shiring	GPA	Lack of control	Non-medical sciences	Military	B
Jafari & Ahmadzadeh (2014)	221	Male/ Female	22/43	Bar-On	GPA	Lack of control	Medical Sciences	state	A
Meshkat (2011)	187	Male/ Female	NA	Bar-On	GPA	Lack of control	Medical & Non-medical sciences	state	B
Namazi et al. (2015)	180	Female	21/56	Sibria Shiring	GPA	Lack of control	Medical sciences	private	B
Radfar et al. (2013)	150	Male	23.17	Bar-On	GPA	Control	Medical sciences	state	A
Raeisoon et al. (2014)	99	Male/ Female	20.40	Bar-On	GPA	Lack of control	Medical sciences	state	A
Salehi et al. (2012)	100	Male/ Female		Bar-On	GPA	Lack of control	Medical sciences	state	B
Samari & Tahmasbi (2007)	112	Male/ Female	21/65	Bar-On	GPA	Lack of control	Medical sciences	private	A
Tafazoli et al. (2012)	19	Female	22.40	Bar-On	Clinical performance scores	Lack of control	Medical sciences	state	A
Tamannaifar et al. (2010)	400	Female	NA	Bar-On	GPA	Lack of control	Non-medical sciences	state	B
Yavaiyan & EjaZ (2008)	297	Female	NA	Bradbury-Graves	GPA	Lack of control	Medical sciences	state	B
Yeganeh et al. (2013)	207	Female	21.58	Schutt	GPA	Lack of control	Medical & Non-medical sciences	state	A
Zahed-Babelana & Moenikia (2010)	328	NA	NA	Bar-On	Average grades	Lack of control	Non-medical sciences	private	B

†MSOEI=Measurement Scale of Emotional Intelligence; ‡MSOAA= Measurement Scale of Academic Achievement;

¥PMHS= participants' mental health status; NA= Not available; GPA=Grade point average

Eventually, 93 studies were excluded due to being duplicated or letters to the editor or review articles, and a total of 23 articles (having 4643 participants) with a focus on the correlation between emo-

tional intelligence and academic achievements were included in the meta-analysis (12, 16-18, 24-42). Details of accepted studies and their participants can be seen in Table 1.

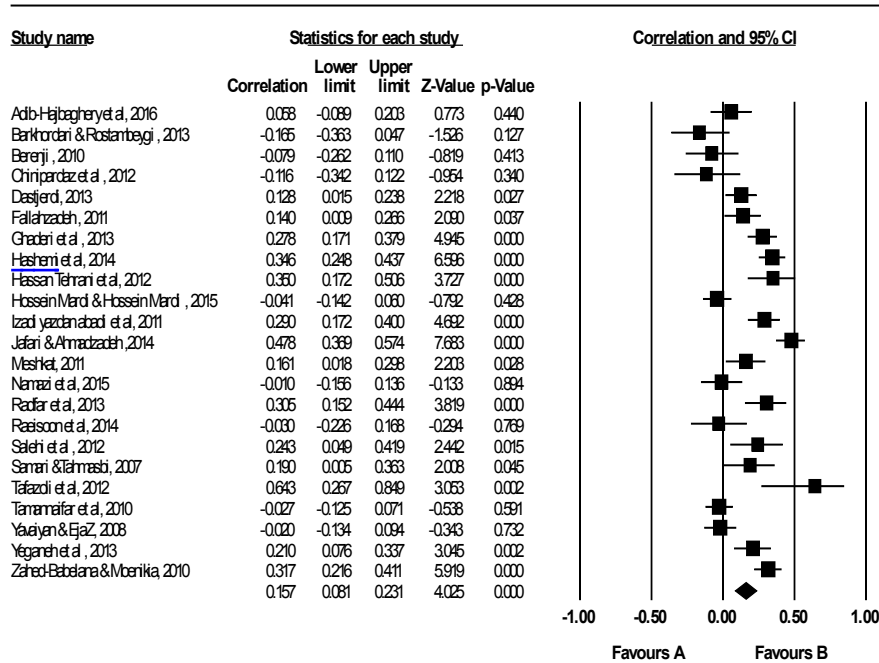


Figure 2: The Forest plot of correlation between emotional intelligence and academic achievement according to the random effects model

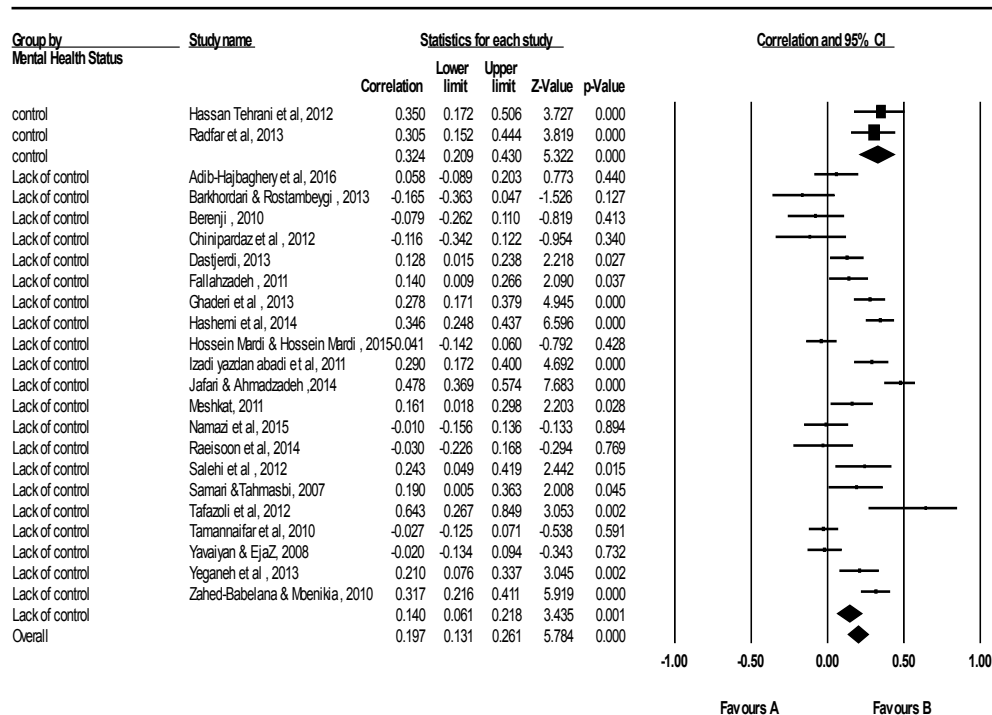


Figure 3: Forest plot of correlation between emotional intelligence and academic achievement in the two groups of control /lack of control of mental health status in participants.

Of the 23 articles reaching meta-analysis, a lack of correlation between emotional intelligence and academic achievements were found in 9 articles and a direct and meaningful correlation was reported in 14 studies.

The pooled results between emotional intelligence and academic achievement indicated a significant correlation between these concepts (Pooled Correlation = 0.157; 95% CI, 0.081-0.231) (Figure 2).

Cochrane Q index indicated heterogeneity  $Q = 145:126$  ( $p = 0.000$ ) in the included studies. The index of  $I^2 = 84.84\%$  also showed the proportion of this real heterogeneity to be high. To define the real heterogeneity among the studies, the meta regression analysis did not show any significant moderating effect of participants' age, sample size of studies and publication year of articles on the pooled results. Subgroup analyses also did not display any significant categorical moderating impact of measurement scale of emotional intelligence, academic achievement and the field of study on the summary effect.

In subgroup analyses related to students' mental health, when the analysis was limited to two groups of studies with "Control of mental health

status "and "lack of control of mental health status in participants", the pooled result was 0.324; 95% CI, 0.209 - 0.430 and 0.197; 95% CI, 0.131-0.261, respectively (Figure 3).

The pooled correlation in the subgroup analysis relating to type of university when limiting it to state and private universities was (0.177; 95% CI, 0.085-0.267) and (0.118; 95% CI, 0.024-0.255), respectively (Figure 4).

Further, to assess publication bias funnel plot, Egger's Regression Intercept (22), Begg and Mazumdar's rank and the Classic fail-safe N test were used. Figure 5 shows funnel plot for correlation between emotional intelligence and academic achievement.

Egger's Regression ( $p = 0.92968$ ) and Begg and Mazumdar's rank ( $p = 0.92968$ ) showed no evidence of publication bias between emotional intelligence and academic achievement.

The classic fail-safe N Test suggests the numbers of lost studies that need to be added to the meta-analysis for the p-value to become greater than alpha. In our study, 623 cases were recommended which suggests the lack of publication bias (Figure 5).

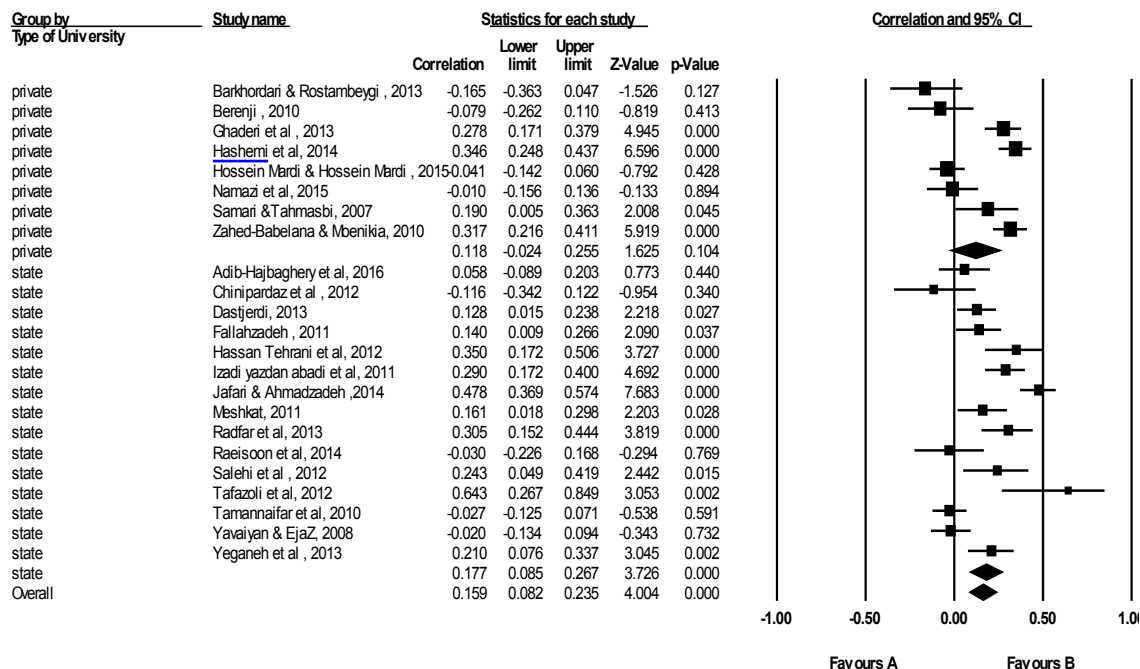


Figure 4. Forest plot illustrating the correlation between emotional intelligence and academic achievement in the two groups with and without control of mental health status

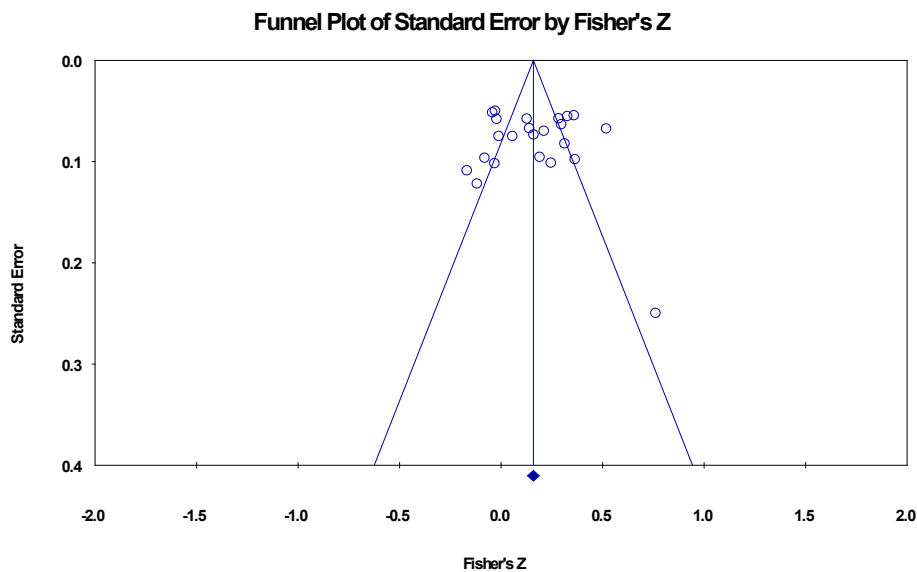


Figure 5. Funnel plot of published bias in the correlation between emotional intelligence and academic achievement

## DISCUSSION

The current meta-analysis is the first of its kind, as a comprehensive quantitative review, on the correlation between academic achievement and emotional intelligence in the context of Iranian students.

The findings illustrated a weak correlation between emotional intelligence and academic achievement (Pooled Correlation = 0.157; 95% CI, 0.081-0.231). Undoubtedly, no studies on this matter could be found in the Iranian context to compare the findings of our research. However, it is said that the current education systems in Iranian universities often lay emphasis on the students' memorization and learning abilities whereas emotional intelligence puts more emphasis on personal abilities and successful interpersonal relationships (25).

In a meta-analysis study, Perera & DiGiacomo (2013) also found a weak correlation between the qualities of emotional intelligence and the academic performance of the students (43).

Based on the current findings, the studies entered into the meta-analysis were heterogeneous; their heterogeneity stands at ( $I^2=84%$ ). The meta-regression analysis did not display a noteworthy relationship between the scope of the included studies and covariates such as the sample size of studies and publication year of articles on the summary effect.

In the present study, no notable correlation was spotted between the age of the participants and

emotional intelligence. This finding is in line with the results of other research present (16, 26), whereas Martins et al. (2010) in a meta-analysis study found that the emotional intelligence in participants differed based on their gender so much so that emotional intelligence in females was higher than that of the males (44). Further, based on the same findings, no relationship was seen in the majority of the students and their emotional intelligence. Some research evidence supports this matter (16).

One of the important findings of this research was that the university students were checked in terms of mental health status (as one of the inclusion criteria). The ones who were controlled in this field and showing "no acute psychological problem" generated more pooled results in the subgroup analysis compared to the ones whose mental health status was "Lack of control".

Thus, we can conclude that as an important trial factor with regards to the relation between emotional intelligence and academic achievement, i.e. mental health status check-ups for university students has been overlooked by most researcher work. No evidence was found while reviewing literature to compare with the present study. Therefore, this needs more scrutiny and searching.

Furthermore, it was also found in the subgroup analysis that the students who were studying in state universities had more pooled results compared to the ones studying in private ones. Therefore, we can safely say that since the emotional intelligence capa-

bilities of individuals is to a great extent affected by environmental conditions, some of these differences seen in them can be rooted in their personal traits and character, university entrance and admission conditions and the educational and evaluation system dominant in these universities (25, 45).

In general, the findings of current meta-analysis helps to further describe the relationship between emotional intelligence and academic achievement within the context of Iranian students and to overco-

me the lack of data that prevails on this topic.

## CONCLUSION

In conclusion, the results of the meta-analysis showed a weak correlation between emotional intelligence and educational achievement in the context of Iranian university students. It seems that the relationship of these concepts may be affected by other factors in this setting, so this calls for further studies in this field.

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## Odnos između akademskih dostignuća i emocionalne inteligencije kod iranskih studenata: meta-analiza

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### SAŽETAK

Akademsko dostignuće je jedno od najvažnijih koncepata na polju obrazovanja. Premda je emocionalna inteligencija, kao ključan faktor akademskog dostignuća, bila predmet ispitivanja mnogih studija, dobijeni rezultati nisu u međusobnom skladu i ovo je tema koja se i dalje ispituje. Kako bi se popunio ovaj vakuum u informacijama, ova studija je urađena korišćenjem metode meta-analize.

Kako bi se uradilo detaljno ispitivanje radova objavljenih u Iranu, koristili smo ključne reči poput "emocionalna inteligencija" (emocionalna ILI inteligencija), "akademsko dostignuće" ili "akademski status", "student" i "Iran", bez ograničenja u datumu ili jeziku, i to na sledećim sajtovima: Medline, Scopus, ScienceDirect, Web of Knowledge, Ovid, Wiley, Google Scholar, i iranske baze poput SID, Irandoc and Magiran. Korišćen je model slučajnog efekta za objedinjavanje statističkih rezultata.

Za meta-analizu su odabrana 23 članka. Objedinjeni rezultati su pokazali jasan odnos između emocionalne inteligencije i akademskog dostignuća (objedinjena korelacija = 0,157; 95% CI, 0,081 - 0,231). Kohran Q ( $Q = 145 : 126$ ,  $p = 0,000$ ) i  $I^2 = 84,84\%$  indeks su ukazali na visok stepen heterogenosti među radovima koji su obrađeni meta-analizom. U analizi podgrupa, kod studenata državnih univerziteta zabeležen je bolji krajnji efekat (0,177; 95% CI, 0,085-0,267) u poređenju sa onima koji studiraju na privanim fakultetima (0,118; 95% CI, 0,024 - 0,255). Nije bilo pristrasnosti u istraživanju.

Uočena je slaba korelacija između emocionalne inteligencije i akademskih dostignuća kod studenata iranskih univerziteta. Izgleda da na odnos ovih koncepta mogu da utiču i drugi faktori u okruženju, a to zahteva dalja istraživanja u ovoj oblasti.

**Ključne reči:** akademsko dostignuće, emocionalna inteligencija, akademski status, student