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### The relationship between emotional intelligence and tendency toward critical thinking with academic success in nursing students: An analytic sectional descriptive study

**Background:** Considering controversial results about the role of emotional intelligence and tendency toward critical thinking in academic success, the present study was conducted to evaluate the relationship between emotional intelligence and tendency toward critical thinking with academic success in nursing students.

**Methods:** The present study was an analytic sectional descriptive study using convenient sampling method that was conducted on 120 nursing students of Isfahan University of Medical Sciences in year 2018-2019. Data was collected with questionnaire; the questionnaire consisted of three parts: demographic characteristics, the Schutte scale, and tendency toward critical thinking questionnaire. Data were analyzed using descriptive statistics, Pearson correlation coefficient and independent t test.

**Results:** Results showed that the mean score of emotional intelligence among nursing students was 109.15 (9.23) and the mean score of critical thinking was 116.96 (12.79). No significant relationship was found between emotional intelligence and its elements with academic success. Also, there was no significant relationship between critical thinking and its elements with academic success ( $p > 0.05$ ).

**Conclusions:** Lack of a significant relationship between emotional intelligence and critical thinking with academic success might be due to the nature of academic achievement tests as well as the specific focus on remembering and memorizing the educational content as a criterion for evaluation. Therefore, it is recommended that, along with focusing on the ability of personal memory learning, development of cognitive and emotional skills of the students would also be attended.

**Keywords:** Emotional Intelligence, Critical Thinking, Academic Success, Nursing Student

### العلاقة بين الذكاء العاطفي والميل نحو التفكير النقدي مع النجاح الأكاديمي لدى طلاب التمريض: دراسة تحليلية وصفية

**الخلفية:** نظراً لوجود نتائج مثيرة للجدل حول دور الذكاء العاطفي والميل نحو التفكير النقدي في النجاح الأكاديمي، فقد أجريت الدراسة الحالية لتقييم العلاقة بين الذكاء العاطفي والميل نحو التفكير النقدي مع النجاح الأكاديمي لدى طلاب التمريض.

**الطرق:** الدراسة الحالية عبارة عن دراسة وصفية مقطعية تحليلية باستخدام طريقة أخذ العينات الملائمة والتي أجريت على 120 طالب تمريض من جامعة أصفهان للعلوم الطبية في عام 2018-2019. تم جمع البيانات بالاستبيان المتكون من ثلاثة أجزاء: الخصائص الديموغرافية، مقياس شوت، والميل نحو استبيان التفكير النقدي. تم تحليل البيانات باستخدام الإحصاء الوصفي ومعامل ارتباط بيرسون واختبار t المستقل.

**النتائج:** أظهرت النتائج أن متوسط درجة الذكاء العاطفي لدى طلاب التمريض كان 109.15 (9.23) ومتوسط درجة التفكير النقدي 116.96 (12.79). لم يلاحظ أي علاقة ذات دلالة إحصائية بين الذكاء العاطفي وعناصره مع النجاح الأكاديمي. كما لا توجد علاقة ذات دلالة إحصائية بين التفكير النقدي وعناصره مع النجاح الأكاديمي ( $p > 0.05$ ).

**الاستنتاجات:** عدم وجود علاقة ذات دلالة إحصائية بين الذكاء العاطفي والتفكير النقدي مع النجاح الأكاديمي قد يكون بسبب طبيعة اختبارات التحصيل الدراسي والتركيز بشكل خاص على تذكر وحفظ المحتوى التعليمي كعيار للتقييم. لذلك، يوصى إلى جانب التركيز على قدرة الذاكرة على التعلم الشخصي بتنمية المهارات المعرفية والعاطفية للطلاب.

**الكلمات المفتاحية:** الذكاء العاطفي، التفكير النقدي، النجاح الأكاديمي، طالب التمريض

### رابطه بين هوش هیجانی و گرایش به تفکر انتقادی با موفقیت تحصیلی در دانشجویان پرستاری: یک مطالعه توصیفی-تحلیلی

**زمینه و هدف:** با توجه به اینکه در مطالعات مختلف در مورد نقش هوش هیجانی و گرایش به تفکر انتقادی در موفقیت تحصیلی تناقض وجود دارد، این پژوهش با هدف تعیین ارتباط هوش هیجانی و گرایش به تفکر انتقادی با موفقیت تحصیلی در دانشجویان پرستاری انجام شد.

**روش:** تحقیق حاضر یک مطالعه توصیفی-تحلیلی بود که با روش نمونه گیری در دسترس بر روی 120 نفر از دانشجویان پرستاری دانشگاه علوم پزشکی اصفهان در سال 1397-98 انجام شد. ابزار گردآوری داده ها پرسشنامه ای مشتمل بر سه بخش بود که بخش اول شامل مشخصات دموگرافیک، بخش دوم مقياس شانه و بخش سوم پرسشنامه گرایش به تفکر انتقادی بود داده های حاصل از انجام مطالعه، با استفاده از آزمون های آمار توصیفی، ضریب هم بستگی پیرسون و تی مستقل تجزیه و تحلیل شد.

**یافته‌ها:** نتایج نشان داد که میانگین نمره هوش هیجانی در دانشجویان پرستاری 109/23 (9/23) و میانگین نمره گرایش به تفکر انتقادی 116/96 (12/79) بود. بین نمره کل هوش هیجانی و مؤلفه های آن با موفقیت تحصیلی ارتباط معنی داری وجود نداشت، همچنین بین نمره کل گرایش به تفکر انتقادی و مؤلفه های آن با موفقیت تحصیلی رابطه معناداری وجود نداشت ( $p > 0/05$ ).

**نتیجه گیری:** عدم وجود ارتباط معنی دار بین هوش هیجانی و گرایش با تفکر انتقادی با موفقیت تحصیلی می تواند به دلیل ماهیت آزمون های پیشرفت تحصیلی و تمرکز ویژه بر یادآوری و حفظ محتوای آموزشی به عنوان ملاکی برای ارزشیابی باشد، بنابراین پیشنهاد می شود در عین تمرکز بر ظرفیت های حافظه و یادگیری شخصی، توسعه مهارت های شناختی و عاطفی دانشجویان نیز مورد توجه قرار گیرد.

**واژه های کلیدی:** هوش هیجانی، تفکر انتقادی، موفقیت تحصیلی، دانشجوی پرستاری

### نرسنگ طلباء میں تعلیمی کامیابی کے ساتھ جذباتی ذہانت اور تنقیدی سوچ کی طرف رجحان کے درمیان تعلق: ایک تجزیاتی سیکشنل وضاحتی مطالعہ

**بیگ گراوند:** چونکہ تعلیمی کامیابی میں جذباتی ذہانت اور تنقیدی سوچ کی طرف رجحان کے بارے میں متنازعہ نتائج ہیں، موجودہ مطالعہ نرسنگ طلباء میں تعلیمی کامیابی کے ساتھ جذباتی ذہانت اور تنقیدی سوچ کی طرف رجحان کے درمیان تعلق کا جائزہ لینے کے لیے کیا گیا۔

**طریقہ:** موجودہ مطالعہ ایک تجزیاتی سیکشنل وضاحتی مطالعہ تھا جو کہ نمونے لینے کے آسان طریقے کا استعمال کرتے ہوئے کیا گیا جو کہ سال 2018-19ء میں اصفہان یونیورسٹی آف میڈیکل سائنسز کے 120 نرسنگ طلباء پر کیا گیا۔ سوالنامہ کے ساتھ ڈیٹا اکٹھا کیا گیا۔ سوالنامہ تین حصوں پر مشتمل ہے: آبادیاتی خصوصیات، شوت پیمانہ، اور تنقیدی سوچ سوالنامہ کی طرف رجحان۔ وضاحتی اعدادوشمار، پیرسن ارتباط گٹانک اور آزاد ٹی ٹیسٹ کا استعمال کرتے ہوئے ڈیٹا کا تجزیہ کیا گیا۔  
**نتیجہ:** نتائج سے پتہ چلتا ہے کہ نرسنگ طلباء میں جذباتی ذہانت کا اوسط اسکور 109.15 (9.23) اور تنقیدی سوچ کا اوسط اسکور 116.96 (12.79) تھا۔ تعلیمی کامیابی کے ساتھ جذباتی ذہانت اور اس کے عناصر کے درمیان کوئی خاص تعلق نہیں دیکھا گیا۔ نیز، تنقیدی سوچ اور اس کے عناصر کے درمیان تعلیمی کامیابی کے ساتھ کوئی خاص تعلق نہیں تھا ( $p > 0.05$ )۔

**نتائج:** تعلیمی کامیابی کے ساتھ جذباتی ذہانت اور تنقیدی سوچ کے مابین ایک اہم تعلق کا فقدان تعلیمی کامیابی کے امتحانات کی نوعیت اور تعلیمی مواد کو تشخیص اور حفظ پر خصوصی توجہ کی وجہ سے ہو سکتا ہے۔ لہذا، یہ سفارش کی جاتی ہے کہ، میموری ذاتی سیکھنے کی صلاحیت پر توجہ مرکوز کرنے کے ساتھ ساتھ، طلباء کی علمی اور جذباتی مہارتوں کی نشوونما میں بھی شرکت کی جائے۔

**کلیدی الفاظ:** جذباتی ذہانت، تنقیدی سوچ، تعلیمی کامیابی، نرسنگ طلباء علم

## INTRODUCTION

Nowadays, academic success of the students is an important index playing a significant role in the evaluation of higher educations and is the focus of many educational studies (1). Academic success is defined as progress in education that would be evaluated using scores and grades in the class (2). Various factors are effective on individual's academic success. These factors are classified into two groups of cognitive and non-cognitive. Previous knowledge, educational performance and ability of critical thinking are considered as cognitive factors (3). Critical thinking is defined as a series of cognitive skills and tendency toward using skills to enhance the possibility of success in the fields of education, occupation, and daily living (4). It also has an essential role in the quality of nursing care and professional responsibility. Nursing students would be able to analyze and predict the possible problems, apply the standards, search for information, make correct decisions and provide safe care through critical thinking (5). Critical thinking includes both skills of thinking and tendency toward critical thinking. Critical skill is focusing on cognitive solutions and tendency toward critical thinking is focusing on components of thinking and sustainable inner motivation to solve problems (6). Results of studies have indicated the unstable tendency of the students toward critical thinking (7). Most of the studies have focused on one aspect of critical thinking as the skill of thinking critically; however, the other aspect which was tendency toward critical thinking has mostly been neglected. Moreover, just having the knowledge of how to find the facts and perceptions is not sufficient for having critical thinking and emotions, motivation and tendency toward applying these skills are also necessary for having critical thinking (8).

Tendency toward critical thinking, as a variable with cognitive nature, has a unique role in predicting educational performance. In this regard, results of the one study showed a significant positive correlation between tendency toward critical thinking and educational performance (9). Results of another study also reported a significant positive relationship between academic success, critical thinking, and tendency toward critical thinking in pharmacology students (10). However, results of some studies revealed no significant relationship between tendency toward critical thinking and academic success (11) and individuals with lower critical thinking had more academic success (12, 13). Therefore, research that have evaluated the relationship between these variables and academic success, have achieved controversial results. Furthermore, results of a systematic review in Iran showed that the number of studies on tendency toward critical thinking was limited and most of the studies have evaluated critical thinking skill (14).

Another effective factor on gaining success in life, education, and occupation is emotional intelligence. Many studies have been conducted regarding the relationship between critical thinking and emotional intelligence with academic success. Results of such studies showed that these variables had a significant positive relationship with academic achievement (15, 16). A meta-analysis conducted on Iranian students

showed a significant relationship between emotional intelligence and academic achievement (17).

Also, results of another study showed that students with higher emotional intelligence had better academic achievement (18). In the results of the study by Suleman et al in Pakistan, a significant positive relationship between academic success and emotional intelligence in bachelor's students was reported (2). However, results of a study in Shiraz showed no significant relationship between the score of emotional intelligence and its aspects in medical students with academic achievement (19). The results of another study also revealed no significant difference in emotional intelligence, between nursing students who were successful in nursing courses in comparison to those students who were not successful (20). On one hand, considering the controversial results regarding the relationship between tendency toward critical thinking and emotional intelligence with academic success of the students and on the other hand, in the nursing education of Iran, the necessity for becoming a fourth year student as a clinical intern is academic success in theoretical and practical courses during the past three years, having skills such as critical thinking and emotional intelligence for the students and also the role of these elements in gaining academic success is of significant importance for them. Also, it is expected that changes in these variables through academic education would be made toward preparation for clinical practice. Therefore, the present study was conducted to evaluate the relationship between emotional intelligence and tendency toward critical thinking with academic success of nursing students of Isfahan University of Medical Sciences in 2018.

## METHODS

The present study was a descriptive correlational study conducted on 120 nursing students of Isfahan University of Medical Sciences in 2018 using convenient sampling method. The population for this study was the entire 461 bachelor's student of nursing who were studying in the second semester of 2018-2019 in Isfahan University of Medical Sciences. Sample size was calculated to be a minimum of 77 using the formula of  $n: (z_1 + z_2)^2(1 - r^2) / r^2 + 2$ , which  $z_1$  was the 95% confidence interval (1.96),  $z_2$  was the 80% test power (0.84), and  $r$  was an estimate of the correlation coefficient between emotional intelligence and academic success (mean) that was reported to be a minimum of 0.305 according to the study of Sharon et al. Considering that the questionnaires might have been incomplete or not been returned, the sample size was considered 120. The inclusion criteria were being a nursing student and willingness to participate in the study. Turning an incomplete questionnaire back was considered as the exclusion criterion. After explaining the aim of the study and the general guidelines for completing the questionnaire, and also obtaining informed consent, questionnaires were distributed among the participants by the researcher in person, and to respect ethical considerations, questionnaires were distributed without name and were completed by the participants in the presence of the researcher. Also, the participants were assured that their information would

remain confidential and would only be used in accordance with the goals of the present study. Completing and returning the questionnaires were freely and voluntarily. Data were gathered using a three-part questionnaire. The first part was about the demographic characteristics (age, gender, marital status, educational semester, occupation, and place of residence). The second part was the Schutte revised emotional intelligence scale that was developed by Schutte et al in 1998 based on the emotional intelligence model by Salovey and Mayor (1990) and contained 33 self-report items of 5 choices, which were scored using 5-point Likert scale (21). The range of score for this part varied between 33 and 165. The scores were interpreted in the following manner: scores lower than 97 indicated very low emotional intelligence, between 97 and 114 indicated low emotional intelligence, between 114 and 131 indicated moderate emotional intelligence, between 131 and 148 indicated high emotional intelligence and more than 148 indicated very high emotional intelligence. The study of Ranjbar et al showed that the reliability of this scale was 0.81 using the split half method and its internal correlation was 0.84 with the Cronbach's alpha method (22). Also in another study, the internal consistency of this scale was 0.84 (23). The third part was the tendency toward critical thinking questionnaire which was translated into Persian by Pakmehr et al (2013). This questionnaire contained 33 items and three subscales of creativity, growth, and commitment. Items were scored using a 5-point Likert scale (from 1: totally disagreed to 5: totally agreed). The minimum possible score was 33 and the maximum possible score was 165. A score between 33 and 66 indicated weak critical thinking, between 66 and 99 indicated moderate critical thinking and higher than 99 indicated strong critical thinking. Pakmehr et al reported a reliability coefficient of 68 for the entire questionnaire and respectively, 72, 76, and 64 for the aspects of tendency toward critical thinking (24). To analyze the data, SPSS software version 16 (Chicago, IL: SPSS Inc.) and descriptive statistics (mean, standard deviation,

frequency and percent) and inferential statistics (Pearson correlation and independent t test) were used.

## RESULTS

In the present study 120 bachelor students of nursing were participated with the age range of 18 to 25 years and the mean (standard deviation) age of 21.24 (4.88) years. 63 participants (52.5%) were female and 57 (47.5%) were male and most of them (92.5%) were single. The minimum and maximum of the average scores of the participants' last semester were respectively 13 and 18.70 and its mean (standard deviation) was 15.59 (1.22). Also, 16 students (13.3%) were working at the hospital along with studying. Results showed that the mean score (standard deviation) of the emotional intelligence in nursing students was 109.15 (9.23) and the mean score (standard deviation) of tendency toward standard deviation was 116.96 (12.16) (Table 1).

Results of the study showed that, regarding the total score of emotional intelligence, 6 participants (5%) gained very low score, 81 participants (67.5%) low score, 29 participants (24.2%) moderate score, and 4 participants (3.3%) high score. None of the participants gained very high score in emotional intelligence. Regarding the total score of tendency toward critical thinking, 1 of the participants (0.8%) was weak, 14 participants (11.7%) were moderate and 105 of them (87.5%) were strong (Table 2).

Results of independent t test showed that the average score of the last semester and total scores of emotional intelligence and tendency toward critical thinking had no significant difference between male and female participants ( $p > 0.05$ ). Pearson correlation coefficient showed no significant relationship between the average score of the last semester and the total scores of emotional intelligence and its elements ( $p > 0.05$ ). Also there was no significant relationship between the average score of the last semester and the total score of tendency toward critical thinking and its elements ( $p > 0.05$ ) (Table 3).

**Table 1. Descriptive statistics indicators of emotional intelligence and its elements in nursing students**

Emotional intelligence and its elements	Minimum score	Maximum score	Mean(SD)
Total score	81	139	109.15(9.23)
Regulation of emotions	20	43	34.56(3.77)
Assessment and expression of emotions	28	55	40.47(4.72)
Utilization of emotions	23	44	34.12(3.16)

**Table 2. Descriptive statistics indicators of tendency toward critical thinking and its elements in nursing students**

Tendency toward critical thinking and its elements	Minimum score	Maximum score	Mean(SD)
Total score	54	146	116.96(12.79)
Creativity	23	51	41.28(5.39)
Growth	17	40	30.08(3.82)
Commitment	13	57	44.31(5.27)

**Table 3. The result of Pearson correlation coefficient between emotional intelligence and tendency toward critical thinking with the average score of the last semester in nursing students**

Variables and their related elements	Last semester's average score	
	Correlation coefficient	Level of significance
Total score of emotional intelligence	0.135	0.19
Regulation of emotions	0.032	0.76
Assessment and expression of emotions	0.137	0.19
Utilization of emotions	0.163	0.12
Total score of tendency toward critical thinking	0.075	0.47
Creativity	0.86	0.41
Growth	0.074	0.48
Commitment	0.041	0.70

## DISCUSSION

In the present study the relationship between emotional intelligence and tendency toward critical thinking with academic success in bachelor's students of nursing was evaluated. Results of the present study showed that the level of emotional intelligence was low among the nursing students. In this regard, results of another study also showed that nursing students had a low level of emotional intelligence (25); but controversial studies have shown that the level of emotional intelligence among students have been moderate to high (26, 27).

Meanwhile, emotional intelligence has an important role in establishing a fair relationship with the patients and their companions and it is possible that lack of this skill in the students would cause problems for them in establishing relationships and having correct understanding of the patients' emotions (27). It must be noted that the reason for the differences in the findings of the present study with other studies might be due to the different used questionnaires and their subscales, the method for classification of the individuals' emotional intelligence and also different cultural structure of the studied populations. On the other hand, this finding might be due to the negligence of educational system toward enhancing the skill of emotional intelligence in the students during their course of education.

Also, results of the present study showed that the participants had a desirable condition regarding the tendency toward critical thinking and most of them had high levels of tendency toward critical thinking. In this regard, results of a study showed that nursing students had desirable levels of tendency toward critical thinking (28). However, results of controversial studies showed that tendency of the students toward critical thinking was unstable or low (7, 29). In fact, the educational environment and the method of educating could be effective on tendency toward critical thinking. It is possible that the controversial results were caused by this fact. Educational environments that would provide opportunities and appropriate atmosphere for interactions could provide the opportunity for improvement of the critical thinking skill.

Results showed no significant relationship between gender and the mean scores of emotional intelligence and its subscales which was in line with the results of other studies (30-32). In the study conducted by Molaie et al (2011) about the relationship between gender and emotional intelligence, the total score of emotional intelligence had a significant relationship with gender, and in the fields of self-control, self-awareness and sympathy the score of girls was significantly higher than the score of boys. But in the fields of social skills and self-motivation, no significant difference was observed between boys and girls (33). Study of Vahedi et al (2015) revealed that emotional intelligence was higher among female students than male students which was not in line with the results of the present study (34). Also, results of the present study showed no significant relationship between gender and tendency toward critical thinking which was in line with the results of the studies by Madadkhani et al (2014) and Mousazadeh et al (2016). However, results of the study by Vahedi et al (2015) demonstrated that the level of critical thinking was higher among female students than male students, which was not in line with the results of the present study (28, 32, 34). Lack of a significant relationship between students' gender and emotional intelligence and critical thinking in the present study could be due to the sociocultural features of different cities and differences in the methods of education or educational evaluations of different universities. Also, sampling method and data gathering method could affect these variables.

In the present study, the average score of the last semester was considered as the criterion for academic success. Results of the present study showed no significant relationship between the average score of the last semester and the total scores of emotional intelligence and its subscales. In this regard, results of the studies by Adib Hajbaghery et al (2013) and Keshavarz et al (2014) showed no significant relationship between emotional intelligence and academic achievement (19, 30), which was in line with the results of the present study. Results of a meta-analysis in Iran showed that although there was a relationship between these variables; however, the relationship was not statistically significant (25). Results of controversial studies showed a positive significant relationship between emotional intelligence and academic

success of the nursing students (26, 35, 36). One of the reasons for this incompatibility between the results might be the focus of higher educations and nursing education on the development of cognitive skills rather than education of emotional intelligence in educational programs and curriculum. Also the method of evaluation of the students at the end of the educational course, which is focused on cognitive data and the level of remembering and memory, might lead to an increase in the average score of the students, but it would not affect the emotional intelligence of the students; however, development of emotional intelligence is related to engagement of the emotions and its management. Furthermore, besides the effect of the method of students' evaluation on the results of the present study, the differences in the features of the major, and social and cultural conditions could have also affected the results of the present study.

Results of the present study showed that the average score of the last semester, as the criterion for academic success, had no significant relationship with the total score of tendency toward critical thinking and its subscales, which was in line with the results of the study done by Mousazadeh et al (28). However the study of Safarzadeh et al showed a significant relation between critical thinking and academic success (37). In the present study, tendency toward critical thinking was focused on creativity, growth and commitment, therefore it must be asked that whether these aspects are considered as the criteria for academic success in students' evaluations, based on the educational goals. In nursing education, students' evaluation is in accordance with the educational goals that are focused on the educational content; therefore, the method of evaluation, outcomes, and expectations of the students might have been effective on this result.

One of the limitations of the present study was using a self-report questionnaire, because these questionnaires, by providing possible available answers, might lead to the bias of participants. It is better to study the elements of emotional intelligence by studying the behaviors of the students. Also it is recommended that, to achieve more practical results with higher degree of confidence and more generalizability, the study would be conducted as a longitudinal cohort study.

The method of evaluation of the students at the end of the educational course, which is focused on cognitive data and the level of remembering and memory, might lead to an increase in the average score of the students, but it would

not affect their emotional intelligence; because development of emotional intelligence is related to engagement of the emotions and its management.

In fact, the results of the present study could possibly be explained in the way that academic educational experiences which are based on memorizing and focusing on cognitive data, do not have an effect on tendency toward critical thinking and emotional intelligence of the students as one of the effective factors on educational performance to affect their academic success. Also, it must be noted that, if the final evaluations of the students would only evaluate what they have memorized, students with stronger memories could gain higher scores. However, critical thinking requires the power of analyzing and reasoning which depends on the methods of education and evaluation at higher levels of thinking, and emotional intelligence requires contemplation and self-awareness. Therefore, considering the domination of traditional education and evaluation methods in the universities of the country and the emphasis of the evaluations on the cognitive field and the ability to memorize the contents, it is recommended that in academic environments, along with developing cognitive abilities, such concepts would also be contained in the students' curriculum; hence, instead of evaluating the memory of the students, the depth of their learning would also be evaluated.

#### Ethical considerations

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors. The ethics committee of Isfahan University of Medical Sciences approved this research, ethics code IR.MUI.RESEARCH.REC.1398.389.

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