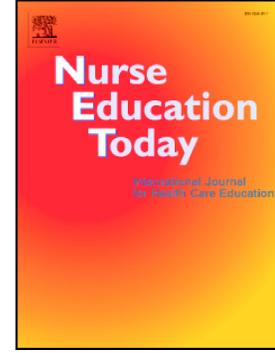


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The relationship between critical thinking and emotional intelligence in nursing students: A longitudinal study

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**THE RELATIONSHIP BETWEEN CRITICAL THINKING AND EMOTIONAL
INTELLIGENCE IN NURSING STUDENTS: A LONGITUDINAL STUDY**

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- Hülya Kaya and Emine Şenyuva: Drafting the work or revising it critically for important intellectual content.
- Hülya Kaya and Emine Şenyuva: Final approval of the version to be published
- Hülya Kaya: Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of interest

No conflict of interest has been declared by the authors.

1. Background

Nurses should possess the skills of critical thinking and emotional intelligence, in order to be able to make accurate decisions about how to deliver high quality patient care, while also considering the thoughts and feelings of patients and their families (Kaya and Yalnız, 2012; Heffernan et al., 2010; Öztürk and Ulusoy, 2008).

Learning to think critically and acquiring emotional intelligence can be described as ongoing cumulative processes. Elder (1997) states that critical thinking provides a vital link between intelligence and the emotions, and seeks to determine the quality of emotional intelligence. Goleman (1998) emphasizes that emotions and thoughts should not be considered as different concepts, as they are indispensable to each other, and because emotions form the basis of thoughts. An individual with advanced critical thinking abilities is also likely to have high emotional intelligence (Dutoğlu and Tuncel, 2008).

Nursing can be seen as a strenuous job which takes place in a stressful work environment. These settings require nurses to think critically in order to be able to: provide high quality patient care, be aware of the patient's and their own feelings, and to understand and regulate these emotions (Barkhordari and Rostambeygi, 2013). In this context, emotional intelligence and critical thinking are basic elements of nursing practice and are important features that influence nurses' clinical decision-making, use of evidence and information in practice, and the quality of safe and effective care (Collins and Andrejco, 2015; Çıtak and Uysal, 2011; Zaybak and Khorshid, 2006; Kawashima and Petrini, 2004; Profetto-McGrath, 2003; Oerman, 1998). As stated by Rubenfield and Schefer (1999), critical thinking is the key element in professional and responsible nursing practice. The development of critical thinking skills is important for investigating scientific facts and for nurses to implement evidence-based nursing practices. Caring for patients based on critical thinking helps decisions to be made in accordance with facts, experiences and the relevant standards for patient care (Uçan, Taşçı and Ovayolu, 2008) and prevents nurses focusing on a single solution to solve a problem (Kökdemir, 2003). Nurses should have critical thinking and emotional intelligence skills to identify patients' needs, to make quick and accurate decisions, to evaluate complex information about patients from different perspectives (Fidancı et.al., 2012; Kaya and Yalınz, 2012; Küçükgülü and Kanbay, 2011; Altuntaş, Akyıl and Burkay,

2010; Heffernan et al., 2010; Mangena and Chabeli, 2005; Kawashima and Petrini, 2004; Ip et al., 2000).

In this regard, it is important that these skills are acquired during undergraduate education. However, the number of research studies conducted on the subject of emotional intelligence and critical thinking in nursing students is limited.

The purpose of this research is to identify the development of critical thinking and emotional intelligence during nursing students' undergraduate education.

The following research questions were developed:

1. What are nursing students' critical thinking skills and emotional intelligence at the beginning of the first class students?
2. What are nursing students' critical thinking skills and emotional intelligence at the end of the first, second, third, senior class students?
3. Are there any differences between nursing students' critical thinking skills and emotional intelligence at the beginning of the first class students and at the end of the first, second, third, senior class students?
4. What is the correlation between nursing students' critical thinking skills and emotional intelligence?

2. Methods

2.1. Study design

The research was carried out as a longitudinal study.

2.2. Study setting

The study was conducted at a nursing faculty in Istanbul which is rooted and old faculty in a state university in Turkey.

2.3. Sample

The sample consisted of students (197 students) who began their studies at a Nursing Faculty in the 2012-2013 academic year. The data were collected at the beginning and the end of the first class students, and at the end of the second, third and senior class students. 15 students were excluded from the research either because they dropped out of the faculty (5 students) or did not fill out the forms completely (10 students) and the research was thus carried out with 182 students (Table 1).

2.3. Instruments

Data were collected using the Information Form, the California Critical Thinking Disposition Scale and the Emotional Intelligence Assessment Scale.

Information Form: This form, developed by the researchers, consists of seven questions to determine the basic demographic characteristics (age, gender, school etc.) of the students.

California Critical Thinking Disposition Scale (CCTDS): This scale was developed by Facione, Facione and Giancarlo (1990-1998) and the validity and reliability study of the Turkish version was conducted by Kökdemir (2003). The scale consists of 51 items and six sub-dimensions: being analytical, broadmindedness, curiosity, self-confidence, searching for truth and systematicity. The scale is designed as a 6-point Likert scale and the response options range from "I fully agree" (6) to "I don't agree" (1). The minimum value of the subscales is 6 and the maximum value is 60. The maximum score that can be obtained from the scale is 360 and the minimum is 60. The total score obtained from the scale reflects the ability to think critically. The total cronbach's alpha value of the scale was found to be .88 (Kökdemir, 2003). In this study, the cronbach's alpha coefficient for the scale was .85. For the sub-dimensions, the scores were as follows: being analytical: .74; broadmindedness: .79; curiosity: .80; self-confidence: .78; searching for truth: .65; systematicity: .56.

Emotional Intelligence Assessment Scale: This scale consists of 30 items and five sub-dimensions named awareness of the emotions, regulating emotions, self-motivation, empathy and social skills. The Turkish validity and reliability of scale was conducted by Ergin (2000). The scale is designed as a 6-point Likert scale and the response options were from “I fully agree” (6) to “I don’t agree” (1). The total cronbach’s alpha coefficient for the scale was found to be .84 (Ergin, 2000). In this study, the cronbach’s alpha coefficient for the scale was .91. For the sub-dimensions, the scores were as follows: awareness of the emotions: .73; regulating emotions: .76; self-motivation: .75; empathy and social skills: .70.

2.4.Data analysis

Data were entered and analysed using the SPSS (Statistical Package for the Social Sciences), version 21.0 (SPSS Inc). Descriptive statistics such as cronbach’s alpha, frequencies, percentages, means and standard deviations (SD) were used to summarise the characteristics of participants and the scores obtained in the CCTDS and Emotional Intelligence Assessment Scale. Kruskal Wallis test for data with no normal distribution 3 and above, in the Kruskal-Wallis test the difference was analyzed by Bonferroni test to look for the source of difference in the detected groups. A p-value of 0.05 was considered statistically significant (Polit, 2010).

2.5.Data collection

Following oral and written explanation of the study by the researchers, the questionnaire form and the scales were distributed to nursing students on a voluntary basis at the beginning of the first class students. They were informed about the research goals: specifically each student received an information sheet explaining the research aim, research team and methodology. It was explained to students that this was a longitudinal study and that

data would be collected again at the end of the second, third and senior class students. No names or identifying data were requested, but the students were asked to provide a student number, which was to be used to link their subsequent questionnaires. During the data collection, no compulsion was made to the students. The study has no qualifications that could harm students. A member of the research team outlined the details of the project to the entire nursing student class. The delivery of the questionnaires and their completion took on average 30 minutes. Students returned the questionnaires, both complete and incomplete, to the member of the research team.

3.Results

3.1. Defining characteristics of the students

82.4% of the students who took part in the research study were female and 17.6% were male. The minimum age of the students participating in the study was 17 and the maximum was 22. The average age of the students was 18.44 ± 0.91 . 59.9% of the students were from the Anatolian Science High School.

3.2. Critical thinking and emotional intelligence in nursing practice

49.5% of the students stated that critical thinking was important in terms of nursing practice in their first year and 76.4% of the students stated this in their final year (Table 2). 63.7% of the students stated that emotional intelligence was very important in terms of nursing practice in their first year and 51.7% of the students stated this in their final year (Table 2).

3.3. Critical thinking dispositions of nursing students

The average critical thinking disposition total score was determined as 194.48 ± 14.20 at the beginning of the first class students and as 225.88 ± 19.81 in the end of senior class students (Table 3).

The average scores of the students for the critical thinking sub-dimensions at the beginning of the first class students were as follows: being analytical: 49.77 ± 4.29 ; broadmindedness: 32.20 ± 6.55 ; curiosity: 41.68 ± 5.88 ; self-confidence: 28.62 ± 4.89 ; searching for truth: 22.33 ± 5.28 ; systematicity: 19.89 ± 3.10 . The average scores for the critical thinking sub-dimensions of students in the end of senior class students were as follows: being analytical: 48.28 ± 4.92 ; broadmindedness: 53.68 ± 9.36 ; curiosity: 41.36 ± 5.31 ; self-confidence: 30.88 ± 3.82 ; searching for truth: 25.95 ± 5.85 ; and systematicity: 25.73 ± 3.50 . The highest average score among the sub-dimensions of critical thinking dispositions was for the sub-dimension of being analytical at the beginning of the first class students, and for broadmindedness in the end of senior class students. The lowest average score among the sub-dimensions for critical thinking dispositions was for the sub-dimension of searching for truth in at the beginning of the first class students and at the end of the first, second, third, senior class students (Table 3).

A statistically significant difference was detected in terms of average critical thinking scores between the at the beginning of the first class students and at the end of the first, second, third, senior class students. A difference was found in the average scores between the beginning of the first class students and the end of the first, second, third and senior class students, and between the average scores for the third and senior class students ($p < 0.05$) (Table 3).

3.4. Emotional intelligence of nursing students

The highest average score among the sub-dimensions of emotional intelligence was for the sub-dimension of awareness of the emotions in at the beginning of the first class students and at the end of the first, second, third, senior class students. The lowest average score among sub-dimensions for emotional intelligence was for the sub-dimension of

searching for truth in at the beginning of the first class students and at the end of the first, second, third, senior class students (Table 4).

The average scores of students in the emotional intelligence sub-dimensions at the beginning of the first class students were as follows: awareness of the emotions: 30.30 ± 4.02 ; regulating emotions: 25.75 ± 5.46 ; self-motivation: 28.13 ± 4.85 ; empathy: 29.05 ± 4.15 ; and social skills: 26.98 ± 4.56 . The average scores of students for the emotional intelligence sub-dimensions in the fourth academic year were as follows: awareness of the emotions: 29.97 ± 3.42 ; regulating emotions: 25.79 ± 4.97 ; self-motivation: 27.41 ± 4.29 ; empathy: 28.65 ± 4.06 ; social skills: 27.58 ± 4.70 (Table 4).

3.5. The relationship between critical thinking and emotional intelligence in nursing students

According to the results, there was no relationship between the students' critical thinking in the beginning of the first class students and end of the senior class students. In addition, there was no relationship between sub-dimensions of emotional intelligence (respectively, awareness of emotions, empathy, social skills) in the beginning of the first class students and critical thinking at the end of the senior class students. A moderate positive correlation was found between self-motivation at the beginning of the first class students and critical thinking at the end of the senior class students (Table 5).

4. Discussion

This research study was conducted with the purpose of determining the development of the critical thinking and emotional intelligence of nursing students during their undergraduate education. By this means, the impact of the nursing education curriculum on the critical thinking and emotional intelligence skills of nursing students was investigated over the period of a four-year undergraduate program. The majority of the students who participated in the research were women aged 18-22 who had graduated from the Anatolian

Science High School. The majority of students regarded critical thinking as very important and emotional intelligence as important.

4.1. Critical thinking dispositions of nursing students

Due to the increased need for patient-centred care, evidence-based practice, and addressing patients' satisfaction in care and staff shifting issues, the healthcare environment is becoming more complex and demanding (Chan, 2013; Chang et al., 2011). Nurses should be prepared to function as safe, competent, intuitive and innovative clinicians in an environment where new information and clinical situations are constantly changing. To be competent and achieve higher performance, the importance of critical thinking and its dispositions is emphasised in nursing clinical practice (Chan, 2013; Chang et al., 2011). Major reports published in countries such as United States, United Kingdom and Australia state that critical thinking is one of the main competences to be enhanced and assessed in higher education (American Association of Colleges and Universities, 2011; Australian Council for Educational Research, 2009; Higher Education Quality Council, 1996; Norman and Anderson, 2017). The concept of critical thinking and the skills acquired in this context are regarded as fundamental skills for practitioners in the 21st century. The field is dominated by The National League for Nursing (NLN) (2017) in terms of evaluation and accreditation. However, despite the fact that the significance of nursing students' acquiring critical thinking skills is acknowledged, teaching these kinds of skills and educating students about them has not been a simple task.

Education is one of the key elements that positively affect the development of students' critical thinking skills. As critical thinking is an important skill in nursing; teaching nursing students critical thinking should be started early, as the skills develop through experience and practice (Castledine, 2010; Chan, 2013; Di Vito-Thomas, 2005). Studies conducted by Zhang and Lambert (2008), Giddens and Gloeckner (2005), Spelic et al. (2001),

Facione (1997) found that students' critical thinking scores increased significantly when assessed at the beginning, during and at the end of an educational program. Öztürk and Ulusoy (2008) found that as students' education improved, their levels of critical thinking increased slightly every academic year. Pascarella and Terenzini (2005) emphasized that students made significant progress in terms improving their critical thinking skills during their university education. As a result of studies conducted on the subject, Dil (2001) found that the critical thinking skills of the nursing students' increased during undergraduate education. Thompson and Rebesch (1999) found that students' critical thinking skills (evaluating and reasoning etc.) were better after graduation than when they entered university. Research was determined by Karadag, Sengul and Eroğlu (2016) determined that students who attended courses on critical thinking had higher scores at the end of the course than those who did not, but this increase was not statistically significant. Stewart and Dempsey (2005) found, however, that there was no difference between nursing students' critical thinking according to their at the beginning of the first class students and at the end of the first, second, third, senior class students. It was found as a result of this research study that there was a significant increase in students' critical thinking scores in the the senior class students compared to their first class students of nursing education (Table 3). It can be thus stated that this study supports most of the other findings in the context of the impact of nursing education on critical thinking skills. The results of the study suggest that critical thinking skills can be improved and developed over a long period of time.

It was found that the highest score average at the beginning of the first class students and at the end of the first, second, third, senior class of students were in the sub-dimension of broadmindedness and that the score increased as the educational level increased (Table 3). These results share similarities with those in the studies conducted by Dirimeşe and Dicle (2012), Wangenstein et al. (2010), Şenturan and Alpar (2008), Shin et al. (2006), Tiwari,

Avery and Lai (2003) and Ip et al. (2000). Broadmindedness means that an individual is tolerant and willing to accept opinions, beliefs or behaviors that are unusual or different from their own and to recognize their own mistakes. Broadmindedness means that an individual, while making a decision, not only considers their own opinions but also considers the opinions and thoughts of others (Wangenstein et al., 2010; Kökdemir, 2003; Tiwari, Avery and Lai, 2003). This conclusion suggests that students may consider different opinions when making a decision in their professional lives and that they may be tolerant of different views.

It was determined that the lowest average score at the beginning of the first class students and at the end of the first, second, third, senior class students were in the sub-dimension of searching for truth (Table 3). This result shares similarities with those in the studies conducted by Dirimeşe and Dicle (2012), Wangenstein et al. (2010), Şenturan and Alpar (2008), Shin et al. (2006), Tiwari, Avery and Lai (2003) and Ip et al. (2000). The term searching for truth implies a disposition to consider alternatives or different ideas while making a decision. The fact that this sub-dimension had the lowest scores in comparison to the other dimensions demonstrates that the tendency of the students to search for the truth is lower, as the possibility of questioning facts is not a skill that improves when there is unfavorable information or data. This result indicates that students should improve their skills in searching for truth.

The average score in the curiosity sub-dimension was expected to increase as the educational levels of the students increased. However, the results of the study show that there was no significant change in this sub-dimension (Table 3). Curiosity reflects a person's tendency to learn without gaining any immediate advantage for themselves in a specific situation. It is difficult for the decision-making process to proceed in a healthy way if students lack the curiosity to search for the truth. This result shows that nursing students should pay more attention to this sub-dimension in order to continue developing professionally.

4.2. Emotional intelligence of nursing students

Educational activities that focus on the emotions of students are key to strengthening their critical thinking. The connection between thinking and emotions is vital in nursing education.

The highest average score in each year was found in the sub-dimension of Awareness of the emotions (Table 4). However, it was also found that there was no significant difference between the students' average scores in the first class students and senior class students in this sub-dimension. These results show similarities to those in studies conducted by Kuzu and Eker (2010), Ünsar et al. (2009) and Kaya and Keçeci (2004). Being aware of emotions is one of the basic emotional abilities which helps individuals recognize and give meaning to their emotions. Individuals who are aware of their emotions have control over their values, goals, strengths and limitations, their abilities, where and why these emotions are present, their decisions about their lives and their professional practices, and are able to make better decisions (Goleman, Boyatzis and McKee, 2002; Cherniss, 2000; Ergin, 2000; Goleman, 1998). It was expected that higher scores would be obtained in the awareness of the emotions sub-dimension as the educational level increased. For this reason, this result is important in order to demonstrate that this sub-dimension should be developed in nursing education.

According to the results, the lowest scores at the beginning of the first class students and at the end of the first, second, third, senior class students were found in the sub-dimensions of regulating emotions and social skills (Table 4). These results are similar to those in the studies conducted by Barkhordari and Rostambeygi (2013), Kuzu and Eker (2010). The results of the study conducted by Benson, Ploeg, and Brown (2010) showed no similarity to the conclusion that senior class students students' emotional intelligence regarding interpersonal relationships was higher than that of first class students. Students who are aware of their emotions can identify their opinions, values, aims, strengths and

weaknesses, abilities and can attach meaning to their emotions (Ergin, 2000). Awareness of emotions was in the leading position among the sub-dimensions for emotional intelligence, which suggests that students with these skills will be able to provide patient care by being aware of their own emotions, abilities and characteristics. The concept of regulating emotions is defined as the internal form of control exercised by the individual. Those who can control their emotions can adapt to unexpected situations and changes, are open to new ideas, approaches and knowledge, take responsibilities related to emerging outcomes, question themselves rather than blame others, and cope better with problems in life. Social skills, on the other hand, are a result of other dimensions of emotional intelligence. Regulating emotions also indicates the ability to understand and control the feelings and thoughts of others, as well as one's own feelings and thoughts. This is a fundamental skill in establishing and maintaining effective interpersonal relationships (Goleman, Boyatzis and McKee, 2002; Cherniss, 2000; Ergin, 2000; Goleman, 1998). It was expected that the average scores in the regulating emotions and social skills sub-dimensions would increase as the number of years of education increased. However, the findings of this research show that there was no significant change in these sub-dimensions. The study conducted by Benson, Ploeg, and Brown (2010) showed no similarity to the findings that fourth-year students' emotional intelligence is higher than that of other students. These results are not similar to the results of this research. In order to maintain and improve the individual and professional development of the students, it is necessary that activities for regulating emotions and social skills be given additional importance in nursing education programs.

4.3. The relationship between the critical thinking and emotional intelligence of nursing students

As a result of an examination of nursing students' critical thinking and emotional intelligence, it is possible to argue that there is a link between these two important personality

traits. An individual who has a high level of critical thinking and strong emotional intelligence skills is able to make accurate decisions, to evaluate those decisions and to regulate their emotions to enhance their abilities. Smith et al. (2009) support this argument, stating that emotional intelligence has an impact upon critical thinking and decision-making processes. Considering the fact that that the critical thinking skills of nursing students are, according to many surveys, unstable, it can be assumed that improving emotional intelligence and critical thinking skills is essential in the nursing profession. Stedman and Andenoro (2007) found a substantially positive relationship between emotional intelligence and critical thinking in undergraduate students. On the other hand, Saremi and Bahdori (2015) did not find a correlation between emotional intelligence and critical thinking. In this study, no relationship could be detected between the students' critical thinking skills at the beginning of the first class students and end of the senior class students. In addition, no relationship could be detected between the sub-dimensions of awareness of emotions, regulating emotions, empathy and social skills and their critical thinking at end of the first class students (Table 5). The results of the research show that the nursing students' critical thinking and emotional intelligence scores were at a moderate level. Therefore, it is accepted there was no meaningful relationship between critical thinking and the emotional intelligence sub-dimensions with regard to these nursing students.

In the study, the relationship between the sub-dimension of Self-motivation at the beginning of the first class students and critical thinking end of the senior class students was moderately positive (Table 5). This result shows that the disposition of students to think critically improved as their ability to be self-motivated developed.

Limitations

The study is limited to students who began studying in the 2012-2013 education year at a nursing faculty in a state university in Turkey. With regard to our results, and taking into

consideration that the sample at the end of the study was relatively small and belonged to only one faculty, a bigger sample would have highlighted the comparison between critical thinking and emotional intelligence. The results cannot be generalized to all nursing students.

5. Conclusions and Recommendations

The results of the research showed that there was no significant difference in the emotional intelligence of the students at the beginning of the first class students and end of the senior class students but there was a significant increase in critical thinking among the students. However the findings of the research also show that nursing students' critical thinking and emotional intelligence scores were at a moderate level. It is accepted there was no meaningful relationship between the nursing students' critical thinking skills and the emotional intelligence sub-dimensions.

This study provides empirical evidence for the relationship between critical thinking and emotional intelligence, which are fundamental concepts for developing a balanced curriculum to provide nursing education. This study is important in demonstrating how nursing students' critical thinking and emotional intelligence develop during their undergraduate education. The findings of the study demonstrate the importance of a relationship between critical thinking and emotional intelligence.

In the light of these results it is recommended that:

- the concepts of critical thinking and emotional intelligence should be approached in an integrated way in the context of nursing education. Courses which provide for the development of both critical thinking and emotional intelligence, and which include educational activities to further these qualities, should be included in nursing education programs.

- faculty members could use different educational strategies to improve critical thinking skills and emotional intelligence of nursing students.
- faculty members' could develop their own critical thinking skills and emotional intelligence.
- the studies must be done with larger and different sample groups with monitoring, qualitative, prospective and so studies.

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Table 1**Distribution of Nursing Students by Years of Education**

	N	Missing Data (n)
1 st class students	197	-
2 nd class students	189	5 student dropped out school 3 student filled outed missing form
3 rd class students	185	4 student filled outed missing form
4 th class students	182	3 student filled outed missing form

Table 2
Nursing students' opinions on critical thinking in nursing and the importance of emotional intelligence (n: 182)

	Beginning of the 1 st class students		End of the 1 st class students		End of the 2 nd class students		End of the 3 rd class students		End of the 4 th class students	
	CT	EI	CT	EI	CT	EI	CT	EI	CT	EI
	(n %)	(n %)	(n %)	(n %)	(n %)	(n %)	(n %)	(n %)	(n %)	(n %)
Not Important	4 (2,1)	11 (6,0)	3 (1,6)	11 (6,0)	2 (1,1)	5 (2,7)	1 (0,5)	3 (1,6)	-	1 (0,5)
Important	88 (48,4)	116 (63,7)	67 (36,8)	102 (56,1)	53 (29,1)	90 (49,5)	48 (26,4)	81 (44,5)	43 (23,6)	94 (51,7)
Very Important	90 (49,5)	55 (30,3)	112 (61,6)	69 (38,0)	127 (69,7)	87 (47,8)	133 (73,1)	98 (53,8)	139 (76,4)	87 (47,8)

	Aver ± SS						
Being analytical	49,77±4,29	49,04±4,73	47,23±6,42	47,24±6,18	48,28±4,92	F=10,028	a < c,d,e
						p=,000	b<c,d
Broadmindedness	32,20±6,55	51,01±10,64	51,80±8,68	50,08±10,14	53,68±9,36	F=182,118	a < b,c,d,e
						p=,000	b<a,e
							d<a,e
Curiosity	41,68±5,88	41,51±6,26	40,21±6,89	41,00±6,59	41,36±5,31	F=2,406	No
						p=,048	difference
Self-confidences	28,62±4,89	29,94±5,92	29,63±5,06	30,31±6,47	30,88±3,82	F=6,030	a<b,d,e
						p=,000	c<e
Searching for truth	22,33±5,28	25,57±5,66	25,98±5,16	25,05±5,80	25,95±5,85	F=14,302	a<b,c,d,e
						p=,000	
Systematicity	19,89±3,10	25,13±4,40	25,21±3,87	25,19±3,98	25,73±3,50	F=79,972	a<b,c,d,e
						p=,000	
Total	194,48±14,20	222,20±23,33	220,06±22,99	218,87±23,63	225,88±19,81	F=80,438	a<b,c,d,e
						p=,000	d<e

Table 4

Emotional Intelligence of nursing students' by by academic years (n: 182)

EMOTIONAL INTELLIGENCE	Beginning of the 1 st class students	End of the 1 st class students	End of the 2 nd class students	End of the 3 rd class students	End of the 4 th class students	F	p	Difference
	(a)	(b)	(c)	(d)	(e)			
	Aver ± SS	Aver ± SS	Aver ± SS	Aver ± SS	Aver ± SS			
Awareness of the emotions	30,30±4,02	30,75±3,52	29,61±4,84	29,91±5,23	29,97±3,42	F=6,385		a < d
						p=,000		b < c, d
Regulating emotions	25,75±5,46	26,23±5,15	25,53±5,79	25,62±5,77	25,79±4,97	F=, 640		No difference
						p=,634		
Self-motivation	28,13±4,85	28,14±4,79	26,87±5,24	27,01±5,43	27,41±4,29	F=3,770		a < c
						p=,005		b < c
Empathy	29,05±4,15	29,50±4,08	28,72±4,81	28,23±4,90	28,65±4,06	F=2,854		b < d
						p=,023		
Social Skills	26,98±4,56	27,30±4,57	27,02±4,95	27,25±5,11	27,58±4,70	F=,652		No difference
						p=,626		

ACCEPTED MANUSCRIPT

Table 5

Relationship between nursing students' critical thinking dispositions and emotional intelligence (n: 182)

	End of the 4 th class students		End of the 4 th class students		End of the 4 th class students		End of the 4 th class students		End of the 4 th class students		End of the 4 th class students	
	Critical Thinking Disposition		Awareness of Emotions		Regulating Emotions		Self-Motivation		Empathy		Social Skills	
	r	p	r	p	r	p	r	p	r	p	r	p
Beginning of the 1st class students												
Critical Thinking Disposition	,051		-,043		,010		-,067		,042		,080	
	,496		,567		,890		,367		,574		,286	
Beginning of the 1st class students												
Awareness of Emotions	-,021		,083		-,072		-,068		,099		,108	
	,775		,265		,334		,359		,182		,148	
Beginning of the 1st class students												
Regulating Emotions	,137		,154*		,166*		,119		,120		,144	

	,066	,038	,025	,108	,106	,052
Beginning of the 1st class students						
Self-Motivation	,181*	,216**	,135	,167*	,135	,168*
	,014	,003	,069	,024	,069	,023
Beginning of the 1st class students						
Empathy	,113	,157*	,048	,073	,259**	,214**
	,128	,035	,521	,329	,000	,004
Beginning of the 1st class students						
Social Skills	,065	,073	-,024	-,037	,148*	,139
	,382	,330	,744	,617	,046	,062