

# ResearchPaper: Investigating the Relationship between Emotional Intelligence and Moral Skills of Dental Students of Alborz University of Medical Sciences Faculty of Dentistry in 2020



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**Citation** Jamdar S, Donyavi Z. Investigating the Relationship Between Emotional Intelligence and Moral Skills of Dental Students of Alborz University of Medical Sciences Faculty of Dentistry in 2020. Journal of Dentomaxillofacial Radiology, Pathology and Surgery. 2023; 12(1):41-47.

 <http://dx.doi.org/10.32592/3dj.12.1.41>

## ABSTRACT



### Article info:

Received: 08 Jan 2023

Accepted: 13 Jun 2023

Available Online: 27 Jun 2023

**Introduction:** Higher emotional intelligence can lead to higher moral sensitivity and ultimately improve the quality of students' performance. The present study was designed to investigate the relationship between emotional intelligence and moral skills of dental students of Alborz University of Medical Sciences in 2020.

**Materials and Methods:** The present study is a cross-sectional study, descriptive and analytical, which was conducted in the academic year of 2019-2020 among the students of the third year and above of the dental field at the Faculty of Dentistry of Alborz University of Medical Sciences. To collect data, Bar-On Emotional Intelligence Questionnaire and Moral Skills Questionnaire were used. After coding, the data were analyzed by SPSS version 24 software. For this purpose, the obtained information was analyzed using linear and multiple regression models and Pearson's correlation coefficient.

**Results:** In the present study, 30 people including 20(67%) women and 10(33%) men were studied. The results of the present study showed that there is no significant difference between the variables of emotional intelligence and moral skills. But there was a strong positive relationship between emotional intelligence and overall values of moral skills ( $P=0.000$ ). Also, in moral skills, there was a significant positive relationship between emotional intelligence and moral integrity ( $P=0.019$ ) and moral courage ( $P=0.035$ ).

**Conclusion:** The results of this study showed that students with higher emotional intelligence have higher level of moral skills. It is suggested to include workshops related to emotional intelligence in the educational courses of students, especially dental students, to increase this ability in students.

### Keywords:

Dental student  
Emotional intelligence  
Moral development

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## 1. Introduction

**E**motional intelligence is the ability to understand, use and manage one's emotions through positive methods to eliminate stress, establish effective communication, empathize with others, overcome challenges and neutralize all kinds of conflicts (1, 2). Emotional intelligence was defined for the first time in the 1990s by Salovey and Mayer as a type of social intelligence that includes the ability to control one's own and others' emotions (3). Some other researchers consider emotional intelligence as a flexible structure and believe that with direct and indirect essential and appropriate training, emotional intelligence can improve in people and cause their growth and prosperity (4). Although the critical opportunity for the formation of emotional intelligence is in the first years of life, this opportunity continues in a more limited form throughout life (5). Emotional intelligence enables people to prevent difficult situations before they become uncontrollable, thus making stress management easier (6). In fact, those who use their emotional intelligence are more compatible with their surroundings and show higher self-confidence and are aware of their abilities (7). In the healthcare system, understanding and managing emotions has a particular importance for physicians. A physician must guide his emotions, patients and other members of his team in stressful situations, in order to fulfill his mission as an efficient doctor; In fact, having interpersonal and communication skills, which is one of the components of emotional intelligence, is considered one of the basic competencies of doctors (8, 9). It has been reported in some studies that there is a direct relationship between the emotional intelligence of dental students and the degree of patient satisfaction with treatment (10). Another dimension of intelligence is moral intelligence. For the first time, Michele Borba introduced moral intelligence into the field of psychology. He defines moral intelligence as the ability to understand right from wrong, have strong moral values and act on them, and behave right (11). moral skills include skills such as sensitivity, openness, forgiveness and responsibility (12). Some researchers consider morals in the form of a set of principles that often act as a code or system known as a behavioral guide (13, 14). In recent years, despite the increasing progress in the field of medical sciences and new technologies, moral concerns related to health have been increased. Although morals are necessary in all professions, but in the dental profession, this factor is more necessary because of dealing with people in painful situations. Dentists are sometimes faced with many challenges and situations

that require ethical behaviors and complex ethical decisions that have a strong impact on their performance, so that ethical behavior and their responsibility toward patients, play an effective role in improving patient's health and beauty (15, 16). In the last two decades, the concept of emotional intelligence combined with the commitment of professions, ethics and ethical practice in the field of medicine has been increased attention to itself. Professional commitment is the basis of establishing trust in the doctor-patient relationship, and it has been shown that professional commitment and trust are measured based on the principles of emotional intelligence (17). Numerous sources indicate the use of different educational methods in teaching ethics, but there is no known method of transferring the knowledge of ethics theory to practice and learning based on clinical departments (18). Due to the fact that many students do not know what behaviors are in accordance with ethical principles at the patient's bedside (19), also some researchers believe that emotional intelligence can be learned and strengthened (17); Therefore, the purpose of this study is to investigate the relationship between emotional intelligence and moral skills of dental students of Alborz University of Medical Sciences in 2020.

## 2. Materials and Methods

The current research is a cross-sectional study, descriptive and analytical, which was conducted in the academic year of 2019-2020 among students from the third to the last year of dentistry at Alborz University of Medical Sciences. The inclusion criterion included all students from the third year to the last year of dentistry and Answers to all questions in the questionnaire. The exclusion criterion was the student's lack of consent to participate in the study. In order to collect data, two standard questionnaires, Bar-On Emotional Intelligence Questionnaire and Moral Skills Questionnaire were used. The demographic characteristics of the study included gender, age of entering the university, year of entering the university, level of education of parents and marital status of the study participants. The final sample size was calculated using the following formula (20):

$$\text{Total sample size} = N = [(Z\alpha + Z\beta)/C]^2 + 3$$

Bar-On Emotional Quotient Inventory: EQI was used to measure emotional intelligence (21). The validity and reliability of this questionnaire among Iranian students has been confirmed by Nejati et al. with Cronbach's alpha of 0.94 (22). The Persian and standardized version of this questionnaire contains ninety questions. In addition to the overall scoring, it evaluates fifteen components of emotional intelligence (each component

includes six questions) in five areas, as follows: intrapersonal area (including the components of emotional self-awareness, self-expression, self-esteem, self-improvement and independence), Interpersonal area (including empathy, responsibility and interpersonal relationships), adaptability area (including realism, flexibility and problem solving), stress management area (including stress tolerance and impulse control), overall mood area (including optimism and happiness). The options of each question were arranged on a five-point Likert scale and scored from five to one (completely agree = five and completely disagree = one). The total score of each component was equal to the sum of the scores of each of the questions of that component and the total score of the test was equal to the sum of the scores of fifteen scales. A higher score in this test indicated a person's higher emotional intelligence. The minimum score of this test was 90 and the maximum score was 450.

To measure students' moral skills, a 40-question Moral Skills Inventory, which was designed by Chambers in 2010 based on the four-component model of Rest, was used to evaluate moral behavior in dentistry (23). Also, the validity and reliability of the Persian version of this questionnaire has been confirmed in the school of dentistry of Shahed University (24). This questionnaire is quick and self-reported and includes four sections (each section has 10 questions). These parts are: 1. Moral sensitivity meaning awareness of the conditions in which there is a moral problem (option number 1 to 10). 2. Moral reasoning meaning correct decision making in moral situations (option number 11 to 20). 3. Moral perfection meaning a person's inherent tendency in facing moral situations (option number 21 to 30). 4. Moral courage meaning a person's ability to control moral conditions (option number 31 to 40). The reliability and validity of the Persian version of this questionnaire has also been confirmed. 40 questions in the frame of a long form, the first four questions of each section being part of the short form. The scoring of options is as follows: for options 1 to 10, two points, for option A one point, formations option B and for questions 21 to 30 two points, for option C and for questions 11 to 20 and 31 to 40 one point, for Option B and scoring the sum of the components for moral sensitivity between 0 to 8 for the short form and 0 to 20 for the long form, and for questions 1 to 4 or 1 to 10 and for moral reasoning the sum of the scores of questions

11 to 14 or 11 to 20 were evaluated. There are no right or wrong answers in this questionnaire, and only the score in the four fields is such that it describes the type of moral skill rather than judging whether it is moral or unethical.

After coding, the data were analyzed by SPSS version 24 software. For this purpose, the obtained information was analyzed using linear and multiple regression models and Pearson's correlation coefficient (25). A significance level of less than 0.05 was considered.

This study was approved and accepted by Alborz University of Medical Sciences Vice President of Research and Technology and Ethics Committee of Alborz University of Medical Sciences with ethics code: IR.ABZUMS.REC.1399.320. Also, students' participation in answering the questionnaire was done voluntarily.

### 3. Results

In the present study, 30 dental students including 20 (67%) women and 10 (33%) men of 3rd to final year of dentistry in 2019-2020 Alborz University of Medical Sciences were studied. Most of the people under the age of 25, single, entered the university in 2014 and had parents with a bachelor degree, also had not participated in any of the moral skills or emotional intelligence workshops. The results of the present study showed that the mean score of emotional intelligence is not significantly different from any of the investigated variables ( $P>0.05$ ) (Table 1). The mean score of the moral skills of the short form and its dimensions were not significantly different from any of the studied variables ( $P>0.05$ ) (Table 2). Also, the average moral skill score of the full form and its dimensions did not differ significantly from any of the studied variables ( $P>0.05$ ) (Table 3). The results showed that there is a positive and significant correlation between emotional intelligence of the studied subjects with their moral sensitivity ( $P=0.000$ ) and moral perfection ( $P=0.024$ ). But this positive correlation was not significant for the relationship with moral reasoning ( $P=0.113$ ) and moral courage ( $P=0.109$ ). Also, based on the full form of moral sensitivity, there is a positive and significant correlation between the emotional intelligence of the studied subjects with moral sensitivity ( $P=0.000$ ), moral perfection ( $P=0.019$ ) and moral courage ( $P=0.035$ ). But this positive correlation was not significant for the relationship with moral reasoning ( $P=0.255$ ) (Table 4).

**Table 1.** Emotional intelligence score by basic and demographic factors

Variables	Emotional intelligence score	
	Mean $\pm$ SD	*P
<b>Sex</b>		
0.442	307.5 $\pm$ 56.67 322.8 $\pm$ 48.5	woman man
<b>age</b>		
0.446	312.32 $\pm$ 60.78 313.18 $\pm$ 41.13	Younger than 25 years Older than 25 years
<b>Marital status</b>		
0.998	310.14 $\pm$ 58.52 319.5 $\pm$ 39.61	Single Married
<b>Year of University entrance</b>		
0.098	317.56 $\pm$ 41.3 302.3 $\pm$ 39.8 299.9 $\pm$ 31.4	2015 2016 2017
<b>Parents' education</b>		
0.224	304.8 $\pm$ 47.4 301.3 $\pm$ 41.4 311.9 $\pm$ 51.3	diploma bachelor More than bachelor

**Table 2.** Moral skill score of the short form and its dimensions in the studied subjects by basic and demographic variables

Variables	Total score		Moral reasoning		Moral perfection		Moral courage	
	Mean $\pm$ SD	*P	Mean $\pm$ SD	*P	Mean $\pm$ SD	*P	Mean $\pm$ SD	*P
<b>sex</b>								
woman	5.65 $\pm$ 2.2	0.675	4.5 $\pm$ 2.4	0.422	5.4 $\pm$ 2.1	0.786	4.9 $\pm$ 2.7	0.976
man	5.2 $\pm$ 2.0		5.11 $\pm$ 2.5		4.78 $\pm$ 2.0		4.78 $\pm$ 2.5	
<b>age</b>								
Younger than 25 years	5.89 $\pm$ 2.0	0.419	4.58 $\pm$ 2.5	0.921	5.11 $\pm$ 2.3	0.700	6.16 $\pm$ 3.3	0.390
Older than 25 years	4.82 $\pm$ 2.3		4.9 $\pm$ 2.3		5.4 $\pm$ 1.6		7.8 $\pm$ 3.5	
<b>Marital status</b>								
single	5.55 $\pm$ 2.3	0.374	4.81 $\pm$ 2.3	0.869	5.19 $\pm$ 2.3	0.976	5.14 $\pm$ 2.5	0.381
married	5.38 $\pm$ 1.4		4.38 $\pm$ 2.8		5.25 $\pm$ 1.6		4.13 $\pm$ 2.8	
<b>Year of University entrance</b>								
2015	5.42 $\pm$ 2.3	0.655	4.65 $\pm$ 2.2	0.535	5.21 $\pm$ 1.9	0.802	5.18 $\pm$ 3.1	0.783
2016	5.23 $\pm$ 1.9		4.86 $\pm$ 2.7		5.10 $\pm$ 1.7		5.23 $\pm$ 3.2	
2017	5.14 $\pm$ 1.8		4.44 $\pm$ 2.6		5.18 $\pm$ 1.8		4.98 $\pm$ 2.9	
<b>Parents' education</b>								
diploma	4.89 $\pm$ 2.1	0.259	4.93 $\pm$ 2.6	0.110	5.15 $\pm$ 1.9	0.233	6.02 $\pm$ 3.4	0.145
bachelor	5.01 $\pm$ 2.2		4.82 $\pm$ 2.5		5.34 $\pm$ 2.1		5.89 $\pm$ 3.1	
More than bachelor	4.93 $\pm$ 2.0		5.11 $\pm$ 2.7		5.56 $\pm$ 2.3		5.99 $\pm$ 3.2	

**Table 3.** Ethical skill score of the full form and its dimensions in the studied subjects by basic and demographic variables

Variables	Total score		Moral reasoning		Moral perfection		Moral courage	
	Mean $\pm$ SD	*P	Mean $\pm$ SD	*P	Mean $\pm$ SD	*P	Mean $\pm$ SD	*P
<b>sex</b>								
woman	9.15 $\pm$ 3.4	0.422	7.0 $\pm$ 4.1	0.989	6.85 $\pm$ 3.9	0.978	7.05 $\pm$ 3.6	0.390
man	9.22 $\pm$ 2.3		7.11 $\pm$ 2.3		6.44 $\pm$ 3.5		6.0 $\pm$ 3.1	
<b>age</b>								
Younger than 25 years	8.16 $\pm$ 3.2	0.865	6.53 $\pm$ 3.5	0.256	7.0 $\pm$ 3.6	0.347	6.16 $\pm$ 3.3	0.189
Older than 25 years	9.2 $\pm$ 2.8		8.0 $\pm$ 3.65		6.25 $\pm$ 4.1		7.8 $\pm$ 3.5	
<b>Marital status</b>								
single	9.24 $\pm$ 3.4	0.876	7.19 $\pm$ 3.6	0.348	6.71 $\pm$ 4.0	0.876	7.19 $\pm$ 3.3	0.085
married	9.0 $\pm$ 1.7		6.63 $\pm$ 3.7		6.75 $\pm$ 3.1		5.5 $\pm$ 3.7	
<b>Year of University entrance</b>								
2015	9.17 $\pm$ 3.4	0.298	6.99 $\pm$ 4.0	0.486	6.84 $\pm$ 3.8	0.954	7.56 $\pm$ 3.8	0.729
2016	8.44 $\pm$ 3.2		6.76 $\pm$ 3.87		6.59 $\pm$ 3.6		8.01 $\pm$ 3.7	
2017	8.86 $\pm$ 3.4		7.01 $\pm$ 4.1		6.69 $\pm$ 3.9		7.31 $\pm$ 3.3	
<b>Parents' education</b>								

diploma	7.98 ±3.1		7.43 ±3.3		6.03 ±2.99		6.23 ±3.0	
bachelor	8.2 ±3.2	0.125	7.67 ±3.4	0.617	6.45 ±3.0	0.721	6.56 ±3.2	0.911
More than bachelor	8.7 ±3.3		7.89 ± 3.5		6.89 ±3.2		6.87 ±3.4	

**Table 4.** Correlation between emotional intelligence and moral sensitivity of the short and full form and their dimensions

Short form of moral sensitivity	The correlation coefficient	Significant limit
Total score	0.700	0.000
Moral reasoning	0.300	0.113
Moral perfection	0.418	0.024
Moral courage	0.304	0.101
The full form of moral sensitivity		
Total score	0.692	0.000
Moral reasoning	0.218	0.255
Moral perfection	0.431	0.019
Moral courage	0.392	0.035

## 4. Discussion

Emotional intelligence is a social skill that includes understanding one's emotions to make appropriate decisions, as well as the application of emotions in relationships and the ability to lead people, whose various aspects can be improved with appropriate methods. Emotional intelligence and its relation with success in education, well performance of work, management and planning have been confirmed (26, 27). The relationship between emotional intelligence and moral skills together can help to better understand their role in improving health-related services, including dentistry. Therefore, in the present study, the relationship between emotional intelligence and moral skills of dental students of Alborz University of Medical Sciences Faculty of Dentistry in 2020 was examined. The results of the present study showed that the average scores of moral skills in terms of gender, age, marital status, year of entry into university and parents' education have no significant difference, and the dimensions of this questionnaire, both in the short form and in the full form, also did not show a significant difference between the mentioned variables ( $P>0.05$ ). For example, it was found that the average moral skills in men is lower than in women, in those over 25 years old less than under 25 years old, in single people more than married people, in 2014 entries more than in other years and in people whose parents have higher education more than others. In relation to emotional intelligence, it was also found that none of the demographic and basic variables had an effect on the emotional intelligence score and the observed differences were not significant. Although, in men compared to women, in people over 25 years old compared to people under 25 years old, in married

people compared to single people, in the entries of 2014 compared to other entries and in people whose parents had an education higher than bachelor's, the emotional intelligence score was higher, but this increase was not significant ( $P>0.05$ ). In some studies, the effect of education, gender and marital status on the score of emotional intelligence or moral skills has been reported, some of which were significant, while some other studies did not find a significant effect ( $P>0.05$ ), which is in accordance with the results of the present study (28, 29). The results of the present study showed that moral skills, both in the short form and in the full form, has a significant relationship with emotional intelligence, which means that as emotional intelligence increases, moral skill also increases. Also, the subsets of moral perfection in the short form and moral perfection and moral courage in the full form had a positive and significant correlation with emotional intelligence, which means that as emotional intelligence increases, moral perfection and moral courage also increase in students, which shows the impact of emotional intelligence on these cases ( $P<0.05$ ). In the study of Razeghi et al, 2018, which was conducted in order to investigate the relationship between emotional intelligence and moral skills of the third and final year students of Tehran Faculty of Dentistry, the results indicated the existence of a significant relationship between some components of emotional intelligence and some areas of moral skills, which is consistent with the present study (20). However, there was no significant relationship between the total score of emotional intelligence and the total score of moral skills, which was contrary to the findings of the present study and is probably due to different individual characteristics. Also, the total score of students' moral



skills had no significant relationship with any of the demographic characteristics, which is also the case in the present study. In the mentioned study, married students had a significantly better score in the field of moral courage, and in the present study, even though the score of moral courage was higher in married students, the difference with single students was not significant, which is probably due to is the small sample size in the present study ( $P>0.05$ ). In the study of Binandeh et al, 2019, which was conducted in order to determine the relationship between emotional intelligence and the academic performance of general dental students, it was reported that the total emotional intelligence score of girls is higher than that of boys, which is consistent with the results of the present study (30). Also, there was a significant relationship between the sub-scales of self-awareness, self-esteem, happiness and academic performance, and considering that better education leads to better performance and also higher moral skills, the results of the mentioned study can be seen as confirming the present study. Higher emotional intelligence leads to better education and higher performance, and as a result, more moral skills. In the study of Alizadeh et al., 2018, which was conducted in order to investigate the relationship between moral intelligence and emotional intelligence with the moral behavior of the employees of the intellectual development center for children and adolescents in Kermanshah province, the results showed that between the components of moral intelligence and emotional intelligence with the moral behavior of the employees of the education center There was a significant and direct correlation between the thinking of children and adolescents in Kermanshah province, these results indicate the role of emotional intelligence in moral skills, which is consistent with the findings of the present study (31). In the study of Taylan et al, 2021, which was conducted in order to investigate the relationship between caring behaviors and moral skills, emotional intelligence and descriptive characteristics in nurses of special care units. The results showed that moral skill and emotional intelligence are related to high care behaviors in special care nurses, which is in a way consistent with the findings of the present study

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- [32]. Competence in ethics requires an understanding of its accepted rules and the existence of this qualification is necessary for all employees, it is necessary to consider emotional intelligence as a fundamental factor of success in the path of life and mental health, which plays an important role in ethical decisions [33-35].

## 6. Conclusion

The results of the present study showed that students with higher emotional intelligence have higher values of moral skills. Since the higher moral skills are also effective on the performance of people in any profession, including dentistry, and as a result, it leads to the improvement of performance in these people. Therefore, it is suggested to include workshops related to emotional intelligence in the educational courses of students, especially dental students, so that this ability increases in students.

## Ethical Considerations

Compliance with ethical guidelines

IR.ABZUMS.REC.1399.320

## Funding

None.

## Authors' contributions

Solmaz Jamdar: Conceptualization, Methodology, Writing - Review & Editing Zakiyeh Donyavi: Writing - Original Draft, Data Curation, Supervision.

## Conflict of Interests

The authors declare no conflict of interest.

## Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

## Acknowledgments

The authors wish to appreciate the Clinical Research Development Unit of Dental School, Alborz University of Medical Sciences, for funding and technical support.

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