

Association between Decision-Making Styles and Socioemotional Skills in Dental Students

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Abstract

Background and Aim: In dentistry, acquiring knowledge, communication skills, and professional manual skills requires a favorable learning environment. This study aimed to investigate the association of decision-making styles and socioemotional skills in senior dental students (5th semester and higher) of Tehran Islamic Azad University.

Materials and Methods: This cross-sectional study evaluated 149 senior dental students. Their demographic information was collected, and they were asked to fill out the Melbourne Decision Making questionnaire (MDMQ), and Survey on Social and Emotional Skills (SSES) questionnaire to assess their social-emotional skills. The validity and reliability of the instruments were evaluated. Descriptive statistics and correlations were calculated between the scores of the MDMQ and SSES subscales, and P values < 0.05 were considered significant.

Results: A significant correlation was observed between SSES and MDMQ scores with a rho coefficient of 0.193 (P<0.018). Assertiveness presented positive correlations with MDMQ with a rho coefficient of 0.252 (P<0.002). A positive correlation was also found between tolerance skills and sociability skills with correlation coefficients of rho=0.145 and rho=0.141, respectively (P<0.00). Significant correlations were observed between decision-making styles and the subscales of creativity (P<0.021) and trust skills (P<0.04), respectively.

Conclusion: A significant relationship was found between dental students' socioemotional skills and decision-making styles. Training that involves creativity and trust skills might be crucial for future decision-making by dental students.

Keywords: Clinical Decision-Making; Students; Dental; Social Skills; Emotions

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Introduction

Dentists must continuously update their skills in order to improve their clinical judgment and treatment planning (decision-making) skills [1]. Physical examination, taking a medical history,

adequate knowledge, and relevant statistical data along with reasoning are required for clinical judgment and proper decision-making [2-5]. Clinical judgment and decision-making are challenging in both medicine and dentistry [4, 6].

Dental clinicians have variable levels of clinical judgment and decision-making skills [7, 8]. Communication with patients can also affect the clinical judgment and dental decision-making of dentists. Clinical judgment and decision-making skills of dentists can also affect the patients' attention to specific details and influence the overall understanding of patients. There are several ways to inform the patients about the prevalence and severity of the risks associated with any treatment. Descriptions provided by dental practitioners about a particular condition can lead to different patient judgments and decisions [9,10]. Despite the necessity of adherence to evidence-based guidelines regarding clinical judgment and decision-making, they are not applicable to all patients and all situations [11, 12].

In dentistry, like any other profession, acquiring knowledge, and communication and manual skills requires a favorable environment for learning. Continuous evaluation, and immediate constructive feedback are imperative in this process [13,14]. The importance of socio-emotional skills and decision-making styles has been well documented for a high-quality clinical practice. Socio-emotional skills in clinical settings, such as palliative care and chronic diseases, have been previously evaluated [15]. However, such skills have been less commonly evaluated in dental students [16,17]. Socioemotional and decision-making skills are imperative for dental students. Considering the interdisciplinary educational curricula of dental students, it is imperative to assess their socioemotional and decision-making profiles. Thus, this study aimed to investigate the association of decision-making styles and socioemotional skills in senior dental students (5th semester and higher) of Tehran Islamic Azad University.

Materials and Methods

This cross-sectional study evaluated 149 senior dental students. The study was approved

by the ethics committee of the university (IR.IAU.DENTAL.REC.1401.032). The study population included 5th semester and higher dental students of Tehran Islamic Azad University of Medical Sciences in the academic year 2022-2023, who had successfully passed the comprehensive basic science examination. The minimum required sample size was calculated to be 149, which included equal number of students from different semesters using the Multiple Regression Power Analysis feature of SPSS 27, considering $\alpha=0.05$, $\beta=0.2$, and number of independent variables equal to 3 with $R^2=0.07$ [18]. The necessary permissions were obtained from the Office of Research and Technology of the university. The students were ensured about the confidentiality of their information. Two instruments were used in this study for data collection. The first one was the Survey on Social and Emotional Skills (SSES) questionnaire [19]. The Melbourne Decision-Making Questionnaire (MDMQ) was also used to assess how individuals approach decision situations [20,21].

The two English questionnaires namely the SSES and the MDMQ were first translated to Persian by an expert translator fluent in both Persian and English, and were then back-translated to English by another expert. Then a third expert, fluent in English, compared the original questionnaire with the version translated from Farsi to ensure accuracy of the translation. Then the expert panel and test-retest methods were used to assess the validity and reliability of the questionnaires. The quantitative content validity and Lawshe method were used to assess the qualitative validity by the expert panel method [22]. The questionnaires' content validity index and content validity ratio were calculated. It should be noted that the minimum number of the expert panel was 10 people. To assess the reliability, a group of students ($n=20$) were selected and asked to fill out the questionnaire, and then 2 weeks later, the same students were asked to fill

out the questionnaire again. The Cronbach's alpha was calculated to be 0.75, which indicated optimal reliability of the questionnaire, since it was above 0.7. Sociodemographic information of the participants including gender, marital status, dental work experience outside the university, and their semester (5th to 12th) were recorded [21].

The SSES instrument has subscales of target competencies. Each subscale consists of eight items corresponding to eight randomly reorganized questions. The final full version of the SSES has 12 sets of eight items (totaling 96 items). Each item is evaluated on a 5-point Likert scale: one corresponds to "strongly disagree" and 5 to "strongly agree". In this study, seven subscales were selected, including assertiveness, cooperation, creativity, empathy, sociability, tolerance, and trust. For each of the selected subscales, after inverting the values associated with items ASS5, COO4, CRE3, CRE7, CRE8, EMP8, SOC4, TOL6, and TRU5, a final score was calculated as the sum of the relevant items. The final score of each subscale ranged from 8 to 40 points, and higher values indicated a higher grade in the evaluated subscale. The response time limit for this instrument was expected to be a maximum of 30 minutes [18,19].

The MDMQ evaluates the attitude, behavior, and thoughts about decision-making by assessing the respondent's rating to 22 statements using a 3-point Likert scale of 'true for me' (score 3), 'sometimes true' (score 2) and 'not true for me' (score 1). The 22 statements of MDMQ are organized into four subscales, each related to one of the decision-making styles described by Janis and Mann's conflict theory [23]. The four subscales are vigilance (six statements), buck-passing (six statements), hypervigilance (five statements), and procrastination (five statements). Vigilance indicates a careful and planned approach to decision-making, while hypervigilance is relevant to impulsive and unplanned actions

when faced with a decision-making situation. Moreover, procrastination and buck-passing are associated with a defensive and evasive attitude towards decision-making [24]. A final score was calculated for each subscale as the sum of the corresponding statements. The final score ranged from six to 18 points for vigilance and buck-passing. The final score was between five and 15 points for hypervigilance and procrastination. Higher values indicated a higher degree on the assessed subscale.

Statistical analysis:

The scores obtained from SSES and MDMQ were compared using one-way ANOVA, and P values <0.05 were considered significant. The Spearman's correlation coefficient (rho) was also calculated. A polynomial regression model was used to determine the effect of socioemotional skills on the decision-making style.

Results

In total, 149 students completed the questionnaires. Table 1 presents the sociodemographic information of dental students.

Table 1. Sociodemographic information of dental students (n=149)

Variable	Category	Number (%)
Gender	Female	82 (55.04)
	Male	67 (44.96)
Marital status	Single	140 (94)
	Married	9 (6)
Dental work experience outside the university	Work experience	21 (14)
	No work experience	128 (86)
Semester	5 th semester	8 (5.3)
	6 th semester	12 (8)
	7 th semester	18 (12.1)
	8 th semester	19 (12.7)
	9 th semester	9 (6)
	10 th semester	10 (6.7)
	11 th semester	23 (15.5)
12 th semester	50 (33.5)	

Table 2 shows the frequency, mean, and total score of the selected subscales of SSES.

Table 2. Score of different SSES subscales (n=149)

Subscale	Minimum score	Maximum score	Mean \pm SD
Assertiveness	8	38	22.48 \pm 6.03
Cooperation	8	35	15.52 \pm 4.7
Creativity	7	31	18.26 \pm 3.73
Empathy	8	28	17.31 \pm 4.41
Sociability	10	31	18.94 \pm 4.62
Tolerance	8	25	18.93 \pm 5.01
Trust	10	32	20.59 \pm 4.45
Total score	41.67	86.67	64.22 \pm 8.99

SD: Standard deviation

Decision-making styles:

The correlation between the SSES subscales is presented in Table 3.

Table 3. Correlations between socio-emotional skills (SSES) subscales

	Correlation	p-value
Assertiveness	0.252	0.002
Creativity	0.104	0.208
Empathy	0.031	0.803
Sociability	0.111	0.187
Tolerance	0.141	0.086
Trust	0.145	0.078
Cooperation	0.040	0.625
Total score	0.193	0.018

Correlation is significant at $P \leq 0.05$.

The scores obtained from the MDMQ and SSES were reported as mean \pm standard deviation for each questionnaire. For the MDMQ questionnaire, the minimum score obtained was 30.08 and the maximum score was 76.17, with a mean score of 51.64 \pm 8.36. In the SSES questionnaire, the minimum score was 41.67,

and the maximum score was 86.67, with a mean score of 64.22 \pm 8.99. According to Table 4, the correlation between the MDMQ and SSES was significant ($\rho=0.193$, and $P=0.018$). The correlation between assertiveness and MDMQ was also significant ($\beta=0.252$, $P=0.002$). The correlation between the subdomain of sociability and MDMQ was insignificant ($\rho=0.141$, $P=0.086$). The correlation between tolerance and MDMQ was insignificant ($\rho=0.145$, $P=0.078$). Other correlations were also insignificant ($P>0.05$).

The mildest significant correlation between MDMQ and the subscales of SSES was found in sociability with a correlation coefficient of $\rho=0.141$. However, the strongest significant correlation between MDMQ and the subscales of SSES was found for assertiveness with a correlation coefficient of $\rho=0.252$. The results indicated the strongest correlations between MDMQ and the subdomains of assertiveness, tolerance, and sociability, in decreasing order.

Discussion

The students who participated in this study demonstrated a higher percentage of scores and a more significant correlation in the subscales of assertiveness, tolerance, and sociability skills, in decreasing order. In a study conducted by Silva et al. [25], students demonstrated higher scores in empathy, cooperation, and tolerance skills, indicating their kindness and caring about others' well-being. Similar to the present study, Silva et al. [25] reported high assertiveness and tolerance scores.

Table 4. Correlations between socio-emotional skills (SSES) and decision-making styles (MDMQ)

Instrument	Minimum score	Maximum score	Mean \pm SD	Correlation	p-value
SSES	41.67	86.67	64.22 \pm 8.99	0.193	0.018
MDMQ	30.08	76.17	51.64 \pm 8.36		

Correlation is significant at $P \leq 0.05$.

However, they reported good scores of empathy and cooperation in their study, but the present study found no significant relationship between these two subscales and decision-making styles. The assertiveness skill is characteristic for hard-working students and leaders who pay attention to the needs of others. This skill is essential for clinical judgment and decision making (treatment planning). In other words, clinical judgment and decision-making require investigation, reasoning, and analysis that include many factors, such as information acquired through physical examination and taking a medical history, previous clinical experiences, knowledge, and relevant statistical data [25]. A study conducted by Hannah et al. [26] showed that students with higher social skills acquired higher performance scores and were more skillful in taking a medical history from patients. The present study suggests that a consultation skills course can increase the students' ability to communicate with patients, manage anxiety, identify ethical issues, and recognize significant psychosocial issues leading to more accurate diagnosis and treatment planning [27].

Victoroff and Boyatzis [28] investigated the relationship between emotional intelligence and the clinical performance of dental students. They concluded that emotional intelligence may be a significant predictor of clinical performance, which has important implications for students' competency during dental school. Similar to their study, the present study investigated creativity, trustworthiness, and adaptability (tolerance) skills. However, sociability, empathy, and cooperation skills were not examined [28].

Training that includes socioemotional skills may be essential for the decision-making style of future health professionals. The present study did not find a significant relationship between the sociability subscale and decision-making style. Participants included in the present study

had a moderate level of emotional intelligence which had a significant correlation with decision-making styles. In a study by Partido and Stafford [29] the subscales of self-control, motivation, and self-confidence were the predictors of overall academic performance of students. The subscales of social competence (sociability), empathy, and motivation were found to be the predictors of clinical performance. These results show that paying more attention to development of emotional intelligence may lead to improved academic and clinical performance of dental students. The current results regarding the skills of assertiveness, tolerance, and sociability were consistent with the studies by Silva et al, [25], Hannah et al, [26] Victoroff and Boyatzis [28], and Partido and Stafford [29].

Unlike the present study, Feller et al. [30] investigated the importance of clinical decision-making in dental students, and concluded that development of clinical judgment and decision-making skills are complex and requires the clinicians to correlate information from their own experience, from discussions with colleagues, from attending professional meetings, conferences, and congresses, and from studying the current literature.

It should be noted that the sample size, field of study, specialties, and differences in study populations and cultures can be the reasons for the difference in the results. In the present study, the scores and the correlation coefficients of the skills of cooperation and empathy were in the medium range, highlighting the need for their improvement [30].

The tolerance skill score was high in the present study, which indicates that students tend to care about the well-being of their fellows and patiently offer help and solve their problems. This skill leads to personal growth. Moreover, such individuals can accept different values, attitudes, and cultures with respect. The

skill of tolerance is essential to make a decision (treatment planning) and also for a correct clinical judgment [31].

The skills of cooperation and empathy indicate how much students tend to be kind to each other and help each other in their jobs and responsibilities. At higher levels and in professional careers, such cooperation and empathy can lead to better decision-making (treatment planning), clinical judgment, and scientific growth of the medical community members. If there is a weakness in this area, it must be improved and fixed [25].

In the present study, the creativity and trust skills did not obtain acceptable scores and had a low correlation coefficient. As a result, it is necessary to find the primary cause of this finding and try to improve it. The creativity skill can be considered as thinking differently. A creative person creates a new idea from an old idea or even suggests a new idea or product [28].

Concerning the skill of trust, students in educational and academic environments must create a happier and healthier environment by trusting each other. As a result, since the students did not acquire a good score in this skill, it is important to improve it for better decision-making (treatment planning) and clinical judgment [29]. The creativity skills of students should also be improved to create a foundation for the sense of trust in them. In the context of health care, it is crucial to consider various perspectives in development of leadership and creative thinking because these socioemotional skills are indicative of improved performance, favorable occupational attitudes, and enhanced team work. Moreover, there is a pressing need for significant advancements in training programs aimed at enhancing decision-making skills among future health professionals [28]. The target population of the present study was selected from one faculty only. Thus, generalization of the results to different

populations of students should be done with caution. Also, the students completed the questionnaires as self-report, which may cause bias and affect the answers. Face-to-face interviews with students were the main strength of the present study.

Conclusion

According to the present findings, there was a significant relationship between the socioemotional skills and decision-making styles of dental students. Moreover, training courses for strengthening of socioemotional skills should be held continuously and regularly to enable better communication and interaction among dental students.

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Conflict of interest

The authors declare no conflict of interests.

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