ORIGINAL ARTICLE

Investigation of the Knowledge, Attitudes and Skills of Dental Students towards the Principles of Professional Ethics

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Background: In the health system, dentists form a large group of employees providing health services, and their professional character, including familiarity with the principles of professional ethics and their compliance, plays an important role in fulfilling the mission of the health system. This study was conducted with the aim of investigating the knowledge, attitudes, and skills of the final-year dental students regarding the principles of professional ethics.

Method: This descriptive and analytical study was conducted on 68 final-year students of Aja and Shahed dental faculties in Tehran in 2024. The survey tool included three questionnaires related to knowledge, attitude and skills about professional ethics principles, whose reliability and validity have been confirmed. Data analysis was done using statistical and inferential tests via SPSS 24 software.

Results: The mean age of 68 students participating in this study was 24.7 ± 2.23 years and their mean grade point average was 16.39 ± 0.8. The mean scores for knowledge, attitude and skill of students toward professional ethics were 9.38 ± 2.42, 105.38 ± 12.25 and 15.51 ± 3.69 respectively. There was a significant correlation between the age variable and the average knowledge of students ($p = 0.016$).

Conclusion: The findings of this study showed the moderate level of students' knowledge and the good level skill and attitude of students toward professional ethics principles. Due to the importance of professional ethics in the practice of dentists, it is recommended to pay attention to the topics of professional ethics in the curriculum of students.

Keywords: Attitude, Dental students, Knowledge, Professional ethics, Skill

دراسة حول معارف واتجاهات ومهارات طلاب طب الأسنان تجاه مبادئ أخلاقيات المهنة

الخلفية: في النظام الصحي، يشكل أطباء الأسنان مجموعة كبيرة من الموظفين الذين يقدمون الخدمات الصحية، وتلعب شخصيتهم المهنية، بما في ذلك الإلمام بمبادئ أخلاقيات المهنة والامتثال لها، دورًا مهمًا في تحقيق مهمة النظام الصحي. أجريت هذه الدراسة بهدف التحقيق في معارف ومواقف ومهارات طلاب طب الأسنان في السنة النهائية فيما يتعلق بمبادئ أخلاقيات المهنة.

الطريقة: أجريت هذه الدراسة الوصفية والتحليلية على ٦٨ طالبًا في السنة النهائية من كليتي طب الأسنان آجا وشاهد في طهران عام ٢٠٢٤. تضمنت أداة المسح ثلاثة استبيانات تتعلق بالمعرفة والمواقف والمهارات المتعلقة بمبادئ أخلاقيات المهنة، والتي تم التأكد من موثوقيتها وصلاحيتها. تم إجراء تحليل البيانات باستخدام الاختبارات الإحصائية والاستدلالية عبر برنامج SPSS 24.

النتائج: كان متوسط عمر ٦٨ طالبًا شاركوا في هذه الدراسة ٢٤,٧ ± ٢,٢٣ عامًا وكان متوسط معدل التراكمي لديهم ١٦,٣٩ ± ٠,٨. بلغ متوسط درجات معرفة الطلاب ومواقفهم ومهاراتهم تجاه أخلاقيات المهنة ٩,٣٨ ± ٢,٤٢، و١٠٥,٣٨ ± ١٢,٢٥، و١٥,٥١ ± ٣,٦٩ على التوالي. وكان هناك ارتباط ذو دلالة إحصائية بين متغير العمر ومتوسط معرفة الطلاب ($p = 0.016$).

الخلاصة: أظهرت نتائج هذه الدراسة مستوى متوسطًا من معرفة الطلاب ومستوى جيدًا من مهاراتهم ومواقفهم تجاه مبادئ أخلاقيات المهنة. ونظرًا لأهمية أخلاقيات المهنة في ممارسة أطباء الأسنان، يُوصى بالاهتمام بمواضيع أخلاقيات المهنة في مناهج الطلاب.

الكلمات المفتاحية: الموقف، طلاب طب الأسنان، المعرفة، أخلاقيات المهنة، المهارة

بررسی دانش، نگرش، و مهارت‌های دانشجویان دندانپزشکی نسبت به اصول اخلاق حرفه‌ای

زمینه و هدف: در نظام سلامت، دندانپزشکان گروه بزرگی از کارکنان ارائه دهنده خدمات بهداشتی را تشکیل می‌دهند و شخصیت حرفه‌ای آنها از جمله آشنایی با اصول اخلاق حرفه‌ای و رعایت آنها، نقش مهمی در انجام رسالت نظام سلامت دارد. این مطالعه با هدف بررسی دانش، نگرش و مهارت‌های دانشجویان دندانپزشکی دو سال آخر در مورد اصول اخلاق حرفه‌ای انجام شد.

روش: این مطالعه توصیفی و تحلیلی بر روی ۶۸ دانشجوی سال آخر دانشکده‌های دندانپزشکی آجا و شاهد تهران در سال ۱۴۰۳ انجام شد. ابزار نظرسنجی شامل سه پرسشنامه مربوط به دانش، نگرش و مهارت در مورد اصول اخلاق حرفه‌ای بود که پایایی و روایی آنها تأیید شده است. تجزیه و تحلیل داده‌ها با استفاده از آزمون‌های آماری و استنباطی و نرم‌افزار SPSS 24 انجام شد.

یافته‌ها: میانگین سنی ۶۸ دانشجوی شرکت کننده در این مطالعه ۲۲۳ ± ۲۴/۷ سال و میانگین معدل آنها ۰/۸ ± ۱۶/۳۹ بود. میانگین نمرات دانش، نگرش و مهارت دانشجویان در مورد اخلاق حرفه‌ای به ترتیب ۲/۴۲ ± ۹/۳۸، ۱۲۲۵ ± ۱۰۵/۳۸ و ۳/۶۹ ± ۱۵/۵۱ بود. بین متغیر سن و میانگین دانش دانشجویان همبستگی معناداری وجود داشت (p = ۰/۰۱۶).

نتیجه گیری: یافته‌های این مطالعه نشان دهنده سطح متوسط دانش دانشجویان و سطح خوب مهارت و نگرش دانشجویان در مورد اصول اخلاق حرفه‌ای بود. با توجه به اهمیت اخلاق حرفه‌ای در عملکرد دندانپزشکان، توصیه می‌شود مباحث اخلاق حرفه‌ای در برنامه درسی دانشجویان مورد توجه قرار گیرد.

واژه های کلیدی: نگرش، دانشجویان دندانپزشکی، دانش، اخلاق حرفه‌ای، مهارت

پیشہ ورانہ اخلاقیات کے اصولوں کی طرف دانتوں کے طلبہ کے علم، رویوں اور مہارتوں کی تحقیقات

پس منظر: صحت کے نظام میں، دندان ساز صحت کی خدمات فراہم کرنے والے ملازمین کا ایک بڑا گروپ بناتے ہیں، اور ان کا پیشہ ورانہ کردار، بشمول پیشہ ورانہ اخلاقیات کے اصولوں سے واقفیت اور ان کی تعمیل، صحت کے نظام کے مشن کو پورا کرنے میں اہم کردار ادا کرتا ہے۔ یہ مطالعہ پیشہ ورانہ اخلاقیات کے اصولوں سے متعلق آخری سال کے ڈینٹل طلباء کے علم، رویوں اور مہارتوں کی چھان بین کے مقصد سے کیا گیا تھا۔

طریقہ: یہ وضاحتی اور تجزیاتی مطالعہ ۲۰۲۳ میں تہران میں اجا اور شہید ڈینٹل فیکلٹیز کے ۶۸ آخری سال کے طلباء پر کیا گیا تھا۔ سروے کے آلے میں پیشہ ورانہ اخلاقیات کے اصولوں کے بارے میں علم، رویہ اور مہارت سے متعلق تین سوالنامے شامل تھے، جن کی وشوسنییتا اور درستگی کی تصدیق کی گئی ہے۔ اعداد و شمار کا تجزیہ SPSS 24 سافٹ ویئر کے ذریعے شماریاتی اور تخمینی ٹیسٹوں کا استعمال کرتے ہوئے کیا گیا تھا۔

نتائج: اس مطالعہ میں حصہ لینے والے ۶۸ طلباء کی اوسط عمر ۲۳٫۷ ± ۲٫۲۳ سال تھی اور ان کا اوسط گریڈ پوائنٹ اوسط ۱۶٫۳۹ ± ۰٫۸ تھا۔ پیشہ ورانہ اخلاقیات کی طرف طلباء کے علم، رویہ اور مہارت کے اوسط اسکور بالترتیب ۹٫۳۸ ± ۲٫۳۲، ۱۰۵٫۳۸ ± ۱۲٫۲۵ اور ۱۵٫۵۱ ± ۳٫۶۹ تھے۔ عمر کے متغیر اور طلباء کے اوسط علم کے درمیان ایک اہم ارتباط تھا ($p = 0.016$)۔

نتیجہ: اس مطالعے کے نتائج نے طلباء کے علم کی معتدل سطح اور پیشہ ورانہ اخلاقیات کے اصولوں کی طرف طلباء کی اچھی سطح کی مہارت اور رویہ کو ظاہر کیا۔ دندان سازوں کی مشق میں پیشہ ورانہ اخلاقیات کی اہمیت کے پیش نظر، طلباء کے نصاب میں پیشہ ورانہ اخلاقیات کے موضوعات پر توجہ دینے کی سفارش کی جاتی ہے۔

کلیدی الفاظ: رویہ، دانتوں کے طلباء، علم، پیشہ ورانہ اخلاقیات، مہارت

INTRODUCTION

Ethics is a broad term that covers the study of the nature of morals and the certain moral options to be made. It is an innate and inseparable part of clinical medicine. The four fundamental principles of ethics include beneficence, nonmaleficence, autonomy, and justice (1).

Professional ethics has become one of the basic components of skills, which aims to respond to the ethical issues of a profession and determine the behavior of individuals and groups in each profession (2). In the medical community, the discussion of professional ethics is very important and has been widely discussed under the title of medical ethics. Medical ethics surveys ideas, presumptions, beliefs, attitudes, emotions, and arguments behind medico-moral decisions (3, 4)

The field of dentistry is also one of the well-known branches of medical science, and therefore ethical principles should be taken into account in this field. While the characteristics of this profession demand compliance with ethical rules, public concerns relating to ethical issues in the field are increasing (5). Nowadays, the ethical issues facing dentists are on the rise and become more complicated than those they have encountered previously (6). Thus, understanding of ethics and patient safety is of principal importance to the dentists. Ethics is a crucial part of dentistry because of its scope in education, preventive, therapeutic, cosmetic clinical conditions and dental practice(7).

During the past years, some studies have been conducted on the level of knowledge and attitude of dentists regarding the principles of professional ethics. The researchers recommended paying attention and considering professional ethics in students' curriculum. These researchers suggested that the bioethics course be recommended at the beginning of the postgraduate education program (8, 9). Moral qualities of medical professionalism have a strong relationship with ethical training. The practical application of ethical standards in clinical settings requires special skills and expertise. Studies have revealed that medical students have a restricted understanding of ethics and receive minimal education on the various moral issues relevant to medical treatment. There is a necessity for including a structured format for biomedical ethics education in the undergraduate curriculum, and medical students have to become well equipped to resolve ethical problems (7, 10-13). Recent investigations into bioethical awareness among healthcare professionals have revealed a critical disparity: while foundational principles are often recognized, adherence and comprehension vary significantly when confronted with complex, real-world dilemmas. This variation is influenced by factors such as professional role, experience, and the evolving nature of ethical challenges in modern practice (4). These findings underscore a pressing need to move beyond theoretical knowledge and towards developing practical ethical decision-making skills. This is particularly crucial in dental education, where graduates must navigate a landscape of unique pressures, from patient autonomy in treatment choices to ethical business practices. Echoing calls from contemporary research, there is a clear demand for more engaging, interactive, and applied ethics education to better equip future healthcare providers with the competence to manage these nuanced scenarios (11).

With this background, this study was aimed to evaluate the knowledge, attitude, and skill of dental students on the principles of professional ethics.

METHODS

This descriptive-cross-sectional study was conducted in Tehran, Iran in 2024. The statistical population included students of the dental faculties of Aja and Shahed, , who were included in the study through a census. The inclusion criteria were informed consent and being a student in the last two years of dentistry. The exclusion criteria were unwillingness to participate in the study and incomplete responses to the questionnaires.

We used three previously validated questionnaires. Knowledge of ethical principles was investigated by an 18-question ethical principles questionnaire. This questionnaire was designed considering the ethical principles of the American Dental Association (ADA), which are internationally acceptable principles in dentistry, and its validity and reliability had been already confirmed by Bahrani et al. in Iran (14). The questionnaire assessed the five ADA principles (patient autonomy, non-maleficence, beneficence, justice, and veracity). Each question had one correct answer (scored 1) based on these principles. The average score obtained from the questionnaire was classified as follows: 0-5.9 (poor), 6-11.9 (moderate), and 12-18 (good).

Attitude to professional ethics was evaluated by a 36-item questionnaire, which had been already compiled by Karampourian and colleagues and its reliability and validity had been confirmed (15). In this study, the reliability of the questionnaire was re-checked and confirmed with Cronbach's alpha of 0.80. The questionnaire is based on a 5-point Likert scale: with a score of 4 (completely agree), 3 (agree), 2 (no opinion), 1 (disagree), 0 (completely disagree) in positive questions, and vice versa in negative questions. The obtained score of 144 to 116 is considered as a very good attitude, 115 to 87 as a good attitude, 86 to 58 as a moderate attitude, 57 to 29 as a poor attitude, and 28 to 0 as a very poor attitude.

Moral skill was assessed using a 16-question abbreviated “Moral Skill Inventory” questionnaire,

which had been already investigated by Afshar et al. in Iran and its validity and reliability had been confirmed. This questionnaire includes four fields and each field contains 4 questions with 3 options; the first 4 questions belong to the field of moral sensitivity, the second 4 questions to moral reasoning, the third 4 questions to moral integrity, and the last 4 questions to the field of moral courage. Option A has 2 marks, option B has 1 mark, and option C has no mark. Thus, the highest score a person could get is 32 and the lowest score is 0. The obtained score of 24 to 32 is considered as a very good skill, 16 to 23.99 as a good skill, 8 to 15.99 as a moderate skill, and 0 to 7.99 as a poor skill (16).

The data obtained from the study were entered into SPSS24 software and subjected to statistical analysis. The analysis was carried out in two descriptive (mean and standard deviation) and analytical parts according to non-normal distribution of data using Mann-Whitney and Spearman's correlation tests. In all the tests, the significance level was considered less than 0.05.

RESULTS

Based on the analysis of demographic variables, 68 students (42 males and 26 females) participated in this study. The mean age of the participants was 24.7 ± 2.23 years, and their mean grade point average (GPA) was 16.39 ± 0.8. The mean knowledge, attitude and skill of students toward principles of professional ethics were 9.38 ± 2.42, 105.38 ± 12.25 and 15.51 ± 3.69, respectively (Table 1). The average score of students' moral skills in the areas of moral sensitivity, moral reasoning, moral honesty, and moral courage were 4.86 ± 1.91, 3.20 ± 1.58, 3.91 ± 1.35, and 3.52 ± 1.68, respectively.

The lowest score obtained from the ADA ethical principles questionnaire was 3 and the highest score was 15. The highest percentage of correct answers were related to the ninth (82.4%), eighth and fourteenth (80.9%), and sixth (79.4%) items, respectively. The thirteenth (88.2%), first (79.4%), and tenth (70.6%) items, respectively, accounted for the highest percentage of wrong answers (Table 2).

There was a significant difference between the mean of students' knowledge and the variable of the faculty of study, but there was no significant difference between the variables of gender, year of entering the university and marital status based on the results of the Mann-Whitney test (Table 3).

There was no significant difference between the mean attitude of students toward professional ethics and the variables of gender, faculty of study, year of entering the university and marital status based on the results of the Mann-Whitney test, $p > 0.05$ (Table 4).

There was no significant difference between the average scores of students' moral skill and the variables of gender, faculty of study, year of entering the university and marital status based on the results of the Mann-Whitney test, $p > 0.05$ (Table 5).

There was a significant correlation between the variable of age and the mean knowledge of students based on the results of the Spearman's correlation test ($p = 0.016$, $r = 0.384$), but there was no significant correlation between the variable of age and the mean of students' attitude and moral skills ($p > 0.05$). According to Spearman's correlation test, there was no significant correlation between the variable of GPA and the mean of students' knowledge, attitude, and moral skills ($p > 0.05$).

DISCUSSION

The present study was conducted with the aim of investigating the knowledge, attitude, and moral skill of dental students in two dental faculties, AJA and Shahed, in Tehran. In this research, the mean scores of the students indicated the good level of their attitude and skill towards professional ethics and the moderate level of their knowledge regarding professional ethics principles. In Jang et al.'s study, the knowledge and attitude of 330 dental students and professors regarding medical ethics were investigated. The results of their study showed that the participants were aware of the importance of professional ethics and had an average level of awareness and attitude towards medical ethics (9). In another study conducted by Janakiram and Gardens to compare the knowledge and attitude of newly graduated physicians and dentists in India, physicians had higher knowledge and attitude towards the principles of professional ethics than dentists (17). In the study by Nayak et al., most

Table 1. The mean of students' knowledge, attitude, and skill toward professional ethics

Variable	Number	Minimum score	Maximum score	Mean (SD)	Level
Knowledge	68	3	15	9.38 (2.41)	Moderate
Attitude	68	76	129	105.38 (12.25)	Good
Moral skill	68	7	26	15.51 (3.69)	Good

Table 2. Frequency distribution of students' correct and wrong answers to the 18-item ADA* questionnaire

N	Question	Correct answers N (%)	Wrong answers N (%)
1	The dentist can emphasize the risks of not getting treatment to encourage the patient to undergo dental treatment.	14 (20.6)	54 (79.4)
2	In carrying out professional dental activities, I try to help improve the oral and dental health of society through my treatment.	34 (50)	34 (50)
3	In order to maintain the health of the patients, I provide the necessary training to a person and use his cooperation.	42 (61.8)	26 (38.2)
4	When I want to transfer the patient information to another doctor, I get a written permission from the patient.	29 (42.6)	39 (57.4)
5	When selecting the patient and performing the treatment, the characteristics of the patient such as gender and generality are not important to me.	33 (48.5)	35 (51.5)
6	In the case of a patient whose previous treatments were wrong or incomplete, I inform the patient of the condition that has occurred in his mouth and teeth without commenting on the previous dentist.	54 (79.4)	14 (20.6)
7	When explaining the treatment process to the patient, I explain the treatment steps completely.	42 (61.8)	26 (38.2)
8	Before performing the treatment process, I state the full cost of the treatment to my patient.	55 (80.9)	13 (19.1)
9	If a patient comes for a treatment that is not within my scope of ability and expertise, I refer the patient to the relevant specialist.	56 (82.4)	12 (17.6)
10	What is your approach when faced with new therapeutic methods? I participate in the training workshop on the new method and use it in my work.	20 (29.4)	48 (70.6)
11	When dealing with a patient with a chronic infectious disease (such as hepatitis or AIDS), I perform therapeutic procedures with caution and in compliance with infection control principles.	27 (39.7)	41 (60.3)
12	If an emergency patient comes, I do all the necessary treatment measures for him.	26 (38.2)	42 (61.8)
13	If I am referred by a legal authority to testify about the illegal or unethical practice of my co-worker, I testify without informing the offending co-worker.	8 (11.8)	60 (88.2)
14	If I come across a condition during treatment that I do not know enough about how to treat, I consult with my specialist colleague.	55 (80.9)	13 (19.1)
15	If I find out that an infectious disease has been transmitted to the patient during the treatment I have done, in addition to informing the patient, I undertake responsibility for follow-up and related services.	41(60.3)	27 (39.7)
16	My approach and behavior with my patient is in a way that will gain his trust.	43 (63.2)	25 (36.8)
17	Before performing the treatment, I explain all the possible methods to my patient and leave the choice completely to him.	29 (42.6)	39 (57.4)
18	When referring a patient to a colleague, I only give the information that is necessary for future treatment to my colleague.	30 (44.1)	38 (55.9)

*ADA: American Dental Association

dentists had sufficient knowledge about ethical issues related to the profession (18). Elsheikh et al. in their study concluded that the level of perception of 75% of 307 Sudanese final year dental students regarding professional ethics training in dentistry was satisfactory. They also stated that the need to hold training professionalism courses in dental schools is increasing (19). In line with the present study, Elyassi Gorji et al. investigated the attitude of 106 students majoring in the last three years of dentistry in Sari regarding professional ethics using the Karampourian's questionnaire. They concluded that the attitude of the students was good (mean score = 104.97 ± 9.87) (3). Charon and Fox also reported in their study that dentists' moral sensitivity has declined after graduation (20).

In the present study, the comparison of the knowledge, attitude, and skill scores of dental students based on some demographic information such as age and faculty of study showed a

Table 3. Analysis of demographic variables and mean knowledge of students

Variable		N (%)	Mean (SD)	p-value
Gender	Male	42 (61.79)	9.43 (2.76)	0.924
	Female	26 (38.26)	9.31 (1.76)	
Faculty	Aja	36 (52.94)	10.06 (2.39)	0.024
	Shahed	32 (47.05)	8.63 (2.24)	
Year of entering the university	2018	28 (41.18)	9.82 (2.63)	0.287
	2019	40 (58.82)	9.05 (2.22)	
Marital status	Single	58 (85.29)	9.34 (2.46)	0.587
	Married	10 (1.47)	9.60 (2.22)	

Table 4. Analysis of demographic variables and mean attitude of students

Variable		N (%)	Mean (SD)	p-value
Gender	Male	42 (61.79)	103.67 (14.08)	0.135
	Female	26 (38.26)	108.15 (8.00)	
Faculty	Aja	36 (52.94)	105.44 (12.53)	0.917
	Shahed	32 (47.05)	105.44 (12.13)	
Year of entering the university	2018	28 (41.18)	103.50 (12.50)	0.148
	2019	40 (58.82)	106.70 (12.05)	
Marital status	Single	58 (85.29)	105.33 (13.00)	0.972
	Married	10 (1.47)	105.70 (6.83)	

Table 5. Analysis of demographic variables and mean moral skill of students

Variable		N (%)	Mean (SD)	p-value
Gender	Male	42 (61.79)	15.98 (3.57)	0.189
	Female	26 (38.26)	14.77 (3.85)	
Faculty	Aja	36 (52.94)	15.94 (3.95)	0.314
	Shahed	32 (47.05)	15.03 (3.38)	
Year of entering the university	2018	28 (41.18)	16.32 (4.10)	0.215
	2019	40 (58.82)	14.95 (3.32)	
Marital status	Single	58 (85.29)	15.62 (3.82)	0.595
	Married	10 (1.47)	14.09 (2.92)	

statistically significant difference (only in the knowledge score), but in terms of other demographic characteristics, including gender, marital status, year of entering the university, and students' GPA showed no significant difference. In general, in the studies of other domains of the health care system (including nurses, doctors, assistants, and students), there was no significant difference between men and women in terms of their knowledge and attitude towards professional ethics (21-24). Similar to the present study in the field of dentistry, the study by Bahrani et al. did not show any significant difference in the level of knowledge of dentists in Shiraz about professional ethics based on gender (14). Elyassi Gorji et al. also showed that among dental students in Sari, girls' attitude scores were significantly higher (3). Overall, in the above-mentioned studies, there was no significant difference between men and women in knowledge and performance towards professional ethics, but in some of these studies, there was a difference in attitude towards professional ethics between men and women (with the superiority of women). Further investigation into the nature, behavior, and psychological characteristics of men and women may help to reveal the reason for this difference.

In line with the present study, Karampourian et al. (15) and Bahrani et al. (14) reported no significant difference in dentists' attitude towards professional ethics based on the age group. However, some studies found the age could be related to favorable knowledge and attitude regarding professional

ethics. Altun et al. showed that older people had more favorable knowledge and attitude towards professional ethics (25). In addition, in the study of Sheikhtaheri et al., older nurses showed a significant difference in their awareness of patients' rights and professional ethics (23). These inconsistent results can be caused by the considerable difference in the sample size in the mentioned studies or the limited age range in the studies conducted on students.

In the present study, there was a significant relationship between the mean knowledge of students regarding professional ethics and the faculty of study, but this variable did not affect students' attitude and moral skills. The students of Shahed dental faculty obtained lower knowledge scores than the students of AJA dental faculty in this study. One reason for this could be the different quantity and quality of professional ethics teaching in different faculties, which will ultimately reflect on students' knowledge, attitude, and performance. Among other reasons, it can be mentioned the more exposure of AJA dental faculty students to more complex treatments and as a result, more moral challenges, or the military nature of the work environment and special attention to the teaching of moral principles and issues. In this regard, the research conducted by Ghaljeh et al. on two different faculties showed that the education in some faculties conveys more information about the charter of patient rights and professional ethics to students (26).

Another variable investigated in the present study was the marital status of the subjects, and no significant difference was observed in this regard. In line with our study, Azodi et al. did not find any significant difference between the marital status of medical students and the level of their awareness of patients' rights (21). Karampourian et al. also concluded in their study that although married students had a higher attitude score, this difference was not statistically significant (15). Moreover, Elyassi Gorji et al. mentioned in a study that married dental students had a better attitude compared to single ones, but due to the small sample size, no statistically significant difference was observed (3). The higher attitude of married people than the single ones regarding professional ethics in the mentioned studies (despite the lack of significance of this difference) can perhaps be attributed to the commitment that married people have to their professional popularity and maintaining the stability and peace of their family life that this feature of commitment can affect other aspects of people's behavior, including medical or dental profession and professional ethics.

Compliance with ethics and behavior in society is one of the most important challenges of human social life, and with the growth of social life, ethical issues have expanded and become more complex. Medical ethics is a set of moral principles and rules that apply values and judgments in the field of medicine (27, 28). Paying attention to morals and spiritual health is important in the educational programs of many faculties of medical sciences, and in order to strengthen this category as much as possible, the necessary training should be given to students from university and even in high school education (29).

Dentistry is one of the recognized specialized branches of medicine, so the rules of medical ethics must be observed and practiced by dentists, as well (6,30). Attention to ethics and spiritual health is important (30). Ethics affects the relationships between the dentist, the patient, the society and the office staff, and ignoring them weakens the dentist's ability to perform professionally. Dentists, due to their special position, should also learn ethical guidelines in addition to increasing awareness and improving their profession (6, 31).

Since the present study was conducted in a limited, specific community, the results cannot be generalized to other communities.

CONCLUSION

In this study, an attempt was made to investigate the level of knowledge, attitude, and skill of dental students in AJA and Shahed dental faculties regarding professional ethics. The findings of the present study indicated a good level of attitude and skill and an average level of knowledge of dental students in AJA and Shahed dental faculties regarding professional ethics. Considering the importance of professional ethics in dentistry and the important role of dentists in the field of treatment, it is recommended that officials and curriculum planners provide a suitable platform and take the necessary training and measures to promote professional ethics in dental students. According to the results of Offner et al.'s study, it seems that including professional ethics training in the educational curriculum can have a significant impact in this regard (32).

- It is suggested that professors implement role-playing scenarios and discussions about real ethical dilemmas encountered in the dental office to better develop students' reasoning and practical ethical skills.
- Using objective structured clinical examinations (OSCE) considering ethical stations, not only knowledge but also ethical reasoning and behavioral competence of students can be assessed.
- It is suggested that qualitative studies of the long-term impact of educational interventions on the ethical performance of dental graduates be conducted to examine the underlying factors affecting ethical decision-making in dental clinics.

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 study received ethical approval from the Ethics Committee of Aja University of Medical Sciences (Ethical code: IR.AJAUMS.REC.1402.189). After explaining the objectives of the study and assuring the participants about the confidentiality of the information, the verbal informed consent was obtained from all participants.

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