**INTRODUCTION**

The word “ethics” is derived from the Greek word “ethos” which means character or conduct.

It is usually used interchangeably with the word “moral”. “Moral” is derived from the Latin word “mores”, which means custom or habits. Ethics refers to the conduct, character and motivations involved in moral acts. Ethics is not imposed by a profession or by law, but by moral obligation. It is an unwritten code of conduct that encompasses both professional conduct and judgement. Ethics helps to support autonomy and self-determination and to protect the vulnerable, and promotes the welfare and equality of human beings. An ethical dentist-patient relationship is based on trust, honesty, confidentiality, privacy and the quality of care. Ethics is basically ‘doing what is right’. It tells us how we ought to act in a given situation and provide us with strong reasons for our actions. It is a science of ideal human character and behavior in situations where the distinction should be made between what is right and wrong, duty must be followed, and good interpersonal relations should be maintained. “Ethics” is defined as “norms for conduct” that distinguishes between reasonable and unreasonable behavior. However, ethical norms are learnt since childhood at home, school, society, religious places, etc. are affected throughout the life by various experiences in life which explains the subjective variability in...
interpretation of ethical norms among different individuals. The values of ethics should be imparted to every dental graduate as a responsibility toward achieving the highest standard of dental health services. Dental ethics is a moral obligation that encompasses professional conduct and judgement imposed by the members of dental profession. The dentists (Code of ethics) regulation were laid down by the Dental Council of India (DCI) in 1976 and later it was revised in the year 2014. It is the duty of every registered dentist to read these regulations, understand his responsibilities, and abide by the same. Dental jurisprudence is a set of legal regulations set forth by each state’s legislature describing the legal limitations and regulations related to the practice of dentistry, dental hygiene, and dental assisting. Ethics, as a branch of both philosophy and theology, is the study of what is right and good with respect to character and conduct. It seeks to answer two fundamental questions: What should we do? Why should we do it? Given the current direction of health and dental care, it is essential that dental professionals understand and practice wholeheartedly the code of ethics.

For the dental health professionals, it is essential to understand and solve ethical dilemmas with confidence and if need may arise, be able to defend themselves, the basic knowledge about current ethical laws and governing bodies is mandatory. A dilemma is a complex situation necessitating a choice between two equally undesirable alternatives. "Dilemma" is a word reserved for some of the hardest issues in in ethics. Ethical dilemmas arise from fundamental conflicts among ethical beliefs, duties, principles and theories. An ethical dilemma is also called an ethical paradox because in moral philosophy paradox often plays a central role in debates on ethics. The topics of ethics, integrity, compromise and corruption have to become important as the other critical areas of law enforcement training if significant changes are to occur. Ethical dilemmas will be part of science of dentistry, as in this field one comes across situations with varied ethical considerations and complexities. Moral conduct and judgement are dealt with in the philosophy of ethics. There are several principles that dental professionals must be aware of in their clinical practice. The major principles are to do no harm (non-maleficence), to do good (beneficence), respect for persons, justice, veracity (truthfulness) and confidentiality. To do no harm is generally attributed to Hippocrates. It is the main foundation of social morality. To do good (beneficence) also traced to Hippocrates, is required for all dental care providers. The expectation of the patient is that the care provider will initiate beneficial action and that there is an agreement between the dental surgeon and the patient that some good will result. Therefore, attempts should be made to maximize benefits and minimize the harm.

Respect for persons incorporates mainly two ethical principles such as autonomy and informed consent. Autonomy dictates that healthcare professionals respect the patient’s capacity for self-determination in making decisions concerning their treatment, and informed consent is an essential component of a patient’s right to autonomy. Justice demands that each person be treated equally. The doctor patient relationship is made based on trust. Truthfulness or veracity is transgressed by lying which shows disrespect to the patient and threatens the relationship. Confidentiality is a principle that can be traced back to Hippocratic Oath. Patients have the right to expect that all communications and records pertaining to their care will be treated as confidential.

The Interns who will be graduating soon and the post graduate students should be familiar with the basic ethical principles as they will encounter situations wherein they may have to face ethical dilemmas. The purpose of this study is to assess the knowledge, attitude, and practice regarding ethical aspects of dentistry among the staff, postgraduate students and interns in a dental college in Pune city.

MATERIAL AND METHODS

A cross-sectional, questionnaire-based study was conducted amongst the dental staff, post-graduate students and interns; after obtaining appropriate permissions from Scientific Advisory Committee (SAC) and Institutional Ethical Committee (IEC). Sample size estimation was done using Epi Info sample size calculator using the following sample size \( n = \frac{\text{DEFF} \times N_p (1-p)}{\left(\frac{d^2}{2Z_{1-a/2}^2(N-1)} + p(1-p)\right)} \); keeping 80% power of the study and at 95% confidence intervals. The sample size derived was 352 participants; considering the reference values from the previous study conducted.

Eligibility criteria followed was; those participants who were willing to give written informed consent and willingly participating in the study; were included. A pre-tested, pre-validated, 14-item, self-administered, structured, closed ended questionnaire assessing the students’ knowledge, attitude and practices regarding ethical aspect of dentistry was given to those final year students and Interns. A suitable time slot was given for filling up the questionnaire (approximately 10-15 minutes). The completed questionnaire was collected back by a Single investigator.

Statistical Analysis: Data obtained was entered in Microsoft Excel 2010. Frequency and descriptive analysis were done by using Statistical package for social sciences (v.21.0). Mean score and standard deviation of knowledge was derived. Chi-square test of proportion was used.

RESULTS

A total 352 participants were included in the study, amongst which about 172 (48.9%) were interns, 92 (26.1%) postgraduate students and 88 (25%) BDS and MDS staff members. The questionnaire consisted of 5 items of knowledge domain, 5 items of attitude domain and 4 items of practice domain.

Knowledge towards ethical principles: -From the total number of participants, 39.9% participants knew the exact number of principles of ethics in dentistry. Nearly 47.7% participants could correctly pick out the option which did not resemble the ethical principles. Out of 352 participants, 70.5% correctly chose DCI as the professional body responsible for regulation of code of ethics in India. About 49.4% participants had the clear idea about the autonomy as concerned with the principle of ethics. Nuremberg code was selected as the correct option by 58%, while 102 participants could not associate with the question. (Table I)
Table I Knowledge Domain

<table>
<thead>
<tr>
<th>Questions</th>
<th>Frequency - n (%) Total (n = 116)</th>
<th>P value</th>
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</thead>
<tbody>
<tr>
<td>1) How many dental ethical principles are there</td>
<td>Strongly agree 247 (70.2) Agree 86 (24.8) Neutral 16 (4.5)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>2) Which professional body is responsible for regulation of code of ethics in India?</td>
<td>Strongly agree 251 (70.5) Agree 101 (28.7) Neutral 3 (0.8)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>3) Which principle of ethics in concerned with NOT disclosing the minute details of the treatment plan?</td>
<td>Strongly agree 174 (49.4) Agree 178 (50.0) Neutral 2 (0.6)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>4) The following is a set of ethical principles for human experimentation set as a result of subsequent trials during world war.</td>
<td>Strongly agree 204 (58.0) Agree 148 (42.0) Neutral 2 (0.6)</td>
<td>&lt;0.05*</td>
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*p value <0.05 statistically significant

Attitude Based Questions: -Majority of participants i.e. about 70.2% (247) participants strongly agreed that patient should be informed regarding full details of treatment to be carried out, including the risks and benefits of the treatment plan. Surprisingly, about 30.7% (108) participants disagreed that supplying or selling drugs in one's own clinic is ethical. Hardly 6.8% (24) participants strongly agreed that such an act is ethical. Nearly 55.1% (194) participants agreed that every dentist should maintain medical or dental records for all the patients and preserve them for at least 3 years from the date of commencement of treatment.0.6% strongly disagreed about the same. Neutral response was received by almost 28.4% (100) participants to the statement "advertisement of one's dental clinic by dentist is ethical. Whereas, 14.5% (51) participants strongly agreed and 9.4% (33) strongly disagreed to it. Most of the participant’s i.e. about 71.3% (251) strongly agreed that thumb impression or signature of the patient should always be in the informed consent form whereas 0.6% strongly disagreed. (Table II)

Table II Attitude Domain

<table>
<thead>
<tr>
<th>Questions</th>
<th>Frequency - n (%) Total (n = 116)</th>
<th>p value</th>
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<tbody>
<tr>
<td>1) Patients should be informed regarding the full details of the treatment to be carried out, including risks and benefits of the treatment plan.</td>
<td>Strongly agree 247 (70.2) Agree 86 (24.8) Neutral 16 (4.5)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>2) Supplying or selling of the drugs in one’s own clinic is ethical.</td>
<td>Strongly agree 251 (70.5) Agree 101 (28.7) Neutral 3 (0.8)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>3) Every dentist should maintain the medical or dental records for all the patients and preserve them at least for 3 years from the date of commencement of treatment</td>
<td>Strongly agree 194 (55.1) Agree 112 (31.8) Neutral 40 (11.4)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>4) Advertisement of one’s dental clinic by the dentist is ethical.</td>
<td>Strongly agree 51 (14.5) Agree 115 (32.7) Neutral 100 (28.4) Disagree 53 (15.1) Strongly disagree 33 (9.4)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>5) Thumb impression or signature of the patient</td>
<td>Strongly agree 251 (71.3) Agree 73 (20.7) Neutral 2 (0.6)</td>
<td>&lt;0.05*</td>
</tr>
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*p value <0.05 statistically significant

Practice Based Questions: -About 99.4% participants correctly answered the first two questions (option b and option a respectively). Whereas 62.5% participants correctly chose the option of informing the patient alone of his HIV positive status. About 98.6% chose option a for the fourth question, giving importance to addressing the chief complaint of the patient foremost.(Table III-a,b,c,d)

Table III a Practice domain

<table>
<thead>
<tr>
<th>Questions</th>
<th>Frequency - n (%)</th>
<th>P value</th>
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<tr>
<td>1. A 58 year old female patient complained of pain in her right upper and lower back teeth. She also complained of gingival enlargement that had appeared 15 days back. The patient had hypotension but was not on any medications associated with gingival enlargement. She also reported experiencing severe cold 20 days back. On examination her 4 teeth (grade III &amp; II) were non restorable &amp; were to be extracted. There was generalized gingival enlargement , the gingiva was boggy and edematous with spontaneous bleeding without probing. Extraorally the patient had a bruise adjacent to the right lower lip (the patient did not recall any traumatic injury). There was also mild enlargement and tenderness on the right cervical lymph nodes. The patient was advised complete blood investigations. The patient’s report revealed WBC count (71,000/microliter) and platelet count (83,000/microliter). The patient is suspected to have acute leukemia. In this scenario:</td>
<td>Strongly agree 350(99.4) Agree 2 (0.6) Neutral 2 (0.6)</td>
<td>&lt;0.05*</td>
</tr>
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*p value <0.05 statistically significant

Table III b Practice domain

<table>
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<tr>
<th>Questions</th>
<th>Frequency - n (%)</th>
<th>P value</th>
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<tbody>
<tr>
<td>2. The patient visited your dental clinic as she had pain in her upper left back region of jaw. You informed her that she required root canal treatment. During the treatment instrument (file) got separated in mesio-buccal canal in apical third of root. What will you do in this situation?</td>
<td>Strongly agree 350 (99.4) Agree 2 (0.6) Neutral 2 (0.6)</td>
<td>&lt;0.05*</td>
</tr>
<tr>
<td>a. I will inform the patient about instrument separation and obturate after bypassing or retrieving the separated instrument or if not possible refer the patient to another dentist or specialist for further treatment respectively.</td>
<td></td>
<td></td>
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<tr>
<td>b. Without informing the patient, I will do the further treatment.</td>
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<td></td>
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</table>

*p value <0.05 statistically significant
Questions | Frequency - n (%) | p value
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3. A patient visits your dental clinic with a chief complaint of bleeding from gums and foul smell. On clinical examination you noticed oral thrush, ulcers in the floor and corner of mouth, hairy patches on the surface of the tongue which patient was not able to remove with proper brushing and altered taste sensations due to this. Patient also complained of constant progressive weight loss. You advised complete blood examination along with Elisa test. The reports confirmed this patient as HIV positive. In this situation, what will you do?
   a. I will call him along with his wife in the clinic and tell both of them that he is HIV positive.
   b. I will call him alone in the clinic and tell him that he is HIV positive.
   | 220 (62.5) | 132 (37.5) | <0.05* |

Table III d Practice domain

Questions | Frequency - n (%) | p value
--- | --- | ---
4. A 60 years old patient visits your dental clinic with a chief complaint of pain associated with lower right posterior teeth. On examination you noticed that the patient also requires root canal treatment in 3 teeth, extraction of 2 teeth, and a partial denture for her missing teeth. The patient comes from a poor socioeconomic background and probably cannot afford the charges of private dental clinic. What will you do in this situation?
   a. I will address the chief complaint of the patient, and then refer the patient for further required treatment to a government hospital.
   b. Looking at his financial condition, I will directly refer the patient to the government hospital without addressing his chief complaint.
   | 346 (98.6) | 5 (1.4) | <0.05* |

DISCUSSION

The purpose of this study is to assess the knowledge, attitude and practice regarding ethical aspects of dentistry among the staff, post graduate students and interns in dental college in Pune city. Dental ethics help support autonomy and self-determination, protect the vulnerable and promote the welfare and equality of human beings.

Ethical principles include: To do no harm (non-maleficence), to do good (beneficence), respect for persons (Autonomy, Informed consent), justice, veracity/ truthfulness, confidentiality. About 39% (142) participants knew about the same and correctly answered the number of principles to be six. Nearly 20% (73) participants were not able to choose any of the option. Similar study by R. Kesavan et al had too had 39% (135) participants answering correctly. Nearly 47.7% participants could correctly make out that “righteousness” among the given option was not a principle of ethics. Participants who could not distinguish about the same were about 22% (78) participants. If we compare this with the study by R. Kesavan et al, almost 67% could correctly pick out punctuality as not being a principle of ethics. Whereas, about 18% (62) participants could not make out the answer. An autonomous person chooses thoughts and actions relevant to his needs, independent from will of others. In healthcare autonomy gives rise to concept of permitting individuals to make decision about their own health, which is the heart of many ethical dilemmas that occur in dentistry. All healthcare professionals must respect autonomy of patients and properly inform them about all aspects of treatment plan. About 49.7% (172) participants correctly answered “autonomy” is concerned with not disclosing minute details of treatment plan to the patient. The professional body, Dental Council of India is responsible for regulation of (dental) code of ethics in India.

Majority of participants i.e. about 71.6% (252) were aware about the same. The study by R. Kesavan et al had about similar results. Their study concluded that the knowledge of dental practitioners regarding dental ethics and jurisprudence was mediocre. Continuing dental education on the same for dental practitioners as an urgent need was recommended by them. They also recommended a nationwide survey on knowledge and awareness of dentists (code of ethics) regulations. Nuremberg code is a set of ethical principles for human experimentation set as a result of subsequent trials during World War II. It was the first international instrument on ethics of medical research, in response to Nazi human experimentation on not consenting prisoners and detainees during second world war. Most of the participants (58.5%) correctly identified the Nuremberg Code based upon its description given in the question. A few choose Belmont report and Council for International Organizations of Medical Sciences (CIOMS) as an answer. A significant number that is (29%) 102 participants could not distinguish or associate any of the option with the given description. Awareness about Nuremberg Code was about 13.5% in a knowledge, attitude and practice study conducted by Kiran K Mallela et al in North India, 2015. Varied responses were recorded in section of attitude on ethical aspects of dentistry. Majority of participants i.e. about 70.2% (247) participants strongly agreed that patient should be informed about full details of treatment to be carried out, including risks and benefits of treatment plan. In the study conducted by Kiran K Mallela et al, 74% participants out of 947, strongly agreed for the same. According to DCI Regulation 8.5, July 2014, it is not unethical for a dental surgeon to prescribe, supply or sell drugs, remedies or dental appliance in his clinic as long as there is no exploitation of the patient. Astonishingly, only 2.4% (24) participants strongly agreed to the fact that supplying or selling drugs in one’s own dental clinic is ethical. In the study by R. Kesavan et al, 33% (114) participants knew about the same. This clearly shows the lack of awareness regarding (dental) code of ethics among general dental practitioners or students. Every dentist should maintain the medical and dental records for all patients and keep for 3 years from commencement of treatment. This is confirmed by the review article by Kedarnath et al. Also the same is given in the DCI regulation 3.3.1, July 2014. About 55% (194) participants strongly agreed to it. There was varied response to
the statement “advertisements of one’s dental clinic is ethical”. About 28.4% (100) were neutral about this fact. Only about 14% (51) participants could agree strongly that advertisement of one’s dental clinic is ethical. According to DCI, “a dentist or group of dentist may advertise provided that they maintain the decorum”. (DCI regulation 8.1, Chapter 6, 2014).In the study by Kesavan et al[III] too the responses were varied with 42% considering it ethical and 45% unethical. Thumb impression or signature of patient should always be in informed consent form. In the study conducted by Kiran K Mallela et al[IV], 635 agreed that informed consent should always include patient’s signature. In our study 71.3% (251) participants strongly agreed. In the first case scenario (practice based question), the patient is suspected to have leukemia if not treated can lead to life-threatening complications. The patient complained of pain due to non-restorable and mobile teeth having bad prognosis. Almost all participants (99.4%) chose to refer the patient to hematologist first. There was a great degree of variation in responses obtained for the third case scenario. When it comes to informing a patient about his/her HIV positive status, there is a dilemma between ethical principles i.e. confidentiality (for the individual) and non-maleficence and justice (for the spouse and children). More number of participants i.e. about 60.2% chose to tell the patient alone. And 39.8% participants chose to reveal the status to the patient as well as to the spouse together. Almost all the participants (95.7%) chose to address the complaint of the patient who cannot afford an integrated dental treatment. Greater exposure to students regarding the current ethical guidelines and discussions on ethical dental practice at an institute level by frequent seminars/quizzes. Knowledge and awareness of laws, dental ethical guidelines among dental practitioners through seminars, conferences and webinars should be promoted at national level.

CONCLUSION

Based on responses obtained from our cross-sectional study it is clear that the knowledge and awareness about the current ethical laws and governing bodies is not sufficient. There is confusion related to few aspects regarding ethics in dental practice. Aspects such as advertising, selling of drugs and dental ethical guidelines form an integral part of every dental practitioner. The dentist should know these aspects especially before starting up individually his/her dental clinic.

Acknowledgment

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References