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Assessment of Ethical Awareness among Dental Students and Practitioners in Satara: "A Cross- Sectional Study"

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ABSTRACT

Dental ethics guides how dentists make decisions and care for their patients, based on principles like autonomy, non-maleficence, beneficence, justice, and truthfulness. This study assessed how well dental undergraduate students, postgraduate trainees, and practicing dentists understand these principles using a short online questionnaire. A cross-sectional survey with 10 multiple choice questions was distributed via Google Forms and completed by 400 participants. Most respondents were female (74.4%), aged between 20 and 25 years (63.1%), and undergraduate students (58.4%). Overall, participants showed good awareness of key ethical concepts such as autonomy, non-maleficence, veracity, and justice. However, some uncertainty remained around confidentiality and informed consent. While the general level of ethical knowledge was satisfactory, the findings highlight the need for more focused ethics education to strengthen understanding in these important areas.

Keywords: Dental ethics, Autonomy, Non-maleficence, Veracity and Professional conduct.

INTRODUCTION

The concept of ethics has deep historical roots, originating from the Greek word *Ethos*, which corresponds to "custom" or "character." It's a branch of philosophy focused on the investigation of moral conduct, human values, and the principles that inform decision-making. [1] Ethics seeks to respond to basic inquiries regarding what is good and evil, right and wrong, justice and injustice, and the duties individuals owe to one another. [2] Over the last few decades, interest in ethics within healthcare has grown substantially, reflecting the increasing complexity of clinical practice, the diversity of patient needs, and the rising expectations for transparency and accountability. [3]

In dental profession, ethics reaches far beyond the boundaries of technical expertise. Dentists are assigned with a societal responsibility to act in ways that protect and enhance patient well-being. [4] Despite the possibility that each country may have their own code of ethics, there are significant overlaps in the values they promote. In 1997, the World Dental Federation (FDI) formalized a set of universal standards the *International Principles of Ethics for the Dental Profession* that guides dentists worldwide. Alongside these principles, informal professional norms also hold significant influence over behavior and decision-making. [3]

Despite the presence of ethical frameworks, challenges remain in daily clinical work. Dentists often encounter situations that require them to make difficult moral choices, such as balancing patient preferences with professional recommendations, deciding on the most beneficial treatment plan under financial or clinical constraints, or maintaining confidentiality in sensitive cases. [5] Understanding one's professional duty also involves anticipating and preventing adverse outcomes, including those that could result in legal disputes. [1] The Hippocratic Oath, which binds healthcare professionals, emphasizes this responsibility, serving as a symbolic and practical commitment to prioritizing the interests of patients above all else. [6]

Central to ethical dental practice are five foundational principles that every dental student and practitioner must grasp. Autonomy emphasizes the patient's right to Make informed decisions about their care, voluntary and unforced. Non-maleficence requires practitioners to avoid causing harm, whether through action or neglect. Beneficence obliges them to promote patient welfare and act for the greater good without compromising their own well-being. Justice demands fairness

and equality in the distribution of care and resources. Lastly, veracity demands truthfulness, openness, and the upholding of intellectual integrity in every professional interaction. These guidelines not only direct personal choices but also facilitates trust between patients and dental professionals. [7,8]

However, the way ethics is understood, taught, and applied can vary significantly depending on cultural traditions, social structures, and economic circumstances. [7] In multicultural and socioeconomically diverse contexts, such as India, dentists may encounter additional challenges such as navigating language barriers and cultural beliefs about healthcare or addressing disparities in access to services. [9] These realities highlight the importance of introducing ethics education early in the training of dental professionals. Exposure to real world case discussions, ethical reasoning exercises, and critical reflection during undergraduate and postgraduate programs can prepare future dentists to manage complex situations with confidence and moral clarity. [10]

While formal training in ethics may not always be legally required, it remains a vital component of professional accountability. Dentists who are established in both ethical principles and legal frameworks are better prepared to deliver care that is not just sound from a therapeutic standpoint but also morally defensible. [1] With this in mind, the current research was designed to assess the knowledge and awareness of dental ethics among dental students, postgraduate trainees, and practicing dentists, with the goal of identifying areas where ethics education can be strengthened to fulfil the demands of modern dental practice.

METHODOLOGY

This descriptive cross-sectional study was conducted to evaluate the knowledge and awareness of dental ethics among dental students, postgraduate trainees, and practicing dentists in the Satara district of India. A structured questionnaire was created by modifying items from previously validated research employed in comparable studies. [1,11] The adaptation process ensured that the questionnaire was culturally relevant and comprehensive, covering all essential domains of dental ethics.

The study population included undergraduate dental students in their third year or above, postgraduate trainees enrolled in specialty training programs, and registered dental practitioners currently employed in the district, the sample size was determined using the following statistical analysis:

As per the references it was observed that knowledge about ethical principles among dental students and practitioners was almost 56%. [1]

So, we took this population for calculation of sample size, hence $n = \frac{z^2 pq}{l^2}$

n= sample size
z= standard normal variate at 95%= 1.96
p= proportion of knowledge towards ethical principles as per references = 56%
q= 100-p= 100-56=44
l= margin of error at 95% = 5

$n = \frac{(1.96)^2(56)(44)}{(5)^2}$ = 378.6 (approx. 400 participants)

Eligibility criteria required participants to take an active part in dental education or practice within the Satara district and ready to provide informed consent. Individuals outside the district, those not associated with dental education or practice, or those unwilling to participate were not included in the study.

A convenience sampling approach was employed to enroll participants, utilizing professional contacts, faculty and colleague referrals, WhatsApp groups, and social media platforms. This strategy enabled access to a variety range of individuals from diverse educational and professional backgrounds, ensuring adequate representation across all three groups.

The survey consisted of two sections. The first part collected demographic data, including age, gender, and professional designation. The second part comprised ten multiple-choice questions assessing knowledge of the five fundamental ethical principles which are autonomy, non-maleficence, beneficence, justice, and veracity, along with associated subjects like the Hippocratic Oath, confidentiality, informed consent, professional conduct, and the significance of ongoing ethics education. The survey was administered using Google Forms, accompanied by an introductory statement outlining the study's

objective, emphasizing voluntary participation, assuring confidentiality, and informing participants of their right to withdraw at any time without penalty. Electronically, consent was acquired by a "Yes, I agree to participate" option.

Ethical clearance for the research was acquired from the Institutional Ethics Committee of Krishna Vishwa Vidyapeeth (Deemed to be University), and the study proposal was registered in the research centre under the Protocol Number 096/2025-2026.

Once the data collection process was completed, responses were downloaded from Google Forms, organized in Microsoft Excel, and verified for completeness and accuracy. IBM SPSS Statistics was used to conduct the statistical analysis (version 20). Frequencies and percentages were used as descriptive statistical tools to summarize the demographics and knowledge levels of participants. The chi-square test was applied to identify correlations between demographic variables, including age, gender, and designation, and the knowledge scores. P-values below 0.05 were regarded as statistically significant.

RESULTS

Demographic Characteristics

Table 1 shows the demographic distribution of participants. The majority were female (74.4%), aged 20–25 years (63.1%), and undergraduate students (58.4%).

Table 1: Demographic Distribution of Participants (n = 400)

Characteristic	n	%
Gender		
Female	298	74.4%
Male	102	25.6%
Age Group		
20–25 years	252	63.1%
26–30 years	110	27.5%
31–35 years	19	4.7%
Above 35 years	18	4.5%
30–35 years*	1	0.2%
Designation		
Undergraduate Student	234	58.4%
Postgraduate Student	107	26.7%
Staff / Practitioner	60	14.9%

Knowledge of Ethical Principles

The proportion of correct responses across the ten ethics related questions ranged from 93.1% to 98.8%, reflecting a very high level of awareness of core ethical principles among participants.

The highest proportion of correct answers (98.8%) was recorded for the question on fairness in dental practice, followed closely by questions addressing examples of bad professional behaviour (97.5%), veracity (97.5%), non-maleficence (97.0%), breach of confidentiality (97.0%), and referrals as part of avoiding harm (97.0%). Understanding the significance of continuous ethics learning was also strong at 97.0%.

Slightly lower, but still high, levels of correct responses were seen for questions on the purpose of the Hippocratic Oath (93.6%), informed consent (93.3%), and patient autonomy (93.1%).

Overall, the findings suggest that dentists and dental students in this study possess a strong understanding of ethical principles, although ongoing reinforcement particularly in autonomy and informed consent may help maintain and further strengthen this knowledge base.

Table 2: Distribution of Correct Responses by Question (n = 400)

Q. No.	Ethical Principle / Question	Correct Count	Correct %
1	Autonomy – patient decision-making	372	93.1%
2	Purpose of the Hippocratic Oath	374	93.6%
3	Non-maleficence – "do no harm"	388	97.0%
4	Breach of confidentiality	388	97.0%
5	Importance of informed consent	373	93.3%
6	Fairness – equal treatment	395	98.8%
7	Referrals as part of avoiding harm	388	97.0%
8	Example of bad professional behavior	390	97.5%
9	Continuous ethics learning	388	97.0%
10	Veracity – telling the truth	390	97.5%

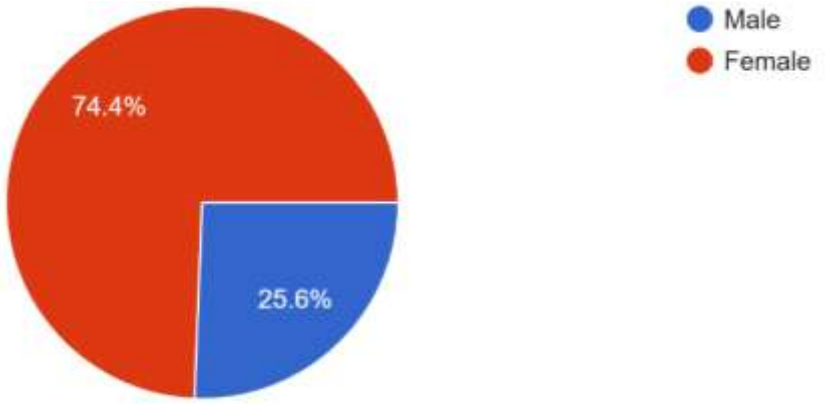

Figure 1: ***Gender Distribution of Participants*** **– Pie chart showing 74.4% female and 25.6% male participants.**

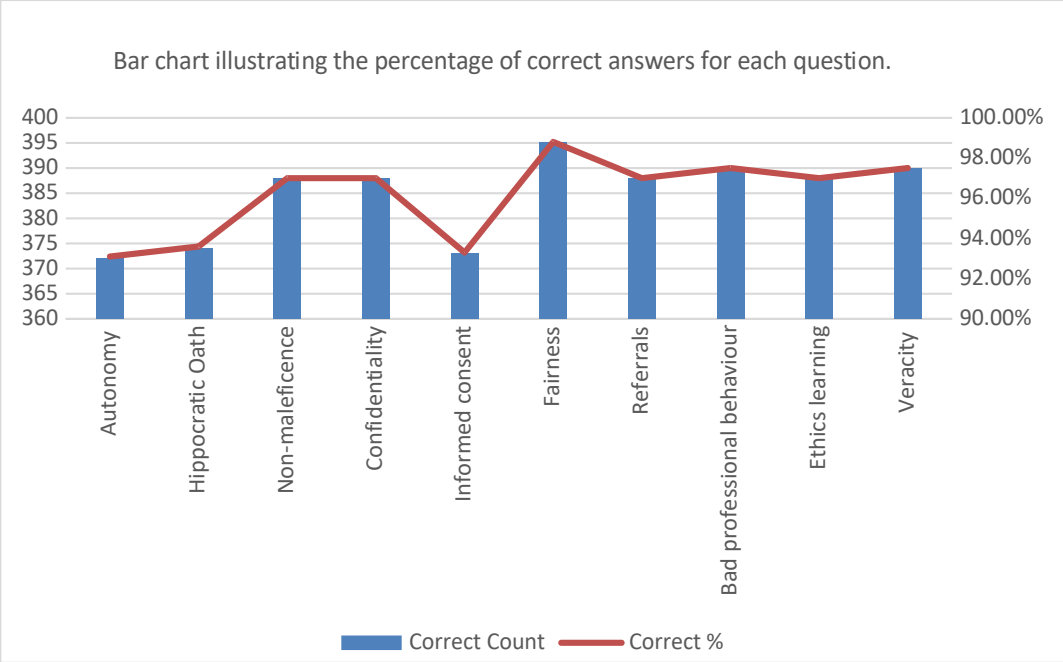

Figure 2: ***Correct Responses by Ethical Principle*** **– Bar chart illustrating the percentage of correct answers for each question.**

DISCUSSIONS

This study's objective was to assess the awareness of the core ethical principles among dental students and practicing dentists in the Satara district. The results underline both the progress made in integrating ethics into dental education and the continuing need for targeted improvement, particularly in areas that directly affect patient autonomy and informed decision-making.

A key observation revealed that many participants were unable to accurately identify the number of core ethical principles that regulate dental practice. This aligns with the findings of Kesavan, et al., who reported that many dentists and dental students shared a similar lack of awareness. Such gaps in foundational knowledge are concerning, given that a clear knowledge of these principles is essential for navigating complex clinical situations. [2] Promisingly, however, more than three-quarters of participants in our study acknowledged that bioethics is an important element of dental practice which is a finding that mirrors earlier research and suggests that, at least conceptually, practitioners value the role of ethics in professional conduct. [7]

When exploring sources of ethical knowledge, lectures, seminars, and formal training emerged as the most common. This reflects the structured approach to ethics education within dental curriculum and contrasts with Bebeau et al., who found that work experience was the dominant source of ethics knowledge. [6] This difference could imply that universities in our context places a vital role in formal instruction, however, our results also show that theoretical teaching alone might not be enough to ensure deep understanding and consistent application. Education level played a clear role in shaping awareness, reflecting results from other research where specialists surpassed recent graduates, likely due to greater exposure to ethically challenging cases and more opportunities for reflective practice. [12,13]

Among specific ethical principles, the understanding of autonomy was moderate. Autonomy is the patient's right to be involved in decisions about their care it is referred to as, patient centered dentistry. [8] Research consistently shows that collaborative decision-making improves both patient satisfaction and clinical outcomes. However, our results indicate that more than one in four participants did not completely appreciate this principle. Interestingly, a majority of the participants correctly identified that punctuality is not a principle of ethics, aligning with Kesavan et al., but the presence of misconceptions in other areas points to unsteady retention of ethical concepts. [2]

Knowledge of the Hippocratic Oath was relatively strong at 93.6%, which is higher than the rate reported by Bebeau et al. [6] Similarly, a little more than half of participants correctly linked the idea of self-governance with patient participation in care decisions, consistent with Tabei et al. This principle is essential for establishing trust and promoting collaborative models of care where healthcare professionals can collaborate effectively. It helps create an environment of open communication, transparency, and consistency, which in turn strengthens patients' confidence in their healthcare providers and supports joint decision making. [14] Other research supports the significance of presenting patients with all possible treatment options instead of pointing them to a single preferred choice, a practice that balances beneficence with respect for autonomy. [15] Several research also imply that informed consent and confidentiality are not always consistently upheld in practice, likely due to deep seated habits, workload pressures, or differing legal frameworks across countries. [13,16]

Our results further revealed some misconceptions about non-maleficence, with certain participants associating it primarily with referral for consultation. While referrals are indeed part of avoiding harm, Tabei et al. emphasized that non-maleficence also involves maintaining a direct, trustworthy relationship with the patient. Dentists are ethically obliged to provide thorough explanations of risks, benefits, and costs, ensuring that patients are well-informed before proceeding with treatment. [14] Studies such as Nayak et al. have demonstrated that the majority of practitioners understand this duty, and similar outcomes have been reported in other contexts. [13,16]

When considering justice, participants frequently associated the principle with patient selection, which aligns with the literature. [14] However, justice also demands unbiased treatment and fairness in decision making. Ethical challenges arise when a patient's preferences conflict with the dentist's clinical judgment, for example, while refusing a recommended treatment. Earlier studies have emphasized caution regarding interpreting such refusals as non-cooperation. [15] Porter et al. found that some practitioners think dentists may rightfully decline certain treatments despite patient wishes, reflecting an ongoing tension between professional autonomy and respect for patient choice. [17]

The variations in correct responses between principles suggest that while some ethical concepts are well understood such as fairness and the importance of ongoing ethics education others, mainly informed consent and autonomy, require more targeted reinforcement. These gaps may be addressed by shifting from a purely theoretical approach to one that

incorporates case-based discussions, simulated patient encounters, and reflective practice sessions into both undergraduate and continuing education. [18]

Professional licensing bodies should consider requiring regular ethics competency assessments to ensure practitioners stay updated about emerging ethical standards and legal requirements. This ongoing evaluation helps maintain high professional standards, promotes accountability, and protects public trust by confirming that practitioners consistently meet ethical and legal expectations throughout their careers. [18]

A key strength of this study is its assessment of multiple exposure outcome relationships. [19] However, this study was restricted to one district, and therefore the results might not applicable to other regions with different cultural or institutional contexts. The cross-sectional design captures knowledge at a single point in time and does not reflect changes over the course of professional development. [19] Moreover, the use of self-reported responses carries the risk of social desirability bias, where participants might respond in ways they think are expected or favorable, rather than providing answers that accurately represent their practical life knowledge or clinical practices. [19] Future studies should expand the geographic scope, include longitudinal designs, and incorporate observational methods or simulated patient scenarios to better assess how ethical principles are applied in real world contexts. [14]

CONCLUSION

This study highlights that, although dental students and practitioners in the Satara district show a relatively high level of awareness of core ethical principles, important gaps remain mostly in recognizing and applying all five core components of dental ethics which are autonomy, non-maleficence, beneficence, justice, and veracity. Ethics in dentistry is not merely theoretical because it acts as a guiding framework for clinical judgment, patient relationships, and professional conduct. Without active application, knowledge becomes passive and pointless, and when ethical principles are overlooked, even well-intentioned practice can lead to unintended harm. The findings emphasize the urgent need to strengthen ethics education, not only through lectures and seminars but also through case-based discussions, simulated patient scenarios, and reflective clinical practice. Such approaches can bridge the gap between theory and application, ensuring that ethical decision making becomes a habitual part of daily practice. By encouraging a culture in which knowledge and ethics are inseparable, dental professionals can uphold patient trust, safeguard professional integrity, and contribute to a higher standard of oral healthcare in their communities.

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