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Evaluating the Knowledge and Perception of Artificial Intelligence and ChatGPT Among Dental Interns

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Abstract

Background: The rapid advancement of artificial intelligence (AI) and large language models such as ChatGPT has introduced new opportunities for clinical decision-making, diagnostics, patient communication, and education in dentistry. However, the extent of dentists' awareness, understanding, and perception of these technologies remains unclear.

Aim: To evaluate the knowledge, perception, and potential use of AI and ChatGPT among interns.

Materials and Methods: A descriptive cross-sectional survey was conducted among dental interns using a structured, self-administered questionnaire. The survey assessed demographic characteristics, knowledge of AI concepts, familiarity with ChatGPT, perceived benefits, ethical concerns, and willingness to incorporate AI-based tools into dental practice. Data were analyzed using descriptive statistics and appropriate inferential tests.

Results: Most participants demonstrated moderate awareness of AI but limited understanding of ChatGPT's specific applications in dentistry. While a majority expressed positive attitudes toward the integration of AI for enhancing diagnosis, treatment planning, and patient education, concerns persisted regarding data privacy, accuracy, and ethical implications. Interns with prior exposure to AI exhibited significantly higher knowledge scores and greater willingness to adopt AI-based systems.

Conclusion: Dental Interns show growing interest in AI and ChatGPT, yet their knowledge remains incomplete. Targeted training programs and evidence-based guidelines are essential to support safe and effective integration of AI technologies in dental practice.

Introduction: Artificial intelligence (AI) has rapidly transformed multiple sectors of healthcare, offering new possibilities for diagnostics, treatment planning, data interpretation, and patient

communication. In dentistry, AI-driven tools have demonstrated potential in areas such as caries detection, radiographic interpretation, orthodontic assessment, prosthodontic design, and predictive analytics for clinical outcomes. These technologies aim to enhance clinical accuracy, reduce diagnostic errors, and support evidence-based decision-making, thereby improving the overall quality of care.[1,2]

The introduction of large language models (LLMs), particularly OpenAI's ChatGPT, has further expanded the role of AI in clinical practice. ChatGPT has gained widespread attention for its ability to generate human-like text, assist in patient counseling, simplify complex dental information, support academic writing, and offer preliminary guidance for clinical workflows. Its accessibility and versatility make it a valuable tool for both dental practitioners and students. However, despite its potential advantages, concerns about reliability, misinformation, ethical considerations, data security, and patient confidentiality remain significant barriers to its widespread adoption.[3-5]

As AI continues to evolve, the readiness of dental professionals to understand and integrate such technologies into their practice becomes crucial.[6,7] The level of knowledge, perception, and acceptance among dentists will directly influence the safe and effective implementation of AI-based systems. Existing literature suggests a growing interest in AI among healthcare providers, yet understanding of its mechanisms, limitations, and practical applications often remains limited. Additionally, awareness and comprehension of ChatGPT—a relatively new entrant to the field—have not been extensively studied within the dental community.[8,9]

Therefore, evaluating dentists' current knowledge and perception of AI and ChatGPT is essential to identify learning gaps, assess readiness for adoption, and guide the development of training programs, regulatory frameworks, and clinical guidelines.

The present study aims to assess the knowledge, perception, and attitudes toward artificial intelligence and ChatGPT among practicing dentists, providing insight into their preparedness for integrating AI technologies into modern dental practice.

Materials and Methods:

Study Design and Setting: A descriptive cross-sectional survey was conducted to evaluate the knowledge and perception of artificial intelligence and ChatGPT among dental interns. The study was carried out from **1st October 2025 to 30th October 2025**. Data were collected using a structured questionnaire created in **Google Forms** and distributed through email, WhatsApp groups, and academic dental platforms.

Study Population and Sample Size: The study population consisted of **100 dental interns** from various dental colleges. Participants were included if they were actively undergoing compulsory rotatory internship at the time of the study. A total of 100 fully completed responses were recorded

and included for analysis.

Ethical Considerations: The study was approved by the Institutional Ethics Committee. Electronic informed consent was obtained from all participants prior to accessing the questionnaire. Participation was voluntary, and anonymity and confidentiality of responses were ensured.

Questionnaire Development: A structured questionnaire was developed after reviewing existing literature on AI in healthcare. The final survey consisted of **21 items** divided into four sections. The questionnaire was pilot-tested on a small group of interns to assess clarity and ease of understanding, with necessary modifications incorporated before final distribution.

Questionnaire Items Included in the Study

Section A: Demographic Details

1. Age
2. Gender
3. Institution name (optional)
4. Type of internship posting (clinical/non-clinical)
5. Access to digital tools during internship (Yes/No)

Section B: Knowledge of Artificial Intelligence

6. Have you heard of Artificial Intelligence (AI)? (Yes/No)
7. Self-rating of AI knowledge (Poor / Fair / Good / Excellent)
8. AI can assist in radiographic diagnosis. (True/False/Not sure)
9. AI can help in treatment planning and predicting outcomes. (True/False/Not sure)
10. AI is currently used in some dental specialties. (True/False/Not sure)

Section C: Awareness and Perception of ChatGPT

11. Have you heard of ChatGPT? (Yes/No)
12. Have you used ChatGPT? (Never / Occasionally / Frequently)
13. Possible uses of ChatGPT in dentistry (Multiple choice):

- Patient communication
- Academic writing
- Diagnostic support
- Treatment planning
- Exam preparation
- None

14. “ChatGPT provides accurate and reliable information.” (Agree/Neutral/Disagree)
15. Concerns regarding ChatGPT (Multiple response):

- Accuracy
- Data privacy
- Ethical issues
- Academic misuse
- None

Section D: Attitudes Toward Adoption of AI

16. AI can improve efficiency in dental practice. (Agree/Neutral/Disagree)
17. AI tools such as ChatGPT should be incorporated into dental education. (Agree/Neutral/Disagree)
18. Willingness to learn more about AI. (Agree/Neutral/Disagree)
19. Likelihood of using AI tools in future clinical practice. (Yes/No/Maybe)
20. Barriers to adopting AI (Multiple choice):

- High cost
- Lack of training
- Reliability concerns
- Lack of guidelines
- Not needed

21. Do you believe AI will play a major role in dentistry in the future? (Yes/No/Not sure)

Data Collection: The Google Form link remained active between 1st-30th October 2025. Participants completed the survey at their convenience, and only one response was accepted per participant to avoid duplication.

Statistical Analysis: Data were exported to Microsoft Excel and analyzed using SPSS version 24. Descriptive statistics were calculated. Associations between demographic variables and knowledge/perception levels were assessed using Chi-square tests. A p-value < 0.05 was considered statistically significant.

Result: A total of 100 dental interns participated in the study, with a majority being female (62%) and most posted in clinical departments (78%). Access to digital devices was reported by 84% of respondents. Awareness of artificial intelligence was high, with 86% having heard of AI, although most interns rated their knowledge as only fair (51%) **(Table 1)**. Correct understanding of AI applications was moderate, as 72% recognized its role in radiographic diagnosis and 69% acknowledged its usefulness in treatment planning, while 61% were aware that AI is already utilized in certain dental specialties **(Table 2)**. Awareness of ChatGPT was also substantial, with 74% having heard of it and 58% reporting at least

occasional use. ChatGPT was mainly used for academic writing (68%), exam preparation (55%), and patient communication (42%), while fewer interns associated it with clinical tasks such as diagnostic support (28%) or treatment planning (24%). Although 32% of respondents considered ChatGPT reliable, nearly half remained neutral, expressing concerns related to accuracy (54%), data privacy (39%), and ethical issues (33%) **(Table 3)**. Attitudes toward AI integration were generally positive, with 72% agreeing that AI improves efficiency and 81% supporting its inclusion in dental education. A strong willingness to learn more about AI was reported by 88% of interns, and 49% expressed intention to use AI tools in future practice, while 41% were uncertain. Key barriers identified included lack of training (63%), reliability concerns (37%), and absence of clear guidelines (34%) **(Table 4)**. Statistical analysis revealed that higher knowledge levels and prior ChatGPT usage were significantly associated with greater willingness to adopt AI in practice ($p < 0.05$), highlighting the importance of exposure and understanding in influencing acceptance **(Table 5)**.

Table 1: Demographic Characteristics of Participants (n = 100)

Variable	Category	n	%
Gender	Male	38	38%
	Female	62	62%
Internship posting	Clinical	78	78%
	Non-clinical	22	22%
Access to Digital Tools	Yes	84	84%
	No	16	16%

Table 2: Knowledge of Artificial Intelligence Among Dental Intern

Knowledge Item	Response	n	%
Heard of AI	Yes	86	86%
	No	14	14%
Self-rated Knowledge	Poor	22	22 %
	Fair	51	51%
	Good	24	24%
	Non-clinical	3	3%
Access to Digital Tools	Yes	84	84%
	No	16	16%
AI assists in radiographic diagnosis	Correct	72	72%
AI assists in treatment planning	Correct	69	69%
AI already used in dentistry	Correct	61	61%

Table 3: Awareness and Perception of ChatGPT			
Parameter	**Category**	**n**	**%**
Heard of ChatGPT	Yes	74	74%
	No	26	26%
ChatGPT Usage	Never	42	42%
	Occasionally	46	46%
	Frequently	12	12%
Use of ChatGPT	Academic writing	68	68%
	Exam preparation	55	55%
	Patient communication	42	42%
	Diagnosis support	28	28%
	Treatment planning	24	24%
Reliability perception	Agree	32	32%
	Neutral	48	48%
	Disagree	20	20%
Concern	Accuracy	54	54%
	Data Privacy	39	39%
	Ethical issue	33	33%
	Academic misuse	28	28%
able 4: Attitudes Toward AI Adoption			
Statements	**Responses**	**n**	**%**
AI improves efficiency	Agree	72	72%
	Neutral	20	20%
	Disagree	8	8%
AI should be in dental education	Agree	81	81%
	Neutral	13	13%
	Disagree	6	6%
Willing to learn more about AI	Agree	88	88%
	Neutral	10	10%
	Disagree	2	2%
Future use of AI	Yes	49	49%
	Maybe	41	41%
	No	10	10%
Barriers	Lack of training	63	63%
	Reliability concerns	37	37%
	Lack of guidelines	34	34%
	High cost	22	22%

Table 5: Association Between Knowledge and AI Adoption			
Variable	**Category**	**AI adoption (Yes/Maybe)**	**%**
AI knowledge level	High/Moderate	84 %	<0.05
	Low	16 %	

ChatGPT Usage	User Non-user	79 % 21 %	<0.05

Discussion: The present study evaluated the knowledge and perception of artificial intelligence and ChatGPT among 100 dental interns and revealed moderate awareness and generally positive attitudes toward the integration of these technologies in dentistry. Most participants had heard of AI and demonstrated basic understanding of its applications, particularly in radiographic diagnosis and treatment planning. These findings align with previous studies reporting growing awareness of AI among dental students and interns, although depth of understanding remains limited due to insufficient formal training and exposure in undergraduate curricula.[10-12]

Awareness and usage of ChatGPT were also comparatively high, reflecting the rapid rise of large language models in academic and professional environments. Interns predominantly used ChatGPT for academic writing and exam preparation, suggesting that they recognize its utility in simplifying complex information and aiding academic tasks. However, fewer respondents identified its potential in diagnostic support or clinical decision-making. This gap may be attributed to caution among early practitioners, lack of confidence in the clinical accuracy of language models, and limited exposure to their practical implementation in dental settings. Similar concerns have been documented in other health-professional surveys, where apprehension regarding reliability, accuracy, and ethical implications influenced acceptance of AI-enabled tools.

Despite these concerns, interns in this study showed a strong willingness to learn more about AI and expressed positive attitudes toward its integration into dental education. This indicates a readiness among future practitioners to adopt AI tools, provided adequate training and guidelines are available. Identified barriers such as lack of training, unclear regulatory frameworks, and reliability issues further highlight the need for structured educational modules and standardized best-practice recommendations to enable safe and effective use of AI technologies in clinical dentistry.[13]

A significant association was found between AI knowledge levels, ChatGPT usage, and the willingness to adopt AI in future practice. This suggests that familiarity and hands-on experience play a crucial role in shaping acceptance and confidence. As exposure increases, interns are more likely to recognize the practical benefits and feel comfortable incorporating AI-based tools into routine workflows. This finding reinforces the importance of introducing AI concepts early in the dental curriculum to enhance preparedness for technology-driven clinical environments.

Overall, the results suggest that while dental interns are receptive to emerging AI technologies, there is a need for more comprehensive training, evidence-based guidelines, and clarity regarding ethical and privacy issues. Proper education and responsible implementation can help ensure that AI and tools such as ChatGPT are integrated in ways that enhance, rather than replace, clinical judgment.

Recommendations: Based on the study outcomes, several recommendations can be proposed to enhance AI literacy among dental professionals. Dental institutions should incorporate structured training modules on Artificial Intelligence, digital dentistry, and responsible use of tools like ChatGPT into the undergraduate curriculum. Hands-on workshops and demonstrations should be organized to help students understand practical applications in diagnostics, treatment planning, radiographic interpretation, and patient communication. Clear ethical and clinical guidelines must be developed by professional bodies to ensure safe and evidence-based integration of AI in dental practice. Further multicentric research with larger and more diverse samples is necessary to obtain more comprehensive insights. Finally, dental interns should be encouraged to critically evaluate AI-generated content and maintain professional oversight, ensuring that technology supports rather than replaces clinical judgment.

Conclusion: The findings reveal that while overall awareness of AI in dentistry is high, practical knowledge and hands-on familiarity with ChatGPT remain limited. Participants demonstrated positive attitudes toward the potential of AI to enhance diagnostics, treatment planning, education, and patient communication. However, uncertainties concerning accuracy, ethical issues, and data privacy continue to influence confidence in adopting such tools in clinical practice. Overall, the study emphasizes the need for structured AI-based training within dental curricula to ensure competent and responsible integration of emerging technologies into routine practice.

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