

Artificial Intelligence in Dental Education: A Comprehensive Survey of Awareness, Usage Patterns, and Prompting Skills Among Students

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Abstract

Background: Artificial intelligence (AI) is increasingly influencing educational practices in healthcare, including dental education. AI-based tools such as generative language models are being used by students for academic support, information retrieval, and concept clarification. However, the extent of awareness, usage patterns, prompting skills, and ethical understanding of AI among dental students remains insufficiently explored.

Aim: To assess dental students' awareness of artificial intelligence, their usage patterns of AI tools in academic settings, prompting skills, verification practices, and perceptions regarding the impact of AI on learning.

Materials and Methods: A cross-sectional questionnaire-based study was conducted among 372 dental students, including undergraduate students, interns, and postgraduates from a dental institution. Data were collected using a validated questionnaire distributed through an online survey platform. The questionnaire assessed familiarity with AI tools, frequency and purpose of AI use, prompting confidence, verification behaviour, and ethical awareness. Data were analyzed using descriptive statistics.

Results: Most participants reported moderate familiarity with AI tools (44.4%), with ChatGPT being the most commonly used platform (93.0%). A considerable proportion of students reported using AI tools several times per week (37.6%) or daily (26.9%) for academic purposes. Concept clarification (76.6%) and exam preparation (66.7%) were the most frequently reported uses. Although many students reported moderate confidence in formulating prompts, only 22.8% demonstrated clear knowledge of verifying AI-generated information, and 42.7% reported encountering inaccurate responses. Awareness of ethical AI use was reported by 43.5% of participants.

Conclusion: AI tools are widely used by dental students as supplementary learning resources. However, variability in prompting skills, verification practices, and ethical awareness highlights the need for integrating AI literacy and responsible AI use into dental education curricula.

Index Terms

Artificial Intelligence; Dental Education; Generative AI; Prompting Skills; Digital Learning; AI Literacy