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Impact Assessment of AI-Driven Tools in Dental Education: A Questionnaire-Based Comparative Analysis of ChatGPT, Gemini Pro, and NotebookLM

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Abstract:

Background:

Artificial Intelligence (AI) tools such as ChatGPT, Gemini Pro, and NotebookLM are increasingly used in dental education; however, comparative evidence regarding their educational performance and ethical implications is limited.

Objectives:

To assess and compare the awareness, usage patterns, and perceived effectiveness of selected AI tools in dental education.

Methods:

A questionnaire-based cross-sectional study was conducted among 480 participants, including dental practitioners, teaching staff, postgraduate students, and postgraduate teaching staff (60% males, 40% females).A structured, validated questionnaire evaluated awareness, academic applications, perceived accuracy, and ethical concerns related to ChatGPT, Gemini Pro, and NotebookLM. Data were analysed using descriptive statistics.

Results:

ChatGPT was the most frequently used AI tool. Participants reported improved learning efficiency and accessibility for their dental education. Concerns regarding content accuracy, academic integrity, and overreliance on AI were noted. Perceived usability and reliability varied among the three tools.

Conclusion:

AI tools are perceived as useful adjuncts in dental education. Structured integration, faculty oversight, and ethical governance are essential for responsible adoption.

Keywords:

- Artificial Intelligence, ChatGPT, Dental Education, Educational Technology, Gemini Pro, NotebookLM

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