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The ChatGPT Revolution in Dentistry: Exploring Knowledge, Attitudes, and Practices among Tricity's Dental Community

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Abstract

Introduction: Artificial Intelligence (AI) is rapidly transforming dentistry, with ChatGPT emerging as a potential tool for patient education, clinical decision-making, and research. AI applications in dentistry include maintaining patient records, diagnosing diseases, and

treatment planning. Despite its promising capabilities, its integration in dental practice remains limited

Aim and Objective: This study evaluates the knowledge, attitudes, and practices of dental students and professionals regarding the applications, limitations, and

ethical considerations of AI chatbots eg. ChatGPT in dentistry.

Methodology: A cross-sectional survey was conducted using convenience sampling. Participants, including dental students and professionals from the Tricity region, were recruited through WhatsApp, Facebook groups, and QR codes. The survey comprised 18 closed-ended questions divided into sections on demographic details and the role of ChatGPT in dentistry. Participation was voluntary and anonymous, with no incentives provided.

Conclusion: The findings of the study reveal growing awareness and interest of dental professionals in AI-driven tools like ChatGPT. Respondents acknowledge its potential in research, patient education, and clinical decision-making, yet concerns persist regarding accuracy and ethical implications. Future research should explore strategies to address these challenges and assess AI's long-term impact on dental practice.

Keywords: ChatGPT, Artificial Intelligence, Advanced dentistry, technology, digital dental health.

Introduction

The modern era is driven by artificial intelligence (AI), transforming industries with intelligence and automation. The integration of artificial intelligence (AI) in various fields has sparked a transformative wave of innovation, and the field of dentistry is no exception. Dentistry has evolved with AI, enhancing diagnosis, precision, and treatment efficiency. One of the most notable advancements in AI technology is the development of conversational models, such as ChatGPT, which offer the potential to revolutionize both clinical practices and educational frameworks.¹ ChatGPT, developed by OpenAI, has made significant strides in natural language processing, allowing it to assist in a range of tasks, from patient communication to clinical decision-making and

dental education. As the healthcare sector increasingly embraces digital tools, understanding the knowledge, attitudes, and practices surrounding AI applications in dentistry becomes crucial.²

In the Tricity area, a rapidly growing region with a diverse dental community, the adoption of AI-driven technologies like ChatGPT has raised significant interest and debate. However, the extent of awareness and the perception of AI's role in dentistry among dental professionals and students remain underexplored and is still limited.³ Given the potential of ChatGPT to streamline routine tasks, enhance patient education, and support clinical decision-making, it is important to assess how dental practitioners and students view its usefulness, challenges, and ethical considerations.⁴

This study, **The ChatGPT Revolution in Dentistry: Exploring Knowledge, Attitudes, and Practices Among Tricity's Dental Community**, aims to fill this gap by investigating how dental professionals and students in the Tricity region perceive and engage with AI-driven technologies like ChatGPT. Specifically, the study assesses the level of knowledge about ChatGPT, the attitudes towards its application in dentistry, and the practical use which the participants see as most beneficial. The research also looked into what helped or got in the way of bringing AI into dental practices, such as concerns about its accuracy, the ethical questions it raised, and how it might have affected the relationship between patients and their dental care providers

The findings of this study provided valuable insights into how aware the dental community was of AI, and pointed out opportunities to improve education and training around new technologies. As dentistry continued to evolve, it became clear that both practitioners and students needed a solid understanding of what AI could and couldn't do, along with the ethical issues it raised, to help ensure it was used responsibly in dental practice.⁵ By understanding the views of dental professionals and

students in the Tricity region, this research contributed to the wider conversation about AI's role in healthcare and how it could shape the future of dentistry. As AI tools continued to evolve, the study offered timely insights into how dental communities were getting ready for and adjusting to these technological changes.

Aim and Objectives

Aim

To evaluate the knowledge, attitudes and practices of dental students and dental professionals toward the use of ChatGPT in dentistry, focusing on its potential applications, limitations, and ethical implications in clinical practice, education, and research.

Objectives

- To analyse the use of ChatGPT in dental practice, education, and patient communication.
- To explore concerns related to ethical, privacy, and accuracy issues in using ChatGPT in dentistry.
- To assess the perceived usefulness of ChatGPT in dental-related tasks, such as clinical decision-making, research, and patient education.

Material and Methods

Source of Data: For the proposed study, 550 dentists from the Tricity Region were enrolled; however, 23 submitted incomplete responses, and 20 did not participate, leading to their exclusion, resulting in a final sample of 507.

Methodology: A Questionnaire survey was prepared using Google Forms which was circulated to dental students/Professionals in Tricity region. The participants were recruited by convenience sampling through the contacts of the authors. The survey link was shared electronically through WhatsApp, Facebook groups and

via Q.R codes to dental students & dental professional. Participation was voluntary and anonymous without any incentive given for participation. The survey consisted of 18 closed-ended questions divided into sections of demographic details and ChatGPT in Dentistry.

Inclusion Criteria: Dental students/Professionals in Tricity region

Exclusion Criteria: Non-Dental students/Professionals



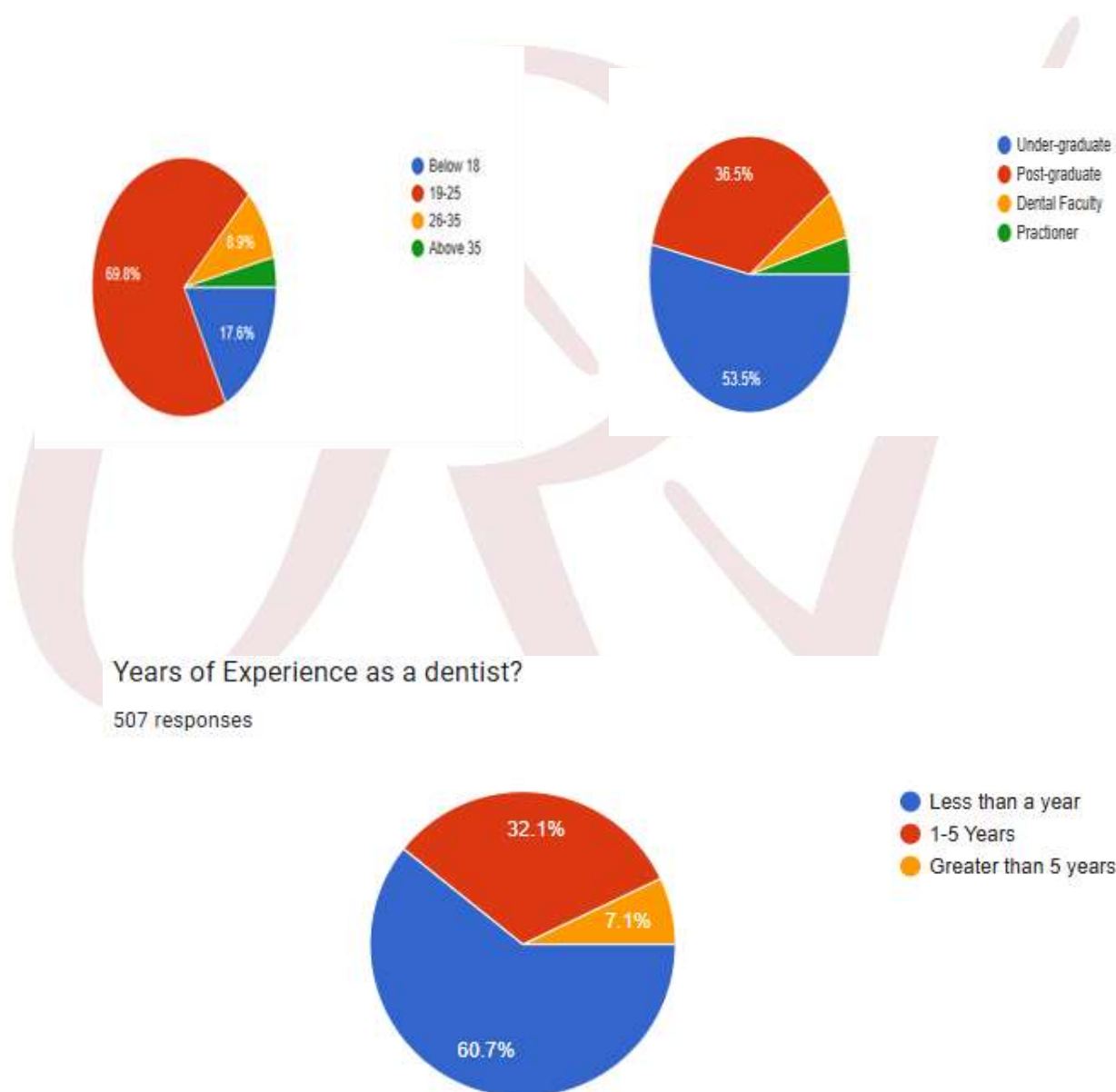
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Results

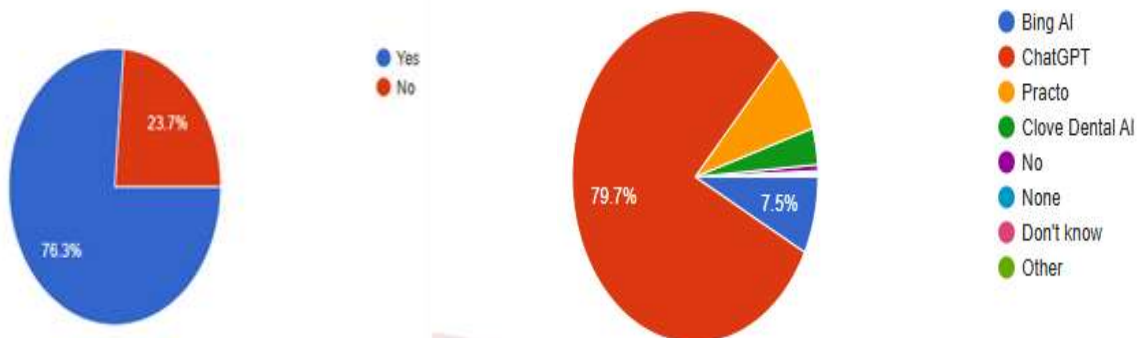
The majority of the dentists who participated in the study were between 19-25 years old. Among them, 53% were undergraduate students, while 36% were pursuing postgraduate studies. This indicates that a significant portion of the participants were in the early stages of their academic and professional careers. Additionally, 76.92% of respondents were familiar with AI Chatbots/Apps, indicating widespread awareness of this technology among young dental professionals. However, 23.08% lacked familiarity, suggesting a need for further exposure and education on AI applications in dentistry. ChatGPT was the most recognized AI chatbot among participants,

followed by Practo (9.95%) and Bing AI (6.5%). Clove Dental AI (3.4%) had a smaller presence, and very few respondents were unsure or mentioned other alternatives. The majority of participants (74.5%) rated their understanding of ChatGPT's features as either Good or Excellent, indicating a high level of familiarity. However, a notable percentage (25.5%) had only Fair or Poor understanding, highlighting the need for further education or guidance on ChatGPT's capabilities, approximately 59.96% of respondents have read or heard about the use of AI in dentistry through scientific journals or other sources, while 40.04% have not.



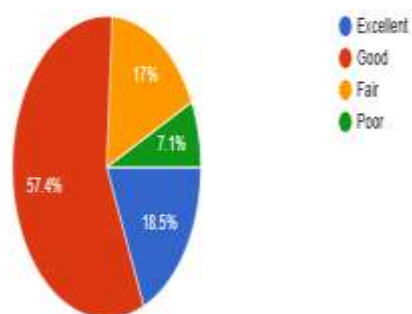
Do you know about AI Chatbots/Apps ?

507 responses



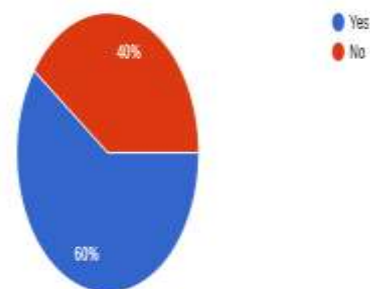
How well do you understand the features of ChatGPT?

507 responses



Have you read or heard about the use of AI in dentistry through scientific journals or other sources?

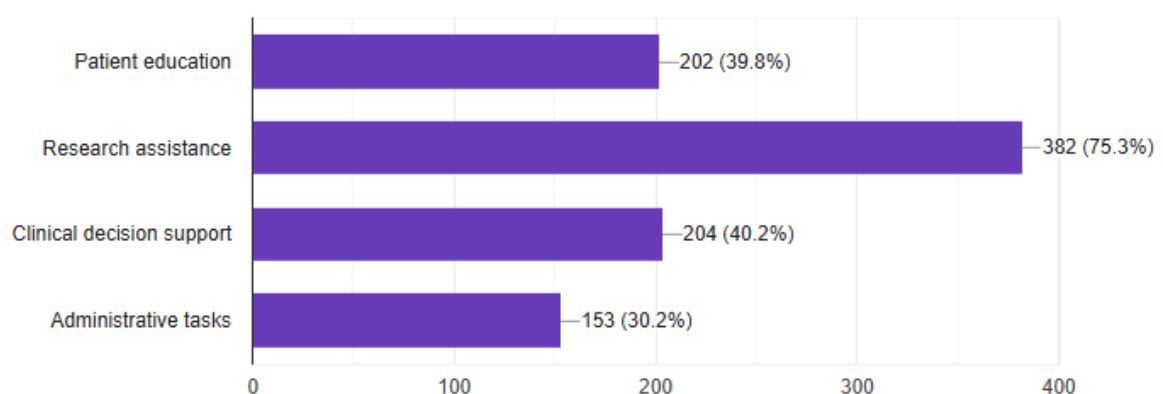
507 responses



How do you think ChatGPT can be used in dentistry? (Select all that apply)

[Copy chart](#)

507 responses

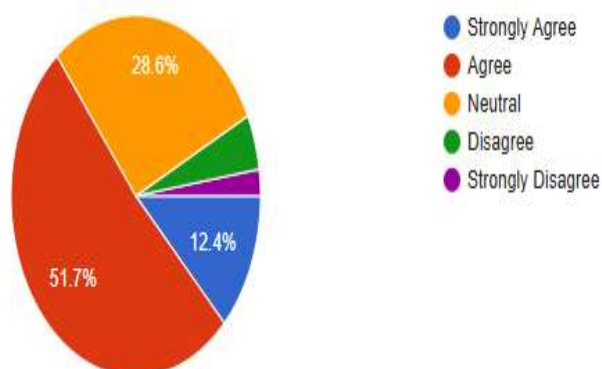


The data indicates that research assistance is the most common use of ChatGPT, appearing in 75.3% of instances. This suggests that users primarily rely on the tool for gathering information, analyzing data, and supporting their research efforts. Additionally, clinical decision support was referenced 40.2% of the time, showing that some users utilize ChatGPT to assist in medical decision-making. Patient education follows closely, accounting for 39.8% of mentions, highlighting

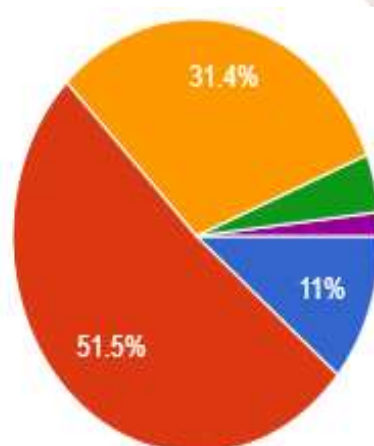
its role in helping patients better understand medical conditions, treatments, and healthcare processes. Lastly, administrative tasks were mentioned in 30.2% of cases, indicating that the tool is frequently used to streamline documentation, scheduling, and other non-clinical responsibilities. Overall, the data underscores ChatGPT's versatility, with its strongest impact seen in research and patient education while also playing a valuable role in clinical and administrative functions.

Do you believe ChatGPT could reduce the workload in dental practices?

507 responses



Do you believe ChatGPT provides accurate and reliable information?

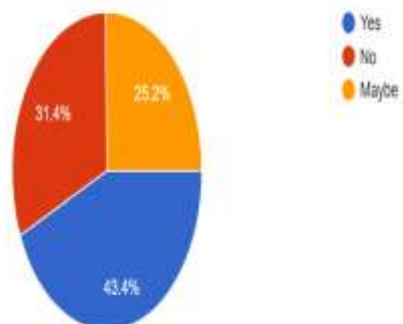


A significant majority of respondents believe that ChatGPT could help reduce the workload in dental practices, with 68.42% agreeing or strongly agreeing, 28.6% remaining neutral, and only 12.4% expressing disagreement. Additionally, 51.5% of respondents agree or strongly agree that ChatGPT provides accurate and reliable information, while 31.4% remain neutral and 17% express disagreement. Based on the responses, it

was deduced that ChatGPT is primarily used in dental studies and practice for writing research papers or articles, learning about dental procedures, creating patient communication templates, and general knowledge inquiries. The most common applications include research and academic writing, followed by seeking information on dental procedures and using AI-generated templates for patient interactions.

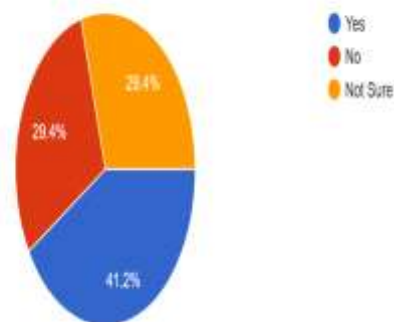
Would you recommend ChatGPT to your peers in dentistry?

507 responses



Are there ethical concerns regarding ChatGPT in dentistry?

507 responses



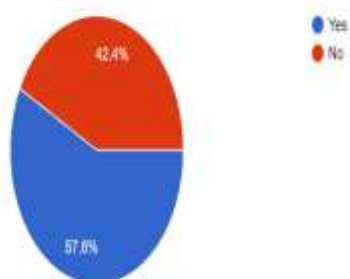
Ethical concerns regarding ChatGPT in dentistry are a topic of debate. While a significant number of respondents (around half) believe there are ethical concerns, a considerable portion is uncertain, and a smaller percentage does not see any ethical issues. Majority of dental professionals would recommend ChatGPT to their peers, but there is still a significant portion that is either unsure ("Maybe") or would not

recommend it.

This suggests that while many see value in ChatGPT—perhaps for research, patient communication, or administrative tasks—some may have concerns about accuracy, ethical implications, or over-reliance on AI in clinical decision-making. The "Maybe" responses highlight ongoing hesitation or the need for more evidence regarding its benefits and risks in dentistry.

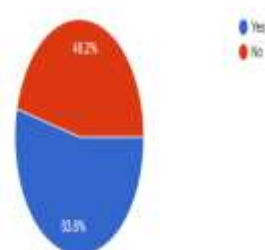
Do you use ChatGPT as a reference for clinical decision-making?

507 responses



Have you ever used information from ChatGPT to influence or modify your patient management or clinical practice?

507 responses



Behind the heart of innovative, transformative approach of cell homing with regard to regeneration of pulp-dentin complex recruiting of endogenous stem cells to the site of damaged pulp tissue takes place by harnessing the body's own healing mechanisms. [9-11] When extensive literature search was performed using electronic database from inception to April 2025, it was evident that there was scanty literature available on cell homing treatment strategy. Based on the responses analyzed, there was a mixed reliance on ChatGPT for clinical decision-making. Approximately 57.6% of respondents acknowledged using ChatGPT in some capacity, while 42.4% stated they did not rely on it. Regarding its influence on patient management, 53.8% reported that ChatGPT had modified their clinical practices, whereas 46.2% claimed no impact.

Among those who incorporated ChatGPT into their practice, the most common applications were providing patient education, improving communication with patients, developing treatment plans, and recommending alternative procedures or materials. Some practitioners utilized ChatGPT across multiple aspects of patient care, while others applied it more selectively, and a small percentage reported no use at all. This variation underscores differing levels of trust and dependency on AI in clinical settings.

Discussion

The results of this study align with previous research on the awareness and use of AI, specifically ChatGPT, among healthcare and dental students. The high percentage of participants who were aware of and had used ChatGPT for academic or personal purposes (78% and 65%, respectively) demonstrates a significant level of engagement with this AI tool. These findings are consistent with other studies that have reported a growing interest and adoption of AI technologies among students in various healthcare disciplines. The study's participants

also believed that ChatGPT could assist in finding relevant dental literature and research articles. This suggests that students perceive ChatGPT as a valuable tool for academic research and information retrieval. The positive perception of ChatGPT's capabilities in understanding and generating human-like text further supports its potential applications in dental education and practice.

The findings of this study highlight several important trends regarding AI awareness and usage among dental professionals and students in the Tricity region. The participant group, largely made up of young professionals and students in the early stages of their careers, demonstrated a considerable awareness of AI technologies, particularly ChatGPT. This suggests that emerging dental practitioners are already engaging with AI tools as part of their academic and professional development. A significant majority of respondents were familiar with AI chatbots and apps, with ChatGPT being the most recognized. The high percentage of participants rating their understanding of ChatGPT's features as Good or Excellent indicates growing digital literacy in this area. However, the notable minority with only Fair or Poor understanding points to the need for structured AI education and training within dental curricula.

The data revealed that ChatGPT is predominantly used for research assistance, followed by clinical decision support, patient education, and administrative tasks. These findings suggest that while AI tools are being integrated into various aspects of dental practice, their primary value currently lies in supporting academic work and patient communication. The positive perception of ChatGPT's ability to reduce workload further reinforces its potential to improve efficiency in dental settings. Despite this enthusiasm, the study also uncovered areas of caution. While over half of the respondents believed ChatGPT provides accurate and reliable information, a considerable proportion remained neutral or expressed doubts. Ethical concerns were similarly divided, with

many acknowledging potential issues while others remained uncertain. This split reflects a broader conversation in healthcare about the responsible use of AI and highlights the need for clearer guidelines and evidence-based evaluations of AI tools in clinical contexts.

Interestingly, the responses also showed mixed attitudes towards using ChatGPT for clinical decision-making and patient management. While a majority of respondents reported some level of reliance on AI, a substantial portion either avoided it altogether or used it cautiously. This variation emphasizes differing levels of trust and comfort with AI in clinical settings and suggests that while AI is becoming a valuable tool in dentistry, its role remains supplementary rather than central in-patient care. Overall, these findings indicate a growing interest and gradual integration of AI technologies in dentistry, especially among younger professionals. However, they also underline the importance of targeted education, ethical discussions, and practical guidelines to ensure the responsible and effective use of AI in dental practice moving forward.

Recent studies have explored the adoption of ChatGPT in health care and dental education, shedding light on its potential, challenges, and ethical considerations. Belaldavar and Angadi (2024) examined the attitudes and knowledge of dental professionals regarding ChatGPT's role in dentistry. Their study, which included 354 dental students and professionals, highlighted usability, user-friendliness, and technological awareness as crucial factors for effective implementation. The results indicated that ChatGPT has the potential to enhance academic research and advanced dental education. Nonetheless, the study emphasized the need for training in ethical and optimal usage to maximize its applicability in dental practice.¹² Similarly, Sallam et al. (2023) developed and validated a survey instrument, TAME-ChatGPT, based on the Technology Acceptance Model (TAM) to assess the integration of ChatGPT in health care education. Their study involved 458 university students and emphasized

key factors such as risk perceptions, usefulness, ease of use, and attitudes toward technology. The findings suggest that TAME-ChatGPT is a reliable and valid tool for understanding students' perspectives, which can aid stakeholders in formulating strategies for the ethical and optimal use of ChatGPT in health care education. However, further research is recommended to refine its adoption strategies.¹³

Another study by Shah et al. (2024) focused on the awareness and engagement of dental undergraduates with ChatGPT. Through a seven-item survey conducted among 500 students, they found that while 78% were familiar with ChatGPT, 65% actively used it for academic purposes. The study highlighted AI's potential in assisting medical practitioners with diagnosis, patient communication, research, and education. However, it also stressed the importance of addressing ethical concerns and potential limitations before fully integrating ChatGPT into medical and dental education.¹⁴ Collectively, these studies underscore the growing interest in AI-driven tools like ChatGPT in health care and dental education. While its advantages in research, learning, and clinical applications are evident, ethical considerations, user training, and proper implementation remain critical areas for future exploration. However, the relatively low awareness of ethical considerations surrounding AI use in academic settings (35%) highlights a crucial area for improvement in dental education. While AI tools like ChatGPT offer numerous benefits, it is essential to ensure that students are well-informed about the ethical implications and potential risks associated with their use. Educational institutions should incorporate AI ethics into their curricula to promote responsible and ethical AI adoption among future dental professionals.

Limitations

This study had some limitations due to its cross-sectional design and convenience sampling method, which may limit the generalizability of the findings. Further research using a more diverse and representative sample is recommended to validate these results.

Conclusion

The growing awareness and adoption of AI chatbots, particularly ChatGPT, within the dental community highlight the increasing role of artificial intelligence in education, research, and clinical practice. Many dental professionals and students recognize the potential benefits of ChatGPT, including its ability to assist with academic research, improve patient education, and optimize workflows in dental settings. Its efficiency in providing quick access to vast amounts of information makes it a valuable tool for both learning and practice.

However, despite its advantages, concerns about accuracy, reliability, and ethical considerations remain significant barriers to its widespread implementation. The potential for misinformation, data privacy risks, and over-reliance on AI-generated content raises important questions about its responsible use. These concerns emphasize the urgent need for structured guidelines, ethical frameworks, and comprehensive training programs to ensure that dental professionals can effectively and safely integrate AI into their practice.

Furthermore, as AI technology continues to evolve, it is crucial to explore strategies that address these concerns while maximizing the benefits of ChatGPT in dental education and patient care. Future research should focus on evaluating its long-term impact, refining best practices, and developing regulatory policies that promote its ethical and responsible use. By doing so, AI can be harnessed to enhance the quality of education, research, and clinical decision-making in dentistry while mitigating potential risks and challenges.

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