

Article

The Impact of Digital Imaging Tools and Artificial Intelligence on Self-Reported Outcomes of Dentists

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Abstract

Background: The integration of digital imaging tools in dentistry has transformed clinical workflows, diagnostic accuracy, and patient outcomes. However, less attention has been given to how these tools influence dentists' self-reported outcomes, including clinical confidence, efficiency, perceived treatment quality, communication, and professional satisfaction. This article aimed at assessing AI-powered digital tools in dentistry and their self-reported impact on dental practitioners' activity and treatment outcomes. **Methods:** A comprehensive survey was distributed to 126 dental professionals of different genders, ages, years of experience, and types of dental practice to assess their experiences and attitudes towards AI applications in diagnostics and treatment planning, as well as how patients and dentists perceive the benefits and challenges associated with digital dentistry. **Results:** Digital photographs and CBCT were regarded as essential tools to have in clinical practice, in contrast with intraoral scanners. However, barriers like high initial costs, specialty differences, and lack of formal training may influence the results. **Conclusion:** These findings suggest that when used appropriately, AI digital tools can significantly elevate the quality of clinical practice and professional fulfillment and underscore the importance of tailored training programs and supportive infrastructures to facilitate the effective integration of digital technologies in dental practice.

Keywords: artificial intelligence; digital dentistry; CAD-CAM; 3D printing; computer-aided manufacturing; dental models



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