Chapter 3
Rural Dental Health Transformation by Adopting Digital Technologies

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ABSTRACT

Dental digitalization improves manufacturing and promotes dentistry in the digital age. Digital social media, AR, VR, and AI have contributed to this rise, as have the Internet of Medical Things (IoMT), big data, and analytical algorithms. This Prisma-based systematic review uses reliable Scopus, Web of Science, and Google Scholar sources. Interpretation and analysis employ content analysis. Data reveals that digital components have improved rural dental health and dentistry. These technologies will improve oral health at a fraction of the cost, relieve dentists and dental auxiliary staff of tedious jobs, and encourage personalized oral healthcare. The latest dental digitalization and technology are covered in this systematic review. A conceptual oral health prevention and care approach ensures the integration of quality, efficiency, and strategic rural dentistry care with digital technology in this modern study.

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1. INTRODUCTION

Early in the COVID-19 pandemic, the lockdown hindered dental services. Most countries quickly set up dental emergency systems that prioritize distant screening, remote advice, and urgent care while offering continuous service to mitigate the impact of lockdowns. Digital health's extensive application in this new approach led to new practices and technologies highlighting its potential, limitations, and excesses. Digital technology is widely available, so politicians must embrace it to deliver safe public services. Digital technologies are used in health literacy, training, prevention, early detection, therapies, and public health policies. Therefore, a complete digital oral health program must be diverse. Digital tools should eliminate healthcare access gaps, improve health, reduce oral sickness and noncommunicable disease risk factors, and reduce health disparities. Today, healthcare strategy planners can accelerate universal health coverage and fulfill the 2030 SDGs without losing anyone. After COVID-19, emphasize and promote worldwide digital oral health access (Giraudeau & Varenne, 2022).

Healthy living for all ages is a key Sustainable Development Goal (SDG). Provide equitable, affordable, and ecologically friendly medical care. Fair health outcomes and strong healthcare systems are well-being goals. It also stresses the need for sustainable health in emerging countries' social health policies. Healthcare reform uses ICT to improve patient access, treatment quality, and system efficiency. The shift emphasizes digital leadership, sustainability, innovation, cybersecurity, and accessibility. Digital transformation and managing quickly changing ICT in healthcare is complex. Issues include integration, application design, and security. Numerous studies recommend ICT in healthcare systems. They must investigate crucial aspects despite their limited scope. Thus, integration technologies, design issues, security and privacy concerns, application areas, and potential benefits and drawbacks must be considered (Hameed et al., 2024).

Increasing digital health promotion in telemedicine, tele-dentistry, mHealth, eHealth, oral health, and social media illustrates its importance. Identifying barriers to digitalizing health promotion helps overcome them and integrate digital technologies for better healthcare. Dental public health specialists face challenges in digital oral health promotion. Information about dentistry students' and professionals' digital health promotion hurdles is unique to stakeholders. Regulations must guide digital dentistry integration and related issues (Luai et al., 2024).

Global healthcare providers must improve outcomes and save costs. An aging population, technology improvements, and empowered patients driving health care demand chronic disease treatment. Creating a strong health database and integrating IoT, sophisticated analytics, machine learning (ML), and AI is important to digitally transforming healthcare. Clinicians may make evidence-based decisions