

The Impact of Digital Life on Oral Health: A Critical Review

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ABSTRACT

The widespread adoption of digital technologies has transformed various aspects of daily life, including communication, entertainment, and work. This review examines the potential implications of digital life on oral health, focusing on behaviours such as increased screen time, sedentary habits, and altered dietary patterns associated with digital device usage. Additionally, the impact of social media on oral health perceptions and behaviours is explored. Furthermore, the role of digital tools, such as tele-health and mobile applications, in promoting oral hygiene and facilitating access to dental care is discussed. Understanding the multifaceted influence of digital life on oral health is crucial for developing effective preventive strategies and interventions to mitigate potential adverse effects and promote overall oral health and well-being in the digital age.

KEYWORDS: Digital, oral health, caries, teledentistry, sleep, behavior, dental care

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INTRODUCTION

The impact of digital life on oral health is a complex and multifaceted issue that warrants critical review.¹ The rapid advancement of digital technology has permeated nearly every aspect of our lives, transforming the way we communicate, work, and access information. In recent years, this digital revolution has also extended its influence to the realm of healthcare, including oral health. In the following sections, we will delve into the specific areas where digital life has made a significant impact on oral health, exploring the opportunities and challenges that arise from this digital transformation.^{1,2}

Digital life has introduced various tools and platforms that promote better oral health habits. Digital platforms have made it easier than ever to access information about oral health. Websites, blogs, and online communities provide valuable resources, empowering individuals to educate themselves about proper oral care practices, preventive measures, and treatment options. Through websites, social media channels, and online forums, individuals can access a wealth of educational content, tips, and guidance on maintaining good oral hygiene, preventing dental problems, and seeking appropriate dental care when needed.³

Smartphone applications and wearable devices equipped with sensors and artificial intelligence have emerged as powerful tools for monitoring oral hygiene practices. These digital solutions provide real-time feedback on brushing technique, duration, areas of plaque buildup, and pressure, enabling individuals to improve their oral care routines and reduce the risk of dental issues such as cavities and gum disease.⁴ By incorporating gamification and personalized coaching, they motivate users to improve their brushing habits and maintain optimal oral health.

Digital advancements have revolutionised the field of dentistry, enabling more precise diagnostics and treatment. Techniques like digital imaging, 3D printing, and computer-aided design/computer-aided manufacturing (CAD/CAM) systems have improved the accuracy and efficiency of dental procedures, leading to better outcomes for patients.^{4,5}

Moreover, the rise of tele-dentistry has expanded access to oral healthcare services, especially for individuals in remote or underserved areas. Through video consultations and remote monitoring, dental professionals can remotely diagnose and provide treatment recommendations, bridging the gap in dental care accessibility and improving overall oral health outcomes.⁵ This is especially beneficial for individuals

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who have difficulty accessing traditional dental care due to location, mobility issues, or other constraints.

Overall, the integration of digital technologies into oral health care has the potential to enhance access, convenience, and effectiveness, ultimately contributing to improved oral health outcomes for individuals and communities.⁶ Furthermore, the digital life poses a significant challenge in ensuring equitable access to digital oral health solutions.

Socioeconomic disparities and limited internet connectivity can hinder the adoption and effectiveness of these technologies, potentially exacerbating existing oral health inequalities. Spending excessive time on digital devices often leads to a sedentary lifestyle, reducing physical activity levels. The lack of exercise can negatively impact oral health, including oral health issues such as obesity and diabetes, which are risk factors for periodontal disease and tooth decay, as regular physical activity helps maintain a healthy immune system, improves blood circulation, and reduces the risk of gum disease.⁶

Excessive screen time may lead to distractions and neglect of oral hygiene routines such as brushing and flossing.

Digital activities often coincide with prolonged periods of snacking, especially on high-sugar and high-carbohydrate foods and beverages. Frequent snacking without proper oral hygiene practices can increase the risk of dental caries and erosion, as bacteria in the mouth feed on sugars and produce acids that attack tooth enamel leading to the accumulation of plaque and bacteria in the mouth, which can result in gum disease, cavities, and other oral health problems.⁶

Extended periods of screen use can result in poor posture, leading to strain on the neck and jaw muscles associated with a phenomenon known as "text neck," where individuals hunch over their devices for extended periods. This strain can contribute to temporomandibular joint disorders (TMJ), causing jaw pain, headaches, as the misalignment of the spine may affect the alignment of the jaw and lead to discomfort or pain which can further deteriorate oral health.⁷

Digital devices emit blue light, which can disrupt the body's natural sleep cycle. Prolonged exposure to blue light in the evenings can interfere with melatonin production, leading to poor sleep quality. Inadequate sleep has been associated with an increased risk of oral health issues, including gum disease, tooth decay, and bruxism (teeth grinding).⁶ Bruxism, in particular, can lead to tooth wear, jaw pain, and temporomandibular joint disorders.

Over-reliance on digital communication and culture of unrealistic beauty standards on social media may contribute to social isolation and mental health issues, which can indirectly impact oral health.⁶ This can lead to increased self-consciousness about one's smile and drive individuals towards seeking unnecessary and potentially harmful dental treatments to achieve an idealised appearance. Stress, anxiety, and depression have been linked to poor oral health behaviours such as neglecting oral hygiene and engaging in unhealthy dietary habits.⁷

Misinformation about oral health proliferates on digital platforms due to the ease of sharing content and the lack of oversight on accuracy.⁷ Digital platforms allow anyone to publish content, regardless of their expertise or credentials in oral health. As a result, misinformation can spread rapidly, with unverified sources disseminating inaccurate or outdated information about oral hygiene practices, dental treatments, and preventive care. Some individuals or organisations may intentionally promote misleading claims or pseudoscientific remedies for oral health issues, often to sell products or services.⁶

Overall, the negative impacts of digital life on oral health highlight the importance of maintaining a balance between digital activities and healthy lifestyle practices, including regular physical activity, proper nutrition, and consistent oral hygiene routines.⁷ Educating individuals about the potential risks of excessive screen time and promoting strategies for mitigating these risks can help safeguard oral health in the digital age.⁸

CONCLUSION

In conclusion, the impact of digital life on oral health is increasingly significant in today's society. Our review has highlighted several key points regarding this relationship. Firstly, the pervasive use of electronic devices, coupled with sedentary behaviors, has led to a shift in lifestyle patterns, including increased snacking and decreased physical activity, which can have detrimental effects on oral health.

Furthermore, the habit of prolonged screen time, particularly with smartphones and tablets, has been associated with a decrease in saliva production and changes in oral pH, creating an environment conducive to the development of dental caries and periodontal diseases. Additionally, the engagement in social media and online gaming has been linked to neglect of oral hygiene practices and poor dietary choices, further exacerbating oral health issues.

It is essential for individuals to be aware of these potential risks and take proactive measures to mitigate them, such as practicing good ergonomics, limiting screen time, and maintaining a balanced lifestyle that includes regular physical activity and quality sleep. By striking a healthy balance between digital life and oral health, we can ensure the well-being of both our teeth and our overall health.

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