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Oral Health Awareness in the Digital Age: Opportunities and Challenges

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Abstract

Oral health awareness has shifted from a treatment-focused model to a preventive, technology-supported approach that acknowledges the link between oral and systemic health. Despite progress in dental care and public health, oral diseases still affect nearly 3.7 billion people worldwide, posing a major public health challenge.

Lifestyle changes, such as higher intake of refined sugars and greater use of tobacco and alcohol, have increased rates of dental caries, periodontal disease, and oral cancers. In response, modern dentistry focuses on prevention through education and behavioural change. The growth of digital technologies and mobile health platforms has expanded the reach and effectiveness of oral health promotion by supporting self-monitoring, goal setting, and broader access to evidence-based information.

The digital environment also presents challenges. Social media, while useful for awareness campaigns, can quickly spread misinformation about oral health, leading to harmful behaviours and delayed care. Addressing this issue requires collaboration among dental professionals, public health organisations, and technology platforms to promote accurate, science-based information. Strengthening preventive strategies and encouraging responsible digital engagement are essential to reduce the global burden of oral diseases and improve health outcomes.

Keywords: *Oral Health Awareness; Preventive Dentistry; Systemic Health; Lifestyle Factors; Mobile Health (mHealth); Digital Health; Social Media; Oral Health Misinformation*

Oral health awareness in the modern era has shifted from a “drill and fill” approach to a more proactive, technology-driven preventive approach that now recognises the mouth as a mirror of overall systemic health. Despite these advances, according to the WHO, oral diseases still affect nearly 3.7 billion people, resulting in a global burden of disease [1].

One of the key points in the modern era is the positive association between poor oral health and various systemic conditions like diabetes mellitus, cardiovascular diseases, respiratory infections and adverse pregnancy outcomes, to name a few. The inextricable relationship between periodontal diseases and systemic conditions is attributed to microbemia and the presence of inflammatory mediators in the bloodstream [2,3].

Lifestyle and oral disease prevalence

Recent shifts in lifestyle patterns, including increased consumption of highly refined foods and sugars, as well as the use of alcohol and tobacco products, have contributed to a rise in oral diseases. These lifestyle changes are closely linked to the increasing prevalence of oral health conditions [4].

Tobacco and alcohol remain the primary aetiological factors associated with the development of oral cancers. However, dietary habits also play a significant role in oral health outcomes. An unbalanced diet can weaken the immune system, making individuals more susceptible to oral diseases and potentially increasing the risk and occurrence of oral cancer. Thus, both substance use and nutritional factors are critical in understanding the current trends in oral disease prevalence [5].

Mobile health (mHealth) initiatives in oral health

Contemporary dentistry places a strong emphasis on prevention. Most oral diseases can be prevented by increasing awareness. Public health campaigns and education initiatives play a crucial role. With the advent of social media, oral health information is easily accessible and convenient. Studies have shown that greater knowledge of oral hygiene correlates with better oral health [6]. In the modern era, smartphones with easy internet access facilitate the dissemination of this knowledge to the masses.

Tools have been developed that enable individuals to set goals and monitor their oral health, thereby making the process more interactive [7]. Initially, oral health focused on treating dental conditions and relieving pain. But since oral health is also associated with other systemic diseases, people are becoming more aware of the importance of maintaining good oral health. Social media can be exploited to increase awareness of oral cancers.

With the widespread adoption of cellular phones and related technologies, and in alignment with the first strategic objective of the Global Digital Health Strategy, BHBM (Be He@lthy Be Mobile) facilitates global collaboration and promotes the transfer of knowledge in digital health. The WHO is promoting mobile health (mHealth) as a platform for health-related interventions. These strategies use mobile devices to deliver information, reminders, and educational materials related to oral health directly to individuals and communities. mHealth tools support goal setting and self-monitoring, thereby encouraging proactive oral health management and improving access to preventive care. Mobile technology also helps spread awareness campaigns and educational initiatives, empowering the public to adopt and maintain effective oral hygiene practices. As life expectancy has increased over the years, the proportion of older adults retaining their natural teeth has increased. With the advent of mobile health (mHealth), dentists can provide older patients with real-time oral health instructions and feedback remotely [8,9].

The “digital double-edged sword”

Although digital platforms and social media are valuable for disseminating knowledge and information about oral health, they can also be used to spread misinformation. Research has shown that misinformation can be easily spread via social media [10,11].

Dental remedies unsupported by scientific evidence may encourage individuals to engage in hazardous oral hygiene practices, leading to improper dental care and preventing them from seeking professional help. For instance, teeth whitening with home remedies such as charcoal, lemon, and baking soda can damage enamel, leading to loss of tooth structure. Another example of a misconception is the unsubstantiated claim about fluoride toxicity, which discourages people from using fluoridated toothpastes and mouthwashes. This can increase the prevalence of caries, one of the most preventable chronic childhood dental diseases [12-14].

Conclusion

Oral health in the modern era is now recognised as an essential part of overall systemic well-being. Advances in preventive dentistry, digital health technologies, and public health strategies offer new opportunities to raise awareness, encourage healthy behaviours, and

reduce the global burden of oral diseases. Increasing recognition of the connection between oral and systemic conditions highlights the need to integrate oral health into general healthcare frameworks.

Evolving lifestyle patterns and the influence of digital media create both opportunities and challenges. Mobile health platforms and social media can improve education and access to preventive guidance, but they can also enable the rapid spread of misinformation, undermining evidence-based practices and delaying care. Addressing these issues requires coordinated efforts from dental professionals, public health authorities, and digital platforms to ensure the public receives accurate, science-based information.

Strengthening oral health awareness through credible education, supportive policies, and responsible use of digital technologies is essential to promote preventive behaviours, reduce disease prevalence, and improve quality of life across populations.

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