Letters to the editor

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Dental anxiety

FearLess

Sir, I write further regarding the management of dental anxiety as a public oral health issue.[1,2]

A considerable number of individuals experience fear or anxiety when visiting a dentist, resulting in avoidance of regular check-ups. Unfortunately, this behaviour can exacerbate dental problems as individuals seek treatment only when the condition becomes severe.[2]

Cognitive behavioural therapy (CBT) has been identified as an effective approach to address dental anxiety, but it is not widely available in dental clinics due to financial constraints and other factors.[3] Instead, patients are often given medication to calm them.[4] However, the administration of sedation or anti-anxiety medication during dental visits could lead to dependency on them for every check-up.

Fortunately, researchers from prestigious American institutions have developed a smartphone application (app) called Dental FearLess. This app incorporates the fundamental principles of CBT and engages in virtual activities to guide individuals through the process. By utilising educational materials for fear and anxiety, the app is equipped with coping strategies and techniques to be employed during dental visits. These techniques include breathing exercises, muscle relaxation, improved communication skills, and methods to challenge unhelpful thoughts. The app also allows users to watch videos depicting interactions between dentists and patients, thus enabling them to practise the strategies they have learned. Ultimately, the app assists individuals in creating an action plan to effectively manage their fears during future dental appointments.[5]

Preliminary findings from the aforementioned study indicate that half of the participants no longer reported experiencing dental fear after using the app.[5] Furthermore, researchers are exploring the potential of incorporating virtual reality into the dental anxiety management process, which will allow patients to further immerse themselves in simulated encounters.[6]

Given the significant number of individuals who fear dentists and their impact on oral health, it is crucial for dental professionals to recognise the importance of anxiety management. The Dental FearLess app presents a promising solution that makes CBT more accessible.

E. Veseli, Pristina, Kosovo

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Oral health

Oral health's role in disease prevention

Sir, a recent literature review was conducted on the bidirectional link between oral health and diverse diseases from the National Library of Medicine from 2023. The systematic review of 1,962 studies explored the potential link between poor oral health and Alzheimer's disease.[1] Four theories were identified, all centring on neuroinflammation caused by poor oral health. Despite some studies suggesting a possible association, the evidence was inconclusive due to diverse study designs. Further research was needed to establish causal links and potentially prevent cognitive decline through improved dental care.[1]

Stoy *et al.* investigated the impact of acute stress on the oral microbiome diversity in military medical students during a hyper-realistic simulation training week.[2] Preliminary data suggested that stress can alter the oral microbiome composition, with third-year students showing a significant difference in their oral microbiome richness. These findings indicated the potential of using the oral microbiome as a stress indicator.[2]

Andriankaja *et al.* investigated the impact of systemic inflammatory mediators on oral health, specifically periodontitis, in 597 overweight/obese adults.[3] They found that baseline ICAM-1 and VCAM-1 directly affected periodontitis, while hs-CRP had an indirect effect via ICAM-1. These findings suggested a significant role of these mediators in oral health among this population.[3]

Altamura *et al.* explored the interplay between oral health, gut, and kidney disease, focusing on the oral-gut-kidney axis.[4] It suggests that periodontal diseases and gut microbiota, impacting metabolic and immunological alterations, could modify chronic-kidney-disease. Their findings could offer new therapeutic strategies for chronic-kidney-disease, aiming for improved patient outcomes.[4]

Obesity in children, a systemic disease, led to serious metabolic and non-metabolic complications, affecting various body systems and potentially reducing life

expectancy.[5] It also exacerbated existing childhood diseases and may impact the health of future generations. A holistic approach, including oral health, is crucial in managing obesity and its complications.[5]

Recent studies underscore the importance of oral health in preventing various disorders, including Alzheimer's disease, stress, and obesity. The interplay between oral health and systemic diseases like chronic-kidney-disease is also highlighted. These findings necessitate further research and a holistic approach to health management.

Y. Takefuji, Tokyo, Japan

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Artificial intelligence

AI in streamlining NHS dentistry

Sir, we read the article by Mossey and Preshaw with great interest.[1] With increasing pressure on NHS dental services, including limited access and stretched resources, there is an urgent need to optimise and enhance these services through technology. We suggest utilising the transformative potential of artificial intelligence (AI), machine learning (ML) and predictive analytics in revitalising NHS dentistry as it faces various challenges, by enabling smarter patient management and resource allocation. AI-driven tools can analyse vast amounts of dental records to identify patterns and predict which patients are at higher risk of dental diseases or other NCDs. This allows for personalised recall intervals, ensuring that patients receive care precisely when they need it, without unnecessary appointments that strain system resources.

Predictive analytics can also streamline operational efficiency within dental practices. By forecasting periods of high demand, NHS facilities can better manage staffing and appointment scheduling, ensuring that every patient receives timely care. Moreover, these technologies can assist in diagnostic processes, with AI algorithms capable of accurately analysing dental imaging to detect early signs of conditions such as dental caries, periodontitis and oral cancer.

In dental practices, health screenings are conducted as unique opportunities to identify many patients with risk factors for chronic diseases, which also impact their oral and general health.[2] Incorporating these technologies not only enhances the efficiency of dental practices but also improves patient outcomes by catching potentially severe conditions early. The integration of these technologies into NHS dentistry aligns with the broader vision of a health service that is proactive rather than reactive, focusing on prevention and early intervention.

M. Mathew, R. Reji, Ludhiana, India

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Periodontology

Voice-activated charting systems

Sir, after reading P. Hellyer's article on the limitations of risk prediction models and assessment tools in periodontal therapy,[1] it's clear that addressing these gaps is imperative. The emergence of voice-activated periodontal charting systems offers a promising solution to revolutionise clinical charting practices in dentistry. The pandemic has underscored the importance of infection control and efficiency, making the adoption of such systems even more crucial.

Voice-activated periodontal charting systems, including VoiceWorks by Oral Science (Brossard, QC) and DenChart by Dentech, provide significant advantages in infection control, ergonomics, efficiency,

and comprehensive documentation. These systems minimise surface contamination, reduce repetitive movements for dental hygienists, and seamlessly integrate into workflow. Moreover, they enhance patient care quality by offering thorough periodontal charting capabilities.[2]

DenChart, the voice-activated charting software, streamlines clinical charting, enabling swift patient exams – all in one place. Features such as One-click Tooth Review and Auto-Compare Chart History provide instant access to tooth history and insights into changes in teeth health. Voice Triplets Commands ensure accurate pocket depth recording, while the Exam Focus Window allows for magnified tooth display from 6 ft away. Additional features like Auto Advance/Resume, Feedback Control, and the Flip Command further enhance efficiency and accuracy. To explore DenChart's capabilities further, readers can visit https://www.dentech.com/features/voice-activated-charting for a demonstration.[3] DenChart not only aids in data analysis but also enhances communication between dentists and patients, fostering a more personalised and compassionate approach to patient care. By providing patients with real-time understanding of their periodontal condition, DenChart facilitates greater engagement and collaboration in the treatment process.

The integration of voice-activated periodontal charting systems into dental practices represents a significant advancement in patient care delivery. These systems not only improve efficiency and infection control but also enhance diagnostic accuracy and patient engagement. Dental practices embracing such innovations are better equipped to provide high-quality, personalised care that meets the evolving needs of patients.

P. Lister, N. A. Sudharson, P. Kaur, M. Joseph, Ludhiana, India

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