



# Early childhood caries detection using smartphone artificial intelligence

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Dear Editor-in-Chief,

There are currently different mobile applications (apps) available that can assist individuals in managing their health behaviors and conditions. This includes apps that aid with smoking cessation, weight loss, medication adherence, and even to monitor Parkinson's disease (Xie et al. 2023; Lee et al. 2021; Bounsall et al. 2023). However, available oral health apps have important limitations in terms of their audience and scope. Among these limitations, none of them are satisfactorily accessible to low-income families and minority groups who are disproportionately affected by early childhood caries (ECC) and have limited access to oral healthcare.

In 2023, an innovative pilot study on a novel artificial intelligence (AI)-based app was developed by a renowned American Institute. This tool was designed to identify dental caries in their early stages. The objective in this case was to create a smart and connected community that prioritizes oral health. This endeavor involves community centers and health workers to aid with the implementation process of the app, educating parents on its use, and conducting additional tests, such as X-rays. The ultimate goal of the project is to connect families with dental healthcare providers within the network and improve existing dental care practices. The app, named 'SMARTeeth', works as follows: caregivers or parents take a picture of their child's teeth or those of children in their

care, and the app, using AI technology, can detect any signs of caries (Black 2023).

This technology uses AI-powered image recognition to analyze photographs of children's teeth captured using smartphones. By applying AI algorithms, the app can identify and detect early signs of dental caries, allowing parents to seek timely treatment for their children. This innovative AI approach therefore has the potential to facilitate early detection and intervention involving ECC cases, representing an advance of great importance for the areas of preventive and pediatric dentistry. Thus, in addition to the direct benefits for children's oral health, the possible impact of the use of this technology on a large scale might also reduce the burden of dental caries and its complications/implications on health systems with a view to significant improvements compared to the current situation.

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