

More accurate aging of teeth could hold the key to identifying health-compromised children in Africa

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Credit: Wits University

Population-based data on human biological growth and development processes are fundamental for assessing the health status of a community. For many populations in rural Africa, birth registry and eliciting date of birth are still challenges. Data on uncompromised development and growth variation in most developing populations are surprisingly lacking, and researchers typically compare growth in the



population of interest to standards that are formulated for European or US children.

Wits University anatomical science and community dentistry researchers, however, believe that more accurate aging of teeth could hold the key to identifying health-compromised <u>children</u> on the African continent. The researchers, who are investigating dental <u>development</u> as a more reliable gauge for assessing the age of children and juveniles in forensic and anthropological contexts, recently published a systematic review of dental development assessment methods to determine the best and most accurate means to estimate chronological age in different populations.

According to Professor Lynne A Schepartz, Associate Professor and Head of the Biological Anthropology Division at Wits and co-author of the paper, "It is important to accurately estimate chronological age from a sample of living children in the population of interest, because this information can then be used as a benchmark for evaluating the growth of health-compromised children. Our review illustrates that there is significant population-level variation in the tempo of dental development."

Their review focused on studies investigating the predominant dental development assessment methods - the Demirjian and the Willems methods - in different populations with the aim of determining the more accurate method. The findings conclude that the Willems method of dental age estimation provides a better and more accurate estimation of chronological age in different populations than the Demirjian method. Still, the ages of children in most populations are over-estimated using that <u>method</u>.

The findings have implications for growth assessment in general, and the use of global standards that are largely untested in African populations.



The research highlights the need for <u>population</u>-specific standards for age estimation, as their use extends beyond basic <u>biological anthropology</u> and health research.

The Wits researchers say the information from dental development may play a major role in determining many clinical decisions, including choices about treatment options and sequence of treatment in the future.

More information: Temitope Ayodeji Esan et al. The Demirjian versus the Willems method for dental age estimation in different populations: A meta-analysis of published studies, *PLOS ONE* (2017). DOI: 10.1371/journal.pone.0186682

Provided by Wits University

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