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Contact:
Matt Niner
+1.240.499.6837
media@iadr.org

Study Finds No Adverse Effects of Early Fluoride Exposure on Childhood Development

Alexandria, VA, USA, October 10, 2022 – An Australian nation-wide population-based follow-up study published in the *Journal of Dental Research (JDR)* has provided evidence that exposure to fluoridated water by young children was not negatively associated with child emotional, behavioral development and executive functioning in their adolescent years.

The study by Professor Loc Do of the University of Queensland Faculty of Health and Behavioural Sciences, School of Dentistry and colleagues examined the effect of early childhood exposures to water fluoridation on measures of school-age executive functioning and emotional and behavioral development in a population-based sample. This longitudinal follow-up study used information from Australia's National Child Oral Health Study of 2012-14. Children aged 5-10 years at the baseline were contacted again after 7–8 years, before they had turned 18 years of age.

Percent lifetime exposed to fluoridated water (%LEFW) from birth to the age of five years was estimated from residential history and postcode-level fluoride levels in public tap water. Measures of children's emotional and behavioral development were assessed by the Strength and Difficulties Questionnaire (SDQ), and executive functioning was measured by the Behavior Inventory of Executive Functioning (BRIEF). Multivariable regression models were generated to compare the associations between the exposure and the primary outcomes, controlled for covariates. An equivalence test was also conducted to compare the primary outcomes of those who had 100%LEFW against those with 0%LEFW.

Sensitivity analysis was also conducted. A total of 2,682 children completed SDQ and BRIEF, with mean scores of 7.0 (95%CI: 6.6, 7.4) and 45.3 (44.7, 45.8), respectively. Those with lower %LEFW tended to have poorer scores on the SDQ and BRIEF. Multivariable regression models reported no association between exposure to fluoridated water and the SDQ and BRIEF scores. Low household income, identifying as Indigenous, and having a neurodevelopmental diagnosis were associated with poorer SDQ/BRIEF scores.

The study concluded that exposure to fluoridated water during the first five years of life was not associated with altered measures of child emotional and behavioral development and executive functioning. Children who had been exposed to fluoridated water for their whole early childhood had their measures of emotional, behavioral development and executive functioning at least equivalent to that of children who had no exposure to fluoridated water.

“Water fluoridation is unquestionably effective in preventing dental caries, and this study is an important addition to the body of literature documenting the safety of water fluoridation,” said IADR President Brian O’Connell, Dean of the Faculty of Health Sciences, Trinity College Dublin, Ireland. “The IADR recently reaffirmed its support for water fluoridation as this public health measure has a high benefit/cost ratio and benefits deprived communities the most, thus reducing health inequalities.”

About the *Journal of Dental Research*

The *Journal of Dental Research (JDR)* is a multidisciplinary journal dedicated to the dissemination of new knowledge in all sciences relevant to dentistry and the oral cavity and associated structures in health and disease. The *JDR* Editor-in-Chief is Nicholas Jakubovics, Newcastle University, England. To learn more, visit <https://journals.sagepub.com/home/jdr> and follow *JDR* on Twitter at @JDentRes!

About IADR

The International Association for Dental Research (IADR) is a nonprofit organization with over 10,000 individual members worldwide, with a Mission to drive dental, oral and craniofacial research to advance health and well-being worldwide. The IADR’s position statement on community water fluoridation can be found [here](#). To learn more, visit www.iadr.org.

About AADOCR

The American Association for Dental, Oral, and Craniofacial Research (AADOCR) is a nonprofit organization with over 3,000 members in the United States with a mission to drive dental, oral, and craniofacial research to advance health and well-being. AADOCR is the largest division of the International Association for Dental Research which has over 10,000 members. Learn more at www.aadocr.org.