

Title: A Systematic Review and Meta-Analysis of the Prevalence of Dental Caries in the Permanent Teeth of Arab Children

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Abstract: Despite the global prevalence of dental caries, there is a paucity of comprehensive data on the extent of this issue among children in the Arab region. This systematic review and meta-analysis aimed to evaluate the prevalence of dental caries and the associated Decayed, Missing, and Filled Teeth (DMFT) indices in permanent teeth among children from 4 to under 18 years of age in the Arab region. A comprehensive review of various studies was conducted. Studies were searched across eight different electronic databases in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses protocol. The random effects (RE) model was used for analysis, allowing variation in effect sizes across studies. The RE model suggested a high caries prevalence rate of 72.62% (with a 95% confidence interval of 65.3%-78.89%), suggesting a large burden of dental caries in this population pertaining to permanent teeth. The I^2 score was 99.0%, showing high heterogeneity among the investigations. The mean DMFT score was found to be 1.675 (with a 95% confidence interval of 0.5519-2.7980), indicating of substantial dental health concerns. Surprisingly, the I^2 value for DMFT scores was 0.0%, demonstrating no detected heterogeneity among the trials. The study highlights a high prevalence of dental caries and significant DMFT scores among children in the Arab region, signaling an urgent public health concern. The lack of heterogeneity in DMFT scores across studies, despite high caries prevalence, suggests potential limitations in the DMFT indices' ability to capture the full severity of dental caries. Further research is needed to refine these tools and fully understand the burden of dental caries in this population.

Keywords: Dental caries Children's oral health Arab region DMFT index (Decayed, Missing, Filled Teeth) Prevalence study Systematic review

- [DOI: 10.1055/s-0044-1795117](https://doi.org/10.1055/s-0044-1795117)

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