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Dental Caries, Developmental Defects of the Enamel and Dental Fluorosis in 9-Year-Olds of Igboora, Ibarapa Central Local Government Area, Oyo State, Nigeria

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Background: Dental caries has been commonly defined as a disease process which causes the demineralisation of dental hard tissues by microbial activity. It is a preventable disease which can be reversed in its early stages. Enamel formation is a natural process in the body which can be affected by environmental and genetic factors resulting in enamel defects like dental fluorosis and developmental defects of the enamel (DDE).

Objective: This study assessed the prevalence and socio-demographic characteristics and relationship between dental caries, DDE and dental fluorosis amongst 9-year old children with a view to providing information that will aid the prevention and treatment of these oral health problems.

Materials and Methods: This study was a cross sectional study involving 378 participants in Igboora, Ibarapa Central Local Government, Oyo State, Nigeria. The research project was carried out in 3 phases that investigated the prevalence of dental caries, developmental defects of enamel and dental fluorosis and also the relationship between them among nine-year olds in Igbo-ora, Oyo State.

In Phase 1, dental examination for the presence of dental caries, DDE and dental fluorosis using the dmft/DMFT indices, modified DDE index and Dean's indices respectively was undertaken for 378 nine-year-olds. In Phase 2, 152 semi-structured questionnaire was administered to parent/guardian in order to collect data on socio-demographic characteristics, pregnancy history, delivery history, childhood illnesses, dietary practices and tooth cleaning. In Phase 3, a well labelled universal bottle comprising the identification number was used to collect a sample of drinking water from 378 participants who will be later assessed for fluoride concentration. Frequencies and means were generated. Chi square test was used to test the associations between categorical variables at ($p<0.05$) and continuous variables respectively.

Result: The prevalence of dental caries, DDE and dental fluorosis were 3%, 41% and 40% respectively. There was no relationship between dental caries and dental fluorosis among our study participants ($p=0.716$), there was no relationship between dental caries and DDE ($p=0.642$) but we found a relationship between DDE and dental fluorosis ($p<0.05$). Fluoride toothpaste use, gender, exclusive breastfeeding and infant/childhood diseases were not statistically significant predictors of DDE and dental fluorosis.

Conclusion: Enamel formation is a process that is susceptible to many biological influences. This study confirms a common hypothesis which states that in population where the prevalence of dental fluorosis is high, the prevalence of dental caries is low.