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Dental fluorosis in Tanzania Great Rift Valley in relation to fluoride levels in water and in 'Magadi' (Trona)

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Abstract

Information on the extent of health problems caused by fluoride in Tanzania is scanty. To determine the prevalence and the severity of dental fluorosis in relation to fluoride level in water and in 'magadi' (Sodium Carbonate and Sodium Bicarbonate), 2912 school children aged 12–18 years from 96 villages within internal drainage basin (IBD) of the Great Rift Valley (in East Africa) were examined using Thylstrup Fejerskov Index (TFI). Fluoride level in water ranged from 1.5 to 24.9 F^- mg/L (mean=4.6F^- mg/L), whereas that of 'magadi' ranged from 2.7 to 31,000 F^- mg/kg (mean=3455 F^- mg/kg). The prevalence of dental fluorosis was 96.3% while the severity ranged from 3 to 7 TFI. A total of 83.3% of children had at least one tooth with TFI score≥4. Although the findings of this survey did not reveal linear association between dental fluorosis and fluoride levels, probably due to complexity of factors such as ingestion of 'magadi', the high prevalence and severity of dental fluorosis calls for an immediate intervention.