

ABSTRACT

Background and objective

Tooth wear has been recognized as an emerging dental problem among adolescents in the developed countries. Many authors attributed this disease trend to the increased consumption of acidic food, mainly carbonated beverages, associated with improving socio-economic standards. However, there is paucity of information on tooth wear among adolescents from developing countries. Therefore, the aim of the present study is to assess the prevalence and associated factors of tooth wear among 17-year-old school children in the Colombo District of Sri Lanka.

Methodology

The study consisted of two components. A cross-sectional school based study was conducted in order to determine prevalence, severity, distribution and risk indicators of and awareness about tooth wear among the adolescents. A total of 1200 17-year-olds were selected from the schools in the Colombo district using a two stage cluster sampling method combined with probability proportional to size (PPS) technique. Subjects were requested to complete a self-administered questionnaire on potential risk indicators and knowledge about tooth wear. Oral examination was carried out to assess tooth wear using Smith and Knight (1984a) Tooth Wear Index. In the second component of the study, seventeen brands of carbonated beverages available in the market were analysed for acidity, calcium and fluoride ion concentrations.

Results

Prevalence of tooth wear was 22%. Fourteen-per-cent only had tooth wear lesions confined to the enamel while 9% had tooth wear lesions extending up to the dentine. The mean number of tooth surfaces affected by tooth wear per subject was 3.5 while it was 2.6 and 1.0 for enamel wear and dentine wear, respectively. Tooth wear lesions were symmetrically distributed in the dental arches. Teeth in the upper arch were more affected

by enamel wear than teeth in the lower arch while dentine wear was more in the lower arch than in the upper arch.

In the multiple logistic regression analyses, monthly family income exceeding Rs. 30,000 (OR = 2.01, 95% CI = 1.10-3.67, p=0.02), consumption of oranges at least once a week (OR = 1.83, 95% CI = 1.00 -3.33, p=0.048) and consumption of Coca Cola at least once a week (OR = 1.88, 95% CI = 1.06-3.35, p=0.03) emerged as significant predictors of prevalence of tooth wear. Consumption of Fanta at least once a week was significantly associated with the prevalence of enamel wear. Attending a private or international school (OR = 3.12, 95% CI = 1.07-9.11, p=0.04) and consumption of Coca Cola at least once a week (OR = 6.05, 95% CI = 1.92-19.00, p=0.002) emerged as significant predictors of prevalence of dentine wear.

Analysis of beverages revealed that the pH values of locally available brands of carbonated beverages were low when compared with other reported studies. Moreover, the study revealed that the knowledge about tooth wear and dental erosion among these adolescents was poor.

Conclusions and recommendations

The present study revealed that tooth wear is a problem among these adolescents with a substantial prevalence. It is apparent that this is a condition directly related to changing dietary patterns linked with improving socio-economic standards. A diet rich in acidic food and beverages seems to be significantly contributing to the aetiology of the condition. Thus, identifying high risk groups for tooth wear and dental erosion should be considered a priority area in the dental health. Effective primary preventive measures will be useful in reducing the future burden of disease.