

Dental erosion in schoolchildren and socioeconomics

Dental erosion in a group of British 14-year-old, school children. Part I: Prevalence and influence of differing socioeconomic backgrounds. by Y. H. Al-Dlaigan, L. Shaw and A. Smith *Br Dent J* 2001; 190: 145-149

Objectives

To establish the prevalence of erosion in a cluster random sample of 14-year-olds in Birmingham UK. To determine whether socioeconomic group influences the prevalence of erosion.

Methods

The study group consisted of a cluster random sample of 14-year-old school children in Birmingham UK: 418 children were examined from 12 different schools; 209 were male and 209 female. The level of tooth wear was recorded using a modification of the (TWI) index of Smith and Knight (1984). The ACORN classification was used to assess the socioeconomic status of all children.

Results

Results showed that 48% of the children had low erosion, 51% had moderate erosion and only 1% had severe erosion. There were statistically significant differences between males and females; more males had buccal/ labial and lingual / palatal tooth surface erosion than females (Chi-square analysis $P < 0.001$). There was also significantly more erosion observed in teenagers in the lowest socioeconomic categories.

Conclusion

It was concluded that moderate levels of dental erosion are common in 14-year-old school children and this may lead to increasing clinical problems. There was significantly more erosion in children from low socioeconomic groups. Possible aetiological factors need to be investigated further.

Comment

This is the first of a duo of papers from the well-respected research team in Birmingham that have done much of the seminal work on dental erosion in the UK. This paper seeks to establish the relationship between dental erosion and socioeconomic influence and the other paper, the influence of extrinsic sources of acid on the prevalence of dental erosion in a population of young people.

The studies have 'piggy-backed' on the routine caries prevalence data collection which forms part of the regular programme of monitoring mounted by BASCD. A cluster sample of 14-year-olds, 209 each of boys and girls were clinically examined and details of their socio-economic background were categorised into ACORN scores whilst dietary intakes of potentially erosive foods were gleaned from a questionnaire.

Earlier work from Birmingham indicated that in pre-school children at least, there was a direct relationship between dental erosion and socio-economic status,

with children from higher socio-economic backgrounds having a higher prevalence of dental erosion. The same is not the case in this study where, as in Milosevic's work on 14-year-olds in Liverpool, there was an inverse relationship demonstrated between dental erosion and socioeconomic status, even though the means to assess the latter were different between the studies.

The authors have excluded incisal and occlusal surfaces from consideration since they felt that wear on these surfaces represented evidence of attrition as well, as or rather than, erosion. Whilst this is likely to be the case for incisal edges, the same is not always true for occlusal surfaces, depending of course on the index used. Even as it is useful to examine all tooth surfaces for dental erosion, as the authors have concluded little is evident on premolars and molars. Whilst it is possible to categorise erosion on molar teeth when pitting is present, efficient fissure sealing programmes often masks this evidence.

Indeed, in the national dental health surveys of children and adults only incisors have been included in the examinations since on reviewing the published data, it is evident that if erosion is present in the mouth at all, it will virtually always be present on incisor teeth. For epidemiological purposes, using only index teeth on which to collect data reduces examination time for each subject whilst still collecting essential data.

Whatever about the minutiae of epidemiological technique, the worrying conclusion is that half our young people have dental erosion. If the incidence also is high, this is worrisome for the maintenance of these young peoples' dentitions into adult life. We do not yet have any idea if this is the case and scientifically-based epidemiological studies are vital if this question is to be answered.

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In Brief

- The aims of the study were to establish the prevalence of erosion in a cluster random sample of 14-year-olds in Birmingham, UK and to determine whether socioeconomic group influences the prevalence of erosion.
- 418 children were examined from 12 different schools; 209 were male and 209 female. The level of tooth wear was recorded using a modification of the (TWI) index of Smith and Knight (1984). The ACORN classification was used to assess the socioeconomic status of all children.
- 48% of the children had low erosion, 51% had moderate erosion and only 1% had severe erosion. Statistically significant differences were seen between males and females; more males had erosion than females. Significantly more erosion was observed in teenagers in the lowest socioeconomic categories.
- Moderate levels of dental erosion are common in 14-year-old school children, particularly amongst low socioeconomic groups.
- Attention should be paid to possible aetiological factors requiring further investigation.