

On Dental Caries and Caries-Related Factors in Children and Teenagers

Akademisk avhandling

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av

Anita Alm
leg. tandläkare

Avhandlingen är av sammanläggningstyp och baseras på följande fyra delarbeten:

- I. Alm A, Wendt LK, Koch G: Dental treatment of the primary dentition in 7-12 year-old Swedish children in relation to caries experience at 6 years of age. *Swed Dent J* 2004;28:61-66.
- II. Alm A, Wendt LK, Koch G, Birkhed D: Prevalence of approximal caries in posterior teeth in 15-year-old Swedish teenagers in relation to their caries experience at 3 years of age. *Caries Res* 2007;41:392-398.
- III. Alm A, Wendt LK, Koch G, Birkhed D: Oral hygiene and parent-related factors during early childhood in relation to approximal caries at 15 years of age. *Caries Res* 2008;42:28-36.
- IV. Alm A, Fåhraeus C, Wendt LK, Koch G, Andersson-Gäre B, Birkhed D: Body adiposity status in teenagers and snacking habits in early childhood in relation to approximal caries at 15 years of age. *Int J Pediatr Dent* 2008;18:189-196.

Abstract

On Dental Caries and Caries-Related Factors in Children and Teenagers

Anita Alm, Department of Cariology, Institute of Odontology, Sahlgrenska Academy, University of Gothenburg, Box 450, SE-405 30 Göteborg, Sweden

Dental caries is still a common disease among children and adolescents. The aims of the present thesis were therefore: 1) to investigate the approximal caries prevalence in posterior teeth in 15-year-olds, 2) to study past caries experience in the primary dentition in relation to future caries development and need for treatment, 3) to investigate factors during early childhood which are associated with caries development later in life, and 4) to study the association between age-specific body mass index (isoBMI) and approximal caries status in 15-year-olds.

Paper I has a retrospective design and the analyses were based on record data from a randomly selected sample. Papers II, III and IV are based on radiographic analyses of posterior teeth in 15-year-olds followed longitudinally from 1 to 15 years of age. The data for these studies were selected from examinations, interviews and questionnaires from early childhood and school health care records at 15 years (isoBMI values).

The result showed that the approximal caries prevalence in 15-year-olds is underestimated in official caries data, since initial caries lesions are not included in these statistics. Two thirds of all 15-year-olds had approximal caries and initial caries constituted 86% of the total number of caries lesions. There was a strong relationship between caries in early childhood and approximal caries prevalence in the posterior teeth at 15 years of age. Children with caries experience at 6 years received significantly more treatment in the primary dentition during the period from 7 to 12 years compared with children who were caries free at the same age. Further, it was pointed out that parents' attitudes to dental health and psychosocial factors during early childhood have an effect on approximal caries in 15-year-olds. Additionally, plaque on primary incisors at 1 year of age and infrequent toothbrushing at 3 years of age were associated with a high caries experience at 15 years. It was also demonstrated that adolescents with overweight and obesity had a significantly higher approximal caries prevalence than those of normal weight. Furthermore, it was shown that children's unfavourable snacking habits at 1 and 3 years of age were associated with approximal caries at 15 years.

The main conclusions from this thesis are that: 1) epidemiological caries data should include initial caries lesions on approximal tooth surfaces, in order to show the actual caries prevalence, 2) there is a strong relationship between caries in early childhood and approximal caries prevalence in the posterior teeth at 15 years of age, 3) the psychosocial environment in which children live during their childhood has an impact on dental health later in life, 4) good oral hygiene habits including the use of fluoride toothpaste, established in early childhood, provide a foundation for good dental health in adolescence, and 5) future preventive programmes should include, at a multidisciplinary level, strategies to prevent and reduce both dental caries and obesity at an early age.

Key words: Adolescents, approximal caries, caries experience, early childhood caries, oral hygiene, fluoride toothpaste, plaque, psychosocial factors, snacking habits, body mass index

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