



Just add positivity? Dental caries, obesity and problem behaviour in children:  
the role of parents and family relations.

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## Summary

In order to identify possible family- or parent-targeted components of preventive interventions, this thesis aimed at exploring the role of parenting practices and family functioning in children's oral health behaviours and childhood dental caries in a high-risk population. A second aim was to explore the relationships between obesity and child behaviour problems and dental caries. A further objective was to explore whether family functioning and parenting are associated with child behaviour problems.

Chapter 2 describes a qualitative study, in which six focus group interviews were conducted, including a total of 39 parents of 7-year old children, who were recruited from paediatric dental centres in the Netherlands. The aim of this qualitative study was to explore parents' perceptions of barriers and facilitators that influence key oral health behaviours in children. With regards to tooth brushing, parents experienced that almost all barriers occurred in the home environment. Besides the factors on child level (child behaviour and compliance), parent and family factors as locus of control, self-efficacy, routines and habituation and parenting strategies were reported. In controlling the consumption of sugary foods and drink routines and parental control were also mentioned as factors on parent and family level, but community level influences as social environment and peer pressure were reported as well. In general, most factors that were experienced by parents as barriers or facilitators for oral health behaviours were parent-related, but parents also reported that the child's character had positive or negative influence on both tooth brushing quality and limiting the consumption of sugary snacks.

A further objective was to explore parents' views on limitations and opportunities for professional support to promote children's oral health. Limitations of health education were perceived in dental health settings: in their opinion parents were not sufficiently involved in prevention by dental professionals and the information provided was general, but complicated and sometimes even conflicting with that received from other health professionals. The tone used by dental professionals and their apparent lack of understanding of the challenges parents encounter in sustaining healthy behaviours, was another important perceived limitation. Parents would like to receive dental health education during general consultation visits. They also perceived it to be useful to deliver a consistent message on key oral health behaviours at child health centres and schools and to receive information through dedicated group activities at schools and kindergarten.

Chapter 3 aimed on exploring the relationship between parenting practices, parent-child interaction and childhood dental caries, using a sample of 5- to 8-year old children from the Netherlands. Cases were defined as children with four or more decayed, missing or filled teeth and controls were caries free. Cases ( $n = 28$ ) and controls ( $n = 26$ ) were recruited from a referral centre for paediatric dental care and a general dental practice, respectively. Parenting practices and parent-child interactions of the child's primary caregiver were observed using Structured Interaction Tasks (SITs) and subsequently rated on seven dimensions: positive involvement, encouragement, problem solving, discipline, monitoring, coercion and interpersonal atmosphere. In chapter 4 the same

study design was used to explore these associations in a sample of 5- to 6-year old children of Dutch, Moroccan and Turkish origin. Furthermore, in this chapter, the relationship of parental and family-related factors with social class and ethnicity was examined. The study sample included 92 parent-child dyads (46 cases and 46 controls), which were recruited from a large paediatric dental centre in The Hague, the Netherlands.

Results of the observational studies in chapters 3 and 4 showed a distinct and significant difference in family factors between children with caries and caries free children. Positive parenting practices in terms of positive involvement, encouragement and problem solving were significantly more found in parents of caries free children, compared to parents of children with a significant amount of caries ( $dmft \geq 4$ ). In the first observational study (chapter 3) results showed that more coercion was used in families of children with caries experience.

In chapter 4, outside the video observations, validated questionnaires were used to collect data on sociodemographic characteristics, oral health behaviours, parents' dental self-efficacy and locus of control, parenting practices and family functioning. Parents of controls had a more internal locus of control. Lower social class was significantly associated with a lower dental self-efficacy, a more external locus of control and poorer parenting practices. Furthermore, locus of control was more external in Moroccan and Turkish parents, compared to Dutch. Findings suggest that the mentioned parental factors are potential mediators of socioeconomic inequalities in children's dental health.

Chapter 5 aimed at using anthropometric data to investigate the association between Body Mass Index (BMI) and dental caries experience in 230 children aged 5 to 8 years receiving treatment in a referral centre for paediatric dental care in the Netherlands. Children's  $dmft$  and  $dmfs$  scores were calculated using dental records and sociodemographic data were also extracted from these records. Dentists were trained to measure standing height and weight in a standardised way. BMI was calculated by dividing kilogrammes by height squared ( $kg/m^2$ ). Extended International (International Obesity Task Force) body mass index cut-offs were used to define 'no overweight' and 'overweight' (with the latter category including obesity). It was hypothesised to find a positive association between BMI and dental caries experience in children aged 5 to 8 years attending the practice. However, this study did not find a relationship of this kind. A common risk factor approach for the prevention of caries and overweight is therefore not supported by this thesis.

Chapter 6 contains the results of a study that aimed to explore the relationship between child behaviour problems and dental caries. Further objectives were to assess whether child behaviour problems and dental caries have a common association with oral health behaviours, parenting and family functioning. Cross-sectional data were collected in a paediatric dental practice in the Netherlands. Children's  $dmft$  scores were obtained from children's dental records. Child behaviour problems, oral health behaviours, parenting and family functioning were measured using validated self-report questionnaires. The study sample consisted of 251 5 to 8 year old children. Children with conduct problems had a significantly higher mean  $dmft$ . The mean  $dmft$  was also

higher in hyperactive children, but this did not reach statistical significance. Parenting was associated with both dental caries and child behaviour problems: children of strict parents had significantly higher mean dmft, while children of parents who reported low levels of nurturance were significantly more likely to show conduct problems. Poor family functioning in terms of responsiveness, communication and organization was also associated with conduct problems and hyperactivity, but not with dmft. No significant associations with oral health behaviours were found. This study found a significant relationship between child behaviour problems and dental caries, which may be explained by an underlying influence of parenting and family functioning.

The triangulation in research methods of this thesis emphasised the influence of parenting practices and parent-child interaction on childhood dental caries. In addition, it should be noted that parenting during challenging situations and the way family members interact, in part, are influenced by characteristics and behaviours of the child. Future research should be focused on planning and testing parent-targeted interventions in which parents are guided to obtain (parenting) skills and practical tools. This could lead to a less strict, less coercive and thus more positive approach, from which children could benefit in behaviour change which could lead to various positive outcomes as less dental caries, a healthy weight and even the limitation of behaviour problems. Education for dental students is lacking in this field, so in case of positive results in prospective interventions, a paradigm shift will be required to educate a new generation and to introduce the consideration of these factors into daily practice.