



# The effect of severe caries on the quality of life in young children

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## Abstract

**Purpose:** This pilot study assessed the possible effects of extensive dental caries on the quality of life in young children.

**Methods:** Information was collected for 77 children (age 35-66 months, mean=44 months) with severe caries in the primary dentition. Parents or guardians were asked questions concerning pain, eating habits, and social behavior of the children before and after oral rehabilitation.

**Results:** Dental disease was found to have an impact on children's well being. There was a significant change in complaint of pain, eating preferences, quantity of food eaten, and sleep habits before and after treatment of dental caries.

**Conclusion:** This study demonstrated the effect of severe caries on quality of life in young children. (*Pediatr Dent* 21:325-326, 1999)

Caries prevalence has dropped significantly in North America, however, it remains high for some groups of children. At the Montreal Children's Hospital dental department, 530 out of 1373 emergency visits in 1992 were attributed to the presence of severe dental caries. The children were young, 70% of them being between one and five years of age.<sup>1</sup> A report in 1992 has shown that there has been a substantial improvement in so far as the caries rate and oral hygiene in Quebec children between 13-14 years of age were concerned.<sup>2</sup> There are programs that teach school-aged children oral hygiene and deliver dental exams. However, there remains a large percentage of preschool-aged children that do not have access to these programs. Seventy percent of toothaches and 48% of dental infections caused by dental caries were found in children aged one to five years.<sup>1</sup>

Children who experience early childhood caries tend to experience caries later in both primary and permanent dentition.<sup>3</sup> Dental caries may have an impact on children's oral health status throughout their lives. The study by the Third National Health and Nutrition Examination Survey-Phase I, from 1988-1991 in the United States, revealed that 8% of infants between 12-23 months of age had early childhood caries and 17% of children aged 2-4 years were affected by caries.<sup>4</sup> Rampant or nursing caries was shown to adversely affect the growth of the body, specifically body weight and height.<sup>5</sup> It has also been reported that nursing or rampant caries is one of the factors causing insufficient development in children who have no other medical problems.<sup>6</sup> There may be a general decrease in dental caries in children and adolescents; however dental caries is still a major health problem for many pediatric patients.

Physical pain affects daily living. An adult can verbalize feelings of pain but children often do not verbalize the pain they are feeling. The child's immaturity, developing cognition, and dependence on adults all influence interpretation of pain. This creates a problem when the need for treatment is assessed. Meaningful research in pain interpretation by children requires an identification of simple and reliable measurements of pain. It is important to develop indicators or questions that enable the clinician to assess pain routinely and predictably in young children.<sup>7</sup>

The purpose of this pilot study was to investigate the impact of severe caries on the quality of life in young children, specifically to find out how children deal with their dental disease and how it affects their daily routine.

## Methods

Children who presented to the Montreal Children's Hospital Dental Clinic for dental examinations or emergencies were selected for this study. The children were initially seen by a staff dentist or dental resident, who then referred some of them for rehabilitation under general anesthesia. Patients treated in this way became prime candidates for this study because all carious lesions were eliminated in one session.

Parents or guardians of the child were given a questionnaire to complete on the day of dental treatment. The questionnaire consisted of ten questions pertaining to the presence or absence of pain, eating and sleeping habits, and social behavior of the child prior to the day of treatment. The parents or guardians were then contacted by one of two examiners (WL or ST) by phone four to eight weeks post operatively, and the same questions were repeated. If unreachable, attempts were made twice a week after the fourth week until the parent was contacted. The parents were not informed nor reminded of their previous answers. Questions that were ambiguous or unclear were deleted leaving five questions which were studied (Fig 1). Each subject served as his or her own control to evaluate the changes after treatment. The data was entered using the EPI-6 statistical program. The McNemar Test of Symmetry was the principal statistical test used for the analysis of the group data.

## Results

Ninety children in their primary dentition were treated for dental caries under general anesthesia over a period of five months. The subjects were otherwise healthy children with rampant and/or nursing caries. The teeth were affected by

**Fig 1. Questionnaire For Parents (Guardians)**

Does your child complain about his teeth?	Yes	No
Does your child have any problems eating certain foods? (For example: cold, sweet, hard, etc.)	Yes	No
Does your child eat little, and/or does not finish what is on his plate?	Yes	No
Does your child sleep well during the night?	Yes	No
-If no, does he, ___ wake up often ___ take a long time to fall asleep ___ other		
If your child attends daycare or school, have you received any reports concerning his behavior? (being quiet, aggressive, tired, agitated, etc.)	Yes	No
-If yes, please describe _____ _____		

carious lesions in all four quadrants, and required at least one pulpotomy or extraction. Many children were on a six to eight month waiting list before treatment was performed. Only children with completed preoperative and postoperative questionnaires were included. Reasons for exclusion included communication problems (e.g. language barriers), phone disconnection or parents who could not be contacted. This resulted in a sample of 77 children, 41 males and 36 females with a mean age of 44 months.

Before dental treatment, 37 of 77 (48%) of the children complained about their teeth versus 40 of 77 (52%) who did not. After the elimination of caries, 36 of 37 (97%) children no longer complained of pain. For the one child who did not change his response after treatment, the complaint was that the extraction sites were sensitive to cold food. All the negative responses before treatment remained negative.

Before treatment, 33 of 77 (43%) of the children had problems eating certain foods, whereas 44 of 77 (57%) did not. After treatment, 32 of the 33 children (97%) had no problems eating certain foods.

Before treatment, 47 of 77 (61%) children ate sparingly or did not finish what was served, whereas 30 of 77 (39%) finished what was on their plates. Of those children that ate little, 28 of 47 (59%) children reported a change after treatment in the amount of food that was eaten. Parents indicated that the child would eat more, finish their food, and/or had a better appetite.

Before treatment, 22 of 77 (35%) children did not sleep well. They either did not sleep through the night, woke up often, or took a long time to fall asleep. After elimination of caries, 19 of 22 (84%) of the children reported an improvement in sleep habits.

Before treatment, 4 of 77 (5%) of the children had negative reports from parents or school. Comments included "aggression", "lack of cooperation", "does not play well with other children", or "very quiet". Of those children that had negative reports, 2 of 4 reported an improvement in behavior after treatment.

Dental treatment was shown to have a statistically significant effect in alleviating the complaint of pain, of reversing certain eating problems, and improving sleep habits ( $P < 0.001$ ) whereas the difference relating to changes in behavior was found not to be statistically significant.

## Discussion

The purpose of this pilot study was to explore the possible effects caries may have on young children. The study demonstrated that dental caries does affect the quality of life in children. One treatment session under general anesthesia allowed complete elimination of the caries and return of the oral cavity to good health with subsequent improvement in eating, sleeping, and experience with pain.

Since all the children were severely afflicted with carious lesions, it was surprising to find that only 48% indicated that they had pain or discomfort. It is difficult to measure the degree of pain or discomfort in young children because of their level of cognitive and language development. Pain caused by caries can manifest itself in different ways: children may eat less, sleep less, and/or exhibit negative behavior. Yet some children do not appear to complain verbally at all, even with rampant caries. Therefore, indirect ways of assessing pain, through habits or behavior, can be as important as direct methods. This information could motivate parents and health care professionals to seek earlier and more regular dental care for children.

## Conclusions

1. Preschool children with dental disease do not necessarily complain of pain, however they manifest effects of pain by changing their eating and sleep habits.
2. Severe caries affects the quality of life of preschool children. This change is improved by the elimination of the dental caries.

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