Impact of dental caries on preschool children's quality of life: an update*

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Abstract: The literature reports that dental caries can cause functional, physical and aesthetic impairment, often with repercussions on children's general health at an early age. Moreover, recent studies have investigated how caries lesions can compromise children's quality of life. This paper aims to describe the current situation of dental caries prevalence in children and how this oral health disease can impact their quality of life.

Descriptors: Quality of Life; Dental Caries; Child, Preschool.

Introduction

The oral health problems affecting Brazilian children have received special attention in epidemiology and contemporary dentistry. Although Brazil does not have a national epidemiological survey to identify all the basic oral health problems in children under 5 years of age, the results of some regional studies allow us to assert that the most frequent problems are dental caries lesions,[1,2] traumatic lesions,[3,4] and dental erosion.[5]

Unless a healthy lifestyle, good oral hygiene and nutrition are established, caries lesions may affect the teeth in the primary dentition, as soon as they erupt into the oral cavity. At this stage of growth and development, the most often affected teeth are the upper incisors.

Some children often have a high degree of destruction in this region. This may reduce chewing efficiency, promote parafunctional habits—such as tongue interposition—cause loss of vertical dimension, and affect aesthetics, with intense psychological repercussions.

A healthy smile has considerable bearing on social interaction, which plays an important role in how children are seen, felt and perceived by others.

Dentofacial aesthetics is an important determinant of overall physical aesthetics. From the standpoint of child psychology, a healthy smile is conducive to how children start building up interpersonal relationships and self-steem.[6]

Dental disease or dental facial abnormalities bring about disadvantageous psychosocial consequences that affect children, in addition to impairing their speech and eating habits. Thus influenced, children do not smile as often as they would like to.

Changes caused by dental caries, either because of pain or aesthetic changes, affect the children's quality of life. This has led to a greater search for both an aesthetic treatment and a healthy smile, in both general and pediatric dental visits in recent years.

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Prevalence of dental caries in children

The SB Brazil Project conducted in 2010 reported early involvement of caries lesions. Among the children who were examined and presented caries, the mean dmft index for 5-year-old children was 2.43 and 53.4%, whereas the mean DMFT at 12 years of age was 2.07 and 56.5%. In Brazil, there has been a trend toward a decrease in dental caries, as shown in Figure 1. Progressive national epidemiological surveys indicate that tooth decay has been declining consistently in 12 year-old children[7-11] and slightly in 5 year-old children.[9-11] On the other hand, data based on the last national epidemiological survey in Brazil also showed that the prevalence of untreated caries lesions in 5 year-old children is high (80%). Therefore, it is necessary to evaluate the impact of disease on preschool children's quality of life in order to encourage dental treatment and promote better quality of life.

In Brazil, there is no data follow-up for groups of children under 5 years old. However, a decrease in caries prevalence has been observed in recent years in children under 3 years old. This finding was reached through a sequence of cross-sectional studies performed using the same methodology, in the city of Diadema.[12] Nonetheless, there is no sequence of national data relating to caries and quality of life for children 5 years old or less. The prevalence of dental caries in 4-year-old children varies widely

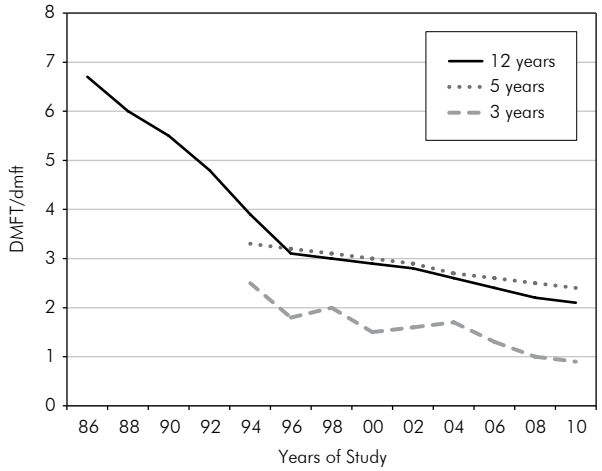

Figure 1 - Caries trend in 3-, 5- and 12-year-old Brazilian children.

across countries, especially between developed and developing countries. Developing countries, such as China[13] (53%), India[14] (53%) and South Africa[15] (46%), report greater caries prevalence, as compared to developed countries like England[16] (32%) and Italy (22%).[17]

Despite the lower dental caries prevalence in developed countries, the issue of quality of life related to oral health has been increasingly discussed in the literature over the last two decades.

Impact of dental caries in children's quality of life

Among the many problems compromising the oral health of child patients, tooth decay is the affection that most frequently evokes aesthetic and functional complaints in a child's clinical routine, affecting his/her quality of life. It has also been observed that the greater the number of teeth affected or lost, the greater the negative impact on a patient's quality of life.

Thus, dental treatment may offer a positive psychosocial impact on these patients, not only for recovering their oral health, but also for promoting an improvement of their quality of life.

The negative impact of caries on children's lives includes: symptoms and functional alterations, such as chewing and speech impairment, schooling factors, such as preschool absenteeism, psychological issues, such as trouble sleeping, and irritability, among other factors related to social interaction, such as smiling and refraining from speaking. School performance may also decline.[18-22]

These effects are generally expressed as a cumulative experience that worsens as the disease progresses, presenting oral clinical symptoms that indirectly affect a patient's quality of life.[18-27] In more severe cases, the caries disease may not only adversely influence the affected patient himself, but also interfere in his daily activities and those of others around him.[26] Few studies have been conducted with children to assess how a toothache caused by caries may impact their daily activities. Some authors assert that having meals and sleeping are the most affected activities.[28] It has also been estimated that sixty million school hours are lost each year due to tooth pain.[29] Sur-

veys measuring quality of life related to oral health in school children with dental caries show that life quality is strongly correlated with its negative impact on oral symptoms, followed by functional limitations, and finally its impact on emotional and social well-being.[30] However, recent studies show that dental treatment in both healthy and disabled children considerably enhances their quality of life.[25,31,32]

Discussion

The concept of health in regard to Health Promotion has expanded to include other issues, such as socioeconomic, environmental and behavioral factors that interfere in individual and collective health. Thus, the concept of oral health now encompasses quality of life, as well as oral symptoms, functional limitations, and emotional and social well-being, factors not considered previously.[33] The indicators used in clinical dentistry have been restricted to people who notice symptoms such as pain, discomfort and aesthetic changes.[34]

It is not yet common practice to measure the impact that these indicators have on children's lives when performing a diagnosis or carrying out a treatment plan. Over the last two decades, there has been a substantial development of an indicator known as COHQoL - child oral-health-related quality of life.[35] Currently there are some available tools that can be used to measure functional and psychosocial oral disease outcomes; most of these are targeted at adults. Since the evaluation in children should be considered differently from that in adults, the interest in assessing the impact of oral disease on quality of life in pediatric populations has increased, especially as of 2003. Children have been the major focus of public health dentistry; this concern highlights the urgent need to apply the oral-health-related quality of life concept at this stage of life.[33] The responsibility for young children's health usually belongs to their parents, who are often responsible for making decisions about their health. Therefore, it is of utmost importance to evaluate parents' perception toward their children's oral health problems, including how related symptoms, diseases and treatments may influence their children's quality of life.

Evidence also suggests that early childhood caries result in parents' work absenteeism,[33] since they must stay home to care for their children, or spend time and money to have the disease treated.[28] Thus, these issues concerning parents must also be investigated as part of the OHQoL evaluation in younger children.

According to child development psychology, the age of six years is a landmark for inception of abstract thinking and building of one's self image.[6,36,37] At this age, children start comparing their physical characteristics and personality traits with those of other children. Their ability to make judgments about their appearance, the quality of their friendships, their thoughts, their emotions and the behavior of others gradually also develops at this age.[6] The idea of aesthetics linked to health now begins to be incorporated in the mind of the child, interfering with his/her concept of self-esteem.[36]

OHQoL measurement in preschool children involves some methodological issues, such as changes in the ability to understand the child at different ages, and difficulty in separating the child's perceptions from those of his/her parents.[37] However, a number of recently developed tools have shown that, by applying an appropriate technique, questionnaires for parents could produce valid and reliable information about their children's OHQoL.[38,39]

The fact that the information provided by the parents complements that of the patient does not mean it is equivalent to that of the patient.[40,41] Today, it is highly recommended that the child's voice also be heard, insofar as it may introduce points of view different from those stated by parents.[42,43] Nonetheless, only one parent-related information collecting tool[44] was used to assess the impact of caries and dental trauma in 2-to-5-year-old children's OHQoL.[25,44-47] Recently, the SOHO-5 (scale of oral health outcomes for 5-year-old children) was developed and validated in the United Kingdom (UK). This tool was developed to facilitate the evaluation of children's OHQoL, as reported by them and by their parents.[48]

ECOHIS and SOHO-5 were designed and validated to measure oral health problems that affect young children, and also call attention to children with different levels of oral health issues. A yet additional role for these tools is to evaluate and demon-

strate possible changes in OHQoL, in both individuals and groups.[49] This is the goal of future studies.

Conclusion

Whenever cases of caries lesions compromise the health of a child patient, the dentist should make use of all resources available to restore the individual to his/her previous state, recovering his/her self-esteem, and thus improving sleep quality, weight gain, and pain levels. Recognition of dental treatment not only by the parents but also by the children may also be rewarding for professionals.

A healthy smile is certainly one way of developing interpersonal relationships and self-esteem. Therefore, rehabilitation and clinical treatment follow-up are necessary, insofar as oral health plays an important role in the overall life of children and in their emotional well-being.

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