

Periodontal Diseases and Traumatic Dental Injuries in the Pediatric Population



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KEYWORDS

- Children • Quality of life • Periodontal diseases • Traumatic dental injuries
- Oral health

KEY POINTS

- Periodontal diseases and traumatic dental injuries (TDIs) are highly prevalent worldwide.
- Gingivitis and periodontitis are common forms of periodontal diseases in children.
- Behavioral factors (eg, smoking and poor oral hygiene) and environmental factors (eg, low socioeconomic status [SES] and high stress) increase the risk of periodontal diseases.
- Sports are the main causes of TDIs in several populations.
- Both periodontal diseases and TDIs can lead to pain, impairment of function, esthetic problems, and psychosocial effects, with major consequences on quality of life.

INTRODUCTION

How many children leave healthy teeth under their pillow for the tooth fairy?

Unfortunately, not many! Oral health problems, including injuries and chronic inflammation in the soft tissues, specifically periodontal diseases, are a leading cause of health problems in children in all but a few parts of the world. Despite the major improvements seen in both general and oral health in the past century, millions of people around the world have not benefited from the socioeconomic development and scientific advances that have substantially contributed to improved health. Thus, disadvantaged and socially marginalized populations bear the greatest burden of oral diseases.

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Due to their high prevalence and incidence in all regions of the world, oral diseases, including periodontal diseases and traumatic dental injuries (TDIs), are major public health problems. Oral disease not only has a major impact on quality of life in terms of pain, suffering, and impairment of function¹ but is also associated with major chronic diseases (eg, diabetes and cardiovascular disease).^{2,3}

As with most chronic diseases, infancy, childhood, and adolescence are the most important periods for oral disease development. Moreover, a history of chronic oral disease is an excellent predictor of future disease. Similarly, risk behaviors linked to chronic diseases seem to track from childhood to adulthood. Strong evidence suggests that adult chronic disease, including chronic oral disease, results from interactive exposures throughout an individual's life course.⁴ These interactions include intrinsic factors, such as individual social resources (eg, social competence, self-esteem, decision making, problem-solving skills, and coping strategies) and behavior, and extrinsic factors (eg, material circumstances and sociocultural influences).⁴ The potential for chronic oral disease is determined by these interactive factors and so is the potential to prevent these diseases.

This article provides an update for health professionals on the current literature concerning periodontal diseases and TDIs in children and teenagers. The epidemiology, prevention, and individual and societal impact of 2 common conditions affecting children's oral health are discussed. When selecting the publications to include in this article, the authors considered features of study design, sample size and representativeness of the sample. Including studies that did not adequately describe the diagnostic criteria used for periodontal diseases or TDIs and those that used nonstandard and nonvalidated methods were avoided. This review starts with an overview of the distribution of TDIs and periodontal diseases in children and their main risk factors, followed by their impact on children's quality of life as well as their economic burden. The article concludes with a discussion on potential prevention strategies and some recommendations for health care professionals based on these strategies.

PERIODONTAL DISEASES

Periodontal diseases are among the most common oral diseases affecting the oral soft tissues and teeth of children. They are infections of structures in the oral area covering the teeth, such as the gingiva, the cementum, the periodontal ligaments, and the alveolar bone. They can take many forms and have many stages, the least severe ones being those affecting the gingiva only.⁵ The 2 most prevalent forms of periodontal diseases in children and adolescents (up to 20 years of age) are plaque-associated chronic gingivitis and periodontitis. The former, an inflammatory process of the marginal gingiva, is characterized by clinical signs of inflammation confined to the gingiva without any destruction of the supporting tissue (bone and ligament), whereas periodontitis is deeper.

Plaque-associated chronic gingivitis, hereafter referred to as gingivitis, is a common disease affecting a large proportion of children and adolescents.^{5,6} A national survey on the oral health of American children showed that 82% of adolescents have overt gingivitis and signs of gingival bleeding.⁷ A high prevalence of gingivitis among children and adolescents is also observed in other studies worldwide.¹

Periodontitis is characterized by the destruction of the periodontal supporting tissue resulting in an apical loss of epithelial attachment along with bone loss around the tooth. There are 3 main types of periodontitis: chronic periodontitis, which is rare in children and adolescents, and aggressive periodontitis that can be localized (usually affecting the first molars and incisors) or generalized. This early-onset periodontitis

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