

Oral health status and absence from school among 12 year olds

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Objective: To assess dental caries, periodontal status, malocclusion and absenteeism from school among 12-year-olds in Bhopal district, Central India. **Materials and Methods:** Two-stage random sample of 1238 school children. Decayed missing filled teeth (DMFT), Significant caries index (SiC), community periodontal index (CPI) and dental aesthetic index (DAI) were used to record dental caries, periodontal status and malocclusion. Information on absence from school in the previous year due to pain/discomfort in the teeth or mouth was collected via interviews. Generalized structural equation modelling (GSEM) examined the direct and indirect predictors of absence from school. **Results:** A total of 39.1%, 17.3% and 23.9% of children had dental caries, calculus and gingival bleeding respectively. Mean DMFT and SiC scores were 1.82 ± 1.36 and 3.15 ± 1.47 . 5,127 school hours were missed due to oral health problems per 1,000 children. None of the studied variables predicted absence from school. Utilization of dental care was associated directly with gender and malocclusion ($p < 0.001$). Periodontal status was associated with male gender, nuclear families, tobacco consumption, and malocclusion ($p < 0.001$). Higher DMFT was associated with male gender, malocclusion and experience of pain/discomfort ($p < 0.001$). **Conclusions:** Poor oral health and a high prevalence of untreated dental caries were noted. Despite a considerable number of missed school hours reported due to dental conditions, none of the studied variables predicted absence from school.

Keywords: health promotion, oral health, school health, school absence, access to health care

The World Health Organization (WHO) recognizes oral diseases as a significant public health concern due to their high prevalence and high treatment costs, often requiring high out of pocket payments (Peres *et al.*, 2019; Petersen *et al.*, 2020). The prevalence of oral disease continues to increase in most low- and middle-income nations, largely due to increased urbanization and changes in living conditions. The Global Burden of Disease Study, 2017 estimates that oral diseases affect close to 3.5 billion people worldwide and that 2.3 billion people suffer from dental caries in permanent dentition, predominantly the children (Kassebaum *et al.*, 2017).

Oral diseases among children may lead to negative self-image, lack of self-confidence and consequently, low quality of life (Peres *et al.*, 2019; Petersen *et al.*, 2020). Dental caries becomes complex over time if left untreated due to its progressive and cumulative nature. Similarly, periodontal diseases if left untreated can become painful, irreversible with complications lasting a lifetime (Bashirian *et al.*, 2018). Pain in the teeth or mouth may also affect the child's concentration and engagement in school, limiting not just their play and growth but also depriving them the full benefits of education (Jürgensen and Petersen, 2013).

Children have considerable needs for oral health promotion, prevention and oral health care services, especially in developing countries (Peres *et al.*, 2019; Jürgensen and Petersen, 2013; Bashirian *et al.*, 2018). Effective measures for protecting and promoting oral health among children must be equitable, sustainable and reach large populations. The schools present an

environment favourable for education and reinforcements for a considerable period of time and permit health professionals and teachers to participate in preventive health actions. However, an organized effort to achieve this goal is lacking in many countries including India, specifically for oral health.

Bhopal School Oral Health Program (BSOHP) is probably the first comprehensive school oral health program initiated in India and includes dental screening, oral health education, reinforcements by the trained teachers, and provision of preventive and restorative services. Children with oral diseases are more prone to experiencing dental pain and missing school. Missed school hours have the potential to negatively impact children's quality of life by depriving them of learning. Scant information is available about the oral health status among school children from this region. No available information exists about the school hours missed due to dental reasons for any Indian population. Therefore, the program included conducting a oral health survey among 12 year old children to assess dental caries, periodontal status, malocclusion, absenteeism from school due to dental conditions and associated risk factors among 12-year-olds in Bhopal district, Central India.

Material and Methods

The target population for the cross-sectional study was 12-year-old school children of Bhopal district. Sixty-two schools in the district offer secondary education as notified by the state education department, with approximately