



PREVALENCE OF DENTAL CARIES IN INDIA - A CHANCE OR A CHALLENGE?

Dental Science

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ABSTRACT

Dental caries is one of the most common diseases in the world, and its prevalence is multifactorial. According to the Global Burden of Disease Study 2017, caries of permanent teeth being the most prevalent condition globally. Caries of permanent teeth affects an estimated 2.3 billion individuals worldwide, whereas caries of primary teeth affects around 530 million children. In India, there are insufficient epidemiological data to meet the preventive and treatment needs. In the lack of dental caries surveillance or real-time screening in India, there is a need to estimate the prevalence in the country in order to design and implement oral health initiatives. This review discusses why dental caries is a global oral health concern, as well as the challenges India has in treating this pandemic illness. Considering India's current state of health-care facilities, it is suggested that the government can implement new measures to reduce the prevalence of dental caries in the country.

KEYWORDS

Dental caries, Prevalence, Preventive strategies, Oral health

INTRODUCTION

Dental caries, otherwise known as tooth decay is one of the major oral disease occurring worldwide. It is one of the major reasons for patients to consult dentists and visit dental clinics or hospitals. If the tooth decay is detected early, the tooth can be saved by minimal intervention methods such as restoration or by application of remineralizing agents, etc. But if the caries lesion advances, endodontic treatment or extractions are the only resorts¹. Several factors may influence a person's susceptibility to tooth decay. It consists of microbial factors, poor oral hygiene, improper dietary habits, frequent intake of sugar diets, and wrong feeding habits among infants^{2,3}. Host-related factors like diabetes, stress, salivary flow, altered immune response, etc can also influence the patient's susceptibility to caries⁴. The distribution and severity of dental caries vary across nations and among various regions within a country. According to WHO, 80% of the world population suffering from dental caries live in developing countries, indicating that it is strongly correlated with low income⁵. Dental caries account for a prevalence of 60-80% in the Indian population, which is far higher more than asthma. In India, there are several challenges in providing oral care services for the rural population, including poor accessibility, poverty and illiteracy. In rural areas, there is a lack of awareness among people regarding dental caries compared to people residing in urban areas⁶. Therefore, a demand to evaluate awareness as well as the health status of oral health programs in rural areas to reduce dental caries prevalence in India.

Prevalence of Dental caries in India:

Literature studies have evidenced the prevalence of dental caries in India. Prabhakar J et al; showed the prevalence of dental caries in school-going children in Chandigarh and reported a prevalence rate of 47.3%, which was less than that of the national oral health survey in India (53.8%). The reason stated was the lack of knowledge regarding tooth brushing, decreased frequency of brushing, and lack of awareness on dental caries^{7,8}. Janakiram C et al; in their meta-analysis showed the mean prevalence of dental caries is almost similar at 5 years and 12 years at a rate of 49%. There is a steady increase from 15 years (60%) to 35-44 years (78%) and peaks at the 60-74 year group (84%). Males had a slightly higher prevalence at 5 and 12 years and older age groups showed a higher prevalence in female⁹.

According to the Global Oral Health Data Bank, a mean DMFT (Decayed, Missing, and Filled Teeth) score of 2.97 was shown among 12-year-old children for the South East Asian countries. National Oral Health Survey (2002) stated that the DMFT index score for Indian children was around 2. Prevalence of dental caries was increasing with age from 51.9% to 63.1% in the 5-15 years of age group, respectively. Even though India analogously reports a better mean DMFT of 1.95, it is still higher compared to developed countries. This could probably be attributed to the absence of awareness programs for dental caries prevention in India. At this rate, there is a need to monitor and ensure the surveillance of oral diseases and their risk factors. Though DMFT, among 12-year old, was found to be 1.9 which falls under the 'low'

category according to the WHO, nearly half of the population was affected by caries. In Northern India, 15-year-olds had the highest mean DMFT of 4.10 compared to the 5 and 12 year age groups^{8,9}. Shailee F et al evidenced that the northern regions of India have more dental caries as compared to the southern areas¹⁰.

The immensity and impact of dental caries in India are still unknown. There is no comprehensive disease surveillance worldwide, and hence, recent epidemiological data are not available to make a strong case about the burden of dental caries. Moreover, there are no national oral health research guidelines to coordinate research according to the needs of the nation. A set of guidelines should be established in our country to carry out an oral health survey to maintain uniformity and by creating national oral health data.

Preventive strategies

In order to emphasise and promote oral health care, medical experts, Anganwadi workers, and social workers must work together and get training. They can also be taught to recognise early carious lesions. Oral health should be monitored by social workers, especially in impoverished and special children¹. Fluoride levels in water must be monitored on a regular basis. Fluoride toothpaste, gels, and varnishes, all of which have been proven to be beneficial in preventing dental cavities, should be used¹. School instructors may play an important role in raising awareness and implementing preventative methods, particularly those that focus on excellent diet and brushing habits, as well as emphasizing the value of milk teeth. Water fluoridation and sealant treatments should be focused towards schools. The effectiveness of preventive strategies in the progression or regression of carious lesions should be the focus of future study. Anticariogenic activity of new fluoride-releasing materials, probiotic materials, and other ayurvedic agents should be investigated.

CONCLUSION

To conclude, cariology in India is quite challenging. The best predictor of future caries is the past caries history of an individual. Mostly, children affected by severe caries are likely to have more caries in the future. Hence, this population could be identified for inclusion in caries prevention programs. Efforts should be directed to improve access to fluorides, dental sealants, and other established methods of caries prevention, with proper oral hygiene advice and dietary counseling for our future generations to decrease the caries prevalence.

REFERENCES:

- Miglani, S. (2020). Burden of Dental Caries in India: Current Scenario and Future Strategies. *International journal of clinical pediatric dentistry*, 13(2), 155.
- Ramos-Gomez, F., Weintraub, J., Gansky, S., Hoover, C., & Featherstone, J. (2003). Bacterial, behavioral and environmental factors associated with early childhood caries. *Journal of clinical pediatric dentistry*, 26(2), 165-173.
- Touger-Decker, R., & Van Loveren, C. (2003). Sugars and dental caries. *The American journal of clinical nutrition*, 78(4), 881S-892S.
- Hassell, T. M., & Harris, E. L. (1995). Genetic influences in caries and periodontal diseases. *Critical Reviews in Oral Biology & Medicine*, 6(4), 319-342.
- Ndiaye, C. (2005). Oral health in the African region: progress and perspectives of the

- regional strategy. *African journal of oral health*, 2(1-2).
6. Ingle, G. K., & Nath, A. (2008). Geriatric health in India: concerns and solutions. *Indian journal of community medicine : official publication of Indian Association of Preventive & Social Medicine*, 33(4), 214-218.
 7. Prabakar, J., John, J., & Srisakthi, D. (2016). Prevalence of dental caries and treatment needs among school going children of Chandigarh. *Indian Journal of Dental Research*, 27(5).
 8. Bali, R. K., Mathur, V. B., Talwar, P. P., & Chanana, H. B. (2004). National oral health survey and fluoride mapping 2002-2003 India. *New Delhi: Dental Council of India*, 132.
 9. Janakiram, C., Antony, B., Joseph, J., & Ramanarayanan, V. (2018). Prevalence of Dental Caries in India among the WHO Index Age Groups: A Meta-Analysis. *Journal of Clinical & Diagnostic Research*, 12(8).
 10. Shailee, F., Girish, M. S., Kapil, R. S., & Nidhi, P. (2013). Oral health status and treatment needs among 12-and 15-year-old government and private school children in Shimla city, Himachal Pradesh, India. *Journal of International Society of Preventive & Community Dentistry*, 3(1), 44.
 11. Marinho, V. C., Higgins, J., Logan, S., & Sheiham, A. (2003). Fluoride toothpastes for preventing dental caries in children and adolescents. *Cochrane database of systematic reviews*, (1).