

# DENTISTRY IN RURAL INDIA: THE "NEGLECTED CHILD"



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Dental diseases are a significant public health burden in India, with tooth decay affecting 60 to 65 percent and gum diseases affecting an estimated 50 to 90 percent of the general population, with higher rates of dental diseases in rural areas. The consequences of widespread poor oral health can be seen on the personal, population, and health systems level, as dental diseases deteriorate individual health and wellbeing, decrease economic productivity, and act as significant risk factors for other systemic health ailments. Dental diseases in rural India are primarily due to socio-cultural factors, such as lack of knowledge about oral health and hygiene, and systemic infrastructure deficiencies that prevent proper screening and dental care of oral diseases.

Nearly every human experiences poor oral health at least once in his lifetime. Tooth decay is the most common non-communicable disease in the world. Tooth decay can cause reduced quality of life and diminished function as a result of the pain and suffering associated with oral conditions. The need to address these oral health concerns is especially evident in India, because tooth decay and gum diseases affect a large number of the general population.

While there is a deficiency in dental care for all of India, it can be posited that oral health in rural villages is in more dire conditions than urban areas because rural areas in India are more susceptible to dental problems, in part because these areas have lower access to dental care.



A common global trend in oral health is a link between the prevalence of dental diseases and economic improvement in developing countries. Increased rates of dental diseases traditionally follow rising economic development because, as economies expand in developing countries, the populations within these countries have access to a wider variety of food as a result of increased income and trade. Thus, as countries become wealthier, there is more exposure to, and an increased preference for, a "westernized" diet that is high in carbohydrates and refined sugars. This change in dietary patterns influences oral health because chronic dental diseases are strongly related to diets rich in saturated fatty acids and non-milk extrinsic sugars. India has demonstrated a marked increase in sugar consumption in recent years, as per capita consumption was 13.8 kilograms in 1991, 16.5 kilograms in 2000, and 21.4 kilograms in 2013. This shows that an increasing consumption of low nutritional value foods, or "junk" foods, and refined sugars in the form of chocolates and other sticky sugar-rich foods, especially in younger generations, may be contributing to an increase in dental diseases.

Effective oral hygiene practices have been well established in developed countries. However, oral hygiene practices in India indicate that there is still a lack of knowledge about proper oral hygiene. This is demonstrated by a 57% usage rate of toothbrushes and only 40% use of fluoridated toothpaste, with higher rates of usage reported in

urban areas. This implies that toothbrush and fluoridated toothpaste usage in rural India is considerably lower than this mark. It has been observed to be common practice in rural areas to only brush once a day, rather than the widely-recommended twice a day brushing patterns utilized in developed countries. Additionally, there seem to be personal opinions on best practices for oral hygiene, with some people in villages using tobacco to clean their teeth. There is also a lack of oral health education in primary and secondary schools in villages, and a general lack of oral health knowledge within the community.

There also seems to be a general lack of awareness about oral health in general among Indians. The majority of people are aware of neither factors that could cause oral health problems nor any preventative measures that could be taken to prevent oral health issues. Of the residents that reported being aware of causative factors, most identify eating sweets and not brushing regularly as the two most important factors.

In rural India, the dentist to population ratio can be as high as one dentist for every 2,50,000 residents, while the ratio is estimated at one dentist to every 10,000 in urban areas. There has been an increase in the number of dental colleges in India over the last 50 years to over 150 dental colleges which graduated over 26,000 dentists in 2002. However, there is a geographic imbalance in the location of schools with 50 dental colleges located in only one state, and of those, about 15 located in one city. Additionally, only 2% of dental specialists are trained in community dentistry, the specialization that would typically practice in rural areas. The low number of dentists in rural areas, a distribution perpetuated by the current landscape of professional oral health training, is a significant barrier to access for rural village residents.

In the 2012 fiscal year, India's health care expenditures totaled just 4.9% of the country's GDP, with the majority of spending coming from private parties. No government funds are specifically designated for oral health care. This lack of

financing is reflected in the oral health infrastructure of government health centers. The most accessible and principal healthcare provision facilities for rural India, Primary Health Centers, do not provide dental services, and only 20-25% of Community Health Centers, the point of secondary healthcare for rural areas within the Indian healthcare system, provide dental care. In many rural areas of Punjab and Haryana, many people report having to travel more than a half an hour to reach a dentist.

On a personal level, dental diseases have a significant negative influence on the quality of life in both children and adults due to deteriorations in an individual's general health and development. At the youngest ages, the discomfort and difficulties in ingesting food due to untreated dental caries can result in a failure to gain weight and impair cognitive development. By crippling the functionality of the oral cavity, dental diseases, combined with limited food variety and accessibility in rural villages, also causes malnutrition in adults, as severe pain due to untreated dental diseases incapacitates an adult's ability to chew food. Beyond the human suffering and nutritional deficiencies created by the pain associated with untreated dental diseases, their damaging effects can also spread outside of the oral cavity to the rest of the body, including the kidneys, heart, lungs, and brain.

The widespread nature of dental diseases in rural India means that the detrimental effects of dental diseases within the individual will also have a negative impact on the functioning of a population. Oral diseases are identified as one of the priority health conditions because, in late stages, dental caries and periodontal diseases cause severe pain and are expensive to treat. This translates into a loss of man-hours which has a significant negative impact on economic productivity.

There is insufficient infrastructure for providing dental care in rural India. In developing countries such as India, there has been very little investment in oral healthcare and resources are primarily

allocated only to emergency care and pain relief. When left untreated, the chronic inflammation and inflammatory mediators associated with dental diseases are a significant risk factor for several systemic diseases. These include the birth of pre-term low-birth weight babies, coronary artery diseases, and diabetes mellitus. The impact of untreated dental diseases on maternal and child health is especially disconcerting, as pregnant women suffering from gum disease are seven times more likely to give birth to a pre-term low-weight baby, even when controlling for other factors.

There are significant barriers to accessing dental services in rural India, including the high cost for services, long travel to reach a dentist, and extremely low dentist to population ratio. Because of these barriers, screening programs alone are not comprehensive enough to have any significant impact on the prevalence of oral health in India. Identifying cases of poor oral health without providing any follow-up care, or providing a referral for a treatment that is both far away and expensive, simply raises the prevalence of disease.

In order to minimize these barriers, there needs to be a plan for the government partnering with nearby practicing dentists to visit regularly and hold dental clinic days. Bringing in visiting dentists will provide access to dental care. More dental partnerships can also spread outside of the oral cavity to the rest of the body, including the kidneys, heart, lungs, and brain.

In order for any dental care to occur at the primary health care centers, it is necessary to procure and install dental equipment in each of them, as a lack of dental equipment acts as a barrier for dentists to practice there. Therefore, even for the visiting dentists, it is necessary to have dental equipment. Until this activity is performed, it will not be possible to offer dental care at the village level.

Schools and teachers should also provide a broad spectrum health education program, including a component addressing oral health hygiene, as most children do not receive any type of education on oral health and hygiene in schools. Government can also begin to offer bi-weekly or monthly oral health education sessions for the general public.