

# A Perspective on Dental Public Health in India

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## ABSTRACT

A significant public health issue, oral illnesses are becoming more prevalent in many low- and middle-income nations. Through preventative and therapeutic treatments, dental public health (DPH) seeks to enhance the general population's oral health. However, due to the DPH staff's inexperience and lack of proficiency, its successes in India are being questioned. Several search engines and electronic databases, including PubMed and MEDLINE, were used in the literature search for the current investigation. The Central and State Governments of India's documents were also taken into consideration. Finally, 24 papers that contain pertinent material were chosen for the current study. The current study focuses on some of the significant DPH-related issues in India, including the importance of oral health, the DPH workforce and curriculum, the employment of DPH staff in primary oral health care, the function of mobile dentistry vans, and DPH research. It was decided that by hiring more public health dentists in the public sector, bolstering DPH education and research, and integrating oral health programmes with general health-care programmes, more emphasis should be placed on preventative dental health care.

**Keywords:** Dental public health, dental tourism, mobile dentistry, primary care, research.

## 1. INTRODUCTION

Oral health has received the least attention in India's health care system over the last few decades. [1] Oral illnesses continue to be a problem for emerging nations like India, particularly among the rural populace. [2] Dental caries and periodontal disorders are the two most prevalent oral diseases in India, with prevalence rates of 50 percent, 52.5%, 61.4%, 79.2%, and 84.7% in children aged 5, 12, 15, 35-44, and 65-74, respectively, and 55.4%, 89.2%, and 79.4% in people aged 12, 35-44, and 65-74, respectively. [3] Oral health has been linked to a number of systemic diseases, including diabetes, cardiovascular disease, pregnancy, and its effects on quality of life. [4,5] Orofacial discomfort and the loss of sensorimotor abilities hinder social interaction and intimacy, as well as food preferences and the enjoyment of eating. [6]

Understanding the prevalence and causes of oral disorders as well as promoting oral health across various populations through education and motivation are the core responsibilities of public health dentistry. Dental caries and periodontal disease have been the two main issues in dental public health (DPH) research and practise for the past many decades. [7] More than 90% of adults have periodontal disorders, and over 50% of school-age children have dental

carries.[8] The recent rapid change in diet is noted in tandem with the rising prevalence of dental problems, which may also be one of its effects. [9,10] India is also known as the "oral cancer capital" of the world due to its large consumption of smoked and smokeless tobacco products, both of which are significantly linked to oral neoplasms. [11] Through various health promotion and preventative efforts, the majority of these widely spread oral disorders are mainly preventable and can be decreased. [12]

In India, the setting of DPH initiatives has changed drastically over the last 15 to 20 years. As a result, dentistry programmes' scope and content have also evolved. With their expertise in community affairs and understanding of dental issues, public dental health professionals can have a significant impact on the creation of health programmes that serve the interests of both the general public and the dental profession. [13] There hasn't been much to say about the accomplishments in India, despite the fact that the speciality has been contributing to the improvement of oral health conditions since its founding in 1969. [1,14]

In order to examine and analyse the current state of public health dentistry in India while taking into account the distributional, employment, and production trends of public health dentists in India, the current study was done. The study also concentrated on the contribution of dental travel to the advancement of public health, the operation of mobile dental van (MDV) programmes in various institutions, and the state of DPH research.

## 2. METHODS

Data were manually and electronically searched for the current review. To get pertinent information, government organisations including the Ministry of Health and Family Welfare and the Dental Council of India (DCI) were consulted. MEDLINE and PubMed databases, as well as articles from peer-reviewed journals, were used in the electronic search. The use of numerous keywords and their combinations allowed us to extract pertinent papers using web-based search engines like Google Scholar Dental public health, public health programmes, and dental manpower were identified as pertinent keywords and incorporated into the Medical Subject Headings (MeSH) restricted vocabulary. By using the Boolean operators "AND" and "OR," the terms such as public health, dental care, India, and programmes were integrated with the MeSH terms and entered into both PubMed and Google Scholar. Additionally, data on the subject was acquired from the Chandigarh PGIMER Library. Original articles, reviews, editorials, guest editorials, letters to the editor, interviews, short reports, and short communications were among the papers gathered. Additionally, some information was discovered through cross-referencing the articles' reference lists. The study did not include any publications in languages other than English. During the initial search, which was done with the papers published in the last several decades in mind, a total of 38 publications were found. However, only 26 pertinent publications were included in the final study after thoroughly reviewing all the data.

### Workforce in Dental Public Health

The growing worry over the professional personnel is the current trend in public health dentistry. Inequality across states exists among Indian public health dentists. [15] The current figures also demonstrate that there are a total of 5014 openings for postgraduate dental training in India throughout the nine branches. Only 185 (3.68%) of these posts are open for postgraduate study in public health dentistry, the fewest of any branch; [16,17] In contrast, there is a higher need for these professionals in a country like India where the bulk of the

population lives in rural areas. However, there is currently no policy requiring skilled public health dentists to only provide care to rural residents. In a research to determine dental students' thoughts toward choosing public health dentistry as their future profession, it was discovered that 58% of the participants were considering this dental specialty. [18]

Hospitals around the nation are the only places where public health dental programmes are found. [19] According to DCI standards, this department has only been used to raise the number of dental college patients needed to meet minimum outpatient department requirements. It is regarded as a college's advertising agency. Public health dentists now serve as referral sources. These reasons collectively compel people to seek dental care at for-profit facilities. [20] Some of the authors believe that the majority of dental clinics nationwide, particularly those that are privately owned, are operated primarily for financial advantage. [21] The management has little interest in the general wellbeing of the neighbourhood. In the majority of the country, dental checkup and treatment camps offer a small advantage to the neighbourhood. As a result, patients' participation in these camps gradually decreases as they learn that only referrals are given. [21] The government failed to implement the oral health strategy in a way that would have improved the disparities between the health of the urban and rural populations. [1]

### **Primary Dental Care**

Most notably in low-and middle-income nations like India, universal primary oral healthcare is still lacking in many countries around the world. [22] Most public (government) dental health care facilities are ill-equipped and understaffed, and budgetary allocations do not place oral health as a top priority. Not even 20% of the nation's primary healthcare centres (PHCs) in rural areas have dentists or DPH specialists on staff. As the government struggles to identify CHCs and as half of the CHCs are not operational, the government's objective of placing a public health dentist at every CHC appears to be a pipe dream. [1,13] Public health dentists working at PHCs and CHCs with minimal dental supplies underutilize their skills, talents, and valuable time in several states. Both dental and urgent care should be provided within the CHC.

### **Underutilization of the Internship Program**

The majority of recent dental graduates nowadays are unable to understand the significance of community oral health and are unaware of their duties to society. This is due to the dental institutes' underutilization of the internship programme for basic services and the older population's unmet dental health needs. [12] There aren't any formalised school dental health programmes, which prevents kids from developing good oral habits and makes them aware of the negative impacts of drug misuse. Additionally, the burden of dental illness is growing as a result of our nation's rapid westernisation, population growth, and resource shortage. Abuse of tobacco is a growing threat to both the affluent and civilised society, as well as the underprivileged and destitute. Increased morbidity in younger generations is caused by early tobacco habit beginning. [14]

### **Dental conditions and self-medication**

Self-medication is a widespread phenomenon that can occur up to 68% of the time in some European countries and 31-60% of the time in the Indian subcontinent. [13] The most significant distribution channel in India continues to be retail pharmacies, which have a wide consumer base. In India nowadays, it is customary for patients to select from a wide variety

of procedures, therapies, and treatments. According to reports, most people are unaware of the prescriptions they are taking. [14] The primary causes of self-medication are the increased expense of dental care, long hospital wait times, and limited access to dental treatments. [16,17] Since many individuals do not consider their activities to constitute self-medication, the health risks associated with dental self-medication cannot be ignored.

### **Mobile Dentistry to Improve Oral Health**

Mobile dental clinics were first used in public health dentistry in 1924. [18] They have been effectively utilised to treat dental issues in schools, with patients who are impaired, in rural areas, in businesses, and in the armed forces of numerous nations. They might present a workable solution to the problem of providing oral health care to a sizable underserved population in a resource-constrained developing nation like India. In India, the Department of Public Health Dentistry now uses MDVs for community training and rural posting of dental interns and postgraduates. [19] However, several of the institutions primarily use MDVs for curative rather than preventive treatments. In community programmes, employees who lack training or qualifications perform chairside assistant and peon responsibilities. Any outreach campaign should involve postgraduates and the public health dental department's employees actively. Dental camps should also offer preventive procedures like fluoride application and fissure sealants. MDV programmes operating in postgraduate universities must address resource and facility issues to increase productivity.

### **Health Care and Dental Tourism**

In its truest sense, "dental tourism" refers to those who leave their hometown to visit another city in order to receive dental care. [12] Dental tourism is gradually becoming more and more prevalent in the Indian dental market. It is possible for dental tourism to advance or impede public health goals. On the one hand, people who cannot afford them or who reside in areas where they are unavailable would have easier access to procedures. On the other aspect, dental tourism may be reducing the number of providers since they may charge more for out-of-town patients and do operations more profitably. We are unsure of whether this has a positive or bad impact on society because there is currently a paucity of empirical research in this area. There aren't many statistics on dental tourism, but ideally as the industry expands, so will the motivation to conduct more research. [12]

### **Dental Public Health Research and Programs**

Dentistry research is developing more quickly than any other branch of study. Even though India has more dental colleges than any other country in the world—more than 300—the field of dentistry research is still in its infancy in this country. [13] On the global stage, India's contribution to DPH research is, however, hardly noticeable. [14] Epidemiological studies for the creation of oral disease vaccines, salivary proteomics for oral cancer screening, epigenetics, oral health literacy, dentists' roles in disaster management, and problem-based learning are some of the more recent potential in DPH research. [15] More schools of public health, DPH residencies, and dental hygiene programmes are also reportedly needed, as are researchers in oral epidemiology and health services, health educators, and experts in utilisation review/outcomes assessment, dental informatics, nutrition, programme evaluation, and prevention. [16] Some studies linking commercial mouthwashes and fluoridation of drinking water to an increased risk of oral cancer have been put on hold because it has been impossible to establish a causal link between the use of alcohol-containing mouthwashes and

the development of oral cancer. These and other DPH-related topics have also been a source of concern. [17] Fluoride in drinking water is only allowed in India at amounts up to 1.2 mg/L.

Despite awareness campaigns, there hasn't been much of a drop in tobacco consumption in India. The Cigarettes Act (Regulation of Production, Supply, and Distribution) was passed by the government in 1975. [18] However, because of its weak provisions and incomplete coverage, it was unable to do anything. A Memorandum issued by the Cabinet Secretariat in 1990 forbade smoking in all medical facilities, educational institutions, and domestic flights, air-conditioned coaches in railroads and suburban trains, and air-conditioned buses. [19] These lacked the authority of a legal instrument because they were mostly government or administrative orders. The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act (COTPA), passed by the government in 2003, prohibits tobacco product advertisements. [20] The tobacco industry challenged the majority of these laws in court, which presented the government with a number of legal difficulties. However, new smoke-free regulations went into force on October 2, 2008, following a protracted judicial battle and interventions from the civic society. [21] In order to assist smokers in quitting, 13 tobacco cessation clinics were established in 12 states during the 2001–2002 period. These facilities included cancer treatment facilities, psychiatric institutions, medical schools, nonprofit groups, and community settings. [22] In 2005, this network of clinics was further expanded to include five new clinics in regional cancer centres spread across five states, two of which were in the northeastern states of Mizoram and Assam, which have significant tobacco use prevalence. The tobacco cessation clinics were renamed tobacco cessation centres, and their functions were broadened to include tobacco cessation training and tobacco cessation awareness development.

### **Program for National Tobacco Control**

The Government of India piloted the National Tobacco Control Programme (NTCP) in 2007–2008 to improve the implementation of the tobacco control regulations under COTPA and the policies of tobacco control required under the World Health Organization Framework Convention on Tobacco Control. [24] Out of the 35 states and union territories in the nation, the programme is being implemented in 21 of them. 42 districts in all are currently covered by NTCP. Only approximately half (52%) of the 21 states where the NTCP is being implemented have means for monitoring COTPA requirements, according to internal monitoring of COTPA implementation. Only 11 states have collected fines for infractions of laws against smoking in public places, despite the fact that 15 states have developed difficult enforcement mechanisms for smoke-free norms. Similar to section 5, which prohibits tobacco advertisements, sponsorship, and promotion, a steering committee for its implementation has been established in 21 states, although just three of those states have racked up fines for breaking this rule. The enforcement of laws prohibiting the sale of tobacco products to minors and within 100 yards of educational facilities also continues to be mostly ineffective in many states. [23]

On a more upbeat note, the nation has also seen instances of grassroots efforts to combat tobacco use, such as tobacco-free schools and villages that have been reported from various states. Chandigarh was the first city to be proclaimed smoke-free in 2007 even before the updated smoke-free regulations went into force. This is a great illustration of how the government and civil society can work together to reduce tobacco use in the nation. In 2010,



Sikkim became the first state in the nation to ban smoking. To give incoming medical and dental students the skills they need for tobacco control, particularly tobacco cessation, efforts have been made to integrate tobacco control into the undergraduate curriculum. [25]

### 3. CONCLUSION

The public health system as a whole has not benefited from the dentistry industry's fast growth. Furthermore, there is a significant disparity in the allocation of public health dentists among the several states. This field of study needs to be more broadly applicable and practical. The urgent requirement is for proper dental specialised education to begin at the undergraduate level. To increase awareness of oral health issues, the government and public sector should hire more public health dentists. Although MDV use is essential for treatment camps, preventive interventions should also be prioritised. To educate people about the risks of self-medication, DPH education initiatives should be undertaken as soon as possible. Like in other industrialised nations, the government should combine family welfare programmes with oral health initiatives. To make oral health in this country similar to general health, political, social, organisational (both governmental and non-profit), professional dedication, and support are required.

#### Supporting and sponsoring financially

Nil

#### Conflicts of interest

There are no conflicts of interest.

### 4. REFERENCES

1. Kothia NR, Bommireddy VS, Devaki T, Vinnakota NR, Ravoori S, Sanikommu S, et al. Assessment of the status of national oral health policy in India. *Int J Health Policy Manag* 2015;4:575-81.
2. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. *Bull World Health Organ* 2005;83:661-9.
3. Bali RK, Mathur VB, Talwar PP, Chanana HB. National Oral Health Survey and Fluoride Mapping, 2002-2003, India. Delhi: Dental Council of India; 2004.
4. Holmlund A, Holm G, Lind L. Severity of periodontal disease and number of remaining teeth are related to the prevalence of myocardial infarction and hypertension in a study based on 4,254 subjects. *J Periodontol* 2006;77:1173-8.
5. Fulton JT, Blackerby PE Jr., Russell AL. Trends in public health dentistry; dental health section. *Am J Public Health Nations Health* 1956;46:353-6.
6. Kishor NK. Public health implications of oral health-inequity in India. *J Adv Dent Res* 2010;1:1-10.
7. Shetty PS. Nutrition transition in India. *Public Health Nutr* 2002;5:175-82.
8. Shah N, Pandey R, Duggal R, Mathur U, Kumar R. Oral Health Survey in India: A Report of Multicentric Study, WHO – Oral Health Survey 2004. Geneva, Switzerland: World Health Organization; 2005.
9. GATS. Global Adult Tobacco Survey (GATS) India Report 2009-2010. India: Ministry of Health and Family Welfare; 2010.

10. Nakre PD, Harikiran AG. Effectiveness of oral health education programs: A systematic review. *J Int Soc Prev Community Dent* 2013;3:103-15.
11. Mathur MR, Singh A, Watt R. Addressing inequalities in oral health in India: Need for skill mix in the dental workforce. *J Family Med Prim Care* 2015;4:200-2.
12. Naidu GM, Prasad GM, Kandregula CR, Babburi S, Kvn P. Choosing public health dentistry as a career: A cross-sectional study. *J Clin Diagn Res* 2014;8:199-202.
13. Pandve HT. Recent advances in oral health care in India. *Indian J Dent Res* 2009;20:129-30.
14. Vundavalli S. Dental manpower planning in India: Current scenario and future projections for the year 2020. *Int Dent J* 2014;64:62-7.
15. Lal S, Paul D, Vashisht BM. National oral health care programme (NOHCP) implementation strategies. *Indian J Community Med* 2004;29:3-10.
16. Hedman E, Riis U, Gabre P. The impact of behavioural interventions on young people's attitudes toward tobacco use. *Oral Health Prev Dent* 2010;8:23-32.
17. Baig QA, Muzaffar D, Afaq A, Bilal S, Iqbal N. Prevalence of self-medication among dental patients. *Pak Oral Dent J* 2012;32:292-5.
18. Rudolph MJ, Chikte UM, Lewis HA. A mobile dental system in Southern Africa. *J Public Health Dent* 1992;52:59-63.
19. Sandesh N, Nagarajappa R, Hussain SA, Ramesh G, Singla A, Prabhusankar K. Utilization of mobile dental vans at post graduate dental institutions in India. *Oral Health Dent Manag* 2014;13:20-6.
20. Vequist DG 4th, Stackpole I. Dental tourism: An opportunity for public health. Interview by Lois K Cohen. *Compend Contin Educ Dent* 2012;33:90, 92-3.
21. Bishen KA, Chhabra KG, Sagari S, Gupta P. Nationwide survey on barriers for dental research in India. *J*
22. Shulman JD, Niessen LC, Kress GC Jr., DeSpain B, Duffy R. Dental public health for the 21st century: Implications for specialty education and practice. *J Public Health Dent* 1998;58 Suppl 1:75-83.
23. Carretero Peláez MA, Esparza Gómez GC, Figuero Ruiz E, Cerero Lapiedra R. Alcohol-containing mouthwashes and oral cancer. Critical analysis of literature. *Med Oral* 2004;9:120-3.
24. Kaur J, Jain DC. Tobacco control policies in India: Implementation and challenges. *Indian J Public Health* 2011;55:220-7.
25. The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003; an Act Enacted by the Parliament of Republic of India by Notification in the Official Gazette. (Act 32 of 2003); 2003.