

Public Health Strategies for the Siddha System of Medicine in Dentistry

K. Revathi¹, Suvetha S², Keerthi K², Jayabharathi P², Bernaitis L^{1*}

¹Department of Noi Nadal And Noi Mudhal Naadal(Pathology Including Microbiology), Nandha Siddha Medical College and Hospital, Erode-638052.

²Undergraduate student, Nandha Siddha Medical College and Hospital, Erode-638052.

Received: 29/11/2024 | Accepted: 18/01/2025 | Published: 05/02/2025

Abstract: The Siddha system of medicine, a traditional Indian healing practice with roots dating back thousands of years, has provided unique insights into preventive and therapeutic strategies for a wide range of health conditions, including oral diseases. In the current scenario of rising oral health disparities and the need for integrative, community-based care, Siddha offers potential tools that are natural, cost-effective, and culturally relevant. This paper explores how Siddha-based interventions—such as herbal twigs for brushing, oil pulling, and polyherbal mouthwashes—can be effectively utilized within public dental health programs. Through a critical review of classical texts, modern studies, and public health initiatives, the paper presents evidence for Siddha's role in managing common dental ailments such as caries, gingivitis, and oral infections. It further evaluates the integration of Siddha practices into policy frameworks, school health programs, and rural health missions. Challenges such as lack of standardized formulations, insufficient clinical evidence, and policy inertia are also addressed. The study calls for interdisciplinary collaboration between Siddha practitioners and dental professionals, public education, and government policy support to mainstream Siddha into national oral health strategies.

Keywords: Siddha medicine, oral health, dental public health, herbal dentistry, oil pulling, traditional medicine integration.

Cite this article:

Revathi, K., Suvetha, S., Keerthi, K., Jayabharathi, P., Bernaitis, L., (2025). Public Health Strategies for the Siddha System of Medicine in Dentistry. *World Journal of Applied Medical Sciences*, 2(2), 1-3.

1. Introduction

Oral health is a critical component of overall health and well-being. It enables essential human functions such as eating, speaking, social interaction, and contributes to self-esteem and quality of life. Poor oral health can lead to pain, discomfort, disfigurement, and even mortality in severe cases such as oral cancers. Globally, oral diseases such as dental caries, periodontal disease, edentulism (tooth loss), and oral infections are among the most prevalent non-communicable conditions, affecting billions of people regardless of age, gender, or geography (1,3). In addition, oral health is closely linked to systemic health conditions including cardiovascular disease, diabetes, respiratory infections, and adverse pregnancy outcomes (2,6).

India, with its large and diverse population, bears a substantial burden of oral diseases, especially in underserved rural and peri-urban populations. The risk factors for these conditions are multifactorial and include poor oral hygiene practices, high consumption of sugar-rich diets, tobacco and alcohol use, inadequate access to dental

care, and lack of awareness or education regarding oral health (2,4). Socioeconomic disparities and limited infrastructure further exacerbate these challenges, making preventive and community-based strategies a public health imperative.

While modern dentistry has made significant strides in managing and preventing oral diseases, it remains financially and logistically inaccessible to many. This has created a renewed interest in traditional systems of medicine, which emphasize prevention, cost-effectiveness, cultural relevance, and holistic care. One such system is the **Siddha system of medicine**, one of the oldest traditional medical systems originating from South India. Siddha is founded on the principles of balancing the three humors (vata, pitta, kapha) and promoting health through diet, lifestyle, herbal medicine, and spiritual practices. In the context of oral health, Siddha includes a range of indigenous techniques such as herbal tooth powders (choornams), chewing sticks, polyherbal mouth rinses, oil pulling therapies, and fumigation practices (4,7).

*Corresponding Author

Bernaitis L*

Email: bernaitis_87@yahoo.co.in.

Several Siddha formulations and interventions have demonstrated antimicrobial, anti-inflammatory, analgesic, and immunomodulatory properties, which can contribute to the prevention and treatment of oral diseases like dental caries, gingivitis, oral thrush, and halitosis (5,8,11). In addition, these practices are widely accepted among rural populations and have minimal side effects when used appropriately.

Despite its potential, the integration of Siddha into mainstream dental care and public health policies remains limited. This is partly due to a lack of clinical validation, standardized formulations, and insufficient collaboration between Siddha practitioners and allopathic professionals. However, with the growing emphasis on integrative medicine and community-level interventions, there is a unique opportunity to explore how Siddha principles and practices can be systematically incorporated into oral health promotion programs, particularly in underserved settings.

This review aims to explore and evaluate public health strategies that incorporate the Siddha system of medicine in dentistry. By analyzing classical Siddha texts, modern research studies, and existing public health initiatives, the review identifies relevant Siddha practices suitable for oral health care and outlines their potential application in preventive, therapeutic, and policy contexts. The ultimate goal is to propose a framework for integrating Siddha-based practices into mainstream dental public health to improve oral health outcomes and health equity in India.

2. Global Burden of Oral Diseases

According to the World Health Organization, oral diseases affect approximately 3.7 billion people globally as of 2025, with untreated dental caries being the most common health condition (3,5). These diseases are often chronic and disproportionately impact low- and middle-income countries due to lack of access to professional dental care. WHO estimates from 2019 also highlighted an economic burden of over USD 380 billion annually due to oral health issues (6). Oral health inequalities are linked to socioeconomic disparities, aging populations, and lifestyle choices, emphasizing the need for preventive and community-based strategies.

3. Rationale for Siddha-Based Public Health Strategies

The Siddha system uses natural remedies, including herbs (mooligai), minerals (thathu), and traditional practices such as oil pulling and herbal brushing. These have been shown to possess antimicrobial, anti-inflammatory, and immunomodulatory properties (4,7). Integrating Siddha into public health can be particularly effective in resource-limited settings. It also aligns with the Ottawa Charter for Health Promotion by supporting personal skill development, community participation, health service reorientation, and supportive environments (1).

4. Siddha Practices in Oral Health

4.1 Brushing with Herbal Twigs

Chewing sticks from medicinal plants like neem (*Azadirachta indica*), amla (*Emblica officinalis*), tulsi (*Ocimum sanctum*), and banyan (*Ficus benghalensis*) are widely recommended in Siddha texts. These help in plaque removal, salivary stimulation, and microbial inhibition (4,8).

4.2 Use of Herbal Mouthwashes

Polyherbal formulations using Aloe vera, tea tree oil, Triphala, and curcumin have shown efficacy in reducing plaque, gingivitis, and bad breath. Mouthwashes such as **Padigara Neer** are also believed to balance internal energies and promote holistic well-being (9,10,11).

4.3 Oil Pulling Technique

Oil pulling involves swishing sesame or coconut oil in the mouth for 10–15 minutes. Studies have shown this method to reduce *Streptococcus mutans*, *Candida albicans*, and *Lactobacilli*, thereby lowering the risk of caries, gingivitis, halitosis, and oral thrush (5).

5. Siddha Remedies for Common Dental Conditions

5.1 Dental Caries

Treatments include mouth rinses like **Oma Theeneer** and formulations with *Solanum indicum*, *Momordica charantia*, and gingelly oil. Other remedies include **Arkachara Naalika Chooranam**, **Kandankathiri** fumigation, and **Dasana Chooranam** (4,12).

5.2 Gingival Inflammation and Swelling

Polyherbal brushes made from *Semecarpus anacardium*, copper sulfate, cardamom, and salt are traditionally used. Remedies such as clove oil application and decoctions from *Randia dumetorum* are common (4).

5.3 Tooth Luxation and Trauma

Powders combining *Terminalia chebula*, turmeric, *Limonia acidissima* resin, borax, and other herbs are mixed with honey and applied topically. Fumigation with sandalwood, *Acorus calamus*, benzoin, and ginger is suggested for pain and inflammation (4).

5.4 Tooth Strengthening

Oily pastes made from dried tender coconut and *Pergularia daemia*, applied with **Pachai Karpooram**, are used to enhance dental resilience (12).

6. Siddha and Dental Public Health

Dental public health aims to serve the community by preventing and controlling dental diseases through organized efforts, policy, and education (13). Siddha, with

its community-level application potential, is well-suited for integration into this model.

6.1 Policy Gaps

Despite the draft National Oral Health Policy proposed in 1995, India still lacks a comprehensive oral health policy. Integrating Siddha practices can address this gap, especially in underserved areas (14).

6.2 Community Education and Awareness

Programs targeting school children, parents, teachers, and elderly populations can incorporate Siddha oral hygiene techniques. These programs can be supported through community-based exhibitions, awareness drives, and mobile dental clinics (15).

6.3 Community Health Initiatives

The Indian Dental Association has launched several initiatives, such as the SPOT program for oral cancer screening and the Tobacco Intervention Initiative. Siddha principles can complement these initiatives through herbal tobacco alternatives and preventive care (16).

7. Future Directions

The integration of Siddha medicine into dental public health offers a promising avenue for improving oral health outcomes, particularly in underserved and resource-limited settings. However, realizing this potential requires a systematic, evidence-based approach. Future efforts should focus on conducting rigorous clinical and epidemiological studies to scientifically validate the safety, efficacy, and dosage of Siddha formulations used in oral health, such as herbal powders, oil pulling agents, and mouthwashes. Collaboration between Siddha practitioners, dental professionals, pharmacologists, and public health experts is essential to develop standardized protocols and ensure quality control. There is also a pressing need to incorporate Siddha-based oral hygiene practices into school health programs, community outreach efforts, and primary health centers to increase accessibility and acceptability. Training modules should be developed to educate Siddha practitioners on modern oral health practices and vice versa, fostering mutual respect and integrative care. Furthermore, national health policies should recognize and support traditional medicine in oral health frameworks by allocating funding for research, training, and infrastructure. Public awareness campaigns can be launched to highlight the antimicrobial and anti-inflammatory benefits of widely used Siddha herbs such as neem, turmeric, and clove. Lastly, efforts should be made to cultivate and sustainably harvest medicinal plants used in Siddha dentistry to ensure environmental and economic viability. With coordinated efforts across education, research, and policy, Siddha can be effectively integrated into a holistic and inclusive oral healthcare system in India.

8. Conclusion

The Siddha system of medicine offers a rich reservoir of knowledge for preventive and therapeutic oral healthcare. Its integration into public dental health strategies presents a culturally aligned, cost-effective, and scalable solution for addressing the oral health challenges in India. To harness its full potential, a collaborative, evidence-based, and policy-supported approach is necessary. Siddha's role in dentistry can thus extend beyond traditional boundaries into mainstream healthcare, contributing to a holistic, equitable oral health system.

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