



SMOKELESS TOBACCO USE IN INDIA: IMPLICATIONS FOR ORAL HEALTH AND PUBLIC HEALTH DENTISTRY

***Dr. Karandeep Singh Sandhu**

Reader and Head of the Department, Department of Public Health Dentistry, National Dental College and Hospital, Dera Bassi, Mohali, Punjab.

How to cite this Article: *Dr. Karandeep Singh Sandhu (2026). Smokeless Tobacco Use In India: Implications For Oral Health And Public Health Dentistry. World Journal of Advance Pharmaceutical Sciences, 3(10), 24-27.



Copyright © 2026 *Dr. Karandeep Singh Sandhu | World Journal of Advance Pharmaceutical Sciences

This is an open-access article distributed under creative Commons Attribution-Non Commercial 4.0 International license (CC BY-NC 4.0)

Article Info

Article Received: 17 August 2026,

Article Revised: 07 Sept. 2026,

Article Accepted: 27 Sept. 2026.

*Corresponding author:

Dr. Karandeep Singh Sandhu

Reader and Head of the Department, Department of Public Health Dentistry, National Dental College and Hospital, Dera Bassi, Mohali, Punjab.

DOI: <https://doi.org/10.5281/zenodo.23067021>

ABSTRACT

Smokeless tobacco use remains an important preventable cause of oral morbidity in India. Unlike smoked tobacco, these products are placed in the oral cavity, chewed, sucked, or applied to the teeth and gingiva. Common Indian preparations include khaini, gutka, tobacco-containing pan masala, zarda, mawa, mishri, gul, gudakhu, and tobacco used with betel quid. Many products also contain areca nut, slaked lime, catechu, flavouring agents, and other additives. Their use is influenced by affordability, easy availability, social acceptance, cultural practices, peer influence, and aggressive or indirect marketing. Evidence summarized in the source literature shows substantial use among Indian adults and adolescents, with higher use in several rural and socioeconomically disadvantaged populations. Oral consequences include mucosal irritation, periodontal disease, tooth loss, staining, oral potentially malignant disorders, oral submucous fibrosis, and oral cancer. Areca nut-containing products are particularly relevant because areca nut is carcinogenic even in the absence of tobacco. Dentists and dental teams are strategically positioned to identify users, detect early mucosal changes, provide brief cessation counselling, and refer patients for comprehensive treatment. Effective control requires surveillance, health education, regulation of products and marketing, accessible cessation services, and coordinated action involving dental professionals, primary healthcare workers, schools, communities, and government agencies.

KEYWORDS: Smokeless tobacco; areca nut; gutka; khaini; oral cancer; oral submucous fibrosis; tobacco cessation; India; public health dentistry.

INTRODUCTION

Tobacco use in India occurs in both smoked and smokeless forms. Smokeless tobacco is especially important for oral healthcare because the product is kept in direct contact with the oral mucosa. Users may chew, suck, hold, or rub tobacco preparations against the teeth and gingiva. In many Indian communities, tobacco is consumed as a component of betel quid, gutka, khaini, zarda, mawa, or locally prepared mixtures. Some products contain tobacco alone, whereas others combine tobacco with areca nut, lime, catechu, spices, sweeteners, and flavouring substances.

The source review described a resurgence of smokeless tobacco use in India from the 1970s, followed by rapid expansion of packaged products and single-use sachets during the 1980s. Pan masala and gutka became widely available and were promoted through attractive packaging and indirect advertising. Traditional products such as khaini, zarda, and locally prepared mixtures continued to be used alongside these newer preparations. This changing market increased exposure among young people and contributed to concern about oral precancer and cancer.

For dentistry, smokeless tobacco is not simply a behavioural risk factor. It is a direct cause of mucosal

injury, a major contributor to oral potentially malignant disorders, and an important determinant of oral cancer risk. Dental professionals frequently examine the oral cavity before other healthcare providers and may therefore detect early lesions and initiate cessation support.

Smokeless tobacco products used in India

Indian smokeless tobacco products vary by region, preparation, and user preference. Khaini generally consists of tobacco mixed with slaked lime. Gutka commonly contains areca nut, tobacco, lime, catechu, and flavouring agents. Pan masala may contain areca nut and other ingredients without tobacco, although products may be sold in tobacco-containing and tobacco-free forms. Zarda is flavoured chewing tobacco often used with betel quid. Mawa and related locally prepared mixtures may contain finely cut areca nut, tobacco, and lime.^[1]

Other products are applied directly to the teeth and gingiva. These include dry snuff preparations such as gul, mishri, masher, and tapkeer, as well as paste-like products such as gudakhu and tobacco tooth powders. The terminology used by patients may not correspond to the ingredients actually present. Therefore, dental history-taking should ask about the brand or local name, ingredients, frequency, duration, quantity, site of placement, and whether the product is swallowed or spat out.^[1,2]

A key clinical distinction is between tobacco and areca nut. Areca nut, also called betel nut or supari, is the seed of Areca catechu. It is frequently included in paan, gutka, and pan masala. Tobacco-free areca nut products are not harmless; areca nut itself is classified as carcinogenic and is strongly associated with oral submucous fibrosis and oral cancer. Consequently, a patient who denies tobacco use may still have significant risk because of regular supari or pan masala consumption.^[1]

Epidemiology and patterns of use

The source review reported that, according to the Global Adult Tobacco Survey conducted in India in 2009, approximately one-quarter of adults used smokeless tobacco, with prevalence higher among men than women. Khaini was identified as the most commonly used form, followed by gutka and betel quid with tobacco. The review also reported use among adolescents aged 13–15 years, demonstrating that initiation can occur during school years.

Use is not distributed equally across the population. The review described higher prevalence in rural communities, among people with limited formal education, and in lower socioeconomic groups. Affordability, availability through local vendors, social norms, occupational patterns, family use, peer influence, and limited access to healthcare may contribute to these differences. Some users begin chewing because they believe it relieves

toothache, improves digestion, reduces fatigue, or provides a harmless substitute for smoking. These beliefs require respectful correction during counselling.

The review also described early initiation among adolescents in rural Maharashtra, with parental use, peer pressure, advertising, and colourful packaging identified as important influences. These findings have direct implications for school oral-health programmes. Dental health education should address not only cigarettes but also gutka, khaini, zarda, supari, pan masala, and tobacco used for cleaning teeth.^[1,2,3]

Oral and systemic health consequences

The oral cavity is the primary site of exposure, and the effects may be local as well as systemic. Tobacco-containing products can cause mucosal irritation, altered pigmentation, staining, halitosis, gingival inflammation, periodontal disease, recession, and tooth loss. Placement of the product at the same site over long periods may produce a localized white or red lesion. Such lesions require careful examination, documentation, follow-up, and biopsy or specialist referral when indicated.

The most important oral consequences are oral potentially malignant disorders and oral cancer. The source review summarized evidence that smokeless tobacco causes oral cancer and that betel quid without tobacco can also cause oral cancer. Tobacco-containing betel quid has additionally been associated with cancers of the pharynx and oesophagus. In India, the burden is particularly important because chewing products are common and are often used daily for many years.^[1]

Oral submucous fibrosis is strongly associated with areca nut use. It is a chronic, progressive fibrotic disorder characterized by burning, blanching and stiffness of the oral mucosa, reduced cheek flexibility, restricted tongue movement, and progressive limitation of mouth opening. Patients may initially report difficulty eating spicy food or a sensation of tightness. With progression, mouth opening becomes restricted and oral hygiene, nutrition, dental treatment, and quality of life are affected. Oral submucous fibrosis is a potentially malignant disorder and requires cessation of areca nut, clinical monitoring, and appropriate specialist management.^[2,3]

Periodontal effects are also relevant. Chewing and holding products against the gingiva can cause local trauma, recession, attachment loss, and periodontal inflammation. Although some traditional chewing practices may be associated with lower caries experience because of salivary stimulation or other factors, this does not offset the risks of periodontal disease, tooth loss, mucosal disease, and cancer.

Smokeless tobacco use is not limited to oral outcomes. The source review reported associations with cardiovascular disease and adverse pregnancy outcomes, including low birth weight and stillbirth. Tobacco

expenditure may also reduce household resources available for food, education, and healthcare. Thus, smokeless tobacco should be addressed as a wider public-health issue while retaining a strong oral-health focus.^[2,3,4]

Relevance to public health dentistry

Public health dentistry has an important role because smokeless tobacco use is influenced by social, economic, cultural, and environmental factors. A purely clinical approach is insufficient when products are inexpensive, widely sold, socially accepted, and used by multiple family members.

Community dental camps provide opportunities for screening, education, and referral. During a camp, the dental team can ask about tobacco and areca nut use, inspect the oral mucosa, identify suspicious lesions, demonstrate oral hygiene practices, and provide brief cessation advice. Individuals with restricted mouth opening, persistent ulcers, non-scrapable white patches, red lesions, unexplained bleeding, or neck swellings should be referred promptly for further evaluation.

School programmes are particularly important for prevention. Students should be taught that gutka, khaini, pan masala, supari, and tobacco used for tooth cleaning are not safe products. Interactive sessions, role play, street plays, peer education, and involvement of teachers and parents can help correct misconceptions. Prevention messages should avoid fear alone and should explain addiction, oral changes, cancer risk, financial costs, and the benefits of quitting.

Primary healthcare workers can support identification and referral. Integration of tobacco screening into routine health visits, maternal health services, noncommunicable disease clinics, and community outreach can improve access. Dental professionals should maintain referral links with tobacco cessation clinics, oral medicine departments, oncology services, and primary healthcare facilities.^[4,5]

Tobacco cessation and the dental team

A brief intervention can be incorporated into every dental visit. The dental professional should ask about tobacco and areca nut use, advise cessation clearly, assess willingness to quit, assist with a quit plan, and arrange follow-up. A non-judgmental approach is essential because many users are dependent and may have made several unsuccessful attempts.

The clinician should document the product, frequency, duration, amount, time to first use, triggers, previous quit attempts, withdrawal symptoms, and support available at home. Patients should be informed that cravings are expected but temporary and that professional help improves the likelihood of sustained cessation. Behavioural counselling may include identifying triggers, delaying use, drinking water, maintaining oral

substitutes such as sugar-free gum when appropriate, avoiding high-risk situations, and involving family members.

Nicotine replacement therapy and other pharmacological options may be considered according to clinical assessment, contraindications, local protocols, and the availability of trained prescribers. Dental professionals should work within their professional scope and refer when medication assessment is required. Follow-up is important because relapse is common and should be managed as part of the cessation process rather than treated as failure.

For areca nut users, counselling must explicitly mention that tobacco-free supari and pan masala are not safe alternatives. Patients with oral submucous fibrosis need cessation support alongside assessment of mouth opening, nutritional status, oral hygiene, and possible malignant transformation.^[3,4]

Policy and prevention in India

The source review emphasized that tobacco control should address both smoking and smokeless tobacco. In India, important components include regular monitoring of tobacco use, health warnings, restrictions on advertising and promotion, taxation, regulation of manufacture and sale, protection from exposure to tobacco-related environmental hazards, and accessible cessation services.

Policy implementation must also address indirect advertising and the marketing of tobacco-free products that resemble tobacco brands. Enforcement is especially important around schools, colleges, healthcare facilities, and public places. Community education should explain that attractive packaging, sweet flavours, and claims of freshness or mouth cleansing do not make a product safe.

A comprehensive Indian strategy should combine population-level regulation with individual-level care. Dental colleges can contribute through community outreach, undergraduate and postgraduate training, tobacco cessation clinics, oral cancer screening, research, and collaboration with district health authorities. Surveillance systems should record product-specific use because the term “tobacco use” alone may miss areca nut and mixed preparations.^[4,5]

CONCLUSION

Smokeless tobacco is a major preventable threat to oral health in India. Products such as khaini, gutka, zarda, mawa, tobacco-containing paan, and tobacco tooth-cleaning preparations expose users to addictive and carcinogenic substances. Areca nut-containing products add a separate and substantial risk of oral submucous fibrosis and oral cancer, even when tobacco is absent.

Dentists are well placed to identify users, recognize early oral lesions, provide cessation counselling, and arrange

referral. Effective prevention requires school and community education, routine screening, accessible cessation services, strong regulation, and sustained surveillance. The most useful public-health approach is one that treats smokeless tobacco, areca nut, and related oral diseases as interconnected problems and combines clinical care with community-based prevention.

REFERENCES

1. Gupta PC, Ray CS, Sinha DN, Singh PK. Smokeless tobacco: A major public health problem in the SEA region: A review. *Indian J Public Health*, 2011; 55(3): 199–209.
2. World Health Organization. Global Adult Tobacco Survey: India Country Report. New Delhi: WHO Regional Office for South-East Asia, 2009.
3. International Agency for Research on Cancer. Betel-quid and Areca-nut Chewing and Some Areca-nut-derived Nitrosamines. IARC Monographs, Volume 85. Lyon: IARC, 2004.
4. International Agency for Research on Cancer. Smokeless Tobacco and Some Tobacco-specific N-Nitrosamines. IARC Monographs, Volume 89. Lyon: IARC, 2007.
5. Gupta PC, Mehta FS, Pindborg JJ, et al. Intervention study for primary prevention of oral cancer among 36,000 Indian tobacco users. *Lancet*, 1986; 1: 1235–1239.