



PREVALENCE OF DENTAL ATTRITION IN PEOPLE WITH TOBACCO CHEWING HABIT

Dental Science

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ABSTRACT

Background: Tobacco use poses a major public health challenge. It is an established risk factor for many oral changes, one of which is dental attrition. **Objective:** To determine the prevalence of attrition among a population with tobacco chewing habit in Hyderabad. **Materials and Methods:** This study was conducted by OroGlee Solutions Private Limited. A total of 1019 subjects aged 18 - 60 years were examined and grouped based on their tobacco chewing habit. The status of their teeth was recorded with respect to the presence of attrition. **Results:** Percentage of people with tobacco chewing habit having attrition was 91.4% and percentage of people without tobacco chewing habit having attrition was 68.2%. Chi square test was used to derive the relation between tobacco chewing and attrition and showed a significant relation between tobacco chewing and attrition. **Conclusion:** Chewing tobacco is a major cause of tooth wear in the form of attrition. Measures should be established to increase awareness and early diagnosis.

KEYWORDS

Tobacco, Attrition

INTRODUCTION

India, chewable tobacco is vastly consumed especially by rural population and people of low socioeconomic status. Nearly 267 million people (15 years and above) in India (29% of population > 15 years) are users of tobacco, according to the Global Adult Tobacco Survey India, 2016-17.¹

The various forms of tobacco chewing include paan (betel leaf filled with sliced areca nut, lime and other spices chewed with or without tobacco), paan masala and gutkha (a preparation of crushed areca nut, paraffin, lime, flavorings and small amount - less than 10% - of tobacco).

The harmful effects of tobacco on oral soft tissues including pre-malignancy and malignancy are well studied; however research on its effect on oral hard tissues especially on tooth structure is not documented well enough.³

Attrition is defined as the physiologic wearing away of a tooth surface as a result of tooth-to-tooth contact as in mastication.⁴ It usually occurs due to aging process but aggravates significantly in people with the habit of teeth grinding and tobacco chewing as it involves continuous chewing action.⁵ The harsh abrasives in tobacco products when constantly chewed cause this kind of tooth wear.⁶

Tooth structure loss can cause hypersensitivity due to exposure of dentin. The wearing away of dentition due to continued attrition not only alters the aesthetic appearance but also results in an unbalanced functional occlusion due to which development of temporomandibular joint disorders occur.⁵

The aim of the present study was to determine the prevalence of attrition among tobacco chewers. The findings of this study will be helpful in planning patient awareness and education and in incorporating preventive measures.

MATERIALS AND METHODS

A cross-sectional survey was conducted by OroGlee Solutions Private Limited among the staff (aged between 18 and 60 years) of 21 different cafes and corporate offices in the city of Hyderabad in the duration of 8 months from November 2021 to June 2022. A total of 1019 adults were examined at their respective places of work. A survey questionnaire was prepared to acquire personal details such as age, gender, occupation, hometown, relevant dental and medical history and habits, like tobacco or paan chewing, smoking and alcohol consumption along with their duration.

Oral examination was done using an intraoral camera connected to a laptop to record videos of all aspects of teeth. A thorough oral examination was also done using a mouth-mirror and torch. Informed oral consent of the participants was obtained before examination.

Inclusion Criteria

Participants from the age group of 18 to 60 years were included in the

study. Cases included subjects who had a habit of chewing tobacco since last 1 or more years. Controls were the subjects who did not have the habit of chewing tobacco.

Exclusion Criteria

1. Participants above the age of 60 years were excluded from the study.
2. Those with the habit of tobacco chewing since less than a year were excluded.
3. Those who had a habit of bruxism or medical conditions like gastric regurgitation causing erosion of teeth were also excluded.

The data analysis was done using SPSS version 28. The chi-square test was used to test whether there were significant differences in the prevalence of attrition in tobacco chewers and non-chewers. $P \leq 0.05$ was considered statistically significant.

RESULTS

A total of 1019 subjects, aged between 18 and 60 years participated in the study. They were divided into two groups: people with tobacco chewing habit (20.6%) and those without the habit (79.3%). Attrition percentages among the study subjects in the two groups were as follows: People with tobacco chewing habit have 91.4% prevalence of attrition and people without tobacco chewing habit have 68.2% prevalence of attrition. We observe that there is a statistically significant difference between tobacco chewers and control group in relation to presence of attrition. This is determined by the Chi square test which had a value of 44.98 which is much higher than the value (3.84) for the significance level of 0.05. This shows that there is a significant relation between tobacco chewing and attrition.

Table 1: Prevalence of attrition among tobacco chewers and non chewers

	People with attrition	People without attrition	Total
Tobacco Chewers	192	18	210
Non- Chewers	552	257	809
Total	744	275	1019

DISCUSSION

Wear of tooth surface can be of various types like attrition, erosion, abrasion and abfraction. This study was focused on the wear of tooth surface known as attrition. Attrition occurs in the occlusal (biting) surfaces of the teeth as a result of friction taking place during chewing. Pain and sensitivity is high in the patients with dental attrition which could be understood by the fact that attrition leads to dentinal or pulpal exposure and hence increased pain or sensitivity in these patients. Attrition may also result in loss of facial height or apertognathia (open bite).

Different categories of teeth wear at different rates. Incisors suffer the greatest wear (97%), followed by the molars (85%), then the canines

(74%), with the premolars being the least worn teeth in the oral cavity. (60–68%)⁷

Attrition is irreversible and often requires repeated, more complex and expensive treatments and restorations. Therefore, it is critical that the diagnosis of attrition is made early, and requisite preventive measures are undertaken in order to keep the loss of dental hard tissue at the minimum.

There have been various studies in the past which relate the extrinsic and intrinsic factors with dental attrition. However, in this study, only the tobacco chewing habit is evaluated as a factor associated with attrition.

India is the second largest consumer of tobacco in the world, second only to China. The prevalence of overall tobacco use among males is 48% and that among females is 20%. Nearly two in five (38%) adults in rural areas and one in four (25%) adults in urban areas use tobacco in some form.⁸ Tobacco use is a major public health concern owing to its high prevalence and its deleterious effects on health. The excessive use of tobacco products has been associated with various lesions in the oral cavity.

Constant tobacco chewing leads to attrition of teeth due to frequent chewing action and abrasive quality of tobacco. Cracked and chipped teeth is a common feature seen in people with moderate to severe attrition because of the excessive pressure required to chew onto the hard and rough tobacco particles.

According to this study, 91.4% of tobacco chewers have varying degrees of attrition. This finding concurs with other studies; Hegde *et al*⁵ showed a significant association between attrition and tobacco chewing in their study conducted in 2016 in Mangalore where out of 290 participants who had a history of tobacco chewing, 37.1% had attrition, and among the 760 patients with no history of tobacco chewing, only 26.4% had attrition. Similar results were found in the study conducted by Nagarajappa and Ramesh² on tobacco chewers in the rural population of Davangere, Karnataka, where the worn surfaces among the tobacco chewers were as follows: tobacco with pan (14.3% and 11% males and females, respectively), plain tobacco (12.4% and 10.3%), pan masala with tobacco (15.9% and 11.6%) and control (6.2% and 4.3%).

CONCLUSION

There are many factors associated with the etiology of dental attrition and the findings of this study indicate that tobacco chewing habit is an important contributor to the occurrence of dental attrition. Efforts should be made by the dentists to increase the awareness about tobacco and its harmful effects on teeth. As dental attrition is an irreversible phenomenon, by establishing an early diagnosis, and preventive measures, further loss of the tooth structure can be avoided.

Conflict of Interest

There are no conflicts of interest.

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