

# Occurrence of Oral Submucous Fibrosis and Salivary Gland Disorder among Gutkha Chewers

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**Abstract**—Different types of smokeless tobacco products are available in present day market. A study has been carried out to observe the effect of “gutkha” chewing on oral health among population of different regions of Odisha. A questionnaire based study was conducted from 2017-2018 on symptomatically diagnosed different types oral health disorders among different age groups in 4 districts of Odisha such as: Cuttack, Dhenkanal, Kendrapada and Mayurbhanj.

**Keywords:** Gutkha, Panmasala, Oral health, Oral submucous fibrosis, Salivary gland disorder.

## 1. INTRODUCTION

“Gutkha” is a powdered or granulated mixture containing a variety of ingredients, including areca nut, tobacco, lime, spices, cardamom, catechu, and colouring agents with flavours and “panmasala” is a balanced mixture of betel leaf with lime, areca nut, clove, cardamom, mint and essence packed in tins and handy foil sachets (Patel and Greydanus, 1999; Nair et al. 2004). “Gutkha” is immensely popular across all socioeconomic strata in India because of the ease and low expense of procurement, the youth appeal, the convenient packaging, long shelf life, and the lack of social stigma (Waldman, 2002). Many persons believe “gutkha” to be harmless and a mere “mouth freshener” (Patel and greydanus,1999).

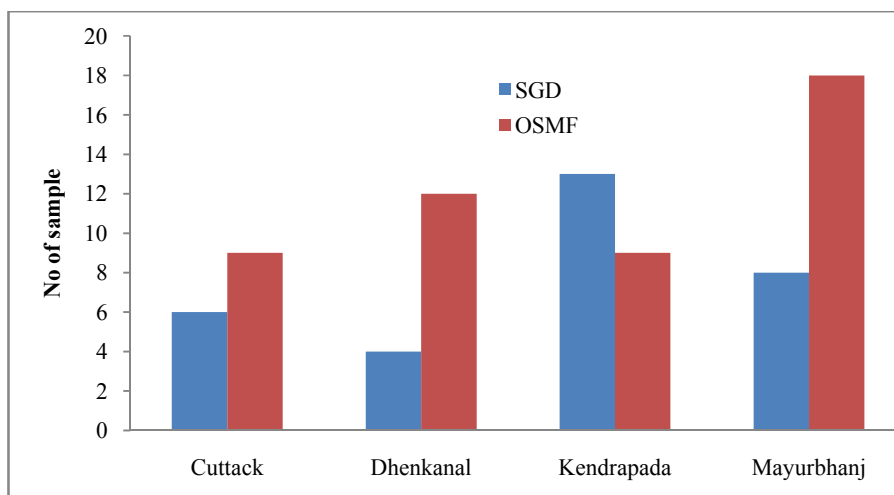
Addiction to tobacco (smoking/ chewing) at an early stage is due to several reasons like ignorance, loneliness, curiosity, urbanization, unemployment, easy availability, inheriting habits from family elders who are already addicted and it is also a cheap source for relaxation and refreshment with instant stimulus. Aggressive advertising and marketing has greatly enhanced the sales of these products (Nitin et al. 2010; Nayak, 2011).

According to IARC (2004), the main ingredients of gutkha / panmasala showed carcinogenic activity in many studies including *in vitro*, *in situ* oral cavity and also in experimental animals. Many studies have shown that chewing gutkha / panmasala can cause cancer in humans (Manikantan et al., 2010). Gutkha chewing is closely associated with oral sub-mucosal fibrosis (OSMF), leading to pre-neoplastic condition due to the ingredients like aricollic acid in betel nut along with lime and magnesium carbonate. Areca nut is a main component of Gutkha, which is able to cause Oral Sub Mucous Fibrosis (Tilakratne and Klinikowski, 2005). Oral submucous fibrosis (OSMF) is incurable disease and finally leads to Oral Cancer (Murti et al., 1985). In case of Gutkha users, OSMF develops within a short span of time (Babu et al., 1996).

## 2. MATERIAL AND METHOD

The study was conducted in 4 different district of Odisha such as: dhenkanal, cuttack, kendrapada and mayurbhanj. A survey was made and data were collected from the people (100 sample in each district) through

- i) questionnaire (name, age, chewing habit, type of SLT chewing, duration of chewing habit, any behavioural changes, any physiological disorder, economic status, status of mood without tobacco, oral health)
- ii) physical verification of oral cavity and noticed about the symptoms
- iii) collection of data about types of gutkha and panmasala, available in respective districts.
- iv) photography of affected oral cavity and types of SLTs available
- v) consultation with doctors about the oral health, Oral submucous fibrosis (OSMF), salivary gland disorder (SGD) from photographs and symptoms collected by me.



**Fig. 1: Occurrence of OSMF & SGD in different district of Odisha**

### 3. RESULT AND DISCUSSION

#### Questionnaire

#### Physical verification

Severity of the disease was concurrent with the use of gutkha and other areca nut products along with its duration of use, time of using the products in the mouth, frequency and style of chewing. The socioeconomic status of the patients was also correlated with the severity. Out of total 99 persons interviewed, 21 cases belonged to Salivary Gland Disorder (SGD) and 32 cases belonged to Oral Submucous Fibrosis (OSMF).

It was observed that in middle and upper middle class severity of OSMF is established. All the OSMF cases were having some chewing habits of different types of Smokeless Tobacco (SLT) product like Gutkha, Pan masala, Mawa etc. Explanation of the OSMF cases due to habitual gutkha chewing have been comparatively analysed for assessment of severity and related risk factors. Confirmed cases of OSMF by patient's history have been divided into three grades: grade I (mild), grade II (moderate) and grade III (severe) depending upon the extent of the severity of the disorder. It was observed that the maximum number of cases of grade I OSMF belonged to middle class and low class people whereas maximum number of grade III OSMF belonged to upper middle class. Severe OSMF is not the usual occurrence among low class people because these people can not afford enough money to buy gutkha and panmasala in a regular basis. It was interesting to note that pan chewers mostly developed grade I OSMF whereas maximum number of gutkha and panmasala chewers developed grade III OSMF and SGD. In the present study it was also found that most of the OSMF cases who were using gutkha and panmasala less than 2 to 3 years (5 to 6 pouches per day) developed OSMF (grade I) whereas the patients who were taking those smokeless tobacco products more than 6 to 8 years developed usually OSMF (grade II and grade III) when the chewing habit of gutkha and panmasala is 15 to 25 pouches per day. The OSMF patients who were chewing gutkha and other products for less than 5 minutes in duration and less than 5 pouches per day in quantity mostly developed grade I of OSMF. On the other hand OSMF cases who were chewing gutkha and other products at a rate of 15 to 25 pouches per day with a chewing period of more than 5 to 10 minutes developed severe OSMF. It is observed that long term chewing of gutkha also causes Salivary Gland Disorder (SLD) upto some extent. It is found that some common symptoms of SGD like difficulty in speaking, lump in cheek and tongue, reduced flow of saliva, pus in the mouth, strong and foul smelling pus and pain during opening of mouth, chewing and swallowing.

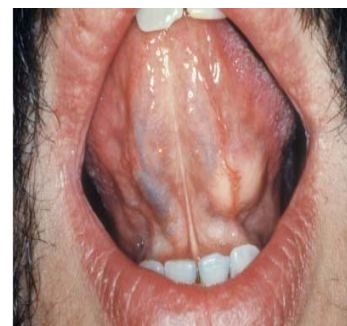
The current study reveals that gutkha and panmasala are also associated with other forms of oral health disorders like Temporomandibular disorder (TMD), Leukoplakia, Smarting sensation, Oro facial pain (OFP) and gap between teeth etc.



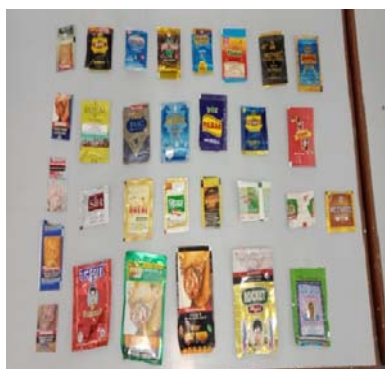
**Fig. 1: Grade III OSMF**



**Fig. 2: Lime and Catechu affects fibrosis on palm**



**Fig. 3: salivary gland disorder**



**Fig. 4: Types of smokeless tobacco products**



**Fig. 5: Development of white lesions and grade I OSMF**



**Fig. 6: salivary gland disorder**

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