

FREQUENCY OF BETEL NUT CHEWING AMONG NON-TEACHING STAFF OF BAHRIA UNIVERSITY MEDICAL AND DENTAL COLLEGE

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ABSTRACT

Betel nut chewing habit is highly prevalent in South Asian region. Chronic use of betel nut / gutkha plays a major role in pathogenesis of oral submucous fibrosis (OSF). The aim of this study is to investigate the frequency of betel nut chewing habit among non-teaching staff of Bahria University Medical and Dental College. The present cross-sectional study comprised of 118 subjects out of which 21(17.8%) were females and 97(82.2%) males. Informed consent was taken prior to oral examination. Data were entered into SPSS version 23. The study finding showed betel nut chewing habit was frequently seen in males as compared to females. The reasons of chewing was also investigated which revealed that pleasure was the dominating factor observed in Urdu followed by Punjabi speaking community. The next common reason was craving found in the same ethnic group, whereas boredom and unhappy were the reasons seen in Sindhi, Pakhton and Bengali communities with the (P>.994) which is statically insignificant. Presently betal nut chewing habit is a big challenge for developing countries because continuation of this habit may lead to serious consequences. Authors also recommend that more sample size is advocated to authenticate this finding. Finally, the government should focus more on oral health education programs to eradicate this habit from the community.

Key Words: *Betel nut, Karachi, OSF, Precancerous conditions.*

INTRODUCTION

Oral submucous fibrosis (OSF) is a chronic debilitating and premalignant condition of oral cavity characterized by juxta-epithelial inflammatory reaction and progressive fibrosis of submucosal tissues leading to stiffness of buccal mucosa and perioral region leading to limited mouth opening.¹ It is an irreversible disease with significant morbidity and increased potential for malignant transformation.² The malignant potential of the disease was first identified by Paymaster, who observed slowly growing squamous cell carcinoma in one third of a cohort of Indian patients. His findings were confirmed later by Pindborg.³

The precise etiology of the disease is unknown but it is strongly linked to chewing betal nut, a common habit

in the regions where the disease is of high prevalence.⁴ Other possible aetiological factors include: genetic alterations, infectious and viral agents, carcinogens, nutritional and vitamin deficiencies and immunologic processes.^{1,5} The chemical constituents in areca nut play a major role in the pathogenesis of OSF. Biochemical studies have shown that there are four alkaloids in betel nut (arecoline, arecaidine, guvacine and guvacoline) which contribute to the pathology of the disease through distinct mechanisms.⁴ Recent evidence suggests also a role for copper, through the copper-dependent enzyme lysyl oxidase, which play a role in the cross-linking of collagen.⁶

Betel quid is defined by the WHO as a substance or mixture of substance, placed in the mouth or chewed and thus remaining in contact with the mucosa, usually containing one or both of the two basic ingredients, tobacco or areca nut (in raw or any or processed form) Traditionally, betel quid is composed of areca nut, catechu, tobacco and slaked lime wrapped in betel piper leaf.⁷

Chewing of areca nut is most widely practiced in Indian subcontinent.⁸ with variations present in terms

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Received for Publication: November 8, 2016
Revised: December 26, 2016
Approved: December 27, 2016

TABLE 1: CROSS-TABULATION SHOWING REASONS FOR CHEWING WITH ETHNICITY

Reasons for Chewing Betal Nut or Related Products	Urdu	Sindhi	Balochi	Pakhtun	Punjabi	Bengali
Postpone Hunger	1(0.84%)	—	—	—	—	1(0.84%)
Pleasure	15(12.7%)	2(1.69%)	1(0.84%)	1(0.84%)	6(5.08%)	5(4.23%)
Craving	5(4.23%)	1(0.84%)	1(0.84%)	—	3(2.54%)	1(0.84%)
When Unhappy	1(0.84%)	—	—	—	—	—
Boredom	2(1.69%)	—	—	—	2(1.69%)	—
Total	24(20.3%)	3(2.54%)	2(1.69%)	1(0.84%)	11(9.32%)	7(5.93%)

*p-value: >.994

of the composition of betel quid/pan.⁹ In the USA, South Asian immigrants use smokeless tobacco mixed with areca nut.¹⁰ Betal quid using habit in South Asian communities in UK is considered a high-risk group of oral cancer.¹¹ The aims of this study was to investigate the frequency of chewing habits particularly gutkha, areca nut containing product among medical and dental non-teaching staff.

METHODOLOGY

The present cross sectional study was conducted at Bahria University Dental Hospital (BUDH) Karachi. The study was conducted from July 2016 to October 2016. A total of 128 participants which were non-teaching staff of medical college were included in the study. Patients were selected through convenient sampling. The protocol of the study was approved by the Ethical Review Committee of Bahria University Medical and Dental College, Karachi. A performa was designed to collect data and a written consent was taken prior to the patient's oral examination and data collection. The inclusion criteria were non-teaching staff who willingly participates in present study and the exclusion criteria of the study include subjects who refused to give consent for this study. Descriptive and comparative analysis were done using SPSS version 23 and Chi-square test was used to check the significance between variables.

RESULTS

A total of 118 individuals, out of which 21(17.8%) were females and 97(82.2%) males were recruited in to this study. All subjects in this study were non-teaching staff and presently working at Bahria University Medical & Dental College. Subjects belonged to different ethnic groups including Urdu, Sindhi, Balochi, Pakhtoon, Punjabi and Bengali communities. Of the total 128 subjects 10 individuals refused to give consent therefore, excluded from the study leaving 118 subjects for data analysis.

All subjects claimed to use betal nut or betal nut containing products regularly. Out of 118 subjects, 47 (40%) respondent replied they chewed betal nut and its

TABLE 2: ADDICTION HABITS IN REPORTED CASES

Other Addiction	n	%
Smoking	16	13.6
Alcohol	1	0.8
No habit	101	85.6

products while 71(60.1%) said no. The habit was more prevalent among Urdu speaking community followed by Punjabis and Balochi. Some variations were seen in the frequency of chewing habit in Sindhi and Bengali community.

Reasons for chewing among non teaching staff of BUMDC were investigated because they belonged to low socioeconomic status. The cross-tabulation of habits with reasons of chewing showed, the pleasure was the dominating factor observed in Urdu speaking 15, followed by Punjabi 6, and Bangali 5. The second most common reason was craving which was increasingly seen in Urdu and Punjabi community and on the other hand Boredom and Unhappy was observed in Sindhi, Balochi, Pakhtoon and Bengalies. Finding this study showed that the p-value was (P>.994) which is statistically insignificant as shown in Table 1. Other addiction habits revealed were betal nut chewing smoking and alcohol consumption. Table 2

DISCUSSION

Betal nut chewing is the most popular chewing habit in among South Asians.¹² According to an estimate of World Health Organization (WHO) approximately 600 million people chew betal nut containing products worldwide which is about 10-20% of the world's population causing a premalignant condition of oral cavity known as oral submucous fibrosis (OSF).¹³ Research has shown that betal nut is the fruit of areca catechu palm tree and is chewed for its mild central nervous system stimulating properties. It is the fourth psychoactive substance after caffeine, alcohol and nicotine.¹⁴ The independent role of areca nut in oral carcinogenesis is well documented in literature.^{12,15,16,17} Betal nut is

chewed for various reasons like euphoria, combating fatigue, increasing salivation, attaining satiation, and even seeking relief of toothaches.¹⁸

Variants of pan include use of sliced areca nut alone and addition of sweeteners to make the product particularly attractive to younger children and it is sold under the names sweet supari, gua, mawa.⁹ The chewing of betel nut and its related products are widely practiced in Pakistan especially in Karachi where most of the lower socioeconomic class are fully engaged in this habit to combat their deprivations. This habit is not only prevalent in South-East region but also in other parts of the world with male preponderance.¹² Local study conducted in Karachi among school children showed the prevalence of tobacco containing areca nut products among male gender of low socioeconomic status.¹² In an Epidemiological study conducted in Patna, Bihar India, the males were found to be dominating, as they were using gutkha and other related products more because of easy access. Present Study findings also showed male dominance. On the other hand females being more conscious about their health and esthetic values felt uncomfortable in getting the betel nut/gutkha products from the merchant. The only study that showed higher predilection of betel chewing habit in females was conducted by Reichart among Cambodian elderly women.¹⁹

Findings of this study revealed that betel nut chewing habit is not good for oral health and one local study also supported these findings.²⁰ The study conducted by Ashok and colleagues demonstrated that majority of the users were unaware of the harmful effects of areca nut.²¹ Study on high school children particularly non-users disliked betel nut chewing habit as it causes stains on teeth surfaces and halitosis.²²

The reason of betel nut chewing as revealed by the participants of this study was pleasure which was followed by craving. This could be due to the presence of following factors low socioeconomic group, lack of education and lack of health consciousness. Study conducted among high-school children of the Northern Mariana Islands (Micronesia) showed similar results which are in accordance to the present study.^{22,23}

If this habit continues then with the passage of time it may result in OSF which is a precancerous condition characterized by submucosal fibrosis and may lead to limited mouth opening. Literature has that the evidence that betel nut contain at least six related alkaloids, of which four (arecoline, arecaidine, guvacine, and guvacoline) have been conclusively identified in biochemical studies.²⁴ Arecoline is generally the principle alkaloid which is carcinogenic in nature.²⁵ Application of alkaloid to human fibroblasts induces fibroblast proliferation and increase collagen production which

is strongly associated with oral submucous fibrosis.^{26,27} Betel nuts has been found to be a common cause of airway obstruction in children leading to emergency admissions with potential fatal complications.²⁸ Areca nut chewing causes broncho-constriction and may aggravate asthma.²⁹ Complications of areca nut also include gingivitis, leukoplakia and staining of teeth and gums.^{21,30}

The limitations of this study are, as it was conducted on Bahria University Medical and Dental College staff only, so the result for the general population can't be concluded. Furthermore study should be conducted on large population groups to obtain more detailed data.

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