

Prevalance and Patterns of Tobacco Consumption among Residents of Chattisgarh - A Questionnaire Based Analytical Study

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ABSTRACT

India faces a twofold burden in the form of smoking and smokeless tobacco. The various forms of smoking tobacco are - cigarettes, beedi, pipe smoking, reverse smoking and more than 40 forms of smokeless tobacco are available- paan, misery, mava, gutka, supari, betel quid. Tobacco is the leading cause of premature death worldwide and is known to cause a myriad of life threatening conditions - oral cancer, lung cancer, oesophageal cancer, COPD and many more.

Lack of proper education, stressful lifestyle, easy availability of these nicotine products is responsible for the alarming increase in the tobacco consumption . The aim of this study, is to study the prevalence and patterns of various forms of tobacco consumption among residents of Chattisgarh .

INTRODUCTION

India is considered as the global capital of tobacco in the world. Tobacco consumption is an important preventable public health issue and is the largest cause of morbidity and mortality world wide . “NICOTINE”- the most active ingredient of tobacco is responsible for the physical and psychological dependance on tobacco, as it stimulates adrenal glands to release epinephrine and increases the levels of

dopamine .India faces a double burden in the form of smoking and smokeless tobacco^[1]. The Various forms of tobacco consumption are smoking tobacco - cigarettes ,beedi, reverse smoking , pipe smoking , smokeless tobacco.

More than 40 forms of SLT are available and consumed globally , but in India themost prevalent forms are chewing tobacco forms - paan, misry ,mawa , betel quidand dip tobacco - gutka, supari . Snuff , a form of smokeless tobacco is made of finely shredded tobacco leaves . Dry snuff tobacco is inhaled while moist snuff tobacco is placed in the buccal vestibule. The increasing stress ,poor lifestyle habits , lack of awareness, easy and economical availability of these products- all these factors are responsible for the alarming rise of tobacco abuse . Tobacco is responsible for causing a multitude of life threatening health issues - cancers (oral cancer , lung cancer ,esophageal ,stomach cancers) pre malignant conditions of theoral cavity (OSMF,leukoplakia ,erythroplakia ,tobacco pouch keratosis) , respiratory conditions (emphysema, chronic obstructive pulmonary bronchitis),heart diseases , stroke and many more ^[7]. In this study, we aim to study the prevalence and patterns of various forms of tobacco consumption among residentsof Chattisgarh.

Keywords: Tobacco; Public health; Nicotine

METHODS AND MATERIALS

The study was a cross-sectional community-based design conducted for a span of 6 months from July 2019 to January 2020 in 8-9 community healthcare centers in Chhattisgarh. A dental camp was conducted for Oral Health checkups with a questionnaire survey form made to be filled for the type and prevalence of Tobacco Consumption among the resident population. A total of 200 candidates were included in the study. The inclusion criteria were the general population above the age of 18 years who had tobacco consumption as a habit with diversifying frequency. Exclusion criteria were pregnant women, disabled and handicapped population, the population having medical concerns, people above the age of 80 years, and those who were not willing to participate in the study. The sample size was large enough to provideconclusive results.

DATA COLLECTION

Patients were encountered in dental camps. Questionnaire was made to be filledalong with the regular dental checkup. The type of tobacco consumption and demographic information was sought from the household informant at both household level (ownership of different assets, caste, religion) and at individual level (for example, age, sex, education, marital status) for all the household members . The type , patterns , frequency of tobacco consumption information was sought from the subjects . These three variables were assessed to study the tobacco consumption habits among this population .

ETHICAL ISSUES

Informed consent was taken from the study participants after fully explaining the study in a language they understood well. No biological sample was taken. Confidentiality was maintained.

DATA ANALYSIS

Data were entered in Microsoft Excel 2007. Data analysis was done using SPSS (version 20.0; SPSS Inc. Chicago, IL, USA) software. Statistical significance (P value) was set at a level of 0.023. Data were evaluated and proportions were obtained showing a correlation between tobacco consumption among low-incomegroups and low to middle-income group. Chi square test was performed to check the statistical significance.

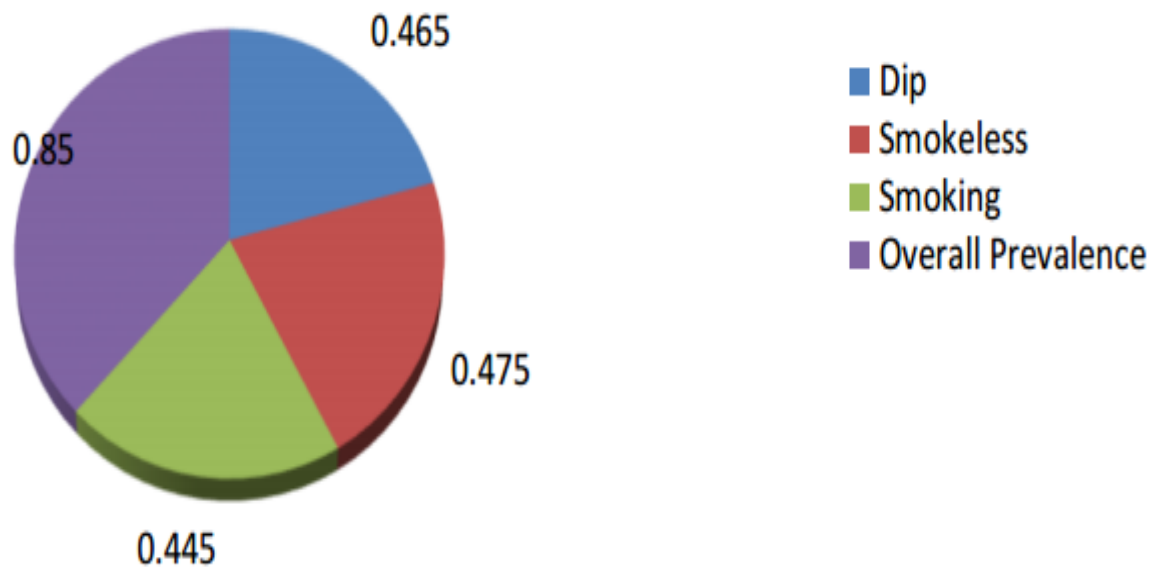
RESULTS

A total of 200 (N) participants were included in the study with consent making 100% response rate. Based on gender distribution 69% were the males and 31% of the subjects were the females.

Prevalence of Tobacco Consumption (Current Users)

The prevalence of dip tobacco usage was 46.5%, of the smokeless tobacco was 47.5% and of the smoking tobacco was 44.5%. The overall prevalence of tobacco usage was 85% among the study subjects

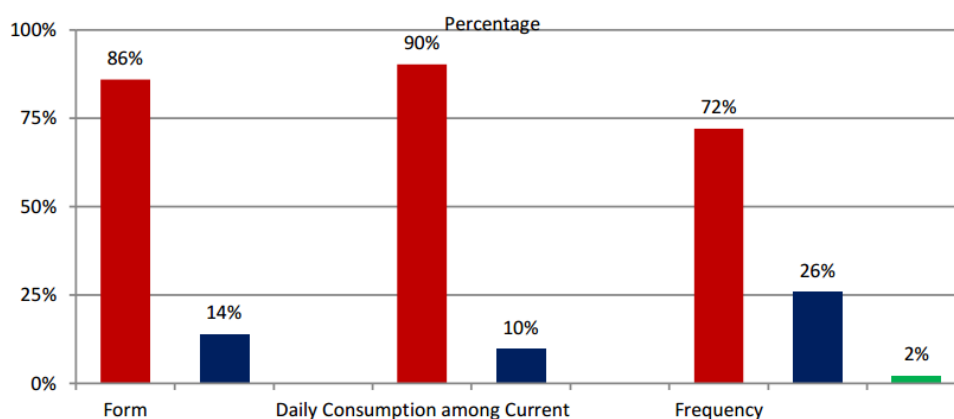
	N	Percentage
Dip	93	46.50%
Smokeless	95	47.50%
Smoking	89	44.50%
Overall Prevalence	170	85.00%



Dip Tobacco Consumption

Among the dip tobacco users 86% were using gutkha and 14% were using supari. 90.32% were using dip tobacco on daily basis. Based on the frequency of consumption 72.04% were using 1-10 per day, 25.80% were using 11-20 per day and 2.16% were using more than 20 per day

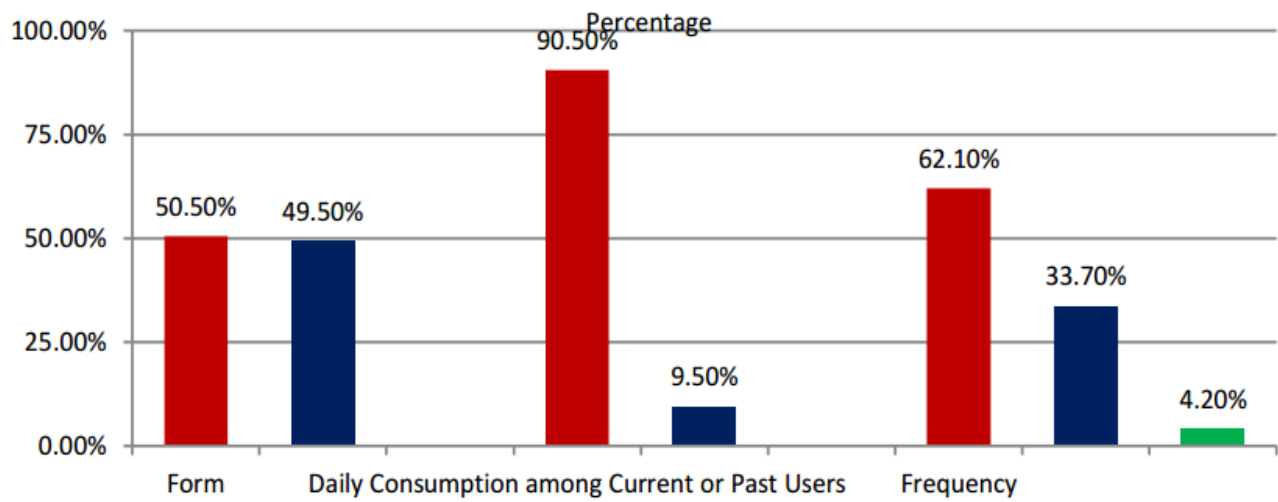
		N	Percentage
Form	Gutkha	80	86%
	Supari	13	14%
Daily Consumption among Current	Yes	84	90.32%
	No	9	9.68%
Frequency	1-10	67	72.04%
	11-20	24	25.80%
	More than 20	2	2.16%



Smokeless Tobacco Consumption

Among the smokeless tobacco users 50.5% were using Chewing Tobacco and 49.5% were using Betel Quid. 90.5% were using smokeless tobacco on daily basis. Based on the frequency of consumption 62.1% were using 1-10 per day, 33.7% were using 11-20 per day and 4.2% were using more than 20 per day

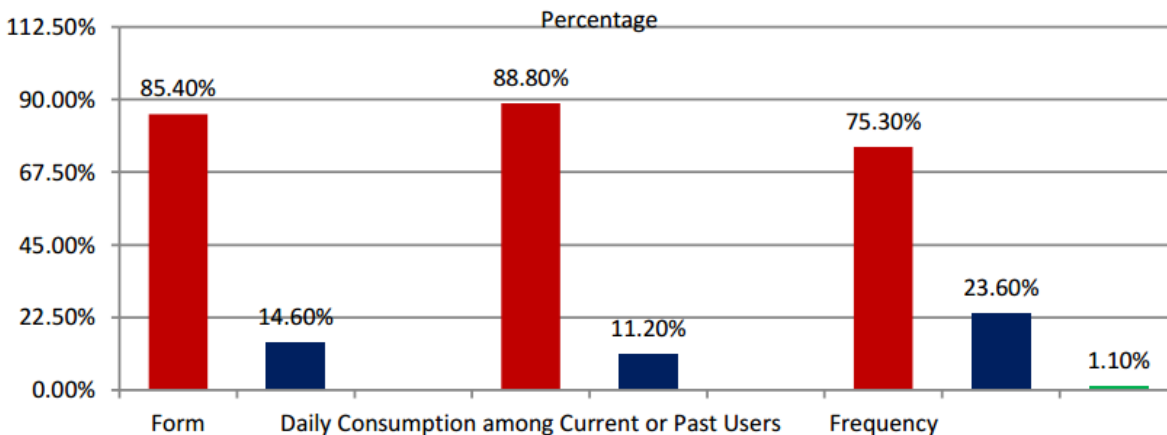
		N	Percentage
Form	Chewing Tobacco	48	50.50%
	Betel Quid	47	49.50%
Daily Consumption among Current or Past Users	Yes	86	90.50%
	No	9	9.50%
Frequency	1-10	59	62.10%
	11-20	32	33.70%
	More than 20	4	4.20%



Smoking Tobacco Consumption

Among the smoking tobacco users 85.4% were using Bidi and 14.6% were using Cigarette. 75.3% were using smoking tobacco on daily basis. Based on the frequency of consumption 75.3% were using 1-10 per day, 23.6% were using 11-20 per day and 1.1% were using more than 20 per day

		N	Percentage
Form	Bidi	76	85.40%
	Cigarette	13	14.60%
Daily Consumption among Current or Past Users	Yes	79	88.80%
	No	10	11.20%
Frequency	1-10	67	75.30%
	11-20	21	23.60%
	More than 20	1	1.10%



DISCUSSION

The overall prevalence of tobacco among the study subjects was 85% and only 15% of the population did not consume tobacco. Thus indicating that the majority of the population consumed tobacco in one form or the other. The prevalence of dip tobacco usage was 46.5%, of the smokeless tobacco was 47.5% and of the smoking tobacco was 44.5%. This shows that the consumption of smokeless tobacco is more than the consumption of smoking forms. Our results are in accordance to the Global Adult Tobacco Survey (GATS) conducted in 2016–17 which stated that the consumption of smokeless forms of tobacco was 10% more than the smoking forms^[2].

Among the dip tobacco users 86% were using gutkha and 14% were using supari. Thus reflecting that the consumption of gutkha was way more than that of supari. The composition of gutkha is a preparation of crushed betel quid, tobacco, catechu, paraffin wax, slaked lime and sweet or savory flavourings^[1]. The nitrosation of tobacco alkaloid leads to formation of nitrates and nitrites, thus their levels determine the level of carcinogenicity and their harmful effects. They lead to uncontrolled growth, chronic local inflammation, oxidative stress and formation of reactive oxygen species, contribute to tumour promotion. In the year 2004, International Agency for Research on Cancer (IARC) of World Health Organisation (WHO) has classified areca nut (supari) as carcinogenic to humans. This means, chewing of Supari can also cause cancer, even though the contents of supari do not have tobacco or magnesium carbonate added to it. Areca nut has stimulant and noxious effects. It leads to diminished hunger, excess relaxation, altered concentration -thus leading to the psychological dependence on tobacco.

Among the smokeless tobacco users 50.5% were using Chewing Tobacco and 49.5% were using Betel Quid. This shows that the majority of smokeless tobacco consumers were using the chewing forms of tobacco. Our figures are slightly higher than the Global Adult Tobacco Survey (GATS) 2009-10 figures (32.9%)^[3]. This could be due to the variation in the sample size. Smokeless tobacco products contain more than thirty carcinogens. The basic ingredients of SLT include sun-dried unprocessed or processed tobacco of *Nicotiana tabacum* and *Nicotiana rustica* species. Tobacco-specific N-nitrosamines (TSNAs) – N-nitrosoornicotine, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone and N-nitrosamino acids – are the most prevalent strong carcinogens in SLT. These carcinogens can even cause damage at DNA level thus causing mutations in K-Ras and p53 gene^[4]

In our study, Based on the the frequency of dip tobacco consumption, 72.04% were using 1-10 per day, 25.80%

were using 11-20 per day and 2.16% were using more than 20 per day . Thus reflecting that 2.16% of the study subjects had a great dependence on tobacco . 90.5% were using smokeless tobacco on daily basis.

Based on the frequency of chewing tobacco consumption 62.1% were using 1-10 per day, 33.7% were using 11-20 per day and 4.2% were using more than 20 per day . The frequency of tobacco consumption , has a direct link with the determination of tobacco addiction , thus modifying the de addiction therapies for people who are highly dependant on tobacco . Nicotine dependence can be assessed by the scores on Fagerstrom Test for Nicotine Dependence (FTND) ^[5] .A person with a score more than 5 is considered dependant on tobacco.

Among the smoking tobacco users 85.4% were using Bidi and 14.6% were using Cigarette. Our results indicate , that beedi smoking is more prevalent than cigarette smoking. This could be due to the cheap prices of beedis , lack of proper education among the low socio economic status . The complex mixture of chemicals in tobacco smoke include - carbon monoxide, hydrogen cyanide, benzene, formaldehyde, nicotine, phenol, polycyclic aromatic hydrocarbons (PAHs) and tobacco-specific nitrosamines (TSNAs) which have a great pre disposition for causing lung cancer According to a study conducted by Centres For Disease Control and Prevention, it is evident that *Smoke from a bidi contains three to five times the amount of nicotine as a regular cigarette and places users at risk for nicotine addiction.* ^[6]

In our study , based on frequency of smoking tobacco consumption ,75.3% were using 1-10 per day, 23.6% were using 11-20 per day and 1.1% were using more than 20 per day . A recent study in January 2021, conducted by Partnership to end addiction , a drug free organisation ^[8], stated that the intensity of nicotine addiction increased the more often a person smoked. The study found 35% of people who smoked one to four cigarettes per day were considered to be moderately or severely addicted to nicotine, compared to 74% of those who smoked 20 cigarettes or more each day. Thus according to our figures , 75.3% of the study subjects were moderately addicted to nicotine and 24.7% of the study subjects were severely addicted .

CONCLUSION

India faces a **TWOFOLD burden in the form of smoking and smokeless tobacco consumption**. Among the 200 study subjects , 85% (170) people consumed tobacco . Thus concluding majority (more than three - fourths) of the study population consumed tobacco , and thus were exposed to numerous carcinogens, carbon monoxide from tobacco smoke . The prevalence of smokeless tobacco was 47.5% and that of smoking tobacco was 44.5% . This alarming increase in consumption of tobacco should be curbed . This can be achieved by -various awareness programmes be conducted, the strong implementation of COTPA act ,proper de- addiction centres^[9], NICOTINE - REPLACEMENT THERAPIES(NRT's) be available to all , proper screening camps be conducted regularly for diagnosing pre- malignant and malignant conditions thus facilitating a timely intervention, establishing TCC in every medical institute (tobacco cessation clinic- having proper cessation counselling , using the 5A's and 5R's principle) . Tobacco consumption poses to be a life threatening menace and implementing these steps, would help reduce the burden of tobacco^[10].

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