

Original Research Article

Prevalence and pattern of smokeless tobacco use among rural women in Odisha, India

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ABSTRACT

Background: India is one of the world's largest producers and second largest consumers of tobacco, much of it in smokeless forms. It was recognized that SLT use among women is an increasing problem that needs to be addressed through social, behavioural, and policy-level approaches. The study aimed to assess the prevalence of smokeless Tobacco use and to identify the correlates of SLT use among rural women in Odisha.

Methods: The research design used for the study was cross-sectional, and a convenient non-probability sampling technique was used to select the subjects. Sociodemographic and tobacco profiles were the tools used to assess the prevalence of the disease. The standardized tool Fagerstrom Nicotine Assessment scale was used to determine the dependency among SLT users. Inferential statistics (chi-square) were used to analyze the data.

Results: From the data collected from 234 women in Bhatakhuri village, Odisha, a significant number of women were consuming smokeless tobacco, ie.94(40.17%). The majority of them are low to moderately dependent on SLTs (70%), but it is important to note that 20% of women were significantly reliant on SLT tobacco use. As well as there is a significant correlation between SLT use among women with age and marital status.

Conclusions: The study's findings revealed that a substantial number of women were using SLT; its use became part of their lives and is culturally acceptable among women. From the study, we can determine the significant correlation of SLT use with age and marital status.

Keywords: Oral cavity cancer, Rural women, Smokeless tobacco

INTRODUCTION

Globally, nearly 6 million people die from tobacco-related causes every year. Overall, 6.7% of women use smokeless tobacco (SLT) in the Global Adult Tobacco survey conducted in 16 countries. India is the only country where overall SLT use is twice as prevalent as smoking, i.e., 26% and 14%, respectively.¹ In India, 0.04. Traditional values and social norms do not favour smoking among women, but there are no such taboos against smokeless tobacco use.

Moreover, many consider tobacco as having some medicinal value, such as curing headaches and stomach aches, which has increased the number of users. Hence, it is an emerging problem and a significant area of concern. Most studies in India were conducted on men.^{1,2} Even though there is a high number of SLT consumers among women. According to GATS-2, the Ministry of Health and Family Welfare reports that 12.8% of women in India consume SLT daily or occasionally.³ The survey estimates that number of women using SLT has reduced to around 210 million from 244 million in 2018.³⁻⁵

Smokeless Tobacco use can have deteriorating health effects. Studies suggest that the severity and occurrence of disease among women for the same amount of substance consumed is more compared to men. The SLT use among pregnant women and The use of SLT among pregnant women and exposure of fetuses to chemicals and hazards present in it is leading to many adverse outcomes because the nicotine present in these substances can cross the placenta and can act as a teratogen leading to Infertility, degenerative placental changes, increased placental weight, pregnancy complications, pre-term delivery, low-birth weight, increased stillbirth risk and risk of cancers in the developing fetus.² Moreover, the National Family Health Survey-4 (2015-2016) further suggests that nearly 5.0 percent of lactating women in India who consume SLT can directly harm neonatal health and nutrition.⁶ Additionally, in pregnant women, mean hemoglobin levels are found to be too low due to this SLT consumption, which can directly affect the nutritional status of the fetus as well as have a deteriorating effect on the health of the mother.⁷

Among women, SLT use is associated with the risk of oro-pharyngeal cancers, cancer of the gums and buccal mucosa, upper aero-digestive tract cancer (UADT), cervical cancer, oesophageal cancer, ischaemic heart disease (IHD) and osteoporosis.⁸ A meta-analysis revealed a higher risk for oral cancer among female SLT users with an odds ratio of 5.83, as compared to 2.72 for males, and A systematic review revealed that the relative risk of oral cancer was higher in women (6.39) than men (2.94). Another study shows that mortality rate and risk were higher in women as compared to men, 1.62 and 1.42, respectively.⁸ Prolonged use of smokeless tobacco can also cause other health effects like increased heart rate, CV disease, and high BP. Thus, this is an area to be addressed soon as well, as there is a shortage of literature on SLT use among women in the Indian population. The present study aims to identify the prevalence of smokeless tobacco use among rural women, and it also identifies the sociodemographic correlates associated with SLT use. The study is more focused on rural women because other studies reveal that the prevalence of SLT use is higher among rural women than urban women.^{1,9}

METHODS

A non-probability convenient sampling technique was used to recruit the samples into the study, which comprised 234 women. The study participants were women aged between 18 and 75 years, and those who can read and write Odia were enrolled. Women having neurocognitive disorders and not willing were excluded from the study. Participants were recruited from Bhatakhuri village, Odisha.

Data collection tool

The researcher developed a questionnaire after reviewing the relevant literature on the use of smokeless tobacco use

among women. Questionnaires comprised sociodemographic profile (age, gender, occupation, education, religion, place of residence, marital status, and monthly income), smokeless tobacco use profile (type of substance, name of the substance, age of first intake, amount spend for tobacco, willingness to quit tobacco) were used to assess the prevalence of smokeless tobacco use. Experts validated the participant profile and smokeless tobacco use profile.

The FTND-ST (Fagarstrom Test for Nicotine Dependence for Smokeless Tobacco) is a modified version of FTND (Fagarstrom Test for Nicotine Dependence) widely used for Smokers. FTND-ST has six items: three are yes/no questions, and the remaining three are multiple-choice questions with scores ranging from 0-10. A score of 5 or more was graded as significantly dependent, while four or less was as low to moderately dependent; the reliability (Cronbach's alpha) of FTND-ST was found to be $\alpha=0.72$, which shows the excellent reliability of the tool.² The permission was obtained from Taylor, and Francis Ltd. FTND-ST was translated to Odia and validated by language experts.

Data collection procedure

Ethical clearance was obtained from the Institutional Ethical Committee. A detailed description of the study was shared with participants. Obtained informed written consent from the participants. All participants were assured of the anonymity and confidentiality of the information. A pilot study was done on 24 participants to find the feasibility of the study in November 2022, and data collection was started in December 2022. A convenient non-probability sampling technique was used for sample selection. The self-report method was used to collect the data, as well as the case intake proforma and the Fagerstrom nicotine dependence ST (FTND-ST) scale.

Plan of data analysis

Analysis and interpretation of data were based on the objectives of the study. Analysis of the data was presented in the form of tables and graphs. Data were analyzed using descriptive and inferential statistics. Mean and standard deviation were used to describe variables. The chi-square test was used to test the association between SLT use among women with various sociodemographic variables to identify the sociodemographic correlates of SLT use among women.

RESULTS

Description of participants

A total of 234 rural women participated in the study. 63.6% were in the age group of above 40 years; the majority of the women were married (77.4%), had the education of primary school (30.8%), unemployed

(81.6%), living in a nuclear family (48.3%), following Hindu religion (99.1%) and having APL status (50.9%) (Supplementary Table 1).

Table 1: Frequency and percentage distribution of subjects as per the type of SLT they used and the corresponding amount spent per week on Smokeless tobacco use.

Number of packets per day (approx tobacco in gms)	Betel quid with tobacco users (%)	Gutkha users (Tobacco/lime/areca nut mixture) (%)	Khaini users (tobacco lime mixture) (%)	Gudakhu users (%)	Supari/panmasala (%)	Total (94) (%)
1-3 packets/tin (5-15 gms)	22 (35.5)	05 (71.4)	03 (75)	07 (70)	05 (45.4)	42 (44.7)
3-5 packets/tin (16 to 25 gms)	38 (61.3)	01 (14.3)	01 (25)	03 (30)	04 (36.4)	47 (50)
5 or more packets (>25gms)	02 (3.2)	01 (14.3)			02 (18.2)	05 (5.3)
Amount spend per week (INR)						
1-100	08 (12.9)	03 (42.8)	03 (75)	04 (40)	06 (54.5)	24 (25.5)
101-200	17 (27.4)	02 (28.6)	01 (25)	05 (50)	04 (36.3)	29 (30.9)
More than 200	37 (56.5)	02 (14.3)	-	01 (10)	01 (9.09)	41 (43.6)

Prevalence and usage of smokeless tobacco among women

Figure 1 depicts that the prevalence of SLT use among rural women is (40.17%), 94 of 234 women consumed smokeless tobacco, and 140 (59.83) among them were non-consumers of smokeless tobacco. Additionally, it also shows that most of the women among 94 SLT consumers were low to moderately dependent on SLT (80%), but it is important to note that 20% of women were severely reliant on SLT.

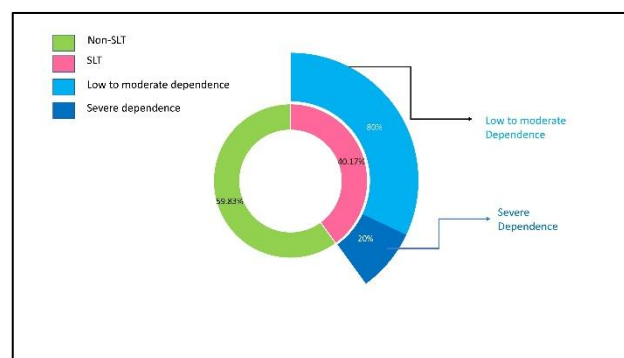


Figure 1: Prevalence and severity of smokeless tobacco use among rural women of Odisha.

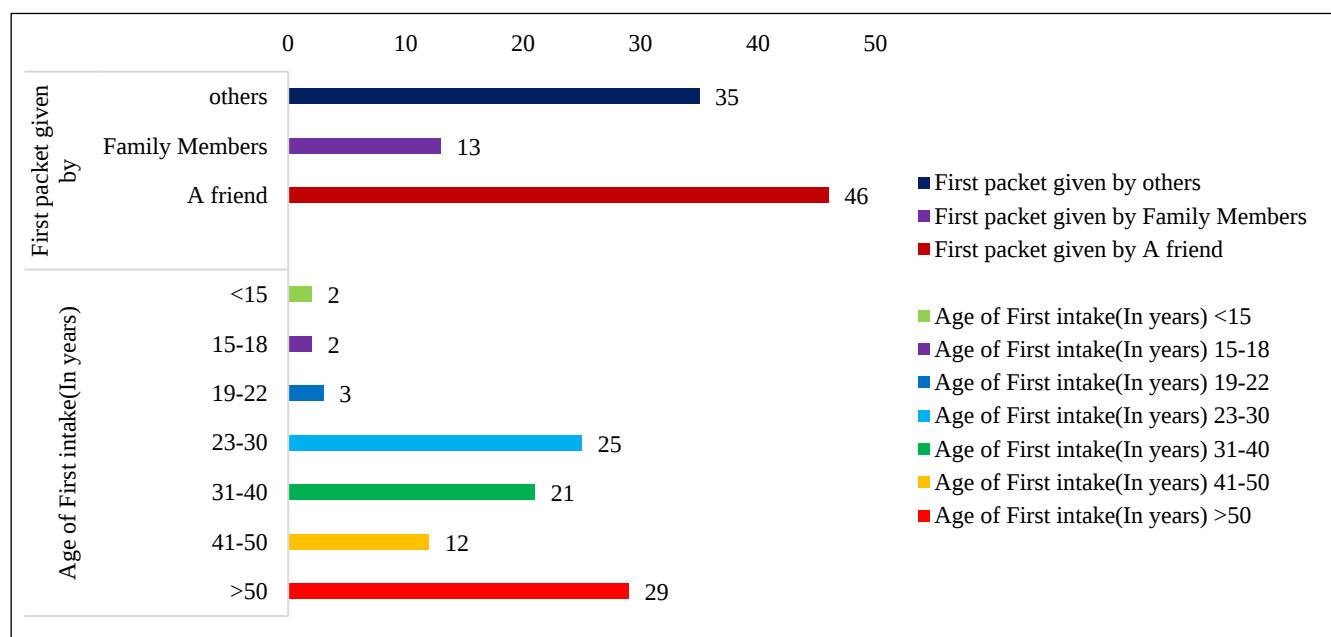


Figure 2: Smokeless tobacco profile uses among rural women of Odisha.

Out of 94 SLT users, the number of Betel quad with tobacco, Khaini, Gutkha, Gudakhu, and Supari/Pan masala users was 62,7,4,10, and 12, respectively. Betel quid with tobacco was the most commonly used substance (65.95%). Khaini is the least used substance (4.25%). Forty-one women (43.6%) spent more than 200 INR per week purchasing SLT substances. Moreover, around 50% consumed 3-5 packets of tobacco per day, which reflects tobacco consumption of 16 to 25 grams per day (Table 1).

Tobacco use is not restricted to individual behavior, but it is a multifactorial process influenced by many factors. Figure 2 shows that most of them started their first intake after attaining 50 years of age (30.8%). Still, it is essential to note that some of the women began their first intake at an age below 18 years (4, 4.2%) (Figure 2). and most of these SLT packets were priorly given by friends (48.9%) rather than family members or significant others.

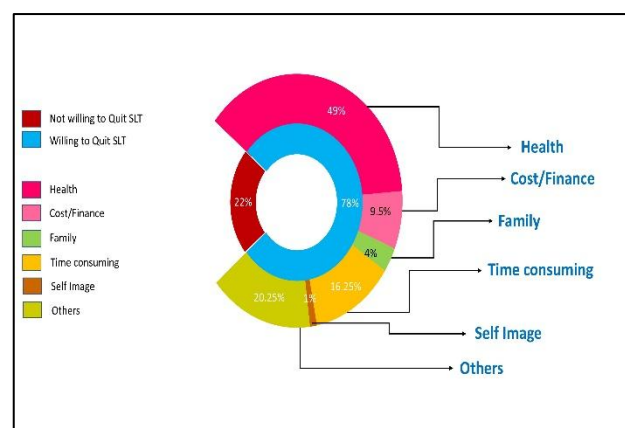


Figure 3: Reason for willingness to quit smokeless Tobacco among rural women using smokeless tobacco in Odisha.

Table 2: Socio-demographic correlates of SLT use among rural women of Odisha.

Variable (reference variable)	SLT (n=94)	No SLT (n=140)	(χ^2) Value	OR (95% CI)
Age				
40 years and above	77	72	22.6**	4.25** (2.30 to 8.08)
<40years (Ref)	17	68		
Type of family				
Joint family	43	78	2.23	0.67 (0.39 to 1.13)
Nuclear family (Ref)	51	62		
Marital status				
Married/window/divorced	89	118	5.95*	3.30** (1.25 to 10.14)
Unmarried (Ref)	5	22		
Occupation				
Unemployed/student	80	122	0.198	0.84 (0.39 to 1.82)
Employed (Ref)	14	18		

χ^2 = Chi Square Test, * = $p < 0.05$, ** = $p < 0.001$

As per Figure 3, among 94 participants, 78% of the SLT women wanted to quit tobacco use, and the primary reason for willingness to quit SLT was health (49%), and the least was self-image (1%).

Table 2 shows that the age of the participants ($p < 0.001$) and marital status ($p < 0.05$) were significant correlates of SLT use among the subjects. Regression analysis revealed that smokeless tobacco users had 4.25 times higher odds of being rural women aged above 40 years compared to non-users (OR=4.25, 95% CI: 2.30-8.08). Similarly, the odds of being married were 3.30 times higher among smokeless tobacco users compared to non-users (OR=3.30, 95% CI: 1.25-10.14).

DISCUSSION

GATS-2 survey and NFHS-5 revealed South Asia as a hub for SLT.¹⁰ In the current study, the prevalence of smokeless tobacco use among females was high even though it is considered taboo in Indian society.¹¹ The high prevalence of smokeless tobacco use among women is

not unique to this study. A study on South Asian women showed an SLT prevalence of 57.5%, whereas a study in Bangladesh and Sri Lanka revealed a prevalence of 22.5% and 15.8%, respectively.^{12,13} The studies in Mumbai and Karnataka also reflected a high prevalence rate of 22.3% and 13.4%, respectively. On the contrary, Mumbai urban slums showed a 64% prevalence of SLT.¹⁴ According to the 1992 WHO report on women and tobacco, smoking by women is often socially unacceptable in many countries, including India.^{11,15} Hence, women frequently use tobacco chewing as the alternate, more acceptable form.

The study also shows that women aged above 40 years are consuming more SLT than any other age group. Similar results were found in a study conducted in Bangladesh, where it was more prevalent among women aged >40 years.¹ In India, SLT users among women were between 30-50 years.¹⁶ Additionally, Married women were more prone to use SLT than unmarried. A high prevalence among married women was found in GATS-2 (40%) and Bangladesh (25%).^{1,16,3,4} But, a study

conducted in the urban slums of Mumbai showed that 80% of married were SLT users.^{6,15} NFHS 2015-16 even stated that 10-11% of pregnant and lactating mothers of Odisha consumed some form of SLT.⁶ Married women are consuming SLT more because they are highly influenced by their husbands as well as neighboring groups.¹⁷ Divorced or Married women are considered to be more stressed in terms of their workload and unhealthy marital relationships.¹⁵ Moreover, these women reside in their social group, where these practices are culturally acceptable.¹⁸

In the present study, many were significantly dependent on SLT. A similar result was found in a study done in Bhavnagar, where around 20% were severely dependent.¹⁶ Many reasons lead to the use of SLT, but studies have stated that people believe it's less harmful than other addictive substances and has medicinal properties. However, the most prominent reasons for initiation are risk-taking behaviors like curiosity, peer pressure, and a thrill-seeking attitude.¹⁹ Additionally, All women consumed more than 5g of tobacco per day, which is much higher than the study reported by Mumbai, where 52.7% consumed less than 5g/day.¹⁴ Betel quid with tobacco was the most common SLT used, whereas a global survey mentioned Khaini (11.2%) as the most common in India. But with regards to women, a report by MOHFW shows that betel quid with tobacco is more prominent than khaini among women.²⁰

In the current study, the willingness to quit smokeless tobacco among women was the highest compared to 48.2%, as declared by MOHFW in 2016 and 39% revealed in the Bhavnagar study in 2019.^{20,16} Further study revealed that health was the main reason for quitting, similar to a study conducted in Andrapradesh.²¹ This supports that improving IEC can help in reducing tobacco use among women who are deprived of it, especially in rural areas; most of the SLT users started using tobacco after 50 years. Women above 50 are more prone to comorbidities, and visits to health institutes usually increase during this period. Emphasis can be stressed on the harmful effects of SLT, and motivation and support can be provided by health professionals. This is supported by the fact that most of the participants were ready to quit. In other studies, a similar willingness to quit was also found among women.^{10,22,23} The trend is on the decline but not on a level to reduce the global burden.³

Over 25 states and union territories, including Maharashtra, Gujarat, Uttar Pradesh, Assam, and Delhi, have banned the use of smokeless tobacco products. Even though the substances were banned, the use of SLT products was still high in these states.²³ So the government policy has to be strengthened to make it more effective. The MPOWER measures to decrease the use of SLT are²⁴:

Monitor SLT use and prevention policies; Protect people from SLT use; Offer help to quit SLT use; Warn about the dangers of SLT; Enforce bans on SLT advertising, promotion, and sponsorship; Raise taxes on SLT.

Limitations of the study are polyusers have not been covered, and the samples are mainly confined to one rural village; a larger and more diverse study population will reflect more information about SLT users.

CONCLUSION

Although many interventions are available, the prevalence of SLT is on the rise among women. The study stresses that special consideration is needed for middle-aged married women, emphasizing the need for proper education related to the health consequences of smokeless tobacco, which can have a direct effect on Willingness to quit smokeless tobacco among women in rural India.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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