



KNOWLEDGE, ATTITUDE, PRACTICE AND BARRIERS OF SMOKELESS TOBACCO USE AND CESSATION DURING COVID-19 PANDEMIC IN MANIPUR, INDIA: A COHORT BASED ANALYSIS

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Abstract

Background: The consumption of Smokeless Tobacco (SLT) among people in India region leads to avoidable oral cancer cases and premature deaths every year.

Objectives: To assess the knowledge, attitude, practice and barriers of smokeless tobacco use and cessation during the COVID-19 pandemic in Manipur, India.

Materials And Method: The study enrolled a cohort of smokeless tobacco users aged 15-65 years whose data on SLT use and cessation habits were recorded using a self-administered, pre-tested and pre-validated questionnaire containing 28 questions divided into four sections. Questionnaires with ≤ 1 incomplete responses were excluded from the study. Data was found to be parametric by applying the Shapiro–Wilk test, and further analysis included the independent sample's t-test and multivariate linear regression using IBM SPSS for Windows, v. 24.0.

Results: A total of 810 complete responses were received from 925 submitted responses (response rate: 87.5%). The study population consisted of 60% males and 40% females, most of which belonged to the age group of 25-44 years (59.1%). A total of 415 (51.2%) current users of SLT were identified, among whom, 52% were current users while 11.2% of the participants were former users of SLT. The most significant reason for willingness to quit the habit was when the participants thought about the health hazards ($p=0.03$). Only 10.2% ($p=0.04$) of respondents planned to quit within the next month, whereas 20.4% ($p=0.02$) wanted to quit tobacco, but not within the next 12 months. The multiple linear regression revealed a significant association with the reason to quit tobacco and age ($p=0.01$), whereas willingness to quit tobacco was associated with gender only ($p = 0.03$).

Conclusion: There is an urgent need to provide tobacco cessation services in Manipur targeting both men and women which should be coupled with periodic oral check-ups of SLT users for signs on any precancerous/cancerous lesion and providing an apt treatment for the same.

Keywords: Oral Cancer, Tobacco, Tobacco Use Cessation

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INTRODUCTION

The consumption of tobacco is a major cause of premature disease which accounts to nearly 6 million deaths worldwide each year (WHO).¹ It is one of the leading non-communicable diseases (NCD) across the globe and its mortality is reported around 63%.² Low- and Middle-Income Countries (LMIC) have the dubious distinction of having 80% of all tobacco related deaths globally in comparison to High-income countries, which are reporting a gradual decline in tobacco consumption.^{3,4}

Although smoking is the most prevalent form of tobacco abuse worldwide, there is definite increase in consumption of Smokeless Tobacco (SLT) especially in the South Asian countries as observed by increasing global SLT sales, expected to increase further. There are more than 40 known forms of SLT consumed worldwide. In India, it is particularly used in the form of chewing, snuffing, and direct application to teeth and gums. The major forms of SLT available are pan, pan masala, gutka, khaini, zarda, mawa, etc.,⁵ SLT consumers have the misconception that it is considered safer in comparison to smoking, which could be due to the reason of its usage in terms of initiation and persistence.⁶ In addition, the use of SLT is discreet and not associated with the distinct smell of burning tobacco which contaminates the environment which makes it easier to be consumed anywhere, even while working. Also, due to the ban of smoking tobacco in public places, the SLT consumer can do so freely as most usually, it goes unnoticed by enforcement authorities.

In India, a 4.5% decline in prevalence of smokeless tobacco use was observed as per the Global Adult Tobacco Survey (GATS) of 2009–2010 (25.9%) in comparison to the same survey conducted in 2016–2017 (21.4%).⁷ The Indian state of Manipur is located in the east, and as per reports, the use of any type of tobacco among women was high in Mizoram (59%) and Manipur (49%) as compared to the other remaining states in North Eastern India. Alarmingly, during the three rounds of National Family Health Survey (NHFS) conducted in 1998–99, 2005–06 and 2015–16, the use of tobacco among women in Manipur increased from 20% in 1998–99, to 40% (2005–2006) and to 49% in 2015–2016.⁸

As per WHO estimates, the average age of daily initiation of tobacco use was 19.5 years in the state of Manipur by use of betel quid with tobacco and cigarette being the most common.⁹ The use of SLT can lead to various pre-cancerous lesions and progress to oral cancer due to the presence of carcinogens. Its prolonged use can also increase

the user's heart rate, contribute to cardiovascular (heart) diseases (including coronary artery disease and high blood pressure) and lead to stroke. Among women, during pregnancy, its abuse increases the risk of premature delivery and stillbirth.¹⁰ There have been various reports that during the COVID-19 pandemic, the use of tobacco in both forms increased among people.¹¹ During the COVID-19 pandemic, SLT consumption was of particular concern to healthcare personnel in South Asian countries with high population densities as it facilitates exposure to SARS-CoV-2 within or between communities by the act of public spitting. Salivary droplets generated in this act are a potential threat as they have the ability to transmit this airborne infection. Moreover, large gatherings at tobacco retail outlets, frequent hand-to-mouth contact, and sharing of apparatus by SLT users could also aid in increasing the spread of SARS-CoV-2.¹²

As use of tobacco in any form is undesirable and can lead to untoward health consequences, its improper use and disposal during pandemic was also associated with contracting Covid-19. Hence, the present study was undertaken with the aim to assess the knowledge, attitude, practice and barriers of smokeless tobacco use and cessation during COVID 19 pandemic in Manipur, India.

MATERIALS AND METHOD

The research protocol of the present study was reviewed and approved by the Institutional Ethical Committee of Regional Institute of Medical Sciences (RIMS), Imphal and prior to its commencement, questionnaire design, validation, pilot study, and strategies to enroll smokeless tobacco users for maximum participation were discussed. The study was conducted for a duration of six months in the Out Patient Department (OPD) of RIMS, Imphal, Manipur. The study protocol is depicted in figure 1.

The study enrolled a cohort of smokeless tobacco users aged 15-65 years willing to participate in the study. All participants were explained the study aim and objectives and provided a written consent for the same. Those participants who did not agree to provide consent or those questionnaires with ≤ 1 incomplete responses were excluded from the study.

The study employed a convenience sampling and the minimum sample size of the study was calculated on the basis of GATS survey* where the proportion of SLT users in Manipur was 50%. So, at a precision/absolute error of 5% . The minimum

sample size required was calculated as follows:

$$\text{Sample size} = Z^2 \cdot P(1-P) / d^2$$

$$d = 1.962 \times 0.50 / 0.052 = 384.052$$

Data was recorded using a self-administered, pre-tested and pre-validated questionnaire assessing the knowledge, attitude, practice and barriers of smokeless tobacco use and cessation during the COVID 19 pandemic. The questionnaire was distributed in English language as well as the local language (Manipuri) to ensure proper comprehensions of the questions by the local people. The Manipuri questionnaire was translated and back-translated by an expert on the language. The questionnaire contained 28 questions and was divided into four sections. A pilot study was done on 25 SLT users to validate the questionnaire and its Cronbach's alpha (α) was found to be 0.73. The pilot study responses and incomplete responses were excluded from the main analysis. To assure confidentiality of the data, no personal details were collected and data was accessible to the primary investigator only. Data was coded and transferred into MS Excel before being sent to a statistician for analysis.

Data was found to be parametric by applying the Shapiro-Wilk test, and further analysis included the independent sample's t-test and multivariate linear regression. The coded data was sent to the statistician so that the confidentiality of the data could be maintained. The analysis was done using IBM SPSS for Windows, v. 24.0 (IBM Corp., Armonk, USA).¹³

RESULTS

Sample overview and usage of smokeless tobacco (Table 1)

A total of 925 responses were received, out of which 810 (response rate: 87.5%) were complete responses and were included in the analysis. The study population consisted of 60% males and 40% females, most of which belonged to the age group of 25-44 years (59.1%). Most participants were residents in urban areas (53.8%). A total of 415 (51.2%) current users of SLT were identified, among whom, 52% were current users. 11.2% of the participants were former users of SLT.

SLT Purchase and Consumption behaviour (Figure 2)

It was reported that SLT was purchased majorly at paan shops (86.4%), followed by Grocery store (6.9%), Roadside kiosk (3.5%) and other shops (3.3%). Even during this pandemic, 85.3% of the

people reported consuming the product with friends sometimes/always. 37.3% of them threw their used tobacco pouch in the dustbin and 54.6% did dispose it improperly.

Willingness to quit Tobacco: Reasons and Barriers (Table 2)

Among respondents, the most significant reason for willingness to quit the habit was when they thought about the health hazards of SLT use ($p=0.03$). Due to COVID-19, most people preferred to stay indoors until absolutely necessary and SLT users found it difficult to consume it in front of their family and this reason was found to be very highly significant ($p<0.0001$). 12.7% were willing to quit this habit due to the fear on contracting COVID-19.

Assessment of the barriers on the willing to quit the habit included "I don't feel the need to quit" ($p=0.02$), followed by "I relapse every time I quit" ($p=0.02$) and "Not having enough will power" ($p=0.04$). A total of 2.7% of SLT users did not have enough knowledge on how to quit and 3.1% did not provide any response.

Plans to quit SLT use and methods tried (Table 3)

During the COVID-19 pandemic, only 10.2% ($p=0.04$) of respondents significantly reported plans to quit within the next month, and 20.4% ($p=0.02$) wanted to quit tobacco, but not within the next 12 months. A high percentage (22.8%) of the respondents were not interested in quitting tobacco.

While assessing the methods for trying to quit SLT, only 1.5% used NRT as a method to quit and 2.5% of the respondents reported switching to some other addictive substance, which was found to be significant (2.5%, $p=0.03$). 33.5% of the respondents tried to quit tobacco without any assistance ($p=0.01$). 42.7% of the respondents did not respond to the method used for quitting tobacco.

Relationship between reason to quit and willingness to quit tobacco (Table 4)

The multiple linear regression model to analyze the reason to quit and willingness to quit tobacco in relation to gender, age and residence revealed significant association with the reason to quit tobacco and age ($p=0.01$), whereas willingness to quit tobacco was associated with gender only ($p=0.03$).

Variable	(N=810)
Gender	
Male	484 (60%)
Female	326(40%)
Age (in years)	
15-24	42(5.2%)
25-44	479(59.1%)
45-64	247(30.5%)
65+	42(5.2%)
Residence	
Urban	436(53.8%)
Rural	374(46.2%)
USAGE OF SMOKELESS TOBACCO	
Current Users	415 (51.2%)
Daily User	216(52%)
Occasional User	199(48%)
Non-User	305(37.6%)
Former SLT User	90(11.2%)

Table 1. Demographic details and SLT use among the respondents. (percentages are rounded off to the nearest decimal).

Reasons for willingness to quit	n,%	P-value	Barriers on willingness to quit	N,%	P-value
I want to more positively about life	35.8%	0.67	I don't feel the need to quit	31.3%	0.02*
I think about the health hazards	26.2%	0.03*	I am Addicted	22.1%	0.45
Fear of contracting COVID-19	12.7%	0.45	I relapse every time I quit	6.1%	0.02*
Peer Motivation	7.4%	0.33	Know no other way to deal with the stress	3.4%	0.32
Difficult to consume in home/family	4.8%	<0.0001	Not enough will power	3.1%	0.04*
Inspired by some event/media	2.2%	0.03	Not enough knowledge on how to quit	2.7%	1.05
I feel more empowered in the company of non-smokers	2.2%	0.56	Any other reason	5.7%	0.97
No Specific reason	6.6%	1.2	No specific reason	22.5%	0.76
No response	2.2	0.06	No response	3.1%	0.21

Willingness to quit Tobacco: Reasons and Barriers (Table 2)

PLANS TO QUIT SLT		P value
Planning to quit within next month	10.2%	0.04*
Thinking to quit within next 12 months	11.0%	0.33
Will quit someday, but not within next 12 months	20.4%	0.02*
Not interested in quitting	22.8%	1.45
Don't Know	35.4%	0.76
No Response	0.2%	1.32
METHODS TRIED FOR QUITTING SLT		
NRT	1.5%	0.88
Switching to some other addictive substance	2.5%	0.03*
Without any assistance	33.5%	0.01*
Availing counselling/advice	6.5%	1.32
Others	13.3%	0.54
No Response	42.7%	0.56

Plans to quit SLT use and methods tried (Table 3)

	Predictor	Coefficient	SD	t	p-Value
Reason to quit tobacco	Constant	2.45	3.22	43.23	0.00
	Age	2.44	0.41	2.78	0.01*
	Gender	26.44	2.26	-0.99	1.23
	Residence	-6.32	9.03	23.35	0.78
Willingness to quit tobacco	Constant	-1.34	0.43	4.30	0.00
	Age	5.31	0.21	1.22	0.77
	Gender	32.1	3.14	5.44	0.03*
	Residence	2.23	1.14	8.21	0.99

Relationship between reason to quit and willingness to quit tobacco (Table 4)

DISCUSSION

In India, more than 1 million adults die each year due to tobacco use which accounts for 9.5% of overall deaths in the country.¹⁴ As per the recently conducted Phase 1 of the National Family Health Survey (2019–20), tobacco use in north eastern states of India remains a challenge where prevalence is still reported to be quite high.¹⁵ This statement is in agreement to the results of the present study, where 51.2% of the respondents were found to be SLT users. This strongly affirms the fact that tobacco use is socially acceptable as well as an integral part of the north-eastern culture. Also, these disturbing figures highlight the fact that the implementation of the Cigarettes and Other Tobacco Products Act (COTPA) does not seem to be effective in the region and necessary measures should be adopted to discourage the non-smoking youth and school children to not pick up this habit and encourage current users to quit this life-threatening habit.¹⁵

As observed in the present study, males formed a majority of the SLT users (60%) in comparison to 40% females. The authors would like to focus on the high percentage of female SLT users in Manipur. The same was in agreement to Singh et al (2021),⁸ who reported the second highest use of SLT among Manipuri women (46.1%), closely followed by women in Mizoram (47.8%). As per their further analysis, using a 2nd order local polynomial smoothed graph, the prevalence of SLT use among women in Manipur was seen to be drastically increasing and among females aged 41 and 49 years indicate that the prevalence of SLT use to be flattening. These findings are also supported by a WHO report (1992) which states that as smoking by women is often socially unacceptable in many developing countries, and hence, women often use tobacco chewing as the alternate, more acceptable and discreet form.¹⁶ This social and cultural unacceptability creates an obstacle for them to avail help for quitting the habit. SLT use among women is often initiated at an early age as children and youth are often exposed to it when involved in purchase activities for their mothers and other older family members.¹⁷ It is also reported that the initiation of tobacco use in women often occurs during pregnancy as beliefs are often held by peers, family members and other individuals that tobacco can provide positive health effects and relief from common ailments and distress during pregnancy such as nausea, vomiting and constipation.^{18,19}

During the COVID-19 pandemic, 12.7% of the respondents were willing to quit the habit due to the fear of contracting COVID-19 while 4.8% reported a difficulty of consuming SLT in

home/family ($p < 0.0001$). Most respondents (35.8%) wanted to be more positive about their life and 26.2% thought of the health hazards associated with SLT use. The findings are in agreement to the studies of various authors who have reported that intention to quit tobacco is commonly more observed more in tobacco users who feel that the tobacco use has damaged their health.^{20,21} Upon observing the barriers faced while willing to quit tobacco, it was observed that 31.3% of the respondents ($p=0.02$) did not feel the need to quit the habit, which is an indicator of low motivation among SLT users as was also seen with 22.5% of the respondents who did not provide any specific reason of the barriers faced. The fear of relapse was found in 6.1% of the respondents which was observed to be significant ($p=0.02$) and 2.7% reported not having enough knowledge on how to quit. For a SLT user, being unaware or having inadequate information regarding quitting was the most common reported barrier among respondents as per conducted by various researchers.^{22,23} Hence there is an urgent need to provide tobacco cessation services to tobacco users at the grassroot levels. Other barriers to quit are withdrawal effects, peer pressure and influence were few of the other reported barriers which make quitting difficult.²⁴ These effects can be effectively managed under the supervision of a trained counsellor and thus, greatly decreasing the chances of relapse among tobacco users.

Among SLT users in Manipur, 35.4% did not know about their plan to quit, 10.2% were planning to quit within the next month, while 11.0% were planning to quit within the next 12 months. These percentages are low as compared to the 45.2% and 61.9% of current smokeless tobacco users who planned to or were thinking about quitting as observed by GATS (1 and 2) factsheet of Manipur.⁷ These differences could be due to the time period in which both the studies were conducted and the populations approached for data collection. Another fact was the increased uptake to tobacco during the COVID-19 pandemic. Among methods tried to quit SLT, 13.3% tried “others”, 33.5% did try to quit without any assistance and only 1.5% tried to use NRT. Only 2.5% switched to some other additive substance. Although NRT in the form of chewing gums is readily available as an OTC drug, its use has still not become an effective method of effective tobacco cessation. It is better if NRT use is initiated in combination with proper cessation counselling to improve quit rates. Only gender revealed a significant association with reason to quit tobacco as well as willingness to quit tobacco with males revealing a significant association.

The limitation of the present study include over and/under reporting of data by the respondents (social desirability bias). However, an attempt was made to eliminate this bias by not asking the respondents for any personal details, as well as assuring them of the confidentiality of their data.

CONCLUSION

Based on the results of the present study, there is an urgent need to provide tobacco cessation services in the community targeting both men and women. This needs to be coupled with periodic oral check-ups of SLT users for signs on any precancerous/cancerous lesion and providing an apt treatment for the same. Tobacco users who quit must be acknowledged and be trained to motivate their peers. With the active participation of all, We can dream of having a tobacco free state of Manipur, India.

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