Prevalence of tobacco usage among interstate migrant construction site workers in Perambalur, Tamil Nadu

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ABSTRACT

Background

The construction sector is a booming industry with many occupational health hazards. One of the major health hazards is the prevalence of tobacco usage among construction workers and it is very high because of their monotonous job patterns and lack of recreational activities.

Objectives

To estimate the prevalence of tobacco use and determine the factors influencing it among the migrant construction site workers of Perambalur, Tamil Nadu

Methodology

The present study was conducted among interstate migrant construction workers in the field practising area of Perambalur, during the period December 2021 to May 2022. The data was collected about smoking and smokeless tobacco usage and it was analysed using statistical software.

Result

The prevalence of tobacco use either in the form of smoking or smokeless tobacco was 74.4%. The prevalence of smoking either in the form of beedi/cigarette was 47.6%, while for smokeless tobacco was 26.8% and the main method of smokeless tobacco usage was chewing. Many are aware of warning labels on tobacco products, but they don't have the intent to quit. Among the consumers of tobacco, the majority (85%) were aware of the harmful effects of tobacco use and many quoted lung cancer (60%) as the most common illness related to tobacco.

Conclusion

Tobacco use is an important public health issue in developing countries like INDIA and workers in the construction industry have a very higher prevalence. Specific intervention programmes are warranted to reduce the burden of tobacco use related morbidity among these workers.

Key-words:

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INTRODUCTION

Tobacco use is a significant cause of preventable mortality and morbidity. Tobacco is dangerous in all forms, and there is no such thing as a safe level of tobacco exposure.(1) Cigarette smoking is the most common form of tobacco use worldwide. Smokeless tobacco products (SLT), cigars, beedis, and roll-your-own tobacco are examples of other tobacco products.(2)

Globally, about one million people die from smoking-related diseases annually, and it is expected that this death number will reach two million a year by 2025. According to the 2017 World Health Organization (WHO) report on the global tobacco epidemic, average rates of current smoking among adults have declined globally from 24% in 2007 to 21% in 2015. However, the global death toll from tobacco use is estimated to climb to almost 8 million deaths per year by 2030, with the vast majority of these deaths occurring in emerging nations like India.(3)

Tobacco is used by almost 267 million people in India.(4) India is one of the largest consumers of tobacco in the world, producing a heavy burden of smoking-related diseases. The prevalence of tobacco use is high in India, with various smoking forms and an array of smokeless tobacco products. Smokeless tobacco is the most popular type of tobacco in India.(5)

Tobacco use without smoking is highly addictive and harmful to one's health. For example, SLT users may develop a nicotine addiction and become more likely to become cigarette smokers.(6) In addition, the use of smokeless tobacco raises the risk of cancer and cardiovascular disease since it contains several cancer-causing chemicals.(7)

Notable differences in smoking rates are seen across occupational groups, and significantly higher tobacco consumption rates have been found among construction site workers. The construction sector is a booming industry, and the vast majority of the migrant workforce in India is involved in construction work.

The booming Indian economy and its accompanying regional disparities in growth have long fuelled intra-country labour migration. (3) (6) (7).

Most of these migrant labourers are interstate migrant workers and are the most susceptible to various health and occupational hazards. According to the Census of India 2001, the Inter-State migrant workman "means any person who leaves his/her native state or his/her birthplace state for employment in an establishment in another State to fulfil his basic needs."

According to previous research, tobacco use among migrant construction workers is significantly high. Understanding the tobacco-use behaviours and the factors influencing such usage among those interstate migrant construction workers is key to implementing appropriate strategies and policies and providing behavioural therapy for smoking cessation (1).

OBJECTIVE

1) To estimate the prevalence of smokeless tobacco usage among migrant construction workers in the field practising area of Perambalur.

2) To determine the socio-economic factors influencing tobacco consumption among interstate migrant construction site workers.

METHODOLOGY
Study Population and their characteristics

The cross-sectional study was conducted among interstate migrant construction workers in the Perambalur district during the period of December 2021 to May 2022. The present study was conducted using the snowball sampling technique. The data was collected in the first stage from migrants working on small-scale construction sites (house construction) near a tertiary care hospital.

Based on the obtained information from that site, three more construction sites were visited, and the data was obtained. All the remaining three construction sites were large-scale and involved the construction of commercial and institutional buildings.

After obtaining written informed consent, interstate migrant construction workers aged greater than 18 and older were invited to participate in the study. In the present study, the intra-state migrant workers were excluded, and inter-state migrant workers who were not willing to participate were also excluded. We also excluded women inter-state migrant construction workers from the study.

According to a study conducted by Mamta Parashar et al in Delhi, considering the prevalence of tobacco usage as 91% among construction workers with a precision of 5% and 95% confidence interval, the sample size was calculated using the formula N = [$Z_{1-\alpha}^2$ * p * (1 - p)] / d^2 and the calculated sample size was 126 and the present study collected data from 250 inter-state migrant construction workers.

Data Collection and Variables
The questionnaire was adapted from an existing tobacco use questionnaire developed by the World Health Organization (WHO) – Global Adult Tobacco Survey (GATS).(8) The questionnaire was translated from English to Hindi and Telugu dialects. and the translation was done with the help of a translator who was fluent in writing and reading English, Hindi, and Telugu.

The questionnaire was then administered face-to-face to one person at a time according to inclusion criteria. The survey comprised a total of 36 questions and the respondents were asked to report their smoking/tobacco usage status.

Based on the data obtained, the tobacco users were grouped as smoking tobacco users and smokeless tobacco users. The analysis looked at information on characteristics of tobacco usage, knowledge of consequences of smoking on health and sociodemographic characteristics (age, sex, marital status, level of education, income).

Analysis
Data entry was done using Excel. Chi-squaretest and t-test analyses were used for comparisons. The explanatory factors were age, income, educational level, gender, and smokingstatus. A p-value of <0.05 was consideredsignificant. The SPSS version 26.0 software package was used to conduct all of the aforementioned analyses. Exploration of the data was performed before analysis to determine missing values and the distribution of the variables.

RESULTS
Demographic characteristics
In our study, a total of 250 inter-state migrant construction workers participated. The mean age of interstate migrant construction workers was 29.95±8.32 years. Among the study participants, the majority of workers' education falls between primary and secondary schooling (77.45%). Most migrants were from Jharkhand, Odisha, Bihar and Andhra Pradesh and the prevalence of tobacco use either in the form of smoking or smokeless tobacco was 74.4%. The mean monthly income of the interstate migrant construction workers is 10,677±1603.83 Indian rupees.

Figure 1 shows the proportion of tobacco consumption among migrant construction workers. 47% of migrants use smoking tobacco and 27% use smokeless tobacco and 26% don't consume any kind of tobacco.

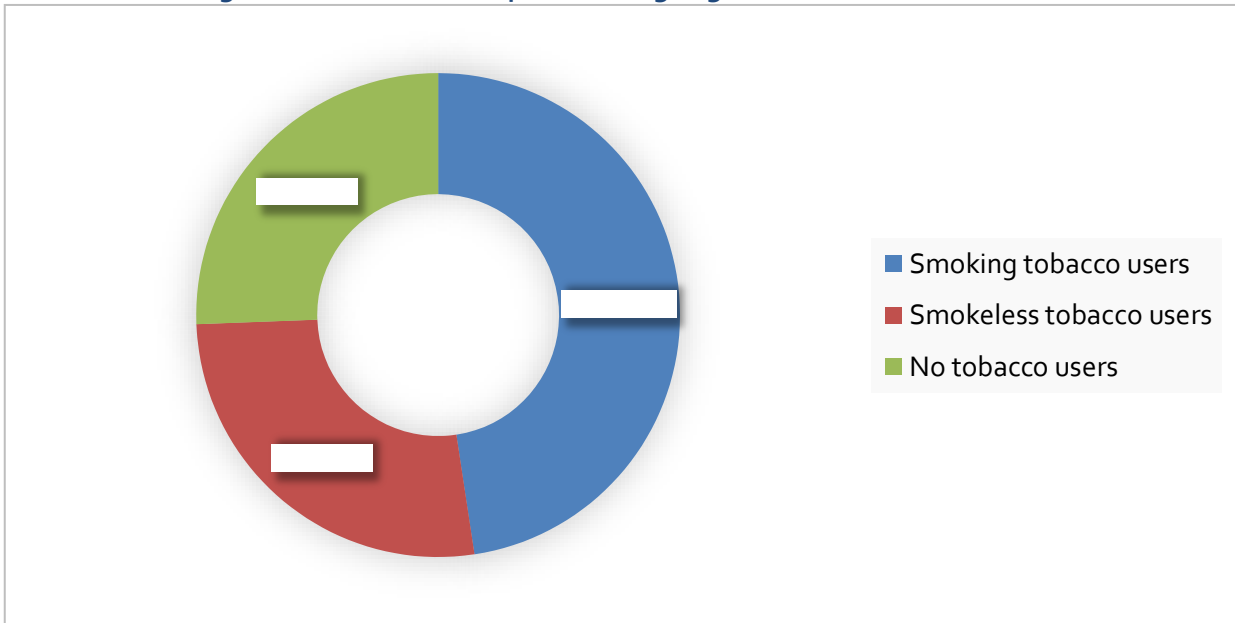**Figure 1Tobacco consumption among migrant construction workers**

Table 1 and 2 shows the distribution of smoking and smokeless tobacco characteristics in relation to socio-demographic factors. The smoking of tobacco was found to be significantly associated with age (p<0.001), marital status(p<0.001), education(p=0.002) and total monthly income(p=0.026). Smokeless tobacco was found to be significantly associated with age (p=0.004), marital status (p=0.001) and total monthly income(p=0.012).

Table 1: Distribution of smoking tobacco characteristics in relation to socio-demographic factors

	Smoking tobacco		No tobacco		P value
Age	31.8	7.9	24.9	7.8	<0.001
Marital status					
Married	98	82.4	18	28.1	<0.001
Unmarried	21	17.6	46	71.9	
Education status					
Illiterate	8	6.7	2	3.1	0.002
Primary (1-5)	27	22.7	10	15.6	
Secondary(6-8)	80	67.2	39	60.9	
High school(9-12)	4	3.4	13	20.3	
Total monthly income	10457	1586	10305	1007	0.026
Native state					
Bihar	58	48.7	26	40.6	0.094
Jharkhand	33	27.7	19	29.7	
Odisha	18	15.1	6	9.4	
Others*	10	8.4	13	20.3	

Table 2: Distribution of smokeless tobacco characteristics in relation to socio-demographic factors

	Smokeless tobacco		No tobacco		P value
Age	31.6	7.7	24.9	7.8	0.004
Marital status					
Married	54	80.6	18	28.1	0.001
Unmarried	13	19.4	46	71.9	
Education status					
Illiterate	6	9	2	3.1	0.053
Primary (1-5)	9	13.4	10	15.6	
Secondary(6-8)	48	71.6	39	60.9	
High school(9-12)	4	6	13	20.3	
Total monthly income	11422	1858	10305	1007	0.012
Native state					
Bihar	20	29.9	26	40.6	0.330
Jharkhand	28	41.8	19	29.7	
Odisha	9	13.4	6	9.4	
Others*	10	14.9	13	20.3	

Others include Andhra Pradesh, Uttar Pradesh and Gujarat

Characteristics of smoking tobacco consumers

Table 3 shows the prevalence and characteristics of smoking tobacco consumption among participants. The prevalence of smoking either in the form of beedi/cigarette was 47.6 %, while for smokeless tobacco, it was 26.8%. Among smokers, 68.9% of participants use beedis and 31.1% use cigarettes and most of them started smoking between 16-20 years (57.1%). Since then, the smoking habit continued and at present, around 93.3% of participants continue smoking daily. 60.5% of smokers use about 10 or more cigarettes/beedis per day. Most of them (64.7%) have the maximum urge to smoke during work time and most (41.2%) have their first smoke in a day after waking up (>60 minutes).

Table 1: Smoking tobacco characteristics among inter-state migrant construction workers. (n=119)

Smoking tobacco characteristics	Frequency (n)	Percentage(%)
Type of smoking tobacco		
Beedi	82	68.9
Cigarettes	37	31.1
Age at which started smoking		
Less than 15	14	11.8
16 to 20 years	68	57.1
21 to 30 years	37	31.1
How many years ago started smoking daily		
Less than 3 years	37	31.1
3 to 5 years	20	16.8
6 to 10 years	41	34.5
11 to 20 years	17	14.3
More than 20 years	4	3.4
Currently smoking		
Yes	111	93.3
No	8	6.7
How long since you stopped smoking		
Not stopped	111	93.3
Days	4	3.4
Months	4	3.4
Number of Cigarettes/day		
Stopped smoking/ current smokeless	5	4.2
1 to 10	72	60.5
11 to 20	24	20.2
Smoke but not every day	18	15.1
Time of 1st smoke after waking up		
Stopped smoking/ current smokeless	5	4.2
Within 5 mins	9	7.6
6 to 30 mins	17	14.3
31 to 60 mins	39	32.8
More than 60 mins	49	41.2
Time of maximum urge to smoke		
Stopped smoking/ current smokeless	4	3.4
During work	77	64.7
During break	26	21.8
After work	8	6.7
Before work	4	3.4

Characteristics of Smokeless tobacco (SLT) consumers

Table 4 shows the prevalence and characteristics of SLT among participants. Smokeless tobacco users made up 26.8% of the study participants, who chewed tobacco with or without betel nuts and sniffed it through their mouths or noses. 56.7% of participants started using SLT within 16-20 years and 97% continue to consume SLT daily. Many prefer chewing tobacco without betel nut (88.1%) and they have the maximum urge to use SLT during work time (91%).

Table 4: Smokeless tobacco characteristics among inter-state migrant construction workers (n=67)

	Frequency (n)	Percentage (%)
Age at which started using SLT		
Less than 15	7	10.4
16 to 20 years	38	56.7
21 to 30 years	22	32.8
How many years ago started using SLT daily		
Less than 5	5	7.5
6 to 10 years	14	20.9
11 to 20 years	25	37.3
More than 20 years	23	34.3
Currently using SLT		
Yes	65	97.0
No	2	3.0
How long since you stopped using SLT		
Not stopped	66	98.5
Days	1	1.5
Type of SLT		
Chewing without betel quid	59	88.1
Chewing with betel quid	7	10.4
Snuffing	1	1.5
Time of 1st usage of SLT after waking up		
Within 5 mins	1	1.5
6 to 30 mins	4	6.0
31 to 60 mins	13	19.4
More than 60 mins	49	73.1
Time of max urge to use SLT		
Before work	5	7.5
During work	61	91.0
During break	1	1.5

Table 5 shows the difference in smoking and smokeless tobacco characteristics among study participants. The impact of mass media on tobacco harmful effects is more among smoking tobacco users when compared with smokeless tobacco consumers. Among the smoking tobacco consumers, 59.1% of them were aware through television and 94.7% were aware through the internet and social media while only 5.3% were aware through theinternet and 40.9% were aware through television among smokeless tobacco consumers. One similarity among both groupsis television is the most common source ofinformation.

Among the tobacco users, many have noticed warning labels on tobacco products (p=0.03). Among these, many participants don't have the intention to quit(p=0.31). Most tobacco users spend around 50 to 100 rupees per day on tobacco-related products (65.5% of smoking tobacco users and 65.7% among smokeless tobacco consumers). But most users don't think that they are spending most of their income on tobacco (73.1% of smoking tobacco users and 83.6% of smokeless tobacco users).

As a result, expenses have never been an impact for quit smoking and they were not willing to quit smoking (86.6% of smoking tobacco users and 92.5% of smokeless tobacco users).

Among the tobacco users, 86.6% of participants were aware that tobacco may cause serious illness. Among the illnesses pointed out, nearly half (53.2%) of the participants have stated that lung cancer is the most common illness related to tobacco use, followed by heart attack(19.9).

Table 5: Difference in smoking and smokeless tobacco characteristics among study participants

Tobacco characteristics	Smoking, n(%)	Smokeless, n(%)	P value
Source of information about tobacco dangers			
Television	81(59.1)	56(40.9)	
Internet	18(94.7)	1(5.3)	
Radio	20(66.7)	10(33.3)	
Aware of warning labels on tobacco products			
Yes	101(84.9)	64(95.5)	0.03
No	18(15.1)	3(4.5)	
Thought about quitting seeing warning labels			
Yes	37(31.1)	16(23.9)	0.31
No	82(68.9)	51(76.1)	
Tobacco expenses per day			
Less than 50 rupees	27(22.7)	20(29.9)	0.186
50 to 100 rupees	78(65.5)	44(65.7)	
100 rupees or more	14(11.8)	3(4.5)	
Do you think tobacco expense is more			
Yes	32(26.9)	11(16.4)	0.147
No	87(73.1)	56(83.6)	
Attitude towards quitting			
Willing	16(13.4)	5(7.5)	0.240
Not willing	103(86.6)	62(92.5)	
Does tobacco cause serious illness			
No	10(8.4)	0	
Don't know	8(6.7)	7(10.4)	
Yes	101(84.9)	60(89.6)	
Does tobacco usage causes any of the following			
Lung cancer	70(58.9)	29(43.3)	
Heart attack	21(17.6)	16(23.9)	
Stroke	13(10.9)	6(9)	
Chronic cough	12(10.1)	7(10.4)	
Diabetes and hypertension	3(2.5)	9(13.4)	

DISCUSSION

The present study aims to assess tobacco consumption and its characteristics among inter-state migrant construction site workers in Perambalur. We found that 47% of migrants use smoking tobacco and 27% use smokeless tobacco with the overall prevalence of tobacco use as 74%.

This is in contrast to the study findings of Shoeeb Akram et al(9) conducted in Mangalore, where only 53.7% were tobacco users. In the same study, the smoking tobacco users were less(11.9%) when compared to smokeless tobacco users(41.8%). But in our study, smoking tobacco users are more compared to smokeless

tobacco users. One reason for the difference may be because of the type of occupation they are involved because, in the study conducted by Shoeeb Akram et al(9), the plywood workers are the main study population where the use of any type of combustible item is mostly prohibited.

In another study conducted among construction workers in Mumbai,(10) the prevalence of smoking and smokeless tobacco usage was found to be 21.6% and 46.1% which is also in contrast to our study. The difference may be due to the difference in their native place, where most of the migrants are from Jharkhand, Odisha, Bihar and Andhra Pradesh in our study. But in the study conducted in Mumbai, the majority of them were from West Bengal, Bihar, Madhya Pradesh and Punjab.

There was not much difference in tobacco usage characteristics between smoking tobacco users and smokeless tobacco users. The only difference we noted was in awareness created through warning labels on tobacco products(p=0.03) where smokeless tobacco users were more aware(95.5%) compared to smoking tobacco users(84.9%). This is similar to the study conducted by Thet Thet Hnin in Myanmar(11), where almost all participants were aware(98.4%) of the health warning labels in smoking packs. These similar findings indicate that overall awareness created through health warning labels for both smoking and smokeless tobacco is a very successful strategy.

Concerning socio-demographic characteristics, the mean age of the study population was 29.95±8.32 years. In another study, the mean age of workers was 26.3±8.5 years which was lower than that reported in this study.(12)(13) We found both smoking and smokeless tobacco usage are associated with age and total monthly income. Similarly, in a study conducted by Nusrat Nausheen Khandker et al in Bangladesh(14), tobacco usage was found to be associated with age group and in a study conducted by Julian Perelman et al in Europe, tobacco usage was found to be significantly associated with higher income population.

The National Health Trends Survey conducted in the United States states that people who are single or not married are more likely to experience social isolation or disconnection, which has been identified as a major risk factor for detrimental health behaviours.(15) This is similar to the findings of our study where both smoking and smokeless tobacco usage were found to be associated with the marital status of the study population.

Education status was significantly associated with only smoking tobacco consumption. This is in contrast to a study conducted by PC Gupta in Bombay(16), where smokeless tobacco usage was found to be associated with literacy level whereas smoking tobacco was not found to be associated. The reason for this difference may be due to gender involvement. The majority of the study participants in that study were female whereas in our study all participants are male.

Though the study provides useful information, it may have some limitations. The survey was done on inter-state migrant construction site workers. Hence, the results can only be generalised to that specific population. Another limitation is the smoking and chewing status were assessed by self-reporting of participants.Therefore, some of the participants may have not reported or over-reported their smoking/chewing habits resulting in subjective variations in results. The third is the lack of adequate rapport of the interviewer with the participant. Most participants may hesitate to tell the truth to a stranger if not adequate rapport is established.

CONCLUSION

In the present study, the prevalence of tobacco usage(both smoking and smokeless) was found to be significantly high among inter-state migrants but there was no significant difference in tobacco-related characteristics between smoking tobacco users and smokeless tobacco users. Our study would serve as a guiding tool to identify specific tobacco control interventions needed for inter-state migrants.To lower the burden of tobacco-related disease among these employees, specific intervention programmes

are required. A successful tobacco control strategy for disadvantaged groups is needed to address their life circumstances and social environment, in addition to educating them about the health consequences of tobacco products. Finally, for effective surveillance of the tobacco epidemic and tobacco control, studies should be undertaken on a regular basis to assess changes in prevalence, knowledge, attitudes, and behavioural and socioeconomic correlates of starting, continuing, and quitting tobacco among interstate migratory construction site workers.

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