

Tobacco use as a risk factor of Non-Communicable Diseases among the migrants of Santal tribe in Bhubaneswar city, Odisha, India

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KEYWORDS

Santal migrants, tobacco use, NCD risk factors

ABSTRACT

Introduction:

Migration and urbanization have a significant impact on the health and lifestyle of tribal populations in India. Risk factors for Non-Communicable Diseases (NCDs) are increasing and are frequently associated with the adoption of unhealthy lifestyles including tobacco and alcohol consumption, low physical activities and unhealthy dietary choices. Odisha, having a sizable tribal population, demonstrates considerable disparities in tobacco consumption, a known risk factor of NCDs, emphasizing the necessity for area-specific evidence to shape prevention strategies.

Objective:

To assess the prevalence, patterns, and factors associated with tobacco consumption as a behavioral risk factor for non-communicable diseases among adult Santal tribal migrants (18–69 years) living in Bhubaneswar city, Odisha.

Methodology:

A cross-sectional survey was performed from September to December 2022, by using adapted World Health Organization's STEPS survey questionnaire on surveillance of risk factors of non-communicable diseases. A total of 516 Santal migrant workers were chosen through a multi-stage sampling technique from slums throughout Bhubaneswar. Descriptive statistics were used to summarize data, chi-square tests examined associations, and logistic regression identified key predictors of tobacco use.

Results:

The prevalence of tobacco consumption among Santal migrants was 80% (95% CI: 76.3–83.3), higher in males compared to females (86% vs. 71.8%). Males primarily smoked (68.3%), while in both genders smokeless tobacco consumption was common (72.3% in males and 70.4% in females). Tobacco use was significantly associated with marital status, no formal education, and alcohol use. Tobacco use was higher among the age group of 45 to 69 years (88.1%) than among the younger age groups (75.8%).

Conclusion:

This study has found a very high prevalence of tobacco consumption among the migrants of Santal tribe in Bhubaneswar, Odisha. The results highlight the need for focused public health interventions to reduce the risk factor of non-communicable diseases among urban tribal populations.

INTRODUCTION:

Tobacco use is still a major public health concern, particularly in low- and middle-income countries (LMICs), where tobacco-related diseases are especially prevalent. It is a well-known risk factor for many Non-Communicable Diseases (NCDs), including cardiovascular disease, cancer, respiratory disorders, and diabetes, all of which contribute significantly to global mortality(1–3).

According to estimates by the World Health Organization, smoking kills more than 8 million people each year. About 80% of the world's 1.3 billion tobacco users live in low-and middle-income countries, which bear the heaviest burden of tobacco-related ill health and death(1). India is the second-largest consumer and third-largest producer of tobacco in the world(4). The Global Adult Tobacco Survey -2 (GATS-2) survey of 2016-17 reported that among adults aged 15 and above in India, 28.6% (266.8 million) were using some form of tobacco; the current use rates are 42.4% among men and 14.2% among women, with 32.5% of adults in rural areas and 21.2% in cities using tobacco(5). The total economic costs of tobacco-attributable diseases and deaths among Indians aged 35 years and above were estimated to be INR 1773.4 billion (US \$27.5 billion) during 2017-2018(6).

India is a culturally and ethnically diverse country with one of the world's largest tribal populations(7). The 2011 census reported that India's tribal population was 104 million, accounting for 8.6% of the total population(8). Tobacco use among India's vulnerable tribal populations remains high. Tobacco consumption has been a long-standing tradition in tribal communities, which is deeply ingrained in their social beliefs and cultural norms (7,9). Various tribal groups significantly differ in the prevalence of tobacco use, with the Nicobarese tribe in the Andaman and Nicobar Islands reporting rates as high as 88.25%. Research has linked tobacco consumption to oral mucosal lesions (9). Similarly, within the Kani tribe of Kerala, India, 81.5% of individuals use tobacco (10). Odisha, an eastern Indian state, possesses a notable tribal demographic, comprising 22.8% of its overall population, as per Indian census 2011. The state has a significantly elevated tobacco consumption prevalence of 45.6% (5). A recent article utilizing data from the Longitudinal Ageing Study in India (LASI) indicates that the prevalence of tobacco use in any form among the tribes of Odisha was 61% (7). The state is home to 62 distinct tribal groups, including 13 Particularly Vulnerable Tribal Groups (PVTGs) (11). The Santals, regarded as one of the advanced tribal communities in Odisha, are predominantly located in the districts of Mayurbhanj, Keonjhar, and Balasore. They also live in neighbouring states like Jharkhand, West Bengal, Bihar, and Assam(12,13). According to the 2011 Census, the Santal tribe's population is the second-largest among Odisha's 62 tribal communities, with a literacy rate of 55.6%, higher than the 52.5% overall literacy rate for Scheduled Tribes(14). The Santals primarily engage in settled agriculture, with both men and women actively involved, and seasonal forest collection serving as an important additional income source(12). Tribal communities traditionally rely on forests, agriculture, and natural resources for their livelihoods. However, the loss of these livelihoods, combined with poverty and inadequate facilities, has driven many from rural Odisha to migrate to cities seeking better opportunities. The majority of the Santal community originates from the Mayurbhanj district of Odisha. Over past four decades, the Santal community has increasingly migrated to Bhubaneswar, for pursuing employment and better living conditions (15) settling in slum areas of the city.

Migration introduces significant lifestyle changes. While tribal customs and values shape their traditional health behaviours, however when these community migrate to urban areas, acclimatizing to urban environments often results in adopting or intensifying unhealthy practices such as poor diets, reduced physical activity, tobacco use, and alcohol consumption. These behaviours are known risk factors for NCDs, compounding health vulnerabilities.

Despite the established link between tobacco use and NCDs, limited research exists on urban tribal populations, especially Santal migrants. Most studies focus on rural tribal groups or the general urban population, leaving a gap in understanding how migration impacts health

behaviours. With Odisha's large tribal population and increasing rural-to-urban migration, exploring tobacco use among Santal migrants is essential for developing targeted interventions. This study investigates the prevalence, patterns, and factors associated with tobacco use among Santal tribal migrants in Bhubaneswar to guide future tobacco control programs.

This paper represents a part of a bigger cross-sectional study that looks into several risk factors of NCDs among Santal tribal migrants in Bhubaneswar, Odisha. However, this paper specifically focuses on tobacco use as a risk factor for non-communicable diseases.

MATERIALS AND METHODS:

Study setting and Study population:

This cross-sectional study was conducted among the migrants of the Santal tribe aged 18-69 years, who had migrated from the Mayurbhanj district of Odisha, and resided in slums of Bhubaneswar city for at least five years. The survey, focusing on NCD risk factors, was conducted following the WHO STEP-wise approach for NCD risk factor surveillance (STEPS) guidelines between September and December 2022.

Sample size and Sampling Methods:

The sample size was estimated using the prevalence of hypertension (15.6%) among tribal males in Odisha (NFHS-4), with 5% precision and a design effect of 2, resulting in a sample size of 404. To account for gender-stratified analysis and a 7% non-response rate, the final sample size was rounded to 516. A multistage sampling method was adopted. In the first stage, from seven slums in Bhubaneswar where Santal migrants resided, four were randomly selected. In the second stage, Santal Households from each selected slum were identified. In the 3rd stage, 129 participants were chosen from identified households within each slum. All eligible individuals from these households who consented to participate were included in the study. The 1st household was selected randomly. All consecutive households were surveyed till sample size of 129 from each slum is achieved.

Study Instrument:

The WHO-STEPS (version 3.2) survey questionnaire on surveillance of risk factors of non-communicable diseases was adapted to local context, translated into Odia, and piloted before launching the data collection process. Two steps were applied in assessing the risk factors. Step one included an assessment of behavioural risk factors; these include tobacco use, alcohol use, physical inactivity, and inadequate consumption of fruits and vegetables. The physical measurement for body mass index (BMI) and blood pressure (BP) for establishing hypertension was conducted in second step.

Data collection procedure:

Data were collected by trained investigators, including the first author, using KoBo Toolbox. WHO STEPS standard operating procedures were followed. Height was measured using a portable stadiometer (accuracy: 0.1 cm), weight using an electronic flat weighing scale (accuracy: 100 g). Blood Pressure (BP) was measured using an OMRON digital sphygmomanometer (HEM 7120), with three readings taken at three-minute intervals and the last two averaged to establish BP.

Operational definition used:

Tobacco use, including smoking and smokeless tobacco, was considered to be current use if it had occurred within the past 30 days. Alcohol use within the past one year (12 months) was also classified as current use(16). Inadequate fruit and vegetable intake was defined as fewer than five servings a day. Physical activity was assessed by calculating metabolic equivalent time(MET-minutes per week) for specific activity groups. The levels of physical activity were categorized as high, ≥ 3000 MET-minutes/week; medium, 600–2999 MET-minutes/week; and low, < 600 MET-minutes/week(10). Overweight was defined as a BMI of 23 to 24.99 kg/m², and obesity as a BMI ≥ 25 kg/m², using Asian-specific BMI cut-offs(17). Hypertension was defined as a systolic blood pressure of ≥ 140 mm Hg, or diastolic blood pressure of ≥ 90 mm Hg, or current use of antihypertensive medication(18).

Ethical Consideration:

The study was technically approved by the doctoral committee of the SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu. Ethical approval was obtained from the Institutional Ethics Committee of Kalinga Institute of Medical Sciences, Bhubaneswar (Ref. No.: KIIT/KIMS/IEC/773/2021) and the Department of Health and Family Welfare, Govt. of Odisha. Informed consent was obtained from all participants before data collection, ensuring voluntary participation and the right to withdraw at any stage.

Statistical Analysis:

Data was analysed using R statistical package, version R.4.4.1. Descriptive statistics were conducted to summarize socio-demographic variables. Chi-square tests were performed to compare groups, and the prevalence of tobacco use was calculated with 95% confidence intervals. Multiple logistic regression analysis was used to determine associations, presenting both unadjusted and adjusted odds ratios (ORs, AORs). Non-significant variables in unadjusted models were excluded from the adjusted model for simplicity.

RESULTS:

The study sample includes 516 Santal tribal migrants in Bhubaneswar, with 300 males and 216 females. The majority of the respondents (65.7%) were aged between 18 - 44 years. Educational attainment of the respondents differs, with more females (44.9%) than males (33.3%, $p=0.011$) lacking formal education. Males have significantly higher employment rates (84.7%) than females (55.6%, $p<0.001$). However, there is no significant difference in income,

Variables	Female (N=216)	Male (N=300)	Total (N=516)	p value
Age categories (in years)				
18-44	146 (67.6%)	193 (64.3%)	339 (65.7%)	0.442
45-69	70 (32.4%)	107 (35.7%)	177 (34.3%)	
Educational Status				
No formal schooling	97 (44.9%)	100 (33.3%)	197 (38.2%)	0.011
Primary school	41 (19.0%)	60 (20.0%)	101 (19.6%)	
Secondary school and above	76 (35.2%)	140 (46.7%)	216 (41.9%)	
Refused	2 (0.9%)	0 (0.0%)	2 (0.4%)	
Marital status				
Currently not married	56 (25.9%)	66 (22.1%)	122 (23.7%)	0.153
Currently married	160 (74.1%)	228 (76.5%)	388 (75.5%)	
Refused	0 (0.0%)	4 (1.3%)	4 (0.8%)	
Work status				
Working	120 (55.6%)	254 (84.7%)	374 (72.5%)	< 0.001
Not working	89 (41.2%)	43 (14.3%)	132 (25.6%)	
Refused	7 (3.2%)	3 (1.0%)	10 (1.9%)	
Annual income				
Less than Rs. 1 lakh	75 (34.7%)	85 (28.3%)	160 (31.0%)	0.122
Rs. 1 Lakhs and above	141 (65.3%)	215 (71.7%)	356 (69.0%)	

with 69% of the population earning Rs. 1 lakh or more per year ($p=0.122$) (Table 1).

Table 1: Socio-demographic profile of tribal migrants in Bhubaneswar in 2022 (n=516)

Tobacco use is widespread among Santal migrants, with 80% of respondents consuming it in some form. Males have a significantly higher prevalence of tobacco use (86%) than females (71.8%). 68.3% of men are smoking compared to only 10.6% of women. In contrast, smokeless tobacco use is more evenly distributed between genders, with 72.3% of men and 70.4% of

women using these products. Furthermore, 54.7% of males report using both forms of tobacco, whereas females report only 9.3%(Table 2).

Table 2: Tobacco consumption (various forms) across gender among tribal migrants in Bhubaneswar city, Odisha

Variables	Male n (%)	Female n(%)	Total n(%)
Current tobacco use Any form	258(86.0)	155(71.8)	413(80.0)
Tobacco use - Smoking	205(68.3)	23(10.6)	228(44.2)
Tobacco use - Smokeless	217(72.3)	152(70.4)	369(71.5)
Tobacco use - both form	164(54.7)	20(9.3)	184(35.7)

Tobacco use is more prevalent among older people (45-69 years), with 88.1% (CI: 82.2 - 92.3) using tobacco in any form, compared to 75.8% (95%CI: 70.8 - 80.2) in the younger age group (18-44 years). Married people use tobacco more frequently 84.8% (95%CI: 80.7 - 88.1) than unmarried people 65.6% (95% CI: 56.4 - 73.8). Tobacco use decreases with education. Individuals with no formal education used tobacco at the highest rate 89.3%(95% CI: 84.0 - 93.1), followed by those with primary school education 81.2% (95% CI: 71.9 - 88.0) and secondary school or higher 71.3% (95% CI: 64.7 - 77.1). Working people were more likely to smoke and use tobacco 83.4% (95% CI: 79.2 - 87.0) than those who did not work 74.2% (95% CI: 65.8 - 81.3). Tobacco use is significantly higher among alcohol users 88.6% (95% CI: 85.1 - 91.4) compared to non-users 41.5% (95% CI: 31.6 - 52.1). Income is also related to tobacco use, with higher earners having a higher prevalence. Tobacco use is common among all BMI categories. Those with high blood pressure or insufficient fruit and vegetable intake reported excessive tobacco use. Details are presented in Table 3.

Table 3: Prevalence of Tobacco use (various Forms) according to characteristics of tribal migrants in Bhubaneswar city, Odisha

	Smoking % (95% CI)	Smokeless Tobacco % (95% CI)	Any Form of Tobacco % (95% CI)
Age			
18-44	40.1* (34.9 - 45.6)	68.4* (63.2 - 73.3)	75.8* (70.8 - 80.2)
45-69	52.0 (44.4 - 59.5)	77.4 (70.4 - 83.2)	88.1 (82.2 - 92.3)
Gender			
Male	68.3* (62.7 - 73.5)	72.3 (66.8 - 77.2)	86.0* (81.4 - 89.6)
Female	10.6 (7.01 - 15.7)	70.4 (63.7 - 76.3)	71.8 (65.2 - 77.6)
Marital Status			
Currently not married	25.4* (18.2 - 34.2)	59.8* (50.6 - 68.5)	65.6 (56.4 - 73.8)
Currently married	49.7 (44.7 - 54.8)	75.8 (71.1 - 79.9)	84.8 (80.7 - 88.1)
Education status			
No formal schooling	46.2 (39.1 - 53.4)	78.7 (72.2 - 84.0)	89.3 (84.0 - 93.1)
Primary school	52.5 (42.3 - 62.4)	71.3 (61.3 - 79.6)	81.2 (71.9 - 88.0)
Secondary school and above	38.9 (32.4 - 45.8)	65.3 (58.5 - 71.5)	71.3 (64.7 - 77.1)

Work status			
Working	53.7* (48.5 - 58.9)	72.7 (67.9 - 77.1)	83.4* (79.2 - 87.0)
Not working	20.5 (14.1 - 28.5)	71.2 (62.6 - 78.6)	74.2 (65.8 - 81.3)
Annual income			
Less than Rs. 1 lakh	33.1* (26.0 - 41.1)	70.0 (62.2 - 76.8)	75.0 (67.4 - 81.3)
Rs. 1 Lakhs and above	49.2 (43.9 - 54.5)	72.2 (67.2 - 76.7)	82.3 (77.8 - 86.0)
Current Alcohol use			
Yes	52.4* (47.5 - 57.2)	79.1(74.9 - 82.9)	88.6 (85.1 - 91.4)
No	7.4 (3.30 - 15.2)	37.2 (27.7 - 47.9)	41.5 (31.6 - 52.1)
BMI			
Underweight	35.6* (23.9 - 49.2)	72.9 (59.5 - 83.3)	83.1 (70.6 - 91.1)
Normal	39.3(32.4 - 46.6)	66.0 (58.7 - 72.6)	76.4 (69.7 - 82.1)
Overweight/Obese	49.6 (43.5 - 55.8)	75.2(69.5 -80.2)	82.0 (76.7 - 86.3)
Low Physical Activity			
Yes	29.7* (22.9 - 37.6)	66.5 (58.5 - 73.6)	72.8 (65.0 - 79.4)
No	50.6 (45.3 - 55.8)	73.7 (68.8 - 78.2)	83.2 (78.9 - 86.9)
Raised Blood Pressure			
Yes	47.6 (40.7 - 54.6)	73.6 (66.9 - 79.3)	82.2 (76.2 - 87.0)
No	41.9 (36.3 - 47.6)	70.1 (64.6 - 75.1)	78.6 (73.5 - 82.9)
Inadequate Fruits and Vegetables intake			
Yes	44.3 (40.0 - 48.7)	72.0 (67.8 - 75.8)	80.6 (76.8 - 83.9)
No	33.3 (6.00 - 75.9)	33.3 (6.00 - 75.9)	33.3 (6.00 - 75.9)
Overall	44.2 (39.9 - 48.6)	71.5 (67.4 - 75.3)	80.0 (76.3 - 83.3)

*Significant at $p < 0.05$

Socio-demographic and behavioural factors associated with tobacco consumption among Santal tribal migrants are reflected in Table 4. Males are more likely to use tobacco than females, with an adjusted odds ratio (AOR) of 2.46, (95% CI: 1.39-4.40). Married individuals also show higher odds of tobacco use [AOR: 2.62, (95% CI: 1.45 - 4.74)], and education plays a critical role - those with no formal schooling have a much higher likelihood of tobacco use [AOR: 3.65, (95% CI: 1.81 – 7.65)] compared to those with secondary education or above.

Lifestyle factors like alcohol consumption strongly influence tobacco use, with non-alcohol users having lower odds [AOR: 0.11, (95% CI: 0.06 - 0.19)]. Insufficient physical activity and raised blood pressure are not significantly associated with tobacco use. Inadequate fruit and vegetable consumption shows a potential but statistically non-significant association with tobacco use, though the adjusted odds [AOR: 9.55, (95% CI: 0.82-101)]. Overall, demographic, educational, and lifestyle factors significantly impact tobacco use in this population.

Table 4: Factors associated with use of tobacco (Any form) tribal migrants in Bhubaneswar city, Odisha

Variables	Tobacco use (Any form)	
	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age group (in years)		
18-44	Ref.	Ref.
45-69	2.37 (1.43 - 4.07)*	1.2 (0.62 - 2.39)
Gender		
Female	Ref.	Ref.
Male	2.42 (1.56 - 3.77)*	2.46 (1.39 - 4.40)*
Marital Status		
Currently not married	Ref.	Ref.
Currently married	2.93 (1.83, 4.66)*	2.62 (1.45 - 4.74)*
Education status		
Secondary school and above	Ref.	Ref.
Primary school	1.74 (0.99 - 3.17)	1.25(0.63 - 2.58)
No formal schooling	3.37 (2.00 - 5.90)*	3.65 (1.81 - 7.65)*
Work status		
Currently Not Working	Ref.	Ref.
Currently Working	1.75 (1.08 - 2.80)*	0.87 (0.43 - 1.72)
Annual income		
Less than Rs. 1 lakh	Ref.	Ref.
Rs. 1 Lakhs and above	1.55 (0.98 - 2.42)	a
Current Alcohol use		
Yes	Ref.	Ref.
No	0.09 (0.05 - 0.15)*	0.11(0.06 - 0.19)*
BMI		
Underweight	Ref.	Ref.
Normal	0.66 (0.30 - 1.37)	a
Overweight/Obese	0.93 (0.42 - 1.89)	a
Low Physical Activity		
No	Ref.	Ref.
Yes	0.54 (0.34, - 0.84)*	0.65 (0.34 - 1.25)
Raised Blood Pressure		
No	Ref.	Ref.
Yes	1.26(0.81 - 1.99)	a
Inadequate fruits and vegetables intake		

No	Ref.	Ref.
yes	8.3(1.60 - 60.5)*	9.55(0.82-101)

Ref: Reference group,

*Significant at $p < 0.05$, a= not significant in unadjusted model, then excluded from adjusted model

DISCUSSION:

The study, involving 516 Santal tribal migrants in Bhubaneswar, highlights significant gender and lifestyle differences in tobacco use. Tobacco use is prevalent, with 80% of respondents consuming it. Males are more likely to smoke (68.3%) than females (10.6%), while smokeless tobacco use is similar between genders. Tobacco consumption is more common among older individuals, married people, and those with low education levels. Married individuals and alcohol users have significantly higher odds of using tobacco. The study shows that education plays a critical role in tobacco use, with those lacking formal education more likely to use it. Factors like alcohol consumption strongly influence tobacco use, while insufficient physical activity and blood pressure levels show no significant association. The current study found that gender, marital status, educational attainment, and alcohol consumption were all significantly associated with tobacco use in any form among respondents.

The overall prevalence of tobacco use in our study aligns with findings from a study on the Kani tribe in Kerala, where 81.5% of tribal individuals aged 25 - 64 years reported to use tobacco in some form(10). Notably, the prevalence of tobacco use among Santal migrants (80%) far exceeds that of the general population in Odisha, which stands at 45.6%, according to the GATS-2 survey. As per GATS-2, the prevalence of any forms of tobacco use is 57.6% in men and 33.0% in women in Odisha while our study it was found to be 86% among male and 71.8% among female. The prevalence found in this study is also significantly high as compared to findings of a study conducted in Madhya Pradesh, which found that the tobacco use among urban tribal people aged 20 years and above was 48.1% (19). However the prevalence of tobacco use observed in our study is lower compared to 88.25% reported among the Nicobarese Tribal Population in Andaman and Nicobar Islands(9) and 84.3% reported among Mishing tribes in Assam(20). The prevalence of smoking in our study, at 44.2%, is higher than the 37.9% reported among the Kani tribe in Kerala(10). In contrast, the prevalence of smokeless tobacco use in our study, at 71.5%, is lower than the 75.8% reported among the Kani tribe(10) and 82% reported in an indigenous community of Kerala(21). The smoking rate among men in our study was 68.3%, which was slightly lower than the 69.1% recorded among the Kani tribe of Kerala(10). Similarly, 70.4% of women in our study used smokeless tobacco, compared to 81.9% among Kani women(10).

Our study discovered that tobacco use increases with age, with people aged 45 to 69 having significantly higher rates than younger groups. This is consistent with LASI's (2017-19) findings on tribal communities, as well as findings from a national study that used GATS and Global Youth Tobacco Survey (GYTS) data(7). Probably this trend is due to the prolonged exposure to tobacco and lifestyle choices, which may worsen with age.

We discovered that gender is a strong predictor of tobacco use(any form) among Santal migrants. Our findings reveal significant gender disparities, with men having a much higher prevalence of tobacco use (any form) than women. This is consistent with similar findings from a study of the tribal population in Wayanad district, Kerala(22).

This study also shows that the marital status of the respondents was significantly associated with tobacco consumption in any form. Similar results were also found from the study on tribal community Mandla district, Madhya Pradesh, India(23).

This study indicated a significant association between tobacco consumption and educational attainment among Santal migrants. Individuals lacking formal education consumed tobacco at a markedly higher rate than those with secondary education or above. This aligns with findings from Mandla district, Madhya Pradesh, India, where tobacco use diminished as educational

attainment rose within the tribal community(23), emphasizing education's protective effect against tobacco consumption.

The research identified a robust correlation between alcohol and tobacco consumption, indicating that non-drinkers are markedly less inclined to use tobacco. This indicates that individuals who consume alcohol are more prone to tobacco use compared to non-drinkers, highlighting the simultaneous occurrence of these behaviours. This corresponds with the results of the LASI, (2017-19), which indicated that tobacco consumption among tribal communities was frequently associated with simultaneous alcohol use among participants(7) . In our study, Santal migrants exhibiting low physical activity initially appeared less inclined to use tobacco; however, this correlation was not significant after adjusting for additional variables. Nevertheless, the LASI study (2017-19) revealed that tribal individuals engaged in physical activity were more inclined to utilize tobacco products compared to those who were not (7).

Although this study showed that the higher prevalence of smoking was among higher earners, with an annual income of Rs. 1 lakh and above, it was not found to be a significant factor in tobacco use after adjustment. This indicates that economic status alone may not be a driving factor for tobacco consumption in this population. In contrast, findings from the LASI (2017-19)(7) revealed that tribal individuals in higher quantiles of monthly per capita expenditure have a greater risk of smoking.

LIMITATION:

This study possesses specific limitations. The cross-sectional design limits causal inferences about the observed associations. Secondly, dependence on self-reported data regarding tobacco and alcohol consumption introduces the potential for recall and social desirability biases, which may lead to an underestimation of prevalence rates. The study was restricted to Santal migrants living in urban slums of Bhubaneswar, thereby constraining the applicability of the findings to other tribal groups or urban migrants in diverse contexts.

CONCLUSION:

The study indicates a significant prevalence of tobacco consumption among Santal migrants in Bhubaneswar, strongly linked to demographic and behavioural factors, including gender, marital status, education, and alcohol consumption. These findings highlight the need for public health interventions that are tailored for this vulnerable population taking into account cultural norms and lifestyle modifications associated with urban migration. Educational, behavioural change, and community-based health promotion interventions may go a long way in reducing tobacco use and thereby mitigating the associated risk of NCDs.

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