Introduction

Tobacco-related health issues are preventable but still tobacco use kills more than 7 million people annually. The widespread tobacco epidemic is a major public health threat leading to premature deaths, poverty, and healthcare burden to the family and the nation. More than 6 million of those deaths are the result of direct tobacco use, while around 9 million are the result of nonsmokers being exposed to second-hand smoke. Globally, smoking alone causes about 10% of cardiovascular disease[1] and the burden magnifies with concurrent use of other forms of tobacco use. Low- and middle-income countries, such as India, which are a home to 80% of the smokers, suffer from the heaviest burden of tobacco-related morbidity and mortality.[2] India is the second largest producer as well as consumer of tobacco after China. Tobacco use is very rampant varying across different geographical regions of the country in both forms: smoking and smokeless. The use of tobacco in dual form makes its control even more challenging; this situation is made worse by the fact that the presence of nitrosamines makes smokeless tobacco (SLT) use more addictive than smoking form. In the north-eastern state of Meghalaya, where this study was conducted, the prevalence of tobacco use in men is 72% and about 10% of cardiovascular disease[1] and the burden magnifies with concurrent use of other forms of tobacco use. Low- and middle-income countries, such as India, which are a home to 80% of the smokers, suffer from the heaviest burden of tobacco-related morbidity and mortality.[2] India is the second largest producer as well as consumer of tobacco after China. Tobacco use is very rampant varying across different geographical regions of the country in both forms: smoking and smokeless. The use of tobacco in dual form makes its control even more challenging; this situation is made worse by the fact that the presence of nitrosamines makes smokeless tobacco (SLT) use more addictive than smoking form. In the north-eastern state of Meghalaya, where this study was conducted, the prevalence of tobacco use in men is 72% and

Abstract

Background: India suffers from a huge burden of substance abuse and associated morbidity and mortality. Among all substance use, tobacco consumption is the most common and yet the most widely accepted one. This study aimed to estimate the prevalence of tobacco consumption, to find out the type of tobacco products used and to assess the factors influencing tobacco consumption in the slums of Shillong city. Materials and Methods: A cross-sectional, community-based study was carried out in 330 respondents aged 15 and above. Chi-square test was used to compare proportions, and Student’s t-test was used to compare groups for continuous variables. Results: The prevalence of current tobacco consumption was found to be 73.9%, and the rate of quitting was found to be 4.3%. The prevalence of tobacco consumption was observed to be higher in males (52.4%) compared to 21.5% in females. Highly significant statistical association was observed between tobacco consumption and age, gender, and occupation. The statistical association between tobacco consumption and religion and education was found to be statistically significant. Ever use of tobacco in any form as well as smokeless form peaked in 24–34 years, while smoking was more prevalent among 15–24 year olds. The prevalence of smokeless tobacco was higher (47.5%) as compared to the prevalence of smoking (28.2%), closely followed by dual use (24.3%). The most popular smoked and smokeless forms were found to be cigarettes and khaini, respectively. Conclusions: Tobacco consumption was found to be highly prevalent and was much higher than the national average hinting toward its association with higher incidence of various malignancies in the region and calling for immediate action toward propelling its prevention and control by all stakeholders.

Keywords: Addiction, cancer, epidemic, non-communicable diseases, substance abuse
This study aimed to do the following:
1. Estimate the prevalence of tobacco and find out the type of tobacco products used
2. Assess the factors influencing tobacco consumption.

Materials and Methods

Study design
The study was a cross-sectional, community-based design, and it was carried out for four months during September to December 2016.

Study setting and population: All those who were aged 15 and above and residing in the selected slums were eligible for the study, as this age group was used in the Global Adult Tobacco Survey (GATS). The questionnaire consists of three sections: (1) Sociodemographic profile: information on age, gender, education, occupation, religion etc., (2) History of tobacco consumption: current use of tobacco, past use of tobacco, form of consumption (smoking/smokeless/dual use), type of tobacco product used, co-addictions, number of tobacco products consumed on daily basis, duration of consumption, age of initiation of consumption, time of first use in the day, factors influencing consumption in the first place, daily expenditure and

Sampling: A multistage sampling design was adopted in the study. At the first stage, three slums were selected by convenient sampling: Demseiniong, Pynthormukrah, and Jhalupara were selected by convenient sampling, followed by selection of the three subunits from each slum by simple random sampling where each street formed the subunit. Then, through systematic random sampling procedure with a sampling interval of 2, that is, every second house was selected for the study: 330 eligible participants were selected. If in a selected family there was no participant meeting the inclusion criteria, then the adjacent house was taken up. Moreover, if more than one eligible candidate was available, then one of them was selected by simple random sampling.

Inclusion criteria
Residents of the selected slums who were aged 15 and above and present during the time of visit.

Exclusion criteria
Eligible candidates not willing to participate.

Operational definitions
Residents of the slums were defined as those staying there for at least 6 months. The study subject was classified as consuming tobacco in smoked form if he/she smoked cigarette and bidi (tobacco hand-rolled in dried tendu leaves). Other forms of smoked tobacco use were classified as “other smoking.” Smokeless tobacco use consisted of chewing gutkha or paan masala (industrially manufactured tobacco product containing scented tobacco mixed with lime and areca nut, in powder form), betel quid with tobacco, and khaini/sudha (processed or dried tobacco leaf combined with slaked lime paste to keep in the buccal cavity for some time). Other forms of SLT were classified as “other SLT” and consisted of chewing paan with zarda (mixture of lime, pieces of areca nut, tobacco and spices wrapped in betel leaf), snuff, and lal dantmanjan (red tooth powder).

Tobacco use was classified as “ever user” defined as having used tobacco even once in their lifetime, “current user” defined as having used tobacco at least once in the last 30 days preceding the visit, and “never user” was defined as having not used tobacco even once in their lifetime. Ever users who were not currently consuming any form of tobacco were considered as “quit tobacco” or “ex-user.”

Data collection
Data were collected by personal interview during house-to-house visit using a predesigned, pretested, and semistructured questionnaire. The languages used were English, Hindi, and Khasi. The questionnaire consists of three sections: (1) Sociodemographic profile: information on age, gender, education, occupation, religion etc., (2) History of tobacco consumption: current use of tobacco, past use of tobacco, form of consumption (smoking/smokeless/dual use), type of tobacco product used, co-addictions, number of tobacco products consumed on daily basis, duration of consumption, age of initiation of consumption, time of first use in the day, factors influencing consumption in the first place, daily expenditure and
exposure to second-hand smoke. (3) Cessation: questions related to advice to quit smoking by healthcare providers, quit attempts, methods to quit smoking, and reasons for failure in attempt.

**Ethical issues**

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

**Data analysis**

Data were entered in Microsoft Excel 2007. Data analysis was done using OpenEpi Version 3. Frequencies were calculated accordingly, and the unemployment rate was calculated by the formula number of unemployed individuals/labor force (i.e. unemployed plus employed individuals). Pack years were calculated from the average number of cigarettes and/or bidis smoked per day; 1 pack year was defined as smoking 20 cigarettes or 80 bidis for 1 year.\(^\text{18}\) Chi-square test was used to compare proportions, and Student's \( t \)-test was used to compare groups for continuous variables. Statistical significance (\( P \)-value) was set at a level of 0.05.

**Results**

A total of 330 slum dwellers were approached for the study, and all of them consented, making the response rate 100%. Among the total respondents interviewed, 207 (62.7%) were male. The age of the respondents interviewed ranged from 15 to 82 years, and the highest number of participants 94 (28.5%), 84 (25.5%), and 71 (21.5%) belonged to the younger age groups of 15–24 years, 25–34 years, and 35–44 years, respectively. The mean age (±SD) of the respondents was 34.7 ± 13.8 years. Literacy rate in this study was observed to be 86.1%, and majority, that is, 92 (27.9%) of the study subjects were educated up to high school. The unemployment rate was estimated to be 26.3%. Majority, that is, 76 (23%) of the participants were businesspersons by occupation. The most widely practiced religion among the participants was Hinduism, and 200 (60.6%) were Hindus. It was observed that as high as 244 (73.9%) and 255 (77.3%) were current users and ever users of tobacco in any form, making the rate of quitting 4.3%. The mean age of the current tobacco users are 36.3 ± 13.3 years [Table 1] and the age of the tobacco users, both ever and current, varied from 16 years to 82 years.

In this study, age-specific prevalence of current tobacco consumers was highest in age groups 45–54, 35–44, and 55–64 years in the order that were 88.6%, 81.7%, and 80.8%, respectively; whereas, the crude prevalence of current tobacco consumers was highest in 25–34 years, which was 20% followed by 17.6% in 35–44 years and 15.6% in 15–24 years. The prevalence of tobacco consumption was 52.4%, which was higher in males compared to 21.5% in females and, it was observed that 173 (83.6%) of the 207 male participants versus 71 (57.7%) of the 123 females studied consumed tobacco in any form. It was observed that 54 (69.2%) of 78 participants who were not working consumed tobacco, making the prevalence highest in this group, that is, 16.4%. The statistical association between tobacco consumption and age, gender, and occupation was found to be highly significant (\( P < 0.001 \)). The religion-specific prevalence was highest in “others” consisting of Muslims and Seng Khasis 7 (87.5%) followed by Christians 99 (81.1%) and Hindus 138 (69%). It was observed that the trend of tobacco consumption was highest in illiterates and participants with low-educational status. However, the crude prevalence of tobacco consumption was highest in Hindus (41.8%). The statistical association between tobacco consumption and religion and education was found to be statistically significant (\( P < 0.05 \)) [Table 2]. No statistically significant difference of age was observed in male and female current tobacco consumers [Table 3].

We observed that ever use of tobacco in any form as well as smokeless form peaked in 24–34 years and smoking was more

**Table 1: Profile of the respondents (\( n=330 \))**

| Variables | Number of respondents (%) | Mean±SD* (in years) |
|-----------|---------------------------|---------------------|
| Gender    |                           |                     |
| Male      | 207 (62.7%)               |                     |
| Female    | 123 (37.3%)               |                     |
| Age (in completed years) |           |                     |
| 15–24     | 94 (28.5%)                |                     |
| 25–34     | 84 (25.5%)                |                     |
| 35–44     | 71 (21.5%)                |                     |
| 45–54     | 44 (13.3%)                |                     |
| 55–64     | 26 (7.9%)                 |                     |
| >64       | 11 (3.3%)                 |                     |
| Range     | 15–82 years               |                     |
| Mean age of respondents±SD* |   34.7±13.8 |                 |
| Mean age of males±SD*   |   34.6±13.9 |                 |
| Mean age of females±SD* |   34.9±13.7 |                 |
| Education  |                           |                     |
| Illiterate | 46 (13.9%)                |                     |
| Primary School  | 43 (13.3%)               |                     |
| Middle School | 81 (24.54%)             |                     |
| High School  | 92 (27.87%)              |                     |
| Higher Secondary and above | 68 (20.6%)   |                 |
| Occupation  |                           |                     |
| Not working | 78 (23.6%)               |                     |
| Business   | 76 (23%)                  |                     |
| Driver     | 27 (8.2%)                 |                     |
| Peon       | 8 (2.4%)                  |                     |
| Laborer    | 40 (12.1%)                |                     |
| Student    | 48 (14%)                  |                     |
| Others     | 53 (16.1%)                |                     |
| Religion   |                           |                     |
| Christian  | 122 (37%)                 |                     |
| Hindu      | 200 (60.6%)               |                     |
| Others     | 8 (2.4%)                  |                     |
| Tobacco consumption |           | 36.3±13.3         |                 |
| Never users | 75 (22.7%)               |                     |
| Current users | 244 (73.9%)             |                     |
| Quit tobacco use | 11 (3.4%)              |                     |
| Mean age of current users±SD* |       |                     |

*Standard deviation
prevalent among 15–24 year olds [Figure 1]. The study revealed that among the ever users, the use of SLT was more common 121 (47.5%) as compared to smoking tobacco 72 (28.2%), closely followed by dual use 62 (24.3%). It was observed that smoking was more popular in 15–24 years while SLT was the preferred form of consumption in the older age groups. It was elicited that none of the females practiced only smoking and 72 (96%) of them used SLT. Highly significant statistical association was observed between form of tobacco consumption and age, gender, and occupation, and significant statistical association was observed between form of tobacco consumption and religion and education of the tobacco consumers [Table 4].

Cigarette 120 (47.1%) was found to be the most popular tobacco product used in the study population closely followed by khaini 108 (42.4%), betel quid with tobacco 72 (28.2%), paan masala or gutkha 48 (18.8%), and bidi 39 (15.3%). Although no other form of smoking was observed in this study, other SLTs such as paan chewing with tobacco and snuff were used by 10 (3.9%) [Figure 2].

**Discussion**

In this cross-sectional study of 330 slum dwellers, a greater proportion (62.7%) of the sample was male. The mean age of the respondents was 34.7 ± 13.8 years and was comparable to 32.04 ± 11.59 years found in a study done in Delhi in 2014. The prevalence of current tobacco consumption was found to be 73.9%. This was much higher than other studies done in India, Bangladesh, Nigeria, and Indonesia where the observed prevalence of current tobacco use was 34.6%, 33.4%, 5.5%, and 35.7%, respectively. The prevalence of ever tobacco use (77.3%) was much higher in this study than the findings of a multicentric study done in Karachi, Delhi, and Chennai but lower than another study done in slums of Bengaluru. In our study, the rate of quitting was found to be 4.3%, which was comparable to other studies done in India. However, in contrast to this finding, the rate of quitting is higher in the United States and other high-income countries. We also observed that the mean age of the current tobacco users is

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**Table 2: Association of current tobacco consumption with sociodemographic characteristics (n=330)**

| Variables                | Consumers (%) n=244 | Nonconsumers (%) n=86 | Total (%) n=330 | Test statistic |
|--------------------------|---------------------|------------------------|-----------------|---------------|
| Age in completed years   |                     |                        |                 |               |
| 15-24                    | 52 (55.3%)          | 42 (44.7%)             | 94 (28.5%)      | χ²=25.633, df=5, P<0.001* |
| 25-34                    | 66 (78.6%)          | 18 (21.4%)             | 84 (25.5%)      |               |
| 35-44                    | 58 (81.7%)          | 13 (18.3%)             | 71 (21.5%)      |               |
| 45-54                    | 39 (88.6%)          | 5 (11.4%)              | 44 (13.3%)      |               |
| 55-64                    | 21 (80.8%)          | 5 (19.2%)              | 26 (7.9%)       |               |
| >64                      | 8 (72.7%)           | 3 (27.3%)              | 11 (3.3%)       |               |
| Gender                   |                     |                        |                 | χ²=26.76, df=1, P<0.001* |
| Male                     | 173 (83.6%)         | 34 (16.4%)             | 207 (62.7%)     |               |
| Female                   | 71 (57.7%)          | 52 (42.3%)             | 123 (37.3%)     |               |
| Occupation               |                     |                        |                 | χ²=63.46, df=6, P<0.001* |
| Not working              | 54 (69.2%)          | 24 (30.8%)             | 78 (23.6%)      |               |
| Business                 | 64 (84.2%)          | 12 (15.8%)             | 76 (23.1%)      |               |
| Driver                   | 26 (96.3%)          | 1 (3.7%)               | 27 (8.2%)       |               |
| Peon                     | 7 (87.5%)           | 1 (12.5%)              | 8 (2.4%)        |               |
| Laborer                  | 35 (87.5%)          | 5 (12.5%)              | 40 (12.1%)      |               |
| Student                  | 15 (31.2%)          | 33 (68.8%)             | 48 (14.5%)      |               |
| Others                   | 43 (81.1%)          | 10 (18.9%)             | 53 (16.1%)      |               |
| Religion                 |                     |                        |                 | χ²=6.585, df=2, P=0.037† |
| Christian                | 99 (81.1%)          | 23 (18.9%)             | 122 (37%)       |               |
| Hindu                    | 138 (69%)           | 62 (31%)               | 200 (60.6%)     |               |
| Others                   | 7 (87.5%)           | 1 (12.5%)              | 8 (2.4%)        |               |
| Education Status         |                     |                        |                 | χ²=9.668, df=4, P=0.046† |
| Illiterate               | 38 (82.60%)         | 8 (17.39%)             | 46 (13.93%)     |               |
| Primary                  | 31 (72.09%)         | 12 (27.90%)            | 43 (13.30%)     |               |
| Middle School            | 67 (82.71%)         | 14 (17.28%)            | 81 (24.54%)     |               |
| High School              | 65 (70.65%)         | 27 (29.34%)            | 92 (27.87%)     |               |
| Higher Secondary School and above | 43 (63.2%) | 25 (36.2%) | 68 (20.6%) | |

*P-value<0.001 (highly significant statistical association), †P-value<0.05 (significant statistical association)

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**Table 3: Difference in age of male and female current tobacco consumers (n=244)**

| Variables            | Frequency | Mean       | Standard deviation | t Test |
|----------------------|-----------|------------|--------------------|--------|
| Male tobacco consumers | 173       | 35.1 years | 13.3 years         | F statistics=1.03077, df=172, 70 P=0.902 |
| Female tobacco consumers | 71        | 39.3 years | 13.1 years         |        |
36.3 ± 13.3 years, and the age of the tobacco users varied from 16 years to 82 years.

In this study, age-specific prevalence of current tobacco consumers was highest in age groups 45–54 years (88.6%), 35–44 years (81.7%), and 55–64 years (80.8%). In contrast, the crude prevalence of current tobacco consumers was highest in 25–34 years (20%) followed by 17.6% in 35–44 years and 15.6% in 15–24 years. This trend was similar to World Health Survey carried out in 48 countries to determine the social determinants of smoking in low- and middle-income countries. However, in the GATS study done in India, it was observed that the crude prevalence was higher in 45–65 years. In this study, the prevalence of tobacco consumption was higher in males (52.4%) compared to 21.5% in females. The gender-specific prevalence, in our study, was as high as 83.6% in males and 57.7% in females. We observed no statistically significant difference of age in male and female current tobacco consumers.

### Table 4: Association of form of tobacco consumption in ever users with sociodemographic characteristics (n=255)

| Variables          | Smoking (%) n=72 | Smokeless (%) n=121 | Dual (%) n=62 | Total (%) n=255 | Test statistic |
|--------------------|------------------|----------------------|---------------|-----------------|---------------|
| Age                |                  |                      |               |                 |               |
| 15-24              | 29 (51.8%)       | 15 (26.8%)           | 12 (21.4%)    | 56 (22%)        | $\chi^2=30.03$, df=10, $P<0.001$ * |
| 25-34              | 16 (23.2%)       | 31 (44.9%)           | 22 (31.9%)    | 69 (27.1%)      |               |
| 35-44              | 16 (27.6%)       | 30 (51.7%)           | 12 (20.7%)    | 58 (22.8%)      |               |
| 45-54              | 4 (10.5%)        | 25 (65.8%)           | 10 (25.6%)    | 39 (15.9%)      |               |
| 55-64              | 5 (20.8%)        | 16 (66.7%)           | 3 (12.5%)     | 24 (9.4%)       |               |
| >64                | 2 (22.2%)        | 4 (44.5%)            | 3 (33.3%)     | 9 (3.5%)        |               |
| Gender             |                  |                      |               |                 |               |
| Male               | 72 (40%)         | 49 (27.2%)           | 59 (32.8%)    | 180 (70.6%)     | $\chi^2=100.8$, df=2, $P<0.001$ |
| Female             | 0 (0%)           | 72 (96%)             | 3 (4%)        | 75 (29.4%)      |               |
| Occupation         |                  |                      |               |                 |               |
| Not working        | 0 (0%)           | 53 (92.9%)           | 4 (7.1%)      | 57 (22.4%)      | $\chi^2=73.83$, df=12, $P<0.001$ |
| Business           | 13 (41.9%)       | 10 (30.3%)           | 8 (25.8%)     | 31 (12.2%)      |               |
| Driver             | 13 (50%)         | 5 (19.2%)            | 8 (30.8%)     | 26 (10.2%)      |               |
| Peon               | 2 (28.6%)        | 3 (42.9%)            | 2 (28.5%)     | 7 (2.7%)        |               |
| Laborer            | 15 (42.9%)       | 8 (22.9%)            | 12 (34.2%)    | 35 (13.7%)      |               |
| Student            | 8 (47.1%)        | 5 (29.4%)            | 4 (23.5%)     | 17 (6.6%)       |               |
| Others             | 21 (25.6%)       | 37 (45.1%)           | 24 (29.3%)    | 82 (32.2%)      |               |
| Religion           |                  |                      |               |                 | $\chi^2=15.95$, df=4, $P=0.003$ † |
| Christian          | 38 (37.6%)       | 34 (33.7%)           | 29 (28.7%)    | 101 (39.6%)     |               |
| Hindu              | 32 (21.8%)       | 85 (57.8%)           | 30 (20.4%)    | 147 (57.6%)     |               |
| Others             | 2 (28.6%)        | 2 (28.6%)            | 3 (42.8%)     | 7 (2.7%)        |               |
| Education Status   |                  |                      |               |                 |               |
| Illiterate         | 8 (20%)          | 29 (72.5%)           | 3 (7.5%)      | 40 (15.7%)      | $\chi^2=21.33$, df=8, $P=0.006$ † |
| Primary School     | 8 (24.3%)        | 21 (63.6%)           | 4 (12.1%)     | 33 (12.9%)      |               |
| Middle School      | 20 (29.8%)       | 27 (40.4%)           | 20 (29.8%)    | 67 (26.3%)      |               |
| High School        | 24 (33.8%)       | 26 (36.6%)           | 21 (29.6%)    | 71 (27.8%)      |               |
| Higher Secondary School and above | 12 (27.3%) | 18 (40.9%) | 14 (31.8%) | 44 (17.3%) |               |

![Figure 1: Pattern of tobacco consumption in ever users (n = 255)](image1)

*Age in completed years is plotted in the x-axis and frequency in the y-axis

![Figure 2: Pattern of use of various tobacco products (n = 255)](image2)

*SLT = smokeless tobacco, †multiple response
prevalence in both the groups was higher than the findings of two nationally representative studies, GATS and NFHS 4, in which the prevalence of current tobacco users was 47.9% in males and 20.3% in females and 44.5% in males and 6.8% in females, respectively.[11,24] However, male predominance was observed in most of the studies in India,[11,19,24] suggesting that social norms against female tobacco use as an influencing factor. We also observed that the statistical association between tobacco consumption and age, gender, and occupation was highly significant. Hosseinpoor et al. also found that male gender was a social determinant of smoking in low- and middle-income countries.[23] Significant statistical observation between occupation and tobacco usage was observed in another Indian study.[25] The religion-specific prevalence was highest in “others” consisting of Muslims and Seng Khasis (87.5%) followed by Christians (81.1%) and Hindus (69%). However, the prevalence of tobacco consumption was highest in Hindus (41.8%). This might be due to the fact that most participants were Hindus. Religion was found to be significantly associated with smoking in a study done in Delhi.[25] It was observed that the trend of tobacco consumption was highest in illiterates and participants with low-educational status. The statistical association between tobacco consumption and religion and education was found to be statistically significant. Similarly, tobacco usage was found higher in illiterate men compared with higher secondary school-educated males in a study done by Narayan et al. in Delhi.[26]

We observed that ever use of tobacco in any form as well as smokeless form peaked in 24–34 years, smoking was more prevalent among 15–24 year olds. The prevalence of SLT was higher (47.5%) as compared to prevalence of smoking (28.2%), closely followed by dual use (24.3%). This may be due to the inexpensive pricing of SLT, lower perceived health hazards due to its use, as well its wide acceptance in the Indian society. It was observed that smoking was more popular in 15–24 years, while SLT was the preferred form of consumption in the older age groups. It was elicited that none 96% of the female tobacco consumers used only SLT. Highly significant statistical association was observed between form of tobacco consumption and age, gender, and occupation, and significant statistical association was observed between form of tobacco consumption and religion and education of the tobacco consumers.

In this study, respondents most commonly used cigarettes (47.1%) closely followed by khaini (42.4%), betel quid with tobacco (28.2%), paan masala or gutkha (18.8%), and bidi (15.3%). Higher use of cigarettes instead of the cheaper bidi points toward increased affordability in the population. In the study by Berg CJ et al. males in Chennai most commonly used cigarettes in Chennai (22.7%) and Karachi (20.8%) and bidis (15.5%) in Delhi while females used chewed tobacco in Chennai (3.1%) and Delhi (2.5%) and pan with zarda in Karachi (11.0%).[19] In the study done in the slums of Bengaluru, cigarettes and bidis were common smoking forms of tobacco, and betel quid with tobacco and paan masala (28.6%) were the most common smokeless forms.[20]

**Limitations**

The findings in this study have the following limitations: first, these data apply only to residents of urban slums who were present at the time of visit, so the findings might not be generalized; second, the findings are based on self-reports and so may have suffered response bias. However, another study has been planned to include other urban areas of Shillong city for this reason. In addition, we had directly interviewed the tobacco consumers and so bias due to proxy reporting was eliminated.

**Conclusion**

Tobacco consumption was found to be highly prevalent in the study areas and was much higher than the national average. Further studies may be done to find the association of higher incidence of cancers especially oropharyngeal cancers in this part of the country with tobacco consumption. The findings from our study show the need of targeted and customized interventions in various groups showing varied patterns of usage. Health professionals should focus on behavioral interventions for reducing the tobacco use along with the strict implementation of tobacco control measures by the government.

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**Conflicts of interest**

There are no conflicts of interest.

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