Tobacco: Consumption pattern and risk factors in selected areas of Shillong, Meghalaya

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Abstract

Background: The percentage of adults above 15 years who consume tobacco in Meghalaya as per the Global Adult Tobacco survey is 55.2%. **Aim:** In the context of the high burden of tobacco use in Meghalaya, this study aims to study the consumption pattern and the sociodemographic correlates of tobacco use in the urban slums of Shillong, Meghalaya. **Materials and Methods:** This study is a cross-sectional study conducted in adults over 15 years of age. Data collection was done by personal interview using a pretested questionnaire during house-to-house visit after taking informed verbal consent. **Results:** A total of 400 people were included in this study. Most of the study population belonged to the age group 15–24 years (120, 30%). The majority of the study population (322, 80.5%) were aware of the health hazards of tobacco consumption. Most of the population (287, 71.75%) were tobacco consumers with 265 (76.4%) of them having co-addictions. In the study, 35% consumed smokeless forms, 30% were into smoking, and 35% consumed both forms. A significant association was observed between the status of tobacco consumption and knowledge of second-hand smoke harm ($P = 0.019$) as well as knowledge of any law regulating tobacco consumption ($P = 0.026$). **Conclusion:** It was observed that despite having a basic knowledge of the ill effects of tobacco, its consumption is still widely prevalent in the region. There is a need for stringent laws regarding tobacco consumption and proper measures should be taken to enforce these laws.

Keywords: Addiction, demographic, tobacco, urban

Introduction

Tobacco (*Nicotiana tabacum*) is a plant whose leaves are cultivated, dried, and adulterated for use in smoking, chewing, and snuffing. Tobacco leaves contain nicotine, a highly addictive alkaloid, and numerous other chemicals. During its combustion, it releases thousands of hydrocarbons into the oral, digestive, and respiratory tract of the smoker. These substances have been linked to coronary and peripheral arterial diseases, emphysema, chronic bronchitis, peptic ulcer disease, and cancers of the lungs, oral cavity, and gastrointestinal tract. It is the only legal drug that kills most of its users when used exactly as intended by manufacturers.

Tobacco epidemic is one of the biggest public threats the world has ever faced, killing more than 7 billion people a year (WHO updated May 2017).[1] India is the second largest consumer and third largest producer of tobacco.[2] From GATS-1 (2009–2010) to GATS-2 (2016–2017), the prevalence of tobacco use has reduced by six percentage points (from 34.6% to 28.6%). Khaini is the most commonly used tobacco product (used by 10.2 crore adults) followed by bidi (smoked by 7.2 crore adults).[3]

In a study on prevalence of tobacco smoking and factors associated with the initiation of smoking among university students in Bangladesh, it was observed that the overall prevalence of tobacco smoking was 60.2%. The average age of initiating tobacco smoking for both males and females was 17.91 years. It was found that 95.83% of students had knowledge about the hazards of tobacco smoking.[4]

In another study on prevalence of tobacco consumption and its contributing factors conducted among students of a medical

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college in Belgaum, it was found that the prevalence of tobacco use was 27.1% (*n* = 101). The overall prevalence of smoking and smokeless tobacco use was 22.6% and 7.8%, respectively. Among smokers, cigarette was most commonly used product (84.4%) followed by hookah (34.4%) and bidi (11.1%). The most common reason for tobacco use initiation among smokers was relief of stress, followed by influence from peers.[5]

A study conducted by Pandey and Chand among males above 15 years of age in Meerut district, it was observed that the prevalence of tobacco use is 54.68%, among which 28.12% are smoking and 26.56% are using smokeless form of tobacco.[6]

In another study on tobacco-related knowledge, attitudes, and practices among urban women of low socioeconomic status in Mumbai, it was observed that a majority of women (66.53%) identified cancer as an important health hazard of tobacco. Most women (68.46%) expressed that they gained knowledge of tobacco being injurious to health from the general public and 17.69% women reported to have obtained this information through media and other hoardings.[7]

In a study conducted among geriatric population in Varanasi by Patle and Khakse, it was observed that of the total population studied, 88.4% was aware that tobacco is injurious to health. Overall, 50% of the elderly individual including males and females were using tobacco in form of either tobacco smoking or tobacco chewing.[8]

In a community-based study conducted in Karachi about knowledge and practices on tobacco consumption, it was observed that 47% had knowledge about hazards of smoking. About 22% were aware about passive smoking, and 90% started consuming tobacco below 20 years of age. The most popular form of tobacco consumption was pan (40%), cigarette (39%), and hookah (19%).[9]

According to GATS-India 2009–2010, the percentage of adults above 15 years who consume tobacco in Meghalaya is 55.2%, smokeless tobacco use is 19.5% and smoking is 27%, while dual use is 8.7%.[4] According to National Family Health Survey (NFHS 4) 2015–2016, 32.3% of women and 72.2% of men (age 15–49 years) use some form of tobacco in Meghalaya.[10]

In the context of the high burden of tobacco use in this part of the country, this study aims to study the consumption pattern and the sociodemographic correlates of smoking and smokeless tobacco use in the urban slums of Shillong, Meghalaya.

Materials and Methods

This study was a cross-sectional study conducted in the field practice areas of the department. These areas were the urban areas of Shillong: Nongmynsong, Pynthorbah, and Mawpat. The sample size was calculated using the formula $4pq/l^2$ taking p = 85% (GATS 2009–2010), q = 15%, l = 5%, where p is the knowledge about health hazards of tobacco use, q = 100−p,

and l is the allowable error, that is, 5%. The calculated sample size was 283.

The achieved sample size came out to be 400. In the selected areas, house-to-house visit was conducted in all households. In the visited houses, any individual present who fulfilled the inclusion criteria was selected for the study.

Study subjects

The participants were included based on the following criteria:
• Willing to participate in the study
• 15 years of age and above.

The inclusion criteria for the individual interview for this age group were followed from the GATS survey 2009–2010. Data collection was done by personal interview during house-to-house visit after taking informed verbal consent. For subjects of age 15–17 years, the consent was taken from the parents.

A preformed, pretested, and semi-structured questionnaire was used for the study. It was administered to the individual age 15 years and above for the interview. The languages used were English, Hindi, and Khasi. The questionnaire consists of five sections as listed below:
1. Sociodemographic profile: questions on age, sex, education, occupation, religion, and so on
2. Knowledge about health hazards: questions on knowledge of health hazards of tobacco consumption, second-hand smoking, any laws regarding consumption, minimum age of procurement of tobacco product
3. Practice: questions on tobacco consumption in the past 12 months, period of consumption, age of initiation of consumption, mode of consumption (smoking, smokeless, both), type of tobacco product used (bidi, cigarette, tobacco powder, pan masala, khaini, betel quid, etc.), any co-addictions, time of first use in the day, factors influencing consumption in the first place, daily expenditure
4. Cessation: questions related to advice to quit smoking by healthcare providers, number of attempts to quit, methods to quit smoking, and any strong craving while trying to quit.

Some of the terminologies used in the questionnaire are as follows:
• Illiterate: one who has not received any form of education
• Primary education: up to class 5
• Middle school: up to class 8
• Secondary school: up to class 10
• Senior secondary: up to class 12
• Betel quid: it is composed of areca nut, betel leaf, and slaked lime; tobacco is frequently added.

For tabulation of the data, Microsoft Excel (version 2007) was used. All the statistical analysis was done using IBM SPSS Statistics 23.0.

Results

A total of 400 people were included in this study, of which 243 (60.75%) were males and 157 (39.25%) were females. The sociodemographic characteristics of the study population are given in details in Table 1.

When the knowledge was assessed, it was found that the majority of the study population (322, 80.5%) were aware of the health hazards of tobacco consumption, whereas 78 (19.5%) were not aware about it. Regarding the health hazard, most of the people (70%) informed that it may lead to cancer. The other health hazards of tobacco according to the study population were lung problems, heart and stomach problems, problems of teeth and gums, and so on. Of the 400 people questioned, 289 (72.25%) informed that they had these knowledge from warning from tobacco packets and 286 (71.5%) reported having some information also from the mass media (newspapers, TV, radio, etc.). Regarding the knowledge of harmful effects of second-hand smoke, most of the people (380, 95%) acknowledged that they were aware of it. However, only a small number (135, 34.25%) had knowledge on the laws on regulation of tobacco consumption.

In this study, most of the population (287 71.75%) were tobacco consumers, whereas 113 (28.25%) were nonconsumers. Most of

Table 1: Sociodemographic characteristics of the study population

	Frequency	Percentage
Gender		
Male	243	60.75
Female	157	39.25
Total	400	100.00
Age range (years)		
15-24	120	30.00
25-34	100	25.00
35-44	87	21.75
45-54	51	12.75
55-64	31	7.75
>65	11	2.75
Total	400	100.00
Education status		
Illiterate	58	14.50
Primary school	51	12.75
Middle school	100	25.00
Secondary school	115	28.75
Senior secondary school	46	11.50
Graduate	30	7.50
Total	400	100.00
Occupation		
Business	88	22.00
Housewife	87	21.75
Student	64	16.00
Govt. employee	10	2.50
Unemployed	10	2.50
Self-employed	141	35.25
Total	400	100.00

the users (158, 55.05%) had been consuming tobacco more than past 5 years. On enquiring about the age of initiation of tobacco consumption, 178 (62.02%) informed that they started from the early age of 15–24 years, 49 (17.08%) started around the age of 25–34 years, and 60 (20.90%) of them even initiated before the age of 15 years. Most of the study population informed that the major cause for initiation was peer pressure (50%) followed by curiosity (37.1%), exposure in families (5.21%), stress (4.90%), and imitation of role models in TV (1.84%). The majority (218, 75.95%) of the tobacco users had co-addictions, whereas 69 (24.05%) did not have any. The major co-addictions were to kwai which is the betel leaf served with areca nut (54%) and alcohol (31%). Most of the users (176, 61.32%) started consuming tobacco from early morning, of which 88 (50%) started consuming even on empty stomach. Regarding the money spent per day on these tobacco products, 191 (66.56%) of the users informed that they spent an average of Rs. 50 per day, 67 (23.34%) spent Rs 50–99 per day, and the rest of the users (29, 10.10%) spent up to Rs. 100–200 per day on tobacco products. Regarding the various modes of tobacco consumption, 35% consumed smokeless forms, 30% were into smoking, and 35% consumed both smoking and smokeless. Regarding the smokeless form, khaini (39%) was most common followed by betel quid (33%) and pan masala (18%) and others (10%). Regarding smoking, cigarette was most common (76%) followed by bidi (24%).

On asking the users whether they had made an effort to quit this habit, 216 (54%) commented that they have never tied quitting and 184 (46%) replied that they had tried quitting at least once. Among those who had tried quitting, only 5.92% succeeded in quitting tobacco.

No statistically significant difference was observed between age, sex, educational status, and the knowledge regarding ill effects of tobacco ($P > 0.05$). The source of knowledge from tobacco packet and status of tobacco consumption showed significant association ($P = 0.001$). A statistically significant association was observed between status of tobacco consumption and knowledge of second-hand smoke harm and knowledge on laws regarding tobacco consumption [Table 2].

Discussion

In this study conducted on 400 participants from the urban slums of Mawpat, Nongmynsong, and Pynthorbah, it was found that 80.5% of the population were aware about the ill effects of tobacco where 70% of people informed that it may lead to cancer. According to GATS India Report 2009–2010, half (49%) of the adults in India are aware that smoking causes stroke and less than two-thirds (64%) believe that smoking causes heart attack and a large proportion (85%) believe that smoking causes lung cancer.[11] In the study conducted by Patle and Khakse in Varanasi among geriatric population, it was observed that 88.4% was aware that tobacco is injurious to health which is similar to this study.[8] In this study, it was observed that 96.01% had seen

Consumption status	Knowledge of laws on tobacco		Total	Chi-square	P
	Yes (%)	No (%)	No (%)		
Tobacco consumers	107 37.3%	180 62.7%	287 100.0%	4.148	0.026
Tobacco non-consumers	30 26.5%	83 73.5%	113 100.0%		
	Knowledge on second hand smoke				
Total	137 34.3%	263 65.8%	400 100.0%		
Tobacco consumers	268 93.4%	19 6.6%	287 100.0%	5.615	0.019
Tobacco non-consumers	112 99.1%	1 0.9%	113 100.0%		
Total	380 95.0%	20 5.0%	400 100.0%		

Table 2: Association of tobacco consumption with knowledge of laws on tobacco and second-hand smoke

health warnings on tobacco packets and 95.02% had seen health warnings in TV/newspaper/movie theater. In a study among women in urban Mumbai, it was seen that most women (68.46%) gained knowledge of tobacco being injurious to health from the general public and only 17.69% women reported to have obtained this information through media and other hoardings.[7] In another study conducted by David Hammond to review evidence on the impact of health warning messages on tobacco packages where data were collected from a series of cohort studies in Canada, it was found that more smokers reported getting information about the risks of smoking from cigarette packages than from any other source except television in a majority of countries. About 86% of non-smokers in Canada agreed in a national survey that the warnings on cigarette packs provide them with important health information.[12]

The prevalence of tobacco consumption was evaluated among the participants which revealed that 71.7% were consumers and 28.2% were non-consumers in comparison to 47.0% consumers and 53% non-consumers according to GATS India Report (Meghalaya 2016–2017).[13] In another study conducted from the NFHS 2 data by Rani *et al.* in India on tobacco use, it was observed that 30% of the population 15 years or older (47% men and 14% of women) either smoked or chewed tobacco. The prevalence of tobacco consumption has been found to be higher in this study.[14]

It was also found in this study that among tobacco consumers, 83.5% were males and 57.7% were females. A study conducted by Rani *et al.* observed that 47% men and 14% of women either smoked or chewed tobacco.[14] While according to GATS India Report 2009–2010, the prevalence of overall tobacco use among males is 48% and that among females is 20%.[4] According to this study, 35% population consumed only smokeless tobacco products, while 20% smoked and 21% consumed both. The GATS Report 2016–2017 observed that 20.3% consumed smokeless tobacco products, 31.6% were only smokers, while 4.9% consumed both smoked and smokeless forms.[3] In a study conducted on the prevalence of tobacco use among adults more than 18 years in Karnataka, it was observed that the prevalence of both smoking and smokeless forms of tobacco together was 55.7%. In this study, 25.9% were using only smoking form of tobacco, 10.3% only smokeless form, and 19.4% of the subjects were using both forms of tobacco.[15]

This study revealed that the most commonly used smokeless tobacco product was khaini (39%), while the smoking tobacco product was cigarettes (76%). According to the GATS India Report 2009–2010, khaini was the most common smokeless tobacco product (12%), but the most common smoking tobacco product was bidi (9%).[4] In a study by Patel *et al.* on prevalence of tobacco consumption conducted among students of a medical college in Belgaum, it was found that among smokers, cigarette was the most commonly used product which is similar to this study.[5]

In this study, the majority of the study population had started consuming tobacco at the age of 15–24 years in comparison to GATS India Report 2009–2010 where the mean age at initiation of daily tobacco use for tobacco users age 20–34 years was found to be 17.8 years, and the mean age at initiation of smoking and use of smokeless tobacco among users of respective products age 20–34 years was found to be 17.9 years.[4] According to this study, a maximum number of participants were influenced into tobacco consumption due to peer pressure followed by curiosity and parental exposure which is nearly similar to the findings of the study conducted by Aarti Nagarkar and Gadhave.[16] In a study conducted among medical students from Belgaum, it was observed that the most common reason for tobacco use initiation among smokers was relief of stress, followed by influence from peers. [5] Among the consumers in the study population, it was found that 46% have tried quitting while 54% have not tried it. This is in comparison to the GATS India Report 2009–2010 where 38% of smokers and 35% users of smokeless tobacco made an attempt to quit in the past 12-month period before the survey.[11] While according to the study conducted by Sarkar *et al.*, 24.7% smokers and 18.3% non-smokers had tried to quit in the past 12 months.[17]

This study has revealed that the prevalence of tobacco consumption in Meghalaya is much higher when compared with other areas. This is because of the age old sociocultural habits of the population of consuming tobacco with betel leaf, lime, and betel nut. Moreover, though the community is aware about the ill effects of tobacco, most of them are not aware about the laws regulating sale on tobacco products and consumption. Data collected from this study will help in getting a baseline information on tobacco consumption pattern of the people residing in this region which will help in planning of proper preventive strategies for the target population. A robust

awareness program by the primary care physicians at the basic healthcare level is essential to spread the message that not only is tobacco consumption harmful but also it is the cause of the rising trends of cancers in this region. Educating the students through School Health Program on the ill effects of tobacco and laws regulating tobacco consumption can go a long way in making a long-standing impact on the population. Healthcare workers and physicians working at the primary healthcare levels are easily accessible and acceptable to the community and therefore should take action to make the antitobacco campaign successful in this region.

Conclusion

It has been observed from the present study that despite having the basic knowledge of the ill effects of tobacco consumption among the community, its use is widely prevalent in the region. A strong and robust awareness program at the community level is therefore, the need of the hour. The community should be made aware of the laws regulating tobacco consumption with measures taken for the stringent implementation of the laws.

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Conflicts of interest

There are no conflicts of interest.

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