

Prevalence of tobacco consumption and its determinants in the adult population in the field practice area of Urban Health Training Center: A community based cross-sectional study

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Abstract

Background: The tobacco epidemic is one of the biggest public health threats, which is believed to cause six million deaths a year. The present study was planned to estimate tobacco consumption prevalence and its determinants in an adult population. **Material and methods:** Descriptive cross-sectional study was conducted in an adult population residing in the urban slum area of Urban Health Training Center from January 2021 to March 2021. Sample size was estimated as 226. Data was collected using a predesigned and pretested questionnaire and analysed using descriptive statistics. **Results:** In the present study prevalence of tobacco consumption in any form was found as 22.41%. Further history was available from 226 participants, one from a family chosen randomly. Mean age of participants was 40.3 years with SD±15 years. Maximum participants i.e., 112 (49%) consuming tobacco were engaged in unskilled occupation. The most common reason for initiating tobacco was fun and curiosity in 89 (38%) participants. Maximum participants 138 (61%) consumed tobacco 1-5 times daily. About 21% of participants had made efforts to quit tobacco. **Conclusion:** In the present study prevalence of tobacco consumption was considerable in the adult population. About 40% of participants did not know about the adverse effects of tobacco, two-thirds of participants were willing to quit tobacco, while only 21.23% have made efforts to quit tobacco. The study highlights the need of tobacco cessation intervention.

Keywords: tobacco consumption, quit tobacco, prevalence, determinants

Introduction

'Quit tobacco to save our planet' WHO theme on World No Tobacco Day 2022. The tobacco epidemic is one of the biggest public health threats the world has ever confronted, which is believed to account for about 6 million deaths a year. If the present pattern of tobacco use persists, it is estimated that there could be one billion premature deaths globally during the 21st century⁽¹⁾. Tobacco use is associated with accelerated mortality among adults, especially in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest⁽²⁾. More than 1 million adults die each year in India due to tobacco use accounting for 9.5% of overall deaths⁽³⁾. India faces a dual burden of tobacco use in the form of smoking and smokeless tobacco. According to the Global Adult Tobacco Survey (GATS) conducted in 2016–17, the overall prevalence of smoking tobacco use is 10.38%, and smokeless tobacco use is 21.38% in India. Of all adults, 28.6% currently consume tobacco either in smoke or smokeless form, including 42.4% of men and 14.2% of women⁽⁴⁾. In Maharashtra, percentage of women of age 15 years and above who use any kind of tobacco is 14.7%, and the that of men is 40.6% as per National Family Health Survey–5 (NFHS-5) data⁽⁵⁾.

All forms of tobacco are harmful, and there is no safe level of exposure to tobacco. Cigarette smoking is the most common

form of tobacco use worldwide. Other tobacco products include water pipe tobacco, various smokeless tobacco products, cigars, cigarillos, roll-your-own tobacco, pipe tobacco, bidis, and kreteks⁽²⁾.

India's absolute number of tobacco users is still very high due to its huge population, which has a high risk of developing various chronic diseases. The tobacco control programs need more targeted interventions for specific groups in the population. Despite regulations, people are still consuming tobacco in both forms in India. Tobacco users should be strongly encouraged to quit tobacco to eliminate long-term detrimental effects on their health. As nicotine is highly addictive, though many tobacco users want to quit, they don't succeed⁽²⁾.

Studies regarding the prevalence of tobacco consumption are available at the national and state level. More studies are needed to know the desire to quit tobacco, any efforts to quit tobacco, and the application of different cessation methods like the use of a tobacco cessation diary in Tobacco de-addiction. The present study was planned to estimate tobacco consumption prevalence in the adult population residing in urban slum area under the Urban Health Training Center (UHTC) as an initial part of studying the utility of tobacco cessation diary in tobacco de-addiction. Hence the aim of the study was to estimate the prevalence of tobacco consumption

and its determinants in an adult population in the field practice area of UHTC. The objectives were (1) to estimate the prevalence of tobacco consumption in an adult population in the field practice area of an UHTC (2) to study determinants of tobacco consumption in an adult population in the field practice area of the UHTC

Material and Methods

This was a descriptive community-based cross-sectional study conducted in the field practice area under UHTC of a medical college. The study was conducted among the adult population (more than 18 years age) residing in urban slum area under UHTC from January 2021 to March 2021.

Sample Size

The prevalence of use of tobacco-related products (smoking and smokeless) in an urban slum area of Maharashtra was 22.9% in 2016-17 as obtained from the GATS 2 survey. Using the formula $(4 * p * q) / L^2$, and considering absolute allowable

error to be 6%, the total sample size required was 189. Considering 20% non-response, total sample was 226.

Adults of more than 18 years of either sex who were residing in an urban slum area for more than six months were included. Adults not willing to participate and residing in those houses that were locked in subsequent two visits were excluded.

Sampling Technique

Sampling was done in two stages (Figure 1). There were 13 urban slum areas under UHTC; a list of all areas was taken. Out of these, six areas were randomly selected by the chit method for sample collection. In each area required sample was calculated by population proportion sampling. After selecting an area, the main square was identified. Lane was selected randomly by spinning the bottle. By the left-hand rule, a house-to-house survey was done to achieve the desired sample size. If more than one family members were consuming tobacco, one family member was selected randomly using the chit method.

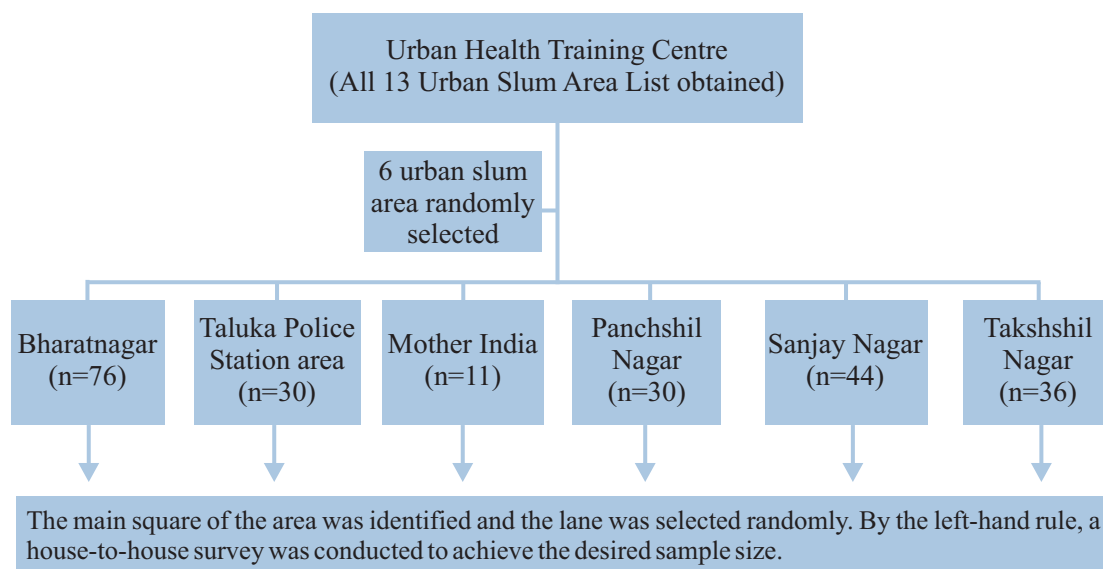


Figure 1: Flow-chart of sampling technique

Data was collected using a predesigned and pretested questionnaire. Data was collected from study participants regarding socio-demographic characteristics, frequency of tobacco consumption, reasons for starting tobacco use, knowledge about the adverse effects of tobacco and efforts taken to quit tobacco. After data collection, participants were explained about the adverse effects of tobacco consumption and were motivated to quit tobacco.

Operational Definitions

Those who currently smoke or use tobacco in any form were considered as tobacco user⁽⁶⁾. Tobacco habit was broadly classified as smoked tobacco and smokeless tobacco. Tobacco was mainly smoked as bidi, cigarette, and hookah. It was used in the smokeless form as gul (a powdered form of

pyrolyzed tobacco), khaini (tobacco-lime mixture), gutkha (industrially manufactured and marked tobacco product), and betel quid (consisting of fresh betel leaf, lime, catechu, areca nut, and tobacco)⁽⁷⁾.

Data analysis

Data was analysed for descriptive statistics and presented as proportions, mean and standard deviation (SD). The association between the outcome and risk factors was calculated using chi-square test and odds were calculated at 95% CI. Binary multivariate logistic regression forward stepwise (wald) model, was used to determine the adjusted odds. Significance was considered at $p < 0.05$. Microsoft Excel and Statistical Package for Social Sciences (SPSS) version 21.0 were used for data analysis.

Ethical considerations

Informed consent was obtained in the local language. For the illiterate participant, the consent form was explained, and the left-thumb impression was obtained in the presence of a witness from the local area. Institutional Ethics Committee approval was taken before conducting the study.

Results

In the study, 251 families were visited, and 1361 family members were screened for tobacco use. Out of total, 392 participants were having any type of addiction. Among them, 305 (22.41%) participants consumed tobacco in any form, and 87 (38.49%) participants were having alcohol addiction. Further history was taken from one randomly chosen member from a family, i.e., 226 participants were identified for the present study. Mean age of these participants was 40.3 years with SD±15 years.

Out of 226 current tobacco users, 167 (73.89%) were male participants and 59 (26.11%) were female participants (Table 1). A maximum number i.e., 78 (34.51%) of participants belonged to 18-29 years of age group, followed by 53 (23.45%) participants in the 30-39 years of age group. It was observed that out of 226 participants consuming tobacco, a maximum 171 (75.66%) were married, followed by 49 (21.68%) and 6 (2.65%) were unmarried and widows/widowers, respectively. Tobacco consumption varied according to the education status of participants. Most of the participants i.e., 94 (41.60%), consuming tobacco studied up to primary school, followed by participants 82 (36.28%) educated up to secondary school and 22 (9.73%) studied up to higher secondary school. Maximum percentage i.e., 112 (49.55%) of participants consuming tobacco were found as unskilled workers followed by 67 (29.64%) of participants in semiskilled occupation and 30 (13.27%) were unemployed and retired.

Table 1: Socio-demographic characteristics of current tobacco users (n = 226)

| Characteristics | Tobacco consumption in any form n (%) |
|---------------------------|---------------------------------------|
| Age group in years | |
| >18-29 | 79 (34.95) |
| 30-39 | 53 (23.45) |
| 40-49 | 32 (14.16) |
| 50-59 | 31 (13.71) |
| e"60 | 31 (11.95) |
| Marital status | |
| Married | 171 (75.66) |
| Unmarried | 49 (21.68) |
| Widows/widowers | 6 (2.65) |
| Education | |
| Illiterate | 19 (8.40) |
| Primary School | 94 (41.60) |
| Secondary School | 82 (36.28) |
| Higher Secondary School | 22 (9.73) |
| Graduate and above | 9 (3.98) |
| Occupation* | |
| Unemployed@ | 30 (13.27) |
| Unskilled workers | 112 (49.55) |
| Semiskilled | 67 (29.64) |
| Shop, Clerical | 11 (4.87) |
| Professional | 6 (2.65) |

*- Skilled and Semi Professional – NIL, @ - Unemployed and retired people

Table 2 shows that a maximum 138 (61.06%) participants were consuming tobacco 1-5 times daily, followed by 52 (23%) participants 6-10 times, and about 10% of participants were consuming tobacco more than 15 times a day. Majority of the participants i.e., 89 (39%) initiated tobacco as fun and curiosity while 42 (19%) started tobacco consumption due to peer pressure, 14 (6%) reported stress-related reasons to start tobacco consumption. Reasons like sleep-related problem,

family issues, toothache, and work-related problems were found in less than 5% of participants, while 52 (23%) of participants did not specify the cause. It was noticed that 150 (66.37%) of participants were willing to quit tobacco, and 136 (60.18%) knew the adverse effects of tobacco; yet only 48 (21.23%) made efforts to quit tobacco.

Table 2: Information about tobacco use

| Characteristics | n (%) |
|---|-------------|
| Frequency of tobacco use | |
| 1-5 times daily | 138 (61.06) |
| 6-10 | 52 (23.0) |
| 11-15 | 11 (4.7) |
| >15 | 25 (10.06) |
| Reasons to start tobacco | |
| Fun and curiosity | 89 (39) |
| Cause not specified | 52 (23) |
| Peer pressure | 42 (19) |
| Stress related | 14 (6) |
| Sleep related problems | 4 (1.76) |
| Family | 4 (1.76) |
| Toothache | 4 (1.76) |
| Work related | 1 (0.44) |
| Willingness to quit tobacco | |
| Yes | 150 (66.37) |
| No | 76 (33.62) |
| Perception about adverse effects | |
| Knew | 136(60.18) |
| Did not know | 90(39.82) |
| Efforts taken to quit tobacco | |
| Yes | 48 (21.23) |
| No | 179 (79.20) |

Table 3 shows the socio-demographic characteristics of tobacco users by sex. Tobacco consumption was higher among younger men below 30 years of age (OR 3.46) and 50-59 years age group (OR3.43), unmarried men (OR 12.1) and

married men (OR 56.25) ($p < 0.05$). Tobacco consumption was observed higher in men with secondary education (OR 4.37) and among unemployed (OR 9.45) ($p < 0.05$).

Table 3: Socio-demographic characteristics of current tobacco users according to sex

| Characteristics | Tobacco consumption in any forms | | χ^2 (p-value) | Odds Ratio (95% CI) |
|---------------------------|----------------------------------|--------------|-------------------------|---------------------|
| | Male n (%) | Female n (%) | | |
| Age group in years | | | | |
| 18-29 | 63 (27.87) | 16 (7.07) | 8.89 (0.063) | 3.46 (1.4-8.54) |
| 30-39 | 39 (17.26) | 14 (6.19) | | 2.29 (0.9-5.84) |
| 40-49 | 22 (9.73) | 10 (4.42) | | 1.81 (0.65-5.07) |
| 50-59 | 25 (11.06) | 6 (2.65) | | 3.43 (1.1-10.7) |
| ≥60 | 17 (7.52) | 14 (6.19) | | 1 |
| Marital status | | | | |
| Married | 121 (53.54) | 50 (22.12) | 15.42** (<0.05)* | 12.1 (1.38-106.21) |
| Unmarried | 45 (19.91) | 4 (1.77) | | 56.25 (5.22-606.64) |
| Widows/widowers | 1 (0.44) | 5 (2.21) | | 1 |
| Education | | | | |
| Illiterate | 10 (4.42) | 9 (3.98) | 11.58 (<0.05)* | 1 |
| Primary School | 68 (30.00) | 26 (11.50) | | 2.35 (0.86-6.45) |
| Secondary School | 68 (30.00) | 14 (6.19) | | 4.37 (1.5-12.73) |
| Higher Secondary School | 13 (5.75) | 9 (3.98) | | 1.3 (0.38-4.48) |
| Graduate and above | 8 (3.54) | 1 (0.44) | | 7.2 (0.75 -69.38) |
| Occupation | | | | |
| Unemployed | 28 (12.40) | 2 (0.88) | 12.37** (<0.05)* | 9.45 (2.08-43.01) |
| Unskilled workers | 85 (37.61) | 27 (11.94) | | 2.13 (1.11- 4.08) |
| Semiskilled | 40 (17.70) | 27 (11.94) | | 1 |
| Shop, Clerical | 8 (3.54) | 3 (1.33) | | 1.8 (0.44 – 7.4) |
| Professional | 6 (2.65) | 0 | | — |

**Chi-square with Yates Correction, *p-value < 0.05 significant

Table 4 shows the distribution of current tobacco users according to sex, education and efforts taken to quit. It was observed that only 35 (15.48%) male and 13 (5.75%) female participants had made efforts to quit tobacco. It was also observed that 23 (10.18%) and 18 (7.96%) of tobacco users made efforts to quit tobacco and have education up to secondary school and primary school, respectively. In all, 136

(60.18%) participants knew about tobacco's adverse effects. Among them, only 40 (17.70%) participants had tried quitting tobacco consumption. About 90 (39.82%) of participants did not know about tobacco's adverse effects; 8 (3.5%) had made efforts to quit tobacco. Participants who knew about tobacco side effects were four times more likely to take efforts to quit tobacco (OR 4.27).

Table 4: Distribution of current tobacco users according to socio-demographic characteristics and knowledge

| Characteristics | Efforts taken to quit tobacco use n (%) | Efforts not taken to quit tobacco use n (%) | Total n (%) | χ^2 (p-value) | Odds Ratio (95% CI) |
|--|---|---|-------------|--------------------|---------------------|
| Sex | | | | | |
| Male | 35 (15.48) | 132 (58.40) | 167 (73.89) | 0.0302** (0.862) | 0.94(0.46-1.93) |
| Female | 13 (5.75) | 46 (20.35) | 59 (26.10) | | 1 |
| Education | | | | | |
| Illiterate | 3 (1.32) | 16 (7.07) | 19 (8.40) | 3.61** (0.46) | 1.5 (0.13-16.82) |
| Primary School | 18 (7.96) | 76 (33.62) | 94 (41.60) | | 1.89 (0.22- 16.13) |
| Secondary School | 23 (10.18) | 59 (26.10) | 82 (36.28) | | 3.12 (0.37- 26.35) |
| Higher Secondary School | 2 (0.88) | 20 (8.85) | 22 (9.73) | | 0.8 (0.06- 10.11) |
| Graduate and above | 1 (0.44) | 8 (3.54) | 9 (3.98) | | 1 |
| Knowledge about adverse effects | | | | | |
| Knows about adverse effects of tobacco | 40 (17.70) | 96 (42.48) | 136(60.1) | 13.63** (p<0.05)* | 4.27 (1.89-9.64) |
| Not knowing about adverse effects of tobacco | 8 (3.5) | 82 (36.28) | 90 (39.82) | | 1 |

**Chi-square with Yates Correction, *p-value <0.05 significant

In binary multivariate logistic regression forward stepwise (wald) model, the adjusted effect of education, occupation, frequency of tobacco consumption, and knowledge about the adverse effects of tobacco on efforts taken to quit tobacco was studied. The model showed that when adjusted for all other independent variables in the model, the odds of efforts taken to quit tobacco when a participant had knowledge about the adverse effects of tobacco were 4.92 times (95% CI 2.06-11.77) than in those who did not know the adverse effects of tobacco.

Discussion

The prevalence of tobacco consumption was 22.41% in the adult population residing in urban slum area under UHTC of a Medical College. GATS-India 2016-17⁽⁴⁾ observed that the prevalence of tobacco use in Maharashtra as 22.6%. Prevalence of tobacco use in the present study was similar to the prevalence found in Maharashtra. Similar to present study, Mia et al.⁽⁸⁾ and Mishra et al.⁽⁹⁾ found the prevalence of tobacco consumption as 21.77% and 22.9% (in Bangladesh) respectively.

In the present study, 73.89% of tobacco users were male, and 26.11% were female. The mean age of participants was 40.3±15 years. The maximum number (34.51%) of participants belonged to 18-29 age group, followed by 23.45% participants in 30-39 age group. GATS–India 2016-17⁽⁴⁾ observed the prevalence of tobacco use as 42.4% in men and 14.2% in women; and that of 40.6% and 14.7% in men and women, respectively, in Maharashtra as per NFHS-5 data⁽⁵⁾. Higher prevalence of tobacco consumption was found in males in the present study also. Similar to present study. Nhung et al.⁽¹⁰⁾ found that maximum participants were male (74.0%). Nhung et al.⁽¹⁰⁾ and Kahar et al.⁽¹¹⁾ found mean age for tobacco consumption was 38.9±11.6 years and 39.8±15.2 years respectively, which was similar to the present study.

In the present study, 75.66% of tobacco users were married, and 49.55% were unskilled workers ($p < 0.05$). Mishra et al.⁽⁹⁾ reported maximum of 80% of participants consuming tobacco were married. Mia et al.⁽⁸⁾ found the prevalence of tobacco consumption in Bangladesh was significantly higher in married which was similar to present study. The study also showed higher prevalence among unskilled workers, which was not similar to present study findings; it may be because of variation in sociodemographic characteristics in the study population. Kahar et al.⁽¹¹⁾ observed that participants with elementary and high school education used tobacco (39.5% and 33%, respectively) more than individuals with no formal education (23.2%) which was similar to the present study.

In the present study, it was observed that maximum participants (61.06%) were consuming tobacco 1-5 times daily. Out of total, 39% of participants started tobacco consumption as fun and curiosity. A study conducted by Mohanan et al.⁽¹³⁾ observed that the reason for initiation of tobacco consumption as curiosity and peer pressure in 26% of participants. Most common reason for initiation was similar as present study.

In the present study, it was found that 66.37% of participants were willing to quit tobacco. Srivastava et al.⁽¹²⁾ study found that 41.7% of participants were willing to quit tobacco consumption. In the present study, it was found that only 21.23% have made efforts to quit tobacco. It was observed that only 20.95% and 22.03% of male and female participants had made efforts to quit tobacco use, respectively. GATS–India 2016-17⁽⁴⁾ observed that 38.5% and 33.2% of participants using a smoking form of tobacco and a smokeless form of tobacco, respectively, had made efforts to quit tobacco. NFHS-4 observed that 30.6% and 29.3% of male and female participants had made efforts to quit tobacco use, respectively⁽⁶⁾. The present study found no statistically significant association between education status and efforts to quit tobacco. Sarkar et al.⁽¹⁴⁾ found that the probability of making a quit attempt was higher among tobacco users who

were more educated (OR 1.40, 95% CI=1.04-1.94). Dhimal et al.⁽¹⁵⁾ also found that highly educated people were more likely to report the intention to quit (OR 1.82, 95% CI = 1.09-3.02) compared to less educated. This may be because; bidi worker was one of the common occupations in our study population. Also, present study was carried out in urban slum population only.

In the present study, 60% of tobacco users knew about the adverse effects of tobacco consumption. Kahar et al. study⁽¹¹⁾ and GATS–India 2016-17⁽⁴⁾ observed 83% and 92% of participants had knowledge about the health effects of tobacco which was higher as compared to the present study, it may be because of difference in education status of participants. However, lack of knowledge about the adverse effects was the most significant risk factor identified for efforts to quit tobacco.

Conclusion

The prevalence of tobacco consumption was higher in the adult population residing in urban slum area under the UHTC of a Medical College. Tobacco consumption was observed more in male participants and was associated with the education status, and occupation of participants. Maximum of participants consumed tobacco in any form 1-5 times a day. The reason for starting tobacco consumption was observed as fun and curiosity in most of the participants. More than half of the current tobacco users were willing to quit tobacco, but only one-fifth had taken efforts to quit tobacco and knowledge about adverse effects was associated with efforts to quit tobacco.

Recommendation

More than half of tobacco users are willing to quit tobacco; hence, tobacco cessation intervention programs are needed in the community.

Conflict of Interest: Nil

Source of Support: Nil

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