**Rural-Urban Differentials in Predicting Tobacco Consumption Pattern among Males above 15 Years: A Cross-Sectional Community Survey**

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**Introduction:** Globally, every year, more than 6 million people die because of tobacco use. 20% of all global deaths attributed to tobacco occur in India. The behavioral difference in the rural and urban communities is an important aspect of tobacco problem in the country. In this context, we conducted a community-based cross-sectional study to determine the effect of area (rural-urban) in predicting tobacco consumption pattern.

**Materials and Methods:** A community-based observational, cross-sectional study was conducted in a rural and an urban community of West Bengal from May 2014 to April 2015. A predesigned pretested schedule adapted from the Global Adult Tobacco Survey India Questionnaire was used for data collection. Males above 15 years of age, residing in the study areas, were interviewed during house-to-house visit.

**Results:** Data obtained from the interview of 704 males (352 each from urban and rural area) above 15 years revealed that the prevalence of current tobacco use in any form is significantly higher in rural area (75.6%) than in urban area (67.6%). This was related to the fact that awareness and perception of the people in rural areas are significantly less than their urban counterparts. In bivariate analysis satisfactory consumption pattern was significantly more in urban area but when adjusted with all potentially explanatory variables, the odds of satisfactory consumption pattern in urban area was attenuated significantly.

**Conclusion:** An appropriate intervention strategy, based on local area-wise behaviors of people to curb out the menace of tobacco use, is the need of the hour.

**Keywords:** Awareness, perception, rural versus urban, tobacco consumption pattern, tobacco use determinants

**ABSTRACT**

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well as Public Health Programme (National Tobacco Control Programme), implied a gap in the understanding of the place distribution of different predictors of tobacco consumption, evidenced by a large rural-urban difference (52.3% vs. 37.5% in rural and urban communities of India, respectively) in the prevalence of current tobacco use among males aged above 15 years.\textsuperscript{4} Apart from the differential burden in the rural and urban communities, another important aspect of tobacco problem in the country is that addiction is much more prevalent among males,\textsuperscript{4} who are the main earning gender in Indian families. Therefore, the high prevalence of tobacco problem, especially among males, exposes the family not only to the pernicious impact of tobacco-related morbidities, but also to financial hazard due to loss of wages accountable to the absence from work due to tobacco-related morbidities. Although there are many studies reporting predictors of tobacco consumption pattern, studies are scarce to elicit the role of area of residence in predicting awareness, perception, and practices related to tobacco consumption pattern among males in the country, which might have helped to initiate interventions based on the area of residence (urban-rural). In this context, we conducted a community-based cross-sectional survey to determine the tobacco consumption pattern and its differentials among males above 15 years and effect of area-level (rural-urban) differences in the distribution of the predictors.

**Materials and Methods**

We conducted this community-based observational, cross-sectional study in a rural and an urban community of West Bengal from May 2014 to April 2015. The rural (Singur block, Hooghly district) and the urban (Chetla slum, Kolkata) area selected were, respectively, the rural and urban field practicing area of our institute. Males above 15 years of age, residing in the study areas, were considered as the study population. In a recent study conducted by the WHO and MOHFW,\textsuperscript{5} India, it was found out that the prevalence of current tobacco user among males aged above 15 years was 52.3% ($P_r$) and 37.5% ($P_u$) in rural and urban communities of India, respectively. Considering this prevalence, 80% power of the study, $\alpha$ error 5%, and the minimum sample size becomes 352 for each group (after considering design effect of 2.0).

**Sampling**

**Rural area**

Three units were selected randomly from each of two union centers providing health-care service in the rural area. Each unit covers 4–5 villages. From the total six units selected, one village from each unit was again selected randomly. The number of study participants from each village was according to probability proportion to the size of each village, which was selected by simple random sampling from the list of names of the study participants.

**Urban area**

For delivering better health service, the urban area is divided into three units. The number of study participants from each unit was according to probability proportion to the size of each unit, which was selected by simple random sampling from the list of names of study participants.

**Study tools**

A predesigned pretested schedule adapted from the Global Adult Tobacco Survey (GATS)\textsuperscript{5} India Questionnaire was used for data collection. It consisted mainly of four sections, namely:

1. **Sociodemographic profile:** Questions were asked about the age, religion, caste, literacy status, marital status, type of family, occupation, monthly income, and place of residence

2. **Awareness:** Ten questions were asked about the awareness of the study participants regarding three domains, namely available forms of tobacco (2 items), health hazards of tobacco (5 items), and the legal and other methods against tobacco use (3 items). Questions were scored. Total score ranges from 0 to 35. 75% of the maximum score was the cutoff for satisfactory awareness. Anyone getting score more than cutoff score was considered as having satisfactory awareness, while scoring less than or equal to cutoff score was considered as having unsatisfactory awareness.

3. **Perception:** Perception of the study participants was assessed using ten questions in a five-point Likert scale conforming to three domains, namely perceptions of adverse effects of smoking (5 items), psychoactive benefits (4 items), and pleasure of smoking (1 item). Questions were scored. Total score ranges from 10 to 50. 75% of the maximum score was the cutoff for satisfactory perception. Anyone getting score more than cutoff score was considered as having satisfactory perception, while scoring less than or equal to cutoff score was considered as having unsatisfactory perception.

4. **Consumption pattern related to tobacco use:** Questions were asked about their current tobacco use status, type of use, form of use, age at initiation, monthly expenditure on tobacco, and person influencing tobacco use initiation.

Ethical clearance was obtained from the Institutional Ethics Committee of All India Institute of Hygiene and Public Health (AIH&PH letter dated 16-01-2014). Written consent in local language was obtained from the participant.
RESULTS

Data collected were entered into MS Excel 2007, and the analysis was done in R for Windows (3.2.0) using R studio. Data obtained from the 704 males above 15 years from the study areas revealed [Supplementary Tables 1 and 2] that most of the study population was in the age group of 35–44 years in rural area (32.1%), while in the age group of 15–24 years in the urban area (29.3%). Mean (standard deviation [SD]) age of the study participants was 41.4 (12.9) and 35.6 (14.8) in the rural and urban area, respectively. Majority of them belonged to Hindu religion (88.9% in rural and 72.7% in urban), general caste (88.1% in rural and 72.7% in urban), and joint family (58.8% in rural and 57.1% in urban). Most of them in the rural area (53.7%) were unmarried, while in urban area (61.9%) were married. In both rural and urban area, most of them had primary level of schooling (26.1% and 28.1% respectively). In both rural (44.3%) and urban (31.3%) area, most of them were involved in clerical, sales, and farming occupation. Most of them in rural area (50.0%) belonged to Class IV socioeconomic class, while in urban area (34.7%) belonged to Class III socioeconomic class according to the Modified BG Prasad scale (2014).[6]

Awareness

It was found that [Table 1], most of the study population knew that smoking (85.8% in rural and 92.6% in urban) and smokeless (75.0% in rural and 84.1% in urban) tobacco use causes serious illness. Exposing others to tobacco smoke, i.e., second-hand exposure to tobacco smoking is harmful was known by 70.5% in rural and 81.5% in urban area. 45.7% and 53.7% in rural and urban area, respectively, were aware that smoking is prohibited in public place. Only 13.9% in rural and 33.2% in urban area knew that there are medical methods of tobacco deaddiction. The mean (SD) awareness score was 20.86 (4.19) and 23.81 (3.47) in rural and urban area, respectively, and the odds of having satisfactory awareness was significantly 1.9 times (95% confidence interval [CI]: 1.3, 3.0) more in urban area than in rural area [Table 2].

Perception

To assess the perception of the study participants, statements related to tobacco use were asked, and the responses were recorded in a five-point Likert scale.

Table 1 shows that 45.2% in rural and 40.9% in urban area agreed, “Tobacco use is extremely dangerous for health” 42.3% agree in rural, while 36.4% strongly agreed in urban area “Tobacco use helps one to get relieved of stress.” Most (56.3%) of them in the urban population believed that tobacco addiction could affect

Table 1: Distribution of the study participants according to their area of residence and awareness regarding tobacco use

| Variables | Score | Rural, n (%) | Urban, n (%) |
|-----------|-------|--------------|--------------|
| Smoking tobacco cause serious illness | No | 1 21 (6.0) | 13 (3.7) |
| | Don’t know | 2 29 (8.2) | 13 (3.7) |
| | Yes | 3 302 (85.8) | 326 (92.6) |
| Chewing tobacco cause serious illness | No | 1 45 (12.8) | 32 (9.1) |
| | Don’t know | 2 43 (12.2) | 24 (6.8) |
| | Yes | 3 264 (75.0) | 296 (84.1) |
| If someone smokes in front of a pregnant woman, then it can affect the baby | No | 1 40 (11.4) | 53 (15.1) |
| | Don’t know | 2 38 (10.8) | 59 (16.8) |
| | Yes | 3 274 (77.8) | 240 (68.2) |
| Exposing others to your tobacco smoke harmful | No | 1 49 (13.9) | 38 (10.8) |
| | Don’t know | 2 55 (15.6) | 27 (7.7) |
| | Yes | 3 248 (70.5) | 287 (81.5) |
| Smoking is prohibited in public place | No | 1 98 (27.8) | 86 (24.4) |
| | Don’t know | 2 93 (26.4) | 77 (21.9) |
| | Yes | 3 161 (45.7) | 189 (53.7) |
| Medical methods of tobacco de-addiction are available now | No | 1 154 (43.8) | 119 (33.8) |
| | Don’t know | 2 149 (42.3) | 116 (33.0) |
| | Yes | 3 49 (13.9) | 117 (33.2) |
| There are audiovisual message against tobacco use | No | 1 54 (15.3) | 25 (7.1) |
| | Don’t know | 2 50 (14.2) | 29 (8.2) |

Contd...
the monthly budget of the family, but most of the rural population gave neutral response. The mean (SD) perception score was 29.23 (7.13) and 31.90 (7.36) in rural and urban area, respectively, and the odds of having satisfactory perception were significantly 1.9 (95% CI: 1.3, 2.6) times more in urban area than in rural area [Table 4].

Consumption pattern of tobacco use among study participant

Table 5 shows that the prevalence of current tobacco use in any form is significantly higher in rural area (75.6%) than in urban area (67.6%). Prevalence of the current smokers and both smoking and smokeless tobacco use was significantly more in urban area than in rural area, while smokeless tobacco use is significantly higher in rural area than in urban area. Median (interquartile range) expenditure on tobacco use in rural population was INR 150 (100–250), while in urban area was INR 450 (150–975), and this difference was statistically significant.

Mean age at initiation of tobacco use is significantly lower among the urban (16 ± 4.7 years) than the rural (19.2 ± 4.2 years) study population [Table 6]. In bivariate analysis [Table 7], it was found that younger age (<39 years), higher education, nonearning status, and higher socioeconomic class are significant predictors of satisfactory awareness, satisfactory perception, and satisfactory consumption pattern of tobacco use among the study participants. Hindu religion and nuclear type of family are significant predictors of satisfactory awareness, whereas unmarried people had significantly better consumption pattern than the married people in bivariate analysis.

Significance of area of residence (rural vs. urban) in predicting the level of awareness, perception, and consumption pattern of the study participants and the degree to which it is explained by other variables was tried to be found out [Table 8]. It showed that urban residence had significantly higher probability of having satisfactory awareness (odds ratio [OR]: 1.96; 95% CI: 1.28, 2.99), satisfactory perception (OR: 1.88; 95% CI: 1.34, 2.64), and satisfactory consumption pattern (OR: 1.48; 95% CI: 1.06, 2.06) of individuals in univariate regression. Urban area was still a significant predictor of satisfactory awareness and perception when adjusted for sociodemographic variables (age, education status, occupation, socioeconomic class, type of family, and religion) found significant in bivariate analysis. The odds of having satisfactory perception among the urban population was 1.63 times (95% CI: 1.13, 2.35) than rural population when adjusted for satisfactory awareness and sociodemographic variables (age, education status, occupation, and socioeconomic class) found significant in bivariate analysis. Urban population had 3.86 times more satisfactory perception than the rural population when adjusted for satisfactory awareness and had 1.56 times significantly more satisfactory perception than the rural population when adjusted for satisfactory awareness and sociodemographic variables (age, education status, occupation, and socioeconomic class) found significant in bivariate analysis. In multivariate logistic regression analysis, area of residence when adjusted for all potential explanatory variables (viz., age, education status, occupation, socioeconomic status and marital status, satisfactory awareness, and satisfactory perception), the odds of having satisfactory consumption pattern among urban residents was found to be 0.58 (95% CI: 0.34, 0.98), and it was statistically significant.

Discussion

An observational cross-sectional study was conducted to determine the tobacco consumption pattern and its differentials among males above 15 years and effect of area-level (rural-urban) differences in the distribution of the predictors.

Awareness

In our study, it was found that majority of the participants in both urban and rural area were aware of the fact that tobacco in all forms causes serious illness which is in conformity with findings of a similar study done by Salve et al. The same study done by Salve et al. in rural Haryana revealed that 70.1% have appropriate awareness regarding passive smoking, which is similar to the findings of this study (70.5% in rural and 81.5% in urban). This result in our study also confirmed to the findings of GATS India, 2009–2010 and GATS West Bengal, India, 2009–2010 which reported that more than 77% awareness regarding serious illness caused by passive smoking. 47.7% in rural area could tell only one health hazard of tobacco use, while 44.6% in urban area could tell only two health hazards of tobacco use. They mostly knew that health hazards such as cancer, respiratory disease, and heart diseases are caused by tobacco use. Very few of the study population knew about any other health hazards such as gastrointestinal disease, dental disease, and possible infertility. So although the
majority of the study population knew that tobacco use causes serious illness, it is not sure of the specific health hazards caused by it. The mean awareness score was higher (OR 1.9; 95% CI: 1.3, 3.0) among the urban population than their rural counterparts, and it was similar to the reporting by Sansone et al.\cite{9} from the findings of the Tobacco Control Policy India Pilot Survey.

**Perception**

Sansone et al.\cite{9} in their study reported that 79% of the smokers agreed that “smoking is not good for health.” In GATS India 2009–2010\cite{4,8} survey, it was found that nearly 90% in India and 80% in West Bengal believe that tobacco causes serious illness, and these findings were in concordance with our study results. The proportion of individuals, considering increased peer interaction because of tobacco use, is much more in rural area than in the urban area, probably because in rural areas, there is conservative society and those who consume tobacco do in peer groups in isolated places so that elders of the village do not notice them, whereas in urban areas, society is less conservative and tobacco products are widely and freely available.

### Table 2: Distribution of the awareness score of the study participants (n=704)

| Area  | Attainable score Range | Attained score | P      | Awareness |
|-------|------------------------|----------------|--------|-----------|
|       | Range                  | Mean±SD        |        | Unsatisfactory (score≤25), n (%) | Satisfactory (score>25), n (%) | OR (95% CI) |
| Rural | 7-35                   | 12-30          | 20.86±4.19 | <0.001*** | 313 (88.9) | 39 (11.1) | Reference |
| Urban | 13-31                  | 15-47          | 23.81±3.47 | 283 (80.4) | 69 (19.6) | 1.9* (1.3-3.0) |

*Significant at the level of 95%, ***Significant at the level of 99.9% (independent sample t-test). SD: Standard deviation, OR: Odds ratio, CI: Confidence interval

### Table 3: Distribution of males above 15 years according to their perception toward tobacco use

| Perception statements: | Area    | Strongly agree, n (%) | Agree, n (%) | Neutral, n (%) | Disagree, n (%) | Strongly disagree, n (%) |
|------------------------|---------|-----------------------|--------------|----------------|-------------------|------------------------|
| 1. Tobacco use is extremely dangerous for health | Rural    | 62 (17.6)             | 159 (45.2)   | 30 (8.5)       | 80 (22.7)         | 21 (6.0)               |
|                        | Urban    | 84 (23.9)             | 144 (40.9)   | 50 (14.2)      | 62 (17.6)         | 12 (3.4)               |
| 2. Tobacco use is very essential for living      | Rural    | 16 (4.5)              | 75 (21.3)    | 91 (25.9)      | 122 (34.7)        | 48 (13.6)              |
|                        | Urban    | 49 (13.9)             | 56 (15.9)    | 20 (5.7)       | 131 (37.2)        | 96 (27.3)              |
| 3. Tobacco use gives a special place among the peers and colleagues | Rural    | 1 (0.3)               | 174 (49.4)   | 112 (31.8)     | 31 (8.8)          | 34 (9.7)               |
|                        | Urban    | 70 (19.9)             | 74 (21.0)    | 94 (26.7)      | 76 (21.6)         | 38 (10.8)              |
| 4. Tobacco use helps one to get relieved of stress | Rural    | 37 (10.5)             | 149 (42.3)   | 112 (31.8)     | 54 (15.3)         | 0 (0.0)                |
|                        | Urban    | 128 (36.4)            | 69 (19.6)    | 30 (8.5)       | 90 (25.6)         | 35 (9.9)               |
| 5. Tobacco use helps to concentrate more         | Rural    | 42 (11.9)             | 153 (43.5)   | 101 (28.7)     | 42 (11.9)         | 14 (4.0)               |
|                        | Urban    | 107 (30.4)            | 61 (17.3)    | 54 (15.3)      | 95 (27.0)         | 35 (9.9)               |
| 6. Tobacco use might cause inconvenience to others | Rural    | 38 (10.8)             | 116 (32.9)   | 91 (25.9)      | 81 (23.0)         | 26 (7.4)               |
|                        | Urban    | 48 (13.6)             | 180 (51.1)   | 59 (16.8)      | 38 (10.8)         | 27 (7.7)               |
| 7. One would have more energy if he uses tobacco | Rural    | 45 (12.8)             | 128 (36.4)   | 102 (28.9)     | 77 (21.9)         | 0 (0.0)                |
|                        | Urban    | 55 (15.6)             | 73 (20.7)    | 66 (18.8)      | 101 (28.7)        | 57 (16.2)              |
| 8. Tobacco use has no effect on ones’ family in long run | Rural    | 13 (3.7)              | 117 (33.2)   | 130 (36.9)     | 68 (19.3)         | 24 (6.8)               |
|                        | Urban    | 31 (8.8)              | 69 (19.6)    | 111 (31.5)     | 105 (29.8)        | 36 (10.2)              |
| 9. If someone really wants, he can quit tobacco use | Rural    | 50 (14.2)             | 73 (20.7)    | 59 (16.8)      | 131 (37.2)        | 39 (11.1)              |
|                        | Urban    | 67 (19.0)             | 201 (57.1)   | 40 (11.4)      | 38 (10.8)         | 6 (1.7)                |
| 10. Tobacco use has no effect on the financial condition of a family | Rural    | 0 (0.0)               | 74 (21.0)    | 198 (56.3)     | 70 (19.9)         | 10 (2.8)               |
|                        | Urban    | 38 (10.8)             | 62 (17.6)    | 80 (22.7)      | 142 (40.3)        | 30 (8.5)               |

Perception scoring: Question number 2,3,4,5,7,8 and 10 were scored as strongly agree (1), agree (2), neutral (3), disagree (4), and strongly disagree (5), whereas question number 1, 6, and 9 were scored as strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1)

### Table 4: Distribution of the perception score of the study participants (n=704)

| Area  | Attainable score (range) | Attained score | P      | Perception |
|-------|--------------------------|----------------|--------|------------|
|       | Range                    | Mean±SD        |        | Unsatisfactory (score≤37), n (%) | Satisfactory (score>37), n (%) | OR (95% CI) |
| Rural | 10-50                    | 15-47          | 29.23±7.13 | <0.001*** | 279 (79.3) | 73 (20.8) | Reference |
| Urban | 15-43                    | 15-43          | 31.90±7.36 | 236 (67.0) | 116 (33.0) | 1.9* (1.3-2.6) |

*Significant at the level of 95%, ***Significant at the level of 99.9% (independent sample t-test). SD: Standard deviation, OR: Odds ratio, CI: Confidence interval
Table 5: Distribution of the study participants according to their current status, type of tobacco use, and their monthly expenditure on tobacco

| Variable | Rural (n=279), n (%) | Urban (n=256), n (%) | Test of significance |
|----------|---------------------|---------------------|---------------------|
| 1. Current status of tobacco use (n=704), n (%) | | | |
| Current user | 266 (75.6) | 238 (67.6) | 504 (71.6) | 0.02* |
| Former user | 13 (3.7) | 18 (5.1) | 31 (4.4) | 0.357* |
| Never user | 73 (20.7) | 96 (27.3) | 169 (24.0) | 0.042** |
| Total | 352 (100.0) | 352 (100.0) | 704 (100.0) | |
| 2. Type of tobacco use (n=504), n (%) | | | |
| Smokeless tobacco only | 123 (46.3) | 63 (26.5) | 186 (36.9) | <0.001*** |
| Smoking tobacco only | 101 (37.9) | 111 (46.6) | 212 (42.1) | 0.04* |
| Both smoking and smokeless tobacco | 42 (15.8) | 64 (26.9) | 106 (21.0) | 0.002*** |
| Total | 266 (100.0) | 238 (100.0) | 504 (100.0) | |
| Monthly expenditure on tobacco (INR) (n=504), median (IQR) | 150 (100-250) | 450 (150-975) | - | 0.001*** |

*Z test done between proportions of the rural and urban population, **Mann-Whitney U-test done between rural and urban population, ***Significant at the level of 99.9%, **Significant at the level of 99%, *Significant at the level of 95%. IQR: Interquartile range

Table 6: Distribution of ever (current + former) tobacco users according to the age of initiation of tobacco use (n=535)

| Age group (completed years) | Rural (n=279), n (%) | Urban (n=256), n (%) | Test of significance |
|-----------------------------|---------------------|---------------------|---------------------|
| ≤15 | 48 (17.2) | 129 (50.4) | χ²: 79.18; df: 4; P<0.001*** |
| 16-20 | 156 (55.9) | 105 (41.0) | |
| 21-25 | 60 (21.5) | 13 (5.1) | |
| 26-30 | 13 (4.7) | 9 (3.5) | |
| ≥31 | 2 (0.7) | 0 (0.0) | |
| Mean age at initiation±SD (years) | 19.2 (4.2) | 16 (4.7) | Independent sample t-test: P<0.001*** |

***Significant at the level of 99.9%. SD: Standard deviation

About 42.3% agree in rural, while 36.4% strongly agreed in urban area “Tobacco use helps one to get relieved of stress.” But in the study done in Andhra Pradesh by Mateti et al.[5] among youngsters of colleges found that 12.1% thought smoking to be stress suppressant. This difference in findings may be due to the younger study participants of the college in the referred study, while in the present study, participants comprised a wide age range and stress is an important factor in day-to-day life in the present century. From the present study, it is evident that the perception about others health from tobacco smoke is much less among both urban and rural population than the national figure, and it is even lower in the rural area. Both rural and urban study participants did not perceive the long-term effects of tobacco use on one’s health and its effect in the family in the form of financial and psychosocial stress in managing the health problems.

**Consumption pattern**

In the GATS, India,[4] done in 2009–2010, the proportion of population (both national and state figures) using smoking, smokeless, or both forms of tobacco is much less than the findings of the present study [Table 5]. Smokeless tobacco was used more in rural area than in urban area, while smoking was more prevalent in urban area. This difference might be due to the low cost of smokeless tobacco than the smoking tobacco. Monthly expenditure on tobacco among the current tobacco users was significantly more in the urban area than in the rural area. This was because of consumption of cigarettes more in the urban area, which is costlier than bidi or khaini used mostly in rural area and the urban people can afford it because of their relatively better socioeconomic status than their rural counterparts. In our study, we found that initiation of tobacco use is at much younger age in urban than in rural population, and it was probably because of the earlier exposure of the children to the tobacco use and its marketing in the urban area. From the GATS, India survey 2009–2010,[4] we found that the age at initiation of tobacco use was around 18 years nationally (urban slightly at higher age than rural) and 17.5 years in West Bengal.

Similar to our study, younger age and higher education has been found to be significant predictor of satisfactory awareness and consumption pattern among the population.[9,10-12] In the present study, probability of having satisfactory consumption pattern is significantly more (OR: 7.95; 95% CI: 5.16, 12.25) among the nonearning members than the earning members. This may be due to the fact that the earning members are more self-independent and can afford tobacco products more. Similar results were reported by Demaio et al.[13]
Table 7: Univariate regression of satisfactory knowledge, satisfactory attitude, and satisfactory practice of tobacco use with its sociodemographic variables (n=704)

| Variables                        | Total       | Satisfactory awarenessa (%) | Satisfactory perceptiona (%) | Satisfactory consumption patterna (%) |
|----------------------------------|-------------|-----------------------------|-----------------------------|--------------------------------------|
|                                  |             | OR (95% CI)                 | OR (95% CI)                 | OR (95% CI)                         |
| Age (years)                      |             |                             |                             |                                      |
| ≤39                              | 388 (55.1)  | 75 (19.3) 2.05*(1.32-3.19)  | 120 (30.9) 1.60*(1.14-2.26) | 133 (34.3) 1.94*(1.38-2.73)          |
| >39                              | 316 (44.9)  | 33 (10.4) Reference          | 69 (21.8) Reference          | 67 (21.2) Reference                  |
| Caste                            |             |                             |                             |                                      |
| General                          | 579 (82.2)  | 84 (14.5) Reference          | 148 (25.6) Reference         | 167 (28.8) 1.13 (0.73-1.75)          |
| Others                           | 125 (17.8)  | 24 (19.2) 1.4 (0.8-2.3)     | 41 (32.8) 1.42 (0.94-2.16)   | 33 (26.4) Reference                  |
| Religion                         |             |                             |                             |                                      |
| Hindu                            | 569 (80.8)  | 99 (17.4) 2.95*(1.45-5.99)  | 145 (25.5) 0.71 (0.47-1.06)  | 156 (27.4) Reference                  |
| Others                           | 135 (19.2)  | 9 (6.7) Reference            | 44 (32.6) Reference          | 44 (32.6) 1.28 (0.85-1.92)           |
| Education                        |             |                             |                             |                                      |
| Below secondary                  | 495 (70.3)  | 49 (9.9) Reference           | 101 (20.4) Reference         | 100 (20.2) Reference                  |
| Secondary and above              | 209 (29.7)  | 59 (28.2) 5.57*(2.76-11.25)| 88 (42.1) 2.84*(1.99-4.03)   | 100 (47.8) 3.62* (2.56-5.14)         |
| Occupation                       |             |                             |                             |                                      |
| Nonearning                       | 119 (16.9)  | 28 (23.5) 1.94*(1.19-3.15)  | 54 (45.4) 2.77*(1.83-4.17)   | 80 (67.2) 7.95* (5.16-12.25)         |
| Earning                          | 585 (83.1)  | 80 (13.7) Reference          | 135 (23.1) Reference         | 120 (20.5) Reference                  |
| Marital status                   |             |                             |                             |                                      |
| Unmarried                        | 323 (45.9)  | 46 (14.2) Reference          | 96 (29.7) Reference          | 104 (32.2) 1.41* (1.02-1.96)          |
| Married                          | 381 (54.1)  | 62 (16.3) 1.17 (0.77-1.77)  | 93 (24.4) 0.76 (0.55-1.07)   | 96 (25.2) Reference                  |
| Family type                      |             |                             |                             |                                      |
| Nuclear                          | 296 (42.1)  | 55 (18.6) 1.53*(1.02-2.31)  | 90 (30.4) 1.36 (0.97-1.91)   | 95 (32.1) 1.36 (0.98-1.89)           |
| Joint                            | 408 (57.9)  | 53 (13.0) Reference          | 99 (24.3) Reference          | 105 (25.7) Reference                  |
| Socioeconomic class (modified BG Prasad scale 2014) | | | | |
| Socioeconomic Class II           | 167 (23.7)  | 46 (27.5) 2.91*(1.89-4.48)  | 67 (40.1) 2.28* (1.58-3.29)  | 68 (40.7) 2.11* (1.46-3.04)          |
| Socioeconomic Class III, IV, V   | 537 (76.3)  | 62 (11.5) Reference          | 122 (22.7) Reference         | 132 (24.6) Reference                  |

*Significant at the level of 95%, aSatisfactory knowledge: Anyone getting >75% of maximum attainable score (i.e., 26) was considered as having satisfactory knowledge, bSatisfactory attitude: Anyone getting >75% of maximum attainable score (i.e., 37) was considered as having satisfactory attitude, cSatisfactory practice: Currently not using tobacco (includes both former and never users). OR: Odds ratio, CI: Confidence interval

Table 8: Association of satisfactory awareness, satisfactory perception, and satisfactory consumption pattern with area of residence (rural vs. urban) and the degree to which this is explained by other explanatory variables (n=704)

| Variables                        | Rural       | Urban       | Rural       | Urban       | Rural       | Urban       |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                  | Satisfactory awarenessa | Satisfactory perceptiona | Satisfactory consumption patterna |
|                                  | n (%), OR (95% CI) | n (%), OR (95% CI) | n (%), OR (95% CI) |
| Area only                        |             |             |             |             |             |             |
|                                  | Reference   | 1.96*(1.28-2.99) | Reference   | 1.88*(1.34-2.64) | Reference   | 1.48*(1.06-2.06) |
| Area adjusted for sociodemographic variablesa | Reference | 1.89*(1.18-3.06) | Reference | 1.63*(1.13-2.35) | Reference | 0.97 (0.65-1.46) |
| Area adjusted for satisfactory awareness | - | - | Reference | 3.86* (2.51-5.92) | Reference | 1.36 (0.97-1.90) |
| Area adjusted for satisfactory perception | - | - | - | Reference | 0.97 (0.63-1.52) |
| Area adjusted for all potential explanatory variablesa | - | - | Reference | 1.56* (1.08-2.27) | Reference | 0.58* (0.34-0.98) |

*Significant at the level of 95%, aSatisfactory awareness: Anyone getting >75% of maximum attainable score (i.e., 26) was considered as having satisfactory awareness, bSatisfactory perception: Anyone getting >75% of maximum attainable score (i.e., 37) was considered as having satisfactory perception, cSatisfactory consumption pattern: Currently not using tobacco (includes both former and never users). Values are the OR (95% CI) of satisfactory awareness, satisfactory perception, and satisfactory consumption pattern from multivariable logistic regression, comparing the effect of area of residence adjusting for other variables. Adjusted for sociodemographic variables which were significant in bivariate analysis. For satisfactory awareness adjusted for age, education status, occupation, socioeconomic status, type of family, and religion. For satisfactory perception adjusted for age, education status, occupation, and socioeconomic status. For satisfactory consumption pattern adjusted for age, education status, occupation, socioeconomic status, and marital status. All the relevant variables in the above rows were included. OR: Odds ratio, CI: Confidence interval
where employed persons are significantly more using tobacco. In the present study, odds of having satisfactory consumption pattern is significantly more (OR 1.41 95% CI: 1.02, 1.96) among the unmarried than the married population, and this finding is similar to the results of the study done in Rural Sindh in Pakistan by Ali et al.[14] The study done by Alam et al,[15] in Rawalpindi reported that rural population has significantly more chances of consuming tobacco when adjusted for other sociodemographic variables, and this finding is in conformation to our study result [Table 8].

**Conclusion**

Tobacco consumption pattern is different in urban and rural areas and hence the interventions required to reduce tobacco should be designed according to the area-specific characteristics and need. This was related to the fact that awareness and perception of the people in rural areas are significantly less than their urban counterparts. The general awareness of the public against tobacco should be improved. Concerted efforts by government and nongovernment organizations must be made on behavioral change interventions for the general mass at individual, community, and institutional levels so that the nation emerges as a tobacco-free nation. All these will unquestionably ensure India to arise as a healthy, productive, and a socioeconomically rich nation.

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**Conflicts of interest**

There are no conflicts of interest.

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