

A study of factors impacting on the tobacco use patterns and tobacco-related behavior among the lower middle and lower classes in a resettlement colony of Delhi, India

Abstract

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Objectives: To study the factors impacting on the tobacco use patterns and tobacco related behavior among lower middle and lower classes in a resettlement colony in Delhi. **Materials and Methods:** The study was conducted in the year 2011, between the months of March and October. It was done as a community based, cross sectional, house to house survey in a resettlement colony in South Delhi, involving interviews with present tobacco users as per a structured interview guide wherein majority of the questions were closed ended and a few open ended questions. **Results:** Study enrolled 1698 subjects in all with males constituting 90.8% of the sample while women constituted 8.7%. Median age of the study subjects was 37 years while the mean age was 40 yrs. 87 percent of the respondents were educated to less than or equal to higher secondary level. Some of the other salient findings of the study are as under. Overall, both smoked and smokeless forms of tobacco were found to be almost equally used in the community. While 14% of the males consumed both the smoked and non-smoked forms of tobacco, similar percentage among women was only 1%. Age seemed to be an important determinant of the form of tobacco used. After controlling for literacy levels, it was found that variation in the consumption of different forms of smoked tobacco was statistically significant ($P = .001$) across different age categories. While cigarette smoking was commoner among the younger age groups, beedis were more popular among the older respondents. However, smokeless tobacco was the most commonly used form of tobacco among the youth. Age and income levels came out as two important determinants of the intensity of smoking. While there was a statistically significant increase in the intensity of smoking with increasing age ($P = .001$); there was statistically significant decline in the intensity of smoking ($P = .001$) with rise in income levels. However, there was no statistically significant relationship between intensity of smoking and income sufficiency or stability, or indebtedness status. There was a statistically significant decline in tobacco expenditure with rise in income levels and decline in tobacco consumption among the friend circle. Peer pressure and easy availability were among the two commonest reasons for people to get hooked on the tobacco use. After meals, while resting and when in a happy mood were the three commonest occasions in that order, when people indulged in tobacco usage. Implications of these findings have been discussed in detail.

Key words: Intensity of smoking, literacy status, smoked, smokeless, tobacco expenditure

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INTRODUCTION

There is enough evidence to incriminate tobacco as a causative agent for a number of cancers^[1-4] and in the causation of cardiovascular disease.^[5] Tobacco consumption is a huge public health problem in India. It is responsible for different forms of cancers (primarily those of the head and neck and lung) and is associated with problems like coronary heart disease. Being the third largest producer and the sixth largest exporter of tobacco in the world, India has emerged as the major hub of the tobacco industry in the developing world.^[6] While the tobacco industry in India may sit on its laurels in the name of contributing to the export earnings of the country, this does

not augur well for the health of Indian people *per se*. As per the WHO predictions India shall be a witness to the fastest rise in the deaths attributable to tobacco in the first two decades of the 21st century. More worrisome is the fact that due to spreading addiction to tobacco among the youth most of the rise in tobacco-related mortality shall occur in the most productive years of the life.^[7] Even as there has been a huge increase in the use of both smoked and smokeless forms of tobacco in India the number of deaths in the country attributable to tobacco rose from about 630,000 in the late 1980s to between 800,000 and 900,000 by the first decade of the 21st century. The economic burden of just three diseases associated with tobacco use — cancer, heart and lung disease is believed to have increased from US \$ 6.5 billion in 1999 to about US \$ 7.2 billion in 2002-2003.^[7] Hence, the need for vigorous tobacco control efforts in the country can possibly never be emphasized enough.

A sound epidemiological approach is the bedrock of a successful control effort. In India, there is still a relative dearth of information on factors impacting on tobacco use patterns and determinants of tobacco-related behavior in the community. Factors such as age at first use, reasons for starting tobacco use, impact of the tobacco consumption patterns in the immediate social environment on individual tobacco consumers, play of factors such as tension and financial difficulties on tobacco use intensity, knowledge of laws related to tobacco use, desire towards quitting tobacco and attitude towards seeking professional help for the same. There can be little dispute that information on these aspects can greatly facilitate tobacco control strategies.

The present study attempted to fill this void by capturing such wide-ranging information about tobacco users on a fairly large sample of tobacco users. We are presenting here part of the results of the study in a hope that this will meaningfully inform the tobacco control efforts in the country.

MATERIALS AND METHODS

The study was conducted in 2011, between the months of March and October, in a resettlement colony of Delhi comprising of people belonging to the lower middle class and the lower class. Majority of the persons comprise of families of group D government employees, lower level public or private sector workers, small traders or artisans.

Study design

Format of the study was designed as a cross-sectional, community-based house to house survey involving interviews with present tobacco users as per a structured interview guide wherein majority of the questions were closed-ended leaving a few open-ended questions. The interviews were conducted by trained field researchers in Hindi. Written consent was obtained from the study participants prior to enrollment. Principle investigators reviewed and supervised the interviews through periodic field visits to ensure consistency and

quality of interviews. A total of 1698 tobacco users were covered as against 500 that were initially planned for the study. Figure 1 gives the simple design of the study.

Sampling design

The study area consisted of a total of six blocks of which two blocks were selected for study at random. The study subjects were selected in conformity with the following inclusion and exclusion criterion:

Inclusion criteria

- Individuals residing for more than a year in the study area and those 18 years or above were included.
- Only current users of smoked or smokeless forms of tobacco who have used it in last 1-month or more were included.
- Only healthy individuals who have neither suffered from cancer in the past nor were suffering from any kind of malignancy at the time of the study were included in the study.
- Individuals needed to give consent for their inclusion in the study.

Exclusion criteria

- Age <18 years
- Nontobacco users
- Individuals who have had cancer in the past or were suffering from cancer at the time of the study.
- Individuals who did not give informed consent.

Ethical clearance was obtained for the study from the institutional ethics committee of the All India Institute of Medical Sciences.

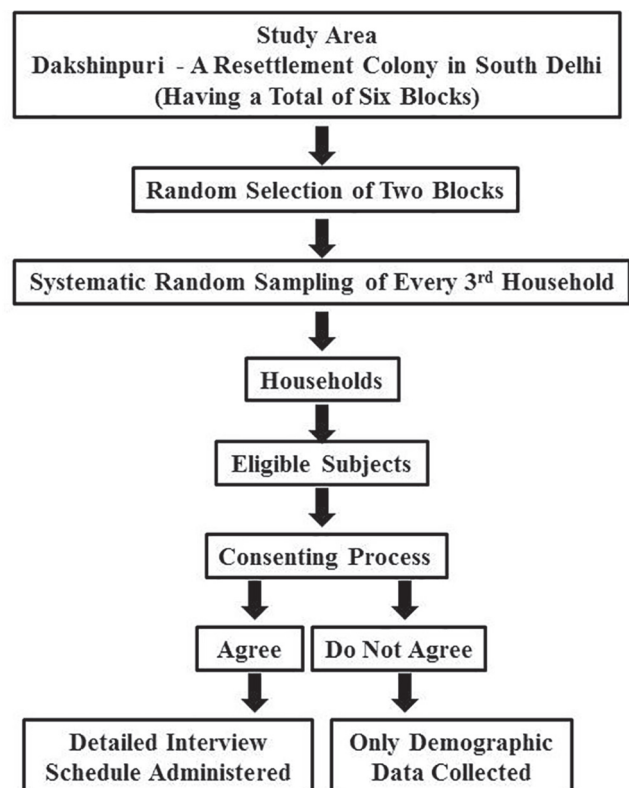


Figure 1: Design of the study

Data analysis

IBM SPSS statistics software version 16.0 was used for statistical analysis. Statistical tests for significance applied for analysis have been indicated where relevant.

Study findings

Sociodemographic characteristics of the respondents

Study enrolled 1698 subjects (between different tables there is a variation by a maximum of 10 to 15 in the number of total respondents. Even though the total number of respondents in the study is 1698 for some respondents information on some of the variables was not available most probably because field investigators failed to collect information regarding that variable) in all with 1542 males and 147 females constituting 90.8% and 8.7% of the sample respectively. As compared to other large-scale surveys on tobacco consumption in India, the proportion of females in our sample is considerably less. Median age of the study subjects was 37 years while the mean age was 40 years. Most of the males in our sample tended to be younger than the females with two-third of them being <45 years of age whereas >50% of the females were ≥51 years of age.

Overwhelming number of respondents were Hindus (92%) while the proportion of Muslims, Sikhs, Christians, and others was 6%, 1%, 9%, and 1%, respectively. Table 1a-c give the distribution of the sample by literacy levels, employment status and per capita income (PCI) categories.

The lower middle and lower class status of the respondents is reflected in their literacy status as well with 87% of the respondents being less than or equal to literacy status of higher secondary; and as many as 60% being educated only up to primary level or less. About a fourth of the respondents were illiterate.

As regards the employment status highest proportion belonged to “skilled category” which included persons in either public or private sector employment. Second category was that of “semi-skilled” constituting 18.2%, while owing to low enrollment of women in

the study the proportion of those performing household work was only 5.4%.

Two-third of the respondents came from households with a monthly PCI less than Rs. 2000, while nearly a fourth were from households having monthly PCI of less than Rs. 1000. As per an affidavit filed by government of India in Supreme Court, the Planning Commission had fixed a monthly PCI of Rs. 965 at June 2011 prices as the poverty line for urban areas.^[8] Accordingly then, slightly <24% of the families in our sample would belong to below the poverty line category.

Average size of the respondent’s family was five and barring 6 all the respondents had at least one person using tobacco among relatives (including family members). 56% of the respondents had a friend circle in which most of the friends used tobacco while in case of 35% of the respondents all the friends were tobacco users. Only 9% of tobacco users did not have any friend using tobacco.

Factors impacting on the tobacco use patterns and tobacco-related behavior

Variation in the form of tobacco consumed

Both smoked (45%) and smokeless (42%) forms of tobacco were almost equally used in the community while 13% of the respondents used both the smoked and smokeless forms of tobacco. There was no statistically significant variation in the form of tobacco used across religious communities ($P = 0.447$). However, statistically significant variation in the form of tobacco consumed was observed across different employment categories [Table 2]. Since beedis are the cheapest among different form of tobacco; expectedly then beedi smoking is most common among the unemployed and those involved in housework. Those engaging in housework are almost exclusively women, and they may not always have enough money to use costlier forms like cigarettes. Higher consumption of smokeless tobacco among women (belonging to the category of housework) may also be because of easy availability at less cost.

Table 1a: Distribution by literacy levels

| Illiterate (%) | Primary (%) | High secondary (%) | Sub-total < senior secondary (%) | Senior secondary (%) | Graduate (%) | Postgraduate (%) | Total (%) |
|----------------|-------------|--------------------|----------------------------------|----------------------|--------------|------------------|------------|
| 442 (26) | 559 (33) | 472 (28) | 1473 (87) | 130 (7.7) | 85 (5) | 6 (0.4) | 1694 (100) |

Table 1b: Distribution by employment status

| Unemployed (%) | Unskilled (%) | Semi-skilled (%) | Skilled* (%) | Self-employed** (%) | Housework(%) |
|----------------|---------------|------------------|--------------|---------------------|--------------|
| 205 (12.2) | 275 (16.4) | 306 (18.2) | 688 (41) | 115 (6.8) | 91 (5.4) |

*Skilled category included people having specific skills or those in government or private employment with a stable and higher incomes. **Self-employed included semi-skilled or skilled persons of a specific trade who did their own work as against wage labor. “Skilled” and “self-employed” workers did better than unemployed or unskilled or semi-skilled workers. The term “housework” was ascribed to women belonging to households of different strata who did not perform any work outside of their homes. The truly urban professional class was not to be found in this area

Table 1c: Distribution by monthly PCI categories (Rs.)

| Lowest-1000 (%) | 1001-1429 (%) | 1430-2000 (%) | Subtotal <2001 (%) | 2001-2005 (%) | ≥2501 (%) | Total (%) |
|-----------------|---------------|---------------|--------------------|---------------|-----------|------------|
| 399 (24) | 276 (16) | 447 (26) | 1122 (66) | 255 (15) | 315 (19) | 1692 (100) |

PCI = Per capita income

We examined the impact of sex, age and monthly PCI on the form of tobacco consumed. As literacy has been shown to be a strong predictor of smoking habits in various studies, the impact of these factors is also examined after controlling for literacy levels among the responders.

There were statistically significant variations in pattern of tobacco consumption among males and females ($P = 0.001$). The prevalence of beedi smoking and the use of smokeless tobacco were found to be much more among the females as compared to males who had a higher prevalence of cigarette smoking as compared to females. Combined use of both smoked and smokeless forms of tobacco was also much higher among males (14%) as compared to females (1%).

Table 3 examines the difference in the form of tobacco use by age categories and monthly PCI categories. It can be seen from the table that variation in the form of tobacco consumed across different age

categories is statistically significant at a $P = 0.001$. Beedi smoking was seen to increase progressively among the higher age groups while trend for cigarette smoking was just the reverse with it being most fashionable among the younger age groups. However, smokeless tobacco was the commonest form of tobacco consumed among the younger age groups and its prevalence decreased as the age increased. Use of both smoking and smokeless tobacco was also found to be more common among the younger age categories as compared to the higher age groups. These trends were found to be maintained and statistically significant even after controlling for literacy levels except in the case of graduates and postgraduates whose number in the overall sample was even otherwise very small.

Table 4 examines the difference in the form of tobacco use by monthly PCI categories. Variation in forms of tobacco consumed

Table 2: Distribution of forms of tobacco used among the respondents and their variation by religion and employment categories

| Employment categories | Variation in forms of tobacco used by employment categories | | | | | Chi-square tests*** (P) two-sided |
|-----------------------|---|-------------|---------------|------------------------|---------|-----------------------------------|
| | Beedi* % | Cigarette % | Smokeless** % | Smoked and smokeless % | Total % | |
| Unemployed | 51 | 6 | 31 | 12 | 100 | Pearson (0.001) |
| Unskilled | 28 | 14 | 44 | 14 | 100 | |
| Semiskilled | 23 | 15 | 44 | 18 | 100 | |
| Skilled | 32 | 14 | 42 | 12 | 100 | |
| Self employed | 36 | 15 | 40 | 10 | 100 | |
| Housework | 47 | 2 | 51 | 0 | 100 | |

*Beedi is a small Indian cigar made of unprocessed tobacco hand rolled into a leave. Per se beedi smoking is more harmful than cigarette smoking. **Smokeless tobacco includes various forms of quid either by mixing raw tobacco with lime, processed chewable tobacco available in pouches or tobacco taken with betel wine (paan).

The cut-off level of significance is 0.05. *Fischer's exact test was applied where expected cell count was <5

Table 3: Variation in form of tobacco consumed by age categories

| Age groups | Variation in form of tobacco used among different age groups | | | | | Chi-square tests*** (P) two-sided | Factor controlled for | Chi-square test**** (P) two-sided |
|-------------|--|-------------|---------------|------------------------|---------|-----------------------------------|---|-----------------------------------|
| | Beedi* % | Cigarette % | Smokeless** % | Smoked and smokeless % | Total % | | | |
| 18-26 years | 6 | 15 | 61 | 18 | 100 | Pearson (0.001) | Literacy levels: ≤Primary Higher and senior secondary Graduate and postgraduate | Pearson (0.001) |
| 27-34 years | 15 | 19 | 52 | 14 | 100 | | | Pearson (0.001) |
| 35-42 years | 31 | 12 | 42 | 15 | 100 | | | Fischer's exact**** (0.081) |
| 43-50 years | 51 | 6 | 30 | 13 | 100 | | | |
| ≥51 years | 66 | 7 | 20 | 7 | 100 | | | |

*Beedi is a small Indian cigar made of unprocessed tobacco hand rolled into a leave. Per se beedi smoking is more harmful than cigarette smoking. **Smokeless tobacco includes various forms of quid either by mixing raw tobacco with lime, processed chewable tobacco available in pouches or tobacco taken with betel wine (paan). ***The cut-off level of significance is 0.05, ****Fischer's exact test was applied where expected cell count was <5

Table 4: Variation in form of tobacco consumed by monthly PCI while controlling for literacy level

| PCI categories | Variation in form of tobacco used by monthly PCI categories (Rs.) | | | | | Chi-square tests*** (P) two-sided | Factor controlled for | Chi-square tests**** (P) two-sided |
|----------------|---|-------------|---------------|------------------------|---------|-----------------------------------|---|------------------------------------|
| | Beedi* % | Cigarette % | Smokeless** % | Smoked and smokeless % | Total % | | | |
| Lowest-1000 | 41.4 | 6 | 40 | 13 | 100 | Pearson (0.001) | Literacy levels: ≤Primary Higher and senior secondary Graduate and postgraduate | Pearson (0.051) |
| 1001-1429 | 32.2 | 11 | 43 | 14 | 100 | | | Pearson (0.033) |
| 1430-2000 | 33 | 13 | 41 | 13 | 100 | | | Fischer's exact**** (0.568) |
| 2001-2500 | 26.7 | 16 | 46 | 11 | 100 | | | |
| ≥2501 | 28.6 | 18 | 40 | 14 | 100 | | | |

*Beedi is a small Indian cigar made of unprocessed tobacco hand rolled into a leave. Per se beedi smoking is more harmful than cigarette smoking. **Smokeless tobacco includes various forms of quid either by mixing raw tobacco with lime, processed chewable tobacco available in pouches or tobacco taken with betel wine (paan). ***The cut off level of significance is 0.05. ****Fischer's exact test was applied where expected cell count was <5. PCI = Per capita income

was statistically significant and along the expected lines across different income categories. While prevalence of beedi smoking, which is commoner among the poor, decreased with rising monthly PCI, cigarette smoking showed a higher prevalence in the higher income categories. Prevalence of smokeless and combined forms of tobacco consumption was more or less the same across income categories. With the exception of graduates and postgraduates, these trends remained statistically significant at a significance level of 0.05 even after controlling for literacy levels.

Variation in intensity of smoking

Intensity of smoking here has been defined as the number of bidis and cigarettes smoked per day. Even though, smoking was less preferred form of the tobacco usage among women, the intensity of smoking among women smokers did not vary significantly from that of men ($P = 0.378$) in our sample.

To test the variation of intensity of smoking between males and females Mann-Whitney test (Nonparametric test for two

independent samples) was employed. Here again, the distribution of intensity of smoking was nonnormal in either sex for reasons explained above.

Table 5a shows the variation in intensity of smoking with age. The overall intensity of smoking for the sample was 16 (95% confidence interval [CI], 15-17) bidis and cigarettes per day. There was a statistically significant increase in the intensity of smoking with increasing age, with those higher than or equal to 51 years of age smoking the most.

Even though the variation in intensity of smoking was statistically significant across different employment categories, but this did not appear to be a determinant of the intensity of smoking. For example, the intensity of smoking was the same in three out of six categories (skilled, self-employed and housework). However, there was a clear statistically significant variation in the intensity of smoking across income categories with a consistent fall in smoking with rising income [Table 5b]. Likewise, there was no statistically significant variation in intensity of smoking by

Table 5a: Intensity of smoking by age categories and sex

| Categories | Number of bidis and cigarettes (combined) smoked per day* | | | P value for difference in mean |
|---|---|-----------------|-------------|--------------------------------|
| | Mean | 95% CI for mean | | |
| | | Lower bound | Upper bound | |
| Intensity of smoking across the entire sample | | | | |
| Only smokers*-771 (45% of the respondents) | 16 | 15 | 17 | — |
| Intensity of smoking by age group | | | | |
| 18-26 years | 10 | 8 | 13 | 0.001** |
| 27-34 years | 11 | 9 | 14 | |
| 35-42 years | 15 | 13 | 18 | |
| 43-50 years | 19 | 17 | 22 | |
| ≥51 years | 18 | 17 | 20 | |

*Due to oversight the quantity of tobacco use by all respondents could not be noted properly. For example the quantity of tobacco used for smokeless tobacco was measured in terms of packets or pouches, but the field investigators did not note the amount in each pouch and the number of times during the day over which it was consumed. This problem could have been circumvented by simply noting the number of times smokeless tobacco was taken during the day as the quantity taken at 1-time does not vary greatly. It is for this reason instead of "intensity of tobacco use" we have plotted the results for "intensity of smoking". Smokers using smokeless form of tobacco have been excluded. **Kruskal-Wallis test (nonparametric test for K number of independent samples) was employed. It may be noted that the intensity of smoking measured in terms of total number of bidis and cigarettes consumed by individual smokers daily varied within a very narrow range; similar distribution thus carried over to categories of smokers divided on the basis of age groups [Table 5a], employment, PCI and educational status categories [Table 5b]. Hence, Kruskal-Wallis test for comparison of means. The distribution of intensity of smoking among smokers by these categories thus did not follow a normal distribution. Had the distribution between individual smokers varied widely, say between 1 and 2 bidis and cigarettes up to 60-70, with widely distributed intervening numbers, then smoking intensity could have been normally distributed, mandating the usage of ANOVA. CI = Confidence interval, PCI = Per capita income

Table 5b: Intensity of smoking by employment, monthly per capita and literacy levels

| Categories | Number of bidis and cigarettes (combined) smoked per day | | | P value for difference in mean |
|--|--|-----------------|-------------|--------------------------------|
| | Mean | 95% CI for mean | | |
| | | Lower bound | Upper bound | |
| Intensity of smoking by monthly PCI categories | | | | |
| Lowest-1000 | 20 | 18 | 22 | 0.001** |
| 1001-1429 | 19 | 17 | 22 | |
| 1430-2000 | 15 | 13 | 17 | |
| 2001-2500 | 13 | 11 | 16 | |
| ≥2501 | 11 | 9 | 14 | |
| Intensity of smoking by literacy levels | | | | |
| ≤Primary | 17 | 16 | 18 | 0.163** |
| Higher and senior secondary | 15 | 13 | 17 | |
| Graduate and postgraduate | 13 | 9 | 18 | |

**Here Kruskal-Wallis test (nonparametric test for K number of independent samples) was employed for reasons explained in the notes to Table 5a. CI = Confidence interval, PCI = Per capita income

literacy level [Table 5b]; though a declining trend was observed with higher levels of education. Perhaps this trend could have been statistically enhanced with more numbers in higher literacy levels.

Counter-intuitively, income sufficiency, income stability, indebtedness status and mental tension did not seem to be the determinants of intensity of smoking in our sample; the respective levels of statistical significance being $P = 0.211$, $P = 0.92$, $P = 0.121$, $P = 0.171$ (Mann-Whitney U-test for comparison of means between two nonnormally distributed samples has been applied. Reasons for nonnormal distribution are the same as explained in the notes to Table 5a). However, it was observed that those with stable incomes smoked marginally less (smoking intensity = 16) than those with unstable incomes (smoking intensity = 17). Likewise smoking intensities among persons with and without tension were 18 and 16, respectively, while those among the indebted and nonindebted were 19 and 16, respectively.

The variation in intensity of smoking by availability of recreational facilities (by recreational facilities is meant facilities for sports and gymnasium etc.) though statistically significant at $P = 0.004$, again was counter-intuitive with the intensity being higher among those having access to recreational facilities.

Overall the study subjects spent 26% of their daily PCI (95% CI, 25-27) on tobacco consumption [Table 6]. As would be intuitively expected, those with sufficient and stable incomes spent a lesser proportion of their daily income on tobacco whereas those indebted and had tension spent a higher proportion on tobacco. Counter-intuitively, those to whom recreational facilities were available spent more on tobacco. Barring indebtedness and present tension status the variation in proportion of expenditure on tobacco across other categories was statistically significant [Table 7].

It can be seen from Table 8, as would be expected, that the proportion of expenditure on tobacco decreased substantially, though not in a statistically significant way, among the graduates and postgraduates and in a statistically significant manner in the higher income categories. It is remarkable that the proportion of daily income spent on tobacco was the highest in case of the poorest respondents being close to nearly 40%. The variation in expenditure on tobacco neither showed any pattern nor was statistically significant across employment categories ($P = 0.071$).

It can be seen from Table 8 that persons using both the smoked and the smokeless forms of tobacco spent the highest proportion of their income on tobacco compared to only smokers or only nonsmoked tobacco users. As regards religious categories, the point to be noted is that even though Sikhs constituted only 1% of the total responders, they spent the highest proportion their daily incomes on tobacco among all religious categories given the fact that Sikh religion prohibits the consumption of tobacco. Variation in proportionate expenditure on tobacco across both these categories was statistically significant.

The variation in proportion of expenditure on tobacco by variation in number of friends Table 9 consuming tobacco was found to be statistically significant ($P = 0.001$); however, surprisingly those

Table 6: Distribution of daily expenditure on tobacco as a proportion of daily PCI by various factors influencing tobacco consumption

| Categories | Daily tobacco expenditure as a proportion of daily PCI | | | P value for difference in mean |
|-------------------------------------|--|-------------------|------|--------------------------------|
| | Mean % | 95% CI for mean % | | |
| Entire sample | 26 | 25 | 27 | — |
| Income sufficient | 25 | 23 | 26 | 0.001* |
| Income insufficient | 28 | 26 | 29 | |
| Income stability | 25 | 23 | 26 | 0.001** |
| Income instability | 28 | 27 | 30 | |
| Indebted | 28 | 23 | 33 | 0.561** |
| Not indebted | 26 | 25 | 27 | |
| Having tension | 29 | 26 | 32 | 0.293** |
| No tension | 26 | 25 | 27 | |
| Recreational facility available | 27 | 26 | 28.5 | 0.001** |
| Recreational facility not available | 23.5 | 21.6 | 25.5 | |

*Median daily expenditure on tobacco is 20% of the daily PCI, **Mann-Whitney U nonparametric test was applied. PCI = Per capita income, CI = Confidence interval

Table 7: Distribution of daily expenditure on tobacco as a proportion of daily PCI by literacy, employment and monthly PCI categories

| Categories | Daily tobacco expenditure as a proportion of daily PCI | | | P value for difference in mean |
|---|--|-----------------|---------------|--------------------------------|
| | Mean % | 95% CI for mean | | |
| | | Lower bound % | Upper bound % | |
| Daily tobacco expenditure as a proportion of daily PCI by literacy levels | | | | |
| ≤Primary level | 26.5 | 25 | 28 | 0.156* |
| Higher and senior secondary | 27 | 25 | 28 | |
| Graduate and postgraduate | 22 | 18 | 26 | |
| Daily tobacco expenditure as a proportion of daily PCI by monthly PCI | | | | |
| Lowest-1000 | 37 | 34 | 39 | 0.001* |
| 1001-1429 | 31 | 28 | 34 | |
| 1430-2000 | 27 | 25 | 28 | |
| 2001-2500 | 21 | 19 | 23 | |
| ≥2501 | 15 | 14 | 17 | |

*Kruskal-Wallis nonparametric test was applied. PCI = Per capita income, CI = Confidence interval

with none of their friends using tobacco spent more on tobacco than those with most of the friends using tobacco. But the highest expenditure was by far for the category where all friends consumed tobacco. There was a statistically insignificant rise in tobacco expenditure with increase in number of close relatives using tobacco ($P = 0.638$) [Table 9]. However, as in the case of friends, in case of relatives also the responders with none of their relatives using tobacco spent more than some of those with relatives using tobacco.

There was a statistically significant variation in the mean age at first use of tobacco across sex and literacy levels; P value being, 001 for both.

Table 8: Distribution of daily expenditure on tobacco as a proportion of daily PCI by form of tobacco used and religious categories

| Categories | Daily tobacco expenditure as a proportion of daily PCI | | | P value for difference in mean |
|--|--|-----------------|---------------|--------------------------------|
| | Mean % | 95% CI for mean | | |
| | | Lower bound % | Upper bound % | |
| Daily tobacco expenditure as a proportion of daily PCI by form of tobacco used | | | | |
| Beediand cigarette | 25 | 23 | 26 | 0.001* |
| Smokeless | 24 | 23 | 26 | |
| Both smoked and smokeless | 40 | 36 | 43 | |
| Daily tobacco expenditure as a proportion of daily PCI by religion | | | | |
| Hindu | 26 | 25 | 27 | 0.032* |
| Muslim | 28 | 24 | 32 | |
| Sikh | 36 | 25 | 47 | |
| Christian | 23 | 9 | 38 | |

*Kruskal-Wallis nonparametric test was applied. PCI = Per capita income, CI = Confidence interval

Male respondents on an average took to using tobacco 5 years earlier than females for whom the age at first use was 27 years. While the postgraduates had a considerably higher age at the time of first use of tobacco, the difference between the subordinate levels of literacy was not remarkable. The difference in age at first use of tobacco was also statistically significant ($P = 0.001$) for different age categories. While the 18-26 years age group, on an average started using tobacco at the age of 17 years, those above 51 years of age started tobacco use at the age of 26 years. The inference, therefore, is that the younger generations are increasing taking to tobacco use much earlier than earlier.

Common reasons for starting tobacco use

Figure 1a and b show the most common and the second most common reason, respectively, for which people start tobacco use. Peer pressure was the most common reason for the respondents to start using tobacco among 60.7% of the respondents, while 22.7% of the respondents reported that there was no particular reason for them to start using tobacco. Psychological reasons like tension or physiological factors like indigestion and constipation were listed by 10.4% of the respondents as the first reason for starting tobacco use.

In the enumeration of the second reason for starting tobacco use and overwhelming number did not mention any reason; however, easy availability was the most common second reason cited by 49.3% of the 454 respondents, followed by less cost, psychological and physiological reasons and no particular reason in that order.

Common occasions when people indulge in tobacco use

Figure 2a-d show the common occasions when people use tobacco in the order of frequency as mentioned by the respondents. The most

Table 9: Distribution of daily expenditure on tobacco as a proportion of daily PCI by prevalence of tobacco use among friends and relatives

| Categories | Daily tobacco expenditure as a proportion of daily PCI | | | P value for difference in mean |
|---|--|-----------------|---------------|--------------------------------|
| | Mean % | 95% CI for mean | | |
| | | Lower bound % | Upper bound % | |
| Daily tobacco expenditure as a proportion of daily PCI by prevalence of tobacco use among friends | | | | |
| All of them | 32 | 31 | 34 | 0.001* |
| Most of them | 24 | 21 | 26 | |
| Few | 23 | 21 | 25 | |
| Very few | 21 | 19 | 24 | |
| None | 25 | 22 | 29 | |
| Daily tobacco expenditure as a proportion of daily PCI by prevalence of tobacco use among relatives | | | | |
| Up to 1 | 26 | 25 | 27 | 0.638* |
| 2-4 | 27 | 23 | 31 | |
| >4 | 42 | 165 | 250 | |
| None | 29 | 0 | 59 | |

*Kruskal-Wallis nonparametric test was applied. PCI = Per capita income, CI = Confidence interval

common occasion for tobacco use was after meals, mentioned by 75.5% of the respondents. “When worried” and “while resting” were distant second and third as the most common occasion for smoking mentioned by 12.2 and 7.5% of the respondents respectively.

Time of rest was the most commonly reported second occasion for tobacco use followed by “after meals” and “among friends” as the other commonly reported second occasions [Figure 2b]. Happy mood was reported as the most common third occasion for tobacco use by 31.4% of respondents and “among friends” was the most commonly reported fourth occasion for tobacco use by 26.7% of the respondents.

Common perceptions about the physiological effect of tobacco

It can be seen from Table 10 that “tobacco helping in digestion” was the most commonly held belief regarding the physiological effect of tobacco, while 12% of the respondents believed that tobacco helped in controlling appetite and reducing weight. Thus, role of tobacco in regulating the gastrointestinal functions was a commonly held belief among the users. Only 11% of the users believed that tobacco relieves tension while 4% thought that tobacco helps in learning and enhancing memory.

Common leisure time activities

The most common leisure time activity reported by 44.7% of respondents was either watching TV or listening to radio, while 23.5% of the people reported “meeting people” as their most common leisure time activity [Figure 3a]. Meeting people was also reported as the most common second choice for leisure time activity followed by sleeping as the second most common second choice [Figures 3b and Figure 4].

DISCUSSION ON THE FINDINGS

Sociodemographic characteristics of the respondents

The overwhelming presence of persons in the younger age groups in our sample is indicative of increasing prevalence of tobacco use

among the younger generations. The sex ratio in our sample was grossly weighted in favor of males. Women constitute only 8.7% of our sample which is much below the proportion of women in most other large scale surveys on tobacco use conducted in the country. This, however, does not mean that tobacco use among women in

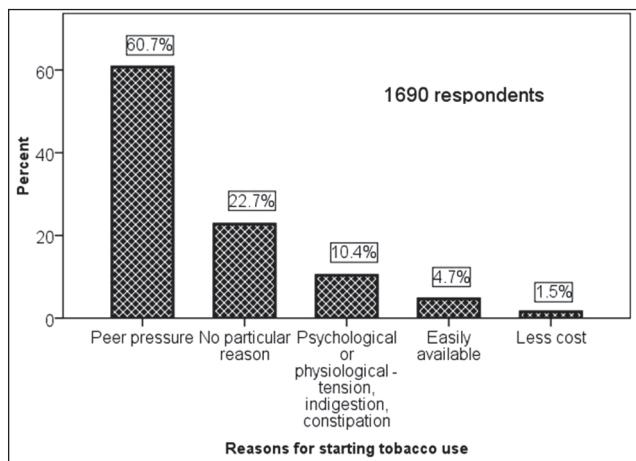


Figure 2a: Most common reason for starting tobacco use

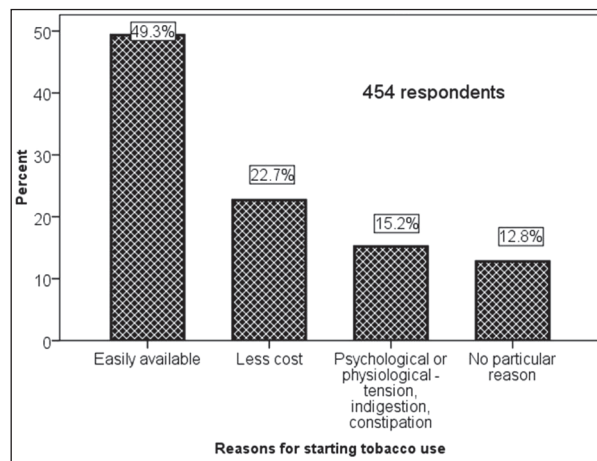


Figure 2b: Second reason for starting tobacco use

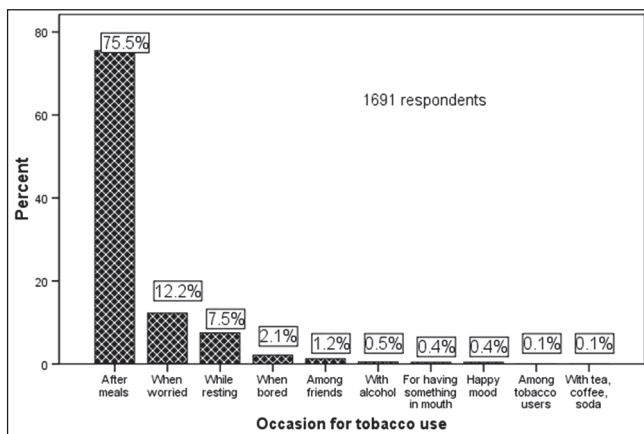


Figure 3a: Most common occasion for tobacco use

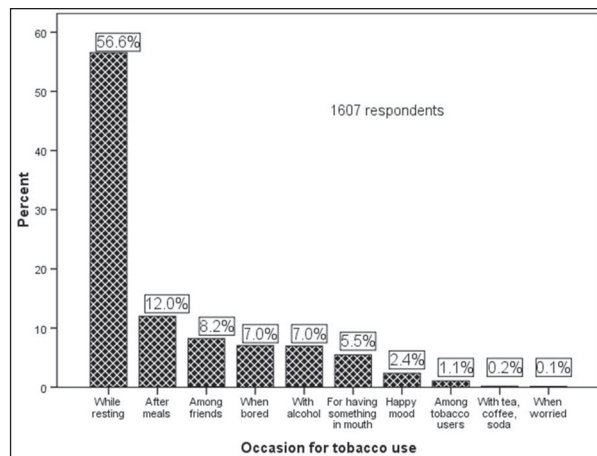


Figure 3b: Second occasion for tobacco use

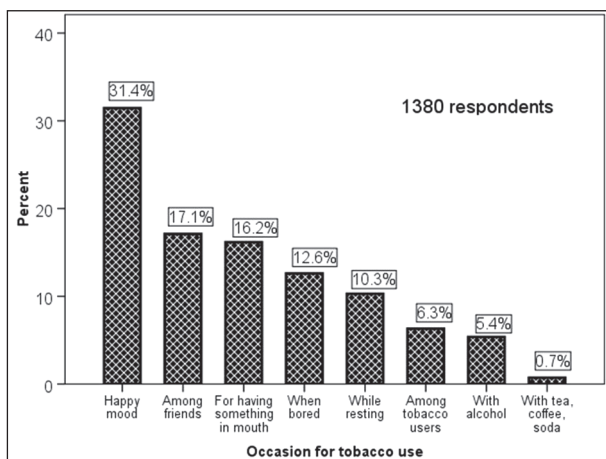


Figure 3c: Third occasion for tobacco use

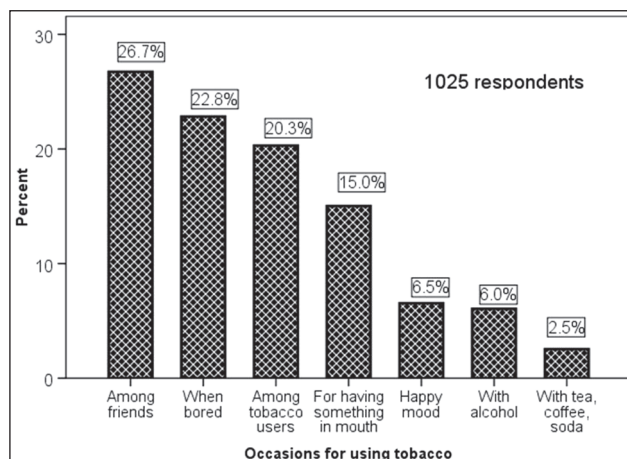


Figure 3d: Fourth occasion for tobacco use

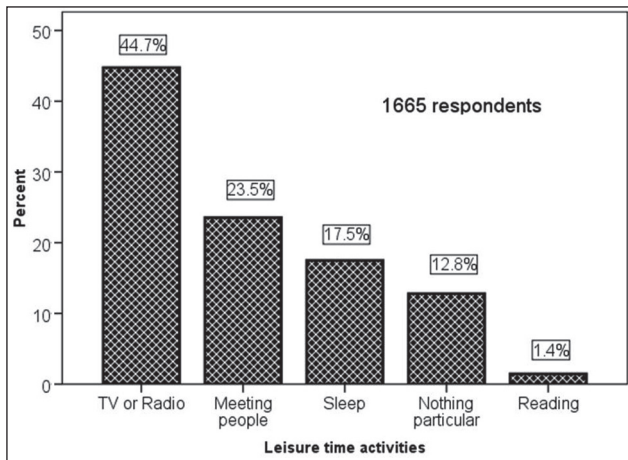


Figure 4a: Most common leisure time activity

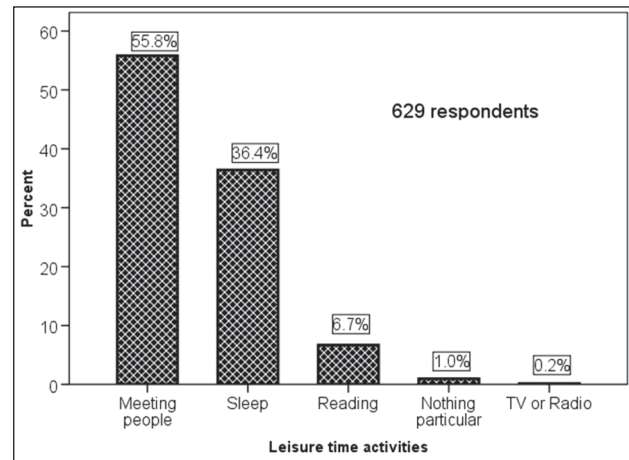


Figure 4b: Second most common leisure time activity

Table 10: Common perceptions regarding physiological effect of tobacco

| Physiological effect | Response | | | Total respondents (%) |
|--|----------|-----------|----------------|-----------------------|
| | Yes (%) | No (%) | Don't know (%) | |
| Relieves stress | 178 (11) | 1180 (70) | 321 (19) | 1679 (100) |
| Enhances learning and memory | 70 (4) | 1294 (77) | 312 (19) | 1676 (100) |
| Helps in controlling appetite and weight | 196 (12) | 1207 (72) | 281 (17) | 1684 (100) |
| Helps in digestion | 471 (28) | 968 (57) | 248 (15) | 1687 (100) |

the study area was not widely prevalent. In fact the use of both smoked and smokeless forms of tobacco were equally prevalent among the interviewed women and the intensity of smoking was found to be higher among women than in men, which points to a much wider use of tobacco among women in the area than was actually captured in the study.

One probable reason for this finding could be that while other studies only enumerated whether women used tobacco and the form of tobacco they used, our study involved a more detailed and direct interview of the women using tobacco and that too possibly in the presence of other family members which can be very embarrassing because tobacco use, especially smoking by women does not have a wide social acceptance in India with the exception of either the very poor or women in certain sections of the Westernized upper classes. Lack of social sanction could have been particularly discouraging for the younger women to participate in our survey; that is why we can see that while the median age for male respondents was 37 years, 51% of the women in our sample were either equal to or >51 years in age.

These findings are important from the perspective of conducting

large-scale representative surveys on tobacco-related behavior especially among women. One way to overcome this handicap could be to combine qualitative research methods like focus group discussion involving women with the surveys. This could yield a greater depth of knowledge on the subject from a smaller group of women. Depending on the section of the society to be covered surveys can be conducted at places where women are likely to be present in large numbers as a group for example women's colleges, places employing women in large numbers or women's hostels etc.

Even though in terms of economic standard there is a clear demarcation between urban slums and resettlement colonies with the former being much worse off and would probably have a large proportion of those officially recognized as poor, in our study area also most of the people were not economically well off with two-third of them subsisting on less than Rs. 66 a day and as many as a fourth subsisting at the level of the official poverty line. Even though there were a few households that were relatively well off and some even had air conditioners and cars in their houses, the majority was not economically well off. Resultantly, there was general social and economic homogeneity among the respondents and relative lack of social stratification. This fact is reflected in other socioeconomic indicators like literacy levels and employment categories. While 88% of the respondents had had 8 years (high school) or less of schooling, the categorization by way of employment categories was more of functional than hierarchical and there was a very weak correlation between employment categories and monthly PCI levels. These are some important factors to be kept in mind for future studies on tobacco consumption behavior or even other studies among these sections in cities like Delhi where such sections constitute an overwhelming proportion of the population.

Factors impacting on the tobacco use patterns and tobacco-related behaviour

Factors impacting on form of tobacco consumed

Bidis (a small cigar made by hand rolling unprocessed tobacco

in a dry leaf) are the most common form of smoked tobacco consumed by the poor in India. Accordingly, in our sample beedi is overwhelmingly dominant form of smoked tobacco and is cheaper than some of the processed smokeless forms of tobacco. Hence, we find that the unemployed people smoke more bidis than other employment categories. Being cheap beedi is also the dominant form of smoked tobacco among the women engaged in housework as women invariably have lesser control over financial resources and hence cannot afford costlier forms like cigarettes. Prevalence of cigarette smoking, though less than beedi smoking for each employment category, clearly increases as we rise up the employment ladder.

In other large-scale surveys, literacy level has been shown to be a strong predictor of type of tobacco consumed.^[9,10] Hence, the impact of other factors on the type of tobacco consumed was examined both independently and after controlling for literacy level.

Due to aggressive marketing tactics promoting various forms of processed smokeless tobacco as lifestyle habit the consumption of these products has increased among students and youth.^[11,12] In consonance with the fact that the poor are more prone to tobacco consumption, hence, the youth among these sections could be more susceptible to such advertising. Resultantly, a huge 61% of the respondents in 18-26 years age group consumed smokeless tobacco.

Another impact of high decibel tobacco campaigning is seen in the form of impact on cigarette smoking.^[13,14] Even though the youth in the study area can hardly afford, at least not on a regular basis, the lifestyle habits that are typically associated with the westernized lifestyles of the rich, yet the prevailing cultural environment of a metropolis like Delhi can lead to the craving for aping western cultural norms among these youth. This craving may at least in part be consummated by taking to cigarette smoking.^[15] The fact that cigarette smoking is commonest in younger age groups could be attributed to this fact while beedi smoking increased progressively in the higher age groups. With the exception of graduates and the postgraduates, these trends remained statistically significant for all other literacy levels. The fact that cigarette smoking decreases with increasing age suggests that the new smokers of younger age group are comparatively more likely to take to cigarette smoking.

The dichotomy of beedi and cigarette smoking is expectedly maintained across the monthly PCI categories as well, with the lower categories having a much greater prevalence of beedi smoking as compared to the higher categories and the reverse being true with regard to cigarettes. This trend also remained statistically significant after controlling for literacy levels for all education levels except the graduates and the postgraduates among whom cigarette smoking was present to a much greater extent. However, controlling for education did dilute the strength of association between form of tobacco used and income category, thereby suggesting that the relationship between the two is actually mediated through literacy status of different income categories.

Given the fact that two-third of the respondents earned less than Rs. 2000 per capita per month, beedi smoking then was clearly the predominant form of smoking associated with the overwhelming population of the area while cigarette smoking was much more prevalent among the relatively more affluent sections. The study by Venkat Narayan *et al.*, done in Delhi also found a similar association between higher income categories and cigarette smoking.^[10]

With respect to policy for tobacco control, the findings of this section suggest that in order to control tobacco use among this section of the population efforts shall have to be directed for control of both the smokeless (especially among the younger age groups) tobacco use and smoking. With respect to smoking, the efforts shall have to be concentrated on ways and means to curb beedi smoking. While cigarette smoking may be more sensitive to taxation policies, this may be of marginal utility with respect to beedis the cost of which is very low.

Rather, attempts to manipulate the cost of beedis may have other undesirable social impact — as beedi making is a labor intensive industry employing millions of workers in the country belonging to the poorest sections which are much exploited by the tendu leaf (used to make beedis) contractors and traders, these sections might be disproportionately affected by such moves without commensurate gains for tobacco control. Needless to say, that inducing a wider shift from beedi smoking in sizable sections of the population shall have to entail simultaneous policy initiatives in the economic, social and agricultural sectors on a long-term basis. In the immediate term, attention should be focused on targeted antitobacco campaigns, bolstering of the antitobacco efforts through the general health services and community health workers to provide a more robust professional help to those interested in quitting.

Factors impacting on the intensity of smoking

The intensity of smoking was determined for those respondents using only smoked tobacco by combining the number of cigarettes and beedis smoked in a day per smoker. Differential rates for beedis and cigarettes were not calculated because the number of smokers using cigarettes and the intensity of cigarette smoking was very less compared to that for beedis. We did not come across any large-scale surveys that have examined the factors determining the intensity of smoking.

The mean number of cigarettes and beedis smoked per day in our sample is 16 as compared to 18 in the national sample in GATS India 2009-2010 (GATS Survey was conducted in 2009-2010 by the International Institute for Population Sciences, Mumbai in coordination with the Ministry of Health and Family Welfare. It was a household survey of persons 15 years and above. The data from GATS survey later fed into the report of the Global Youth Tobacco Survey, 2011. As such 2009-2010 GATS data constitutes the latest national level representative data for India) survey.^[16] There is a consistent and statistically significant rise in intensity of smoking as we move to higher age groups. The rise is due to a much higher prevalence of beedi smoking among higher age

groups. Similar trends in the number of cigarettes and beedis smoked per day were found in the GATS India 2009-2010 survey with the number of beedis smoked per day being more than the number of cigarettes.^[16]

Though not statistically significant, but in our sample the women were heavier smokers than men, which is different from the national trend observed in the GATS survey. This is an indicator that despite social taboos associated with women consuming tobacco, especially the smoked forms; the prevalence of tobacco consumption among women is actually quite high and need to be focused upon in antitobacco campaigns.

As it has been well established in other studies that tobacco use is more among the poorer than better off sections, thus expectedly intensity of smoking was more among the unemployed than the unskilled and semi-skilled workers in employment. However, a higher intensity of smoking in skilled workers (those in regular public or private sector employment), self-employed workers and those doing housework could be because these employment categories differed from other categories only in the form of employment rather than constituting an economically higher category. This variation in intensity of smoking could have been clarified further if those in the later employment categories were classified by their skill level rather than the form of employment. We did not have the time to revisit these respondents for assessing and re-categorizing them by the level of their skill.

The decrease in intensity of smoking as we moved away from lower to higher monthly PCI levels was statistically significant. Going by these findings a typical heavy smoker from the study area can be defined as a person (male or female) who is illiterate or having very low level of education, who is unemployed or engaged in unskilled manual work, earning less than 1000 Rs. per month and is 45 years or more in age. It is this person who needs to be targeted by the antismoking campaigns, health workers and the local health services for controlling smoking. Even though these findings are from one resettlement colony in Delhi, the robustness of the sample size gives us the confidence to suggest that findings from other such colonies in Delhi would not be very different given similar social, economic and cultural context of the people living in these localities.

Some other determinants of smoking intensity

Our study examined the role of economic security, mental tension and availability of recreational facilities on the smoking-related behavior. Barring the availability of recreational facilities none of the other factors had any statistically significant impact on the intensity of smoking even though intuitive thinking would lead us to believe that all of these factors should affect smoking or tobacco use behavior.

For the purpose of this study, the notion of income sufficiency was defined by the subjective perception of the respondent rather than defining it by any quantitative criterion. Likewise, though not statistically significant, the intensity of smoking was found

to be more for persons having unstable income, those who were indebted and had some mental tension. Maybe further refining of the questions regarding income sufficiency, income stability, indebtedness, and presence of mental tension to capture greater details could throw up statistically significant results as to the impact of these factors on smoking intensity.

The fact that respondents having access to recreational facilities (outdoor sporting facilities or gymnasium etc.) had a higher smoking intensity could be due to the possibility that availability of these facilities did not mean that they were automatically used as well, especially because most of the people reported watching television or listening to radio as the most common leisure time activity, with meeting people in the locality as the second most common leisure activity.

Determinants of tobacco related expenditure

The higher proportionate expenditure on tobacco among those with income insufficiency, unstable income, those indebted and having some mental tension at present was as per the expectations even though the results were not statistically significant in case of indebtedness status and those having mental tension. The general import of these findings is that tobacco control cannot be only a matter of targeted campaigns, health education and behavior change communication but has to be integrated with policies geared toward greater economic and psychological wellbeing of the people. This aspect, though logical, is often missing in actual efforts towards tobacco control and there is one-sided emphasis on individuals rather than on alleviating their societal conditions. In fact, there is even a paucity of research on the impact of these factors on tobacco consumption patterns which only confounds the policy on tobacco control.

The statistically significant variation in the proportion of expenditure on tobacco across households of different monthly PCI categories is noteworthy for the reason that the respondents belonging to the poorest households by far spent the largest proportion of their income on tobacco thereby confirming the well-known fact that the poor are the worst victims of tobacco use and that addiction to tobacco has ominous implications for poverty alleviation. Higher proportionate expenditure on tobacco among the poor also underlines the fact that tobacco abuse is a social problem that is impacted both by the individual level factors and by the societal factors.

The fact that the proportion of daily expenditure on tobacco was maximum for those respondents who smoked as well as consumed smokeless tobacco, underlines the need to redouble the efforts towards curbing the use of all forms of tobacco. The fact that the proportion of daily expenditure on tobacco was highest among the Sikhs in spite of Sikh religion debarring its followers from using tobacco, highlights the pernicious control that habit of tobacco consumption takes over its victims and that it has even undermined the social barriers to its consumption, thereby highlighting the need

for equally dogged struggle for its eradication.

Extent of tobacco consumption in the social circle of the respondents was a strong predictor of daily expenditure on tobacco which highlights the need to devise antitobacco strategies targeting both the individuals and sections of the population as groups, e.g., school children, college students and workers in the industrial areas.

Determinants of age at first use

Knowledge of factors influencing the age at first use is important for fine tuning of tobacco control strategies. Pradeep Kumar *et al.* have reported from the Kerala state of India that the age at first use is declining among the youth.^[17] They have reported the mean age at initiation to be 19 years for respondents <25 years of age and 25.5 years among ever smokers >44 years of age.^[17] This compares reasonably well with ages of 17 and 26 years at first use among the corresponding age categories in our study.

The age at initiation between the age group of 18-34 years in our survey is much the same as that in the GATS India survey conducted in 2009-10 that is, 18 years.^[16]

The progressive decline in age at first use is both a matter of concern and urgent redressal in the tobacco control strategies. There should be more stringent legal provisions to safeguard against marketing strategies of tobacco companies targeting the youth such as complete banning of sponsoring of youth events by cigarette companies. Provisions like banning the presence of sale of tobacco products in the vicinity of schools and colleges should be more rigorously implemented.

The variation in age at first use by sex, literacy level, religion, monthly PCI s and form of tobacco used, though statistically significant for some of these categories, did not provide any tangible clues to improving the implementation of tobacco control strategies. It is important to note that the mean age at initiation while examining for various determinants was around 22-23 years which is higher than the mean age of 17-19 years at initiation for these determinants in the GATS India survey 2009-2010.^[16]

Determinants of starting tobacco use

Our findings in this regard suggest that the tobacco use practices are influenced by the practices of the close circle of friends or colleagues. Ways should be devised to especially address the school or college students and the youth in the localities as a group by way of counseling sessions, film shows or talks by medical personnel and social activists rather than pursuing individual targeted strategies which may be considered obtrusive and hence resented.

There is considerable stigma associated with alcoholism, but the same is not associated as much with tobacco use, at least not with respect to males. Effective steps should be taken to turn this social perception around. This, however, requires a political will to act for safeguarding the health of the people by taking decisive measures against the advertisement tactics of the tobacco

companies. Doing this will become possible only if appropriate long-term policy measures are initiated to make up for the perceived loss of revenue from decline of tobacco industry and the adverse economic consequences for those engaged in tobacco production and manufacturing of tobacco products.

The finding that as many as 22.7% of the respondents had “no particular reason” for starting tobacco use ought to be read with the finding on the most commonly reported second reason for starting tobacco use which was easy availability (reported by approximately 49% of the respondents, though out of a much reduced number). If there is easy availability of tobacco products, say from around the corner shops, then a person may be liable to their use even without any particular reason or on most insignificant of the pretexts which may not even register as a reason for starting tobacco usage. The implication for policy here is that there should be curbs on the availability of tobacco products by imposing strict regulation on the opening of the stalls and shops selling these products.

It is noteworthy that approximately 10% and 15% of the respondents reporting the most common reason and the most common second reason respectively for starting tobacco usage reported psychological and physiological reasons like indigestion, constipation etc., to be the reason for starting tobacco use. While psychological reasons may not be readily amenable to any straightforward policy initiatives, but the physiological reasons can certainly be addressed through effective functioning of the health services in the community or through appropriate antitobacco educational material that provides appropriate guidance to the users for alleviating problems like indigestion and constipation.

Common occasions for using tobacco

The most common reason for starting tobacco use - “peer pressure” is only the fourth most common reason for continuing tobacco use. By these responses it is reflected that the reasons for maintenance of tobacco use are different from the ones responsible for initiation of use meaning thereby that we need to have different strategies for preventing people from initiating tobacco use and for persuading those who are already using tobacco to quit.

It also appears that while societal factors are much more influential in the initiation of tobacco use, continuance of tobacco consumption and thereby also its quitting depend largely on the individual's own desire. This means that there have to be two set of messages — one, that will convince different sections/groups of population to desist from taking to tobacco consumption and second, that will convince individual users not only that tobacco use should be given up, but that it is possible to give it up with a firm resolve.

Perceptions about physiological impact of tobacco

While it is encouraging to note that an overwhelming majority of the respondents did not believe the perceived benefits of tobacco

to be true, the fact remains that a substantial number believed these effects to be either true or did not have a clear idea about them. These are the most likely candidates to fall prey to the propaganda of the tobacco companies, and their combined percentage may well add up to be equal to the prevalence of tobacco consumption in the society.

It is important that besides highlighting the harmful health effects of tobacco, the antitobacco campaigns should also seek to remove these misconceptions regarding perceived benefits of tobacco use especially as the tobacco companies may use these perceptions for creating a demand for their products; as one marketing professor very rightly commented that — "...to smokers advertising is a reminder and re-enforcer, while to the nonsmoker it is a temptation and a teacher."^[18]

Common leisure time activities of the people

Knowledge about leisure time activities of the people can be an important guide for framing of antitobacco messages as these can be combined with the leisure activity to get the message through. In our sample watching television or listening to radio and "meeting people" were reported as the most common leisure time activities in that order. Meeting people was reported as the most common second leisure time activity. This points to the feasibility of using television and radio for communicating effective antitobacco messages. Second, possibility should be considered of roping in prominent individuals in an area who are active in their social circle for mobilizing opinion against tobacco use provided of course they themselves do not use tobacco.

CONCLUDING REMARKS

Rather than following the course of a classical epidemiological transition, developing countries like India have come to be confronted with the double whammy of a huge burden of both communicable, as well as noncommunicable diseases. The classical perception had been that while the communicable diseases are the diseases of poverty, the noncommunicable diseases are the lifestyle diseases that have come to be widely prevalent due to rising affluence of certain sections of the society. This perception does not hold true in reality, as like all bad things even noncommunicable diseases have come to afflict the poor in India on a large scale. Tobacco is a crucial link in this connection between the noncommunicable diseases and poverty.

Tobacco does not only have biological consequences but has immense societal, and economic impact in as much as worsening disease means worsening the productivity, economic loss both for individuals and the society and hence worsening poverty. It is now clearly recognized that much of tobacco-related morbidity and mortality affect the poor disproportionately more than it does the rich. Deaths attributed to smoking account for more than half of the difference in death rates among rich and the poor adults.^[10] Implications of tobacco use for worsening of poverty and malnutrition are also well recognized^[19] and given its huge burden

of poverty and malnutrition India certainly cannot afford to ask for more of it on account of increasing tobacco use.

As in case of most of the communicable diseases, disproportionate affliction of the poor with tobacco-related morbidity and mortality, points to societal level factors in the epidemiology of tobacco-related diseases and the need to prioritize broader social interventions over and above individual-level interventions. However, information on larger social determinants of tobacco addiction is as yet relatively scarce in order to guide such social interventions.

It is in this respect that the findings of our study are important as they explore the linkages between a number of social determinants like income sufficiency, income stability, indebtedness status, mental tension, availability of recreational facilities, PCI, literacy levels, impact of tobacco consumption among peer group or close relatives, leisure time activities etc., and an individual's tobacco-related behavior. The possible clues these findings provide to better design tobacco related interventions have already been discussed above.

In India, tobacco-related interventions still remain by and large focused on changing individual tobacco consumer's behavior; whereas the need is to design interventions that will impact on the societal reasons/conditions which make a person prone to tobacco consumption. It is from this perspective that our study seeks to break new ground and paves the way for designing larger and more systematic studies to study the social determinants of tobacco-related behavior.

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