Original Article

In harm's way: tobacco industry revenues from sales to underage tobacco users in India

Pranay Lal[1], Sonu Goel[2] and Deepak Sharma[2]

Abstract:
Background: In 2010, the global adult tobacco survey (GATS) for India revealed that nearly 40% of current smokers and 42% of current chewers had initiated tobacco use before they were of the legal age (18 years old or over). Global evidence shows that those who initiate earlier have a lower probability of quitting the use of tobacco during their lifetime. In order to sustain its profits, the tobacco industry will make every effort to recruit underage users who become lifelong users of their products.
Aims and objectives: We estimate the consumer expenditure on tobacco products by underage users in India.
Methodology: Using nationally representative data we estimated the number of daily underage tobacco users for a year and their annual expenditure on different types of smoked and chewed tobacco products.
Results: There are nearly 4.4 million underage daily tobacco users (age group 15–17 years old) in India. Approximately 7.2% of the population in the 15–17 age group are current daily users of tobacco (0.1% cigarette smokers, 0.5% bidi smokers and 6.6% tobacco chewers). Underage users spend nearly US$16.9 million and US$270.8 million respectively on smoking and chewing tobacco products.
Conclusion: There is a substantial expenditure on tobacco products by underage individuals in India. A significant number of new users are added every year that provide an estimate for the size and nature of the future of the tobacco epidemic, one on which the tobacco industry depends on for its sustenance. The government of India's efforts to reduce sale to underage users has had limited effect and needs to be strengthened. (Global Health Promotion, 2016; 23(3): 45–53)

Keywords: tobacco, health promotion, children, youth

Introduction

Globally, several studies since the late 1980s and early 1990s have linked smoking initiation at a younger age to becoming a consistent daily smoker with heavy smoking and with reduced chances of quitting. This was confirmed by the 1994 Surgeon General's report on Preventing tobacco use among young people, which stated, 'The younger one begins to smoke, the more likely one is to be a current smoker as an adult. Earlier onset is also associated with heavier use; those who begin to use tobacco as younger adolescents are among the heaviest users in adolescence and adulthood' (1). Subsequent studies have also proved this association (2,3). However,

1. The Union South-East Asia Office, International Union Against Tuberculosis and Lung Disease (The Union), New Delhi, India.
2. School of Public Health, Post Graduate Institute of Medical Education and Research, India.

Correspondence to: Deepak Sharma, School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh, 160012, India. Email: drdeepakpgimer@gmail.com

(This manuscript was submitted on 24 August 2013. Following blind peer review, it was accepted for publication on 30 October 2014)

Global Health Promotion 1757-9759; Vol 23(3): 45–53; 567927 DOI: 10.1177/1757975914567927 http://ghp.sagepub.com

such evidence base of association with chewing tobacco products is yet to be confirmed.

In developed countries like the United States, Canada, the United Kingdom, Scotland, Australia and New Zealand, much of the current adult prevalence was initiated before the legal age of use and purchase. Although over the years underage tobacco use has declined, it still remains a challenging area for tobacco control (4–6). The Canadian youth smoking survey, 2008–2009, found that 85% of current smokers started smoking by the age of 19 years old and about 5% smoke on a daily basis. Half of the current smokers spend $41 or more per week (7). Many recent surveys from other countries have found that underage users were able to buy tobacco without much difficulty (8–11) which keeps adult prevalence rates high. Good surveillance data backed by advocacy has informed policymakers to put in place stronger policies to restrict access to tobacco products among underage youth, which has resulted in a consistent decline in smoking prevalence (12–15). In many developed countries, youth intervention studies backed by a tax-led increase in retail price have been the most effective strategy to reduce tobacco use initiation (16–19).

Despite improvements in efforts by enforcement of regulations to reduce tobacco sale to underage youth, the illicit sale continues. This is the first study that estimates the expenditure on tobacco products by underage users in India. It will serve as a proxy for the size of the tobacco industry from the (prohibited) sale of products to underage users in India.

Methods

Sample

We analysed data from the global adult tobacco survey (GATS) conducted in India in the year 2009 (20). This survey is a nationally representative survey of households with structured interviews of 69,296 non-institutionalized adults aged 15 years or older.

For the present study, we analysed data for underage users. They were defined as ones in the age group of 15–17 years old who use either (or in combination) cigarette, bidi and smokeless tobacco products. For the purpose of comparison with the subsequent older age groups, we categorized the data into four different age groups: 15–17 years old, 18–21 years old, 22–25 years old, and 26 years old and above.

Materials

Tobacco use prevalence indicators

To assess the prevalence of cigarette smokers and bidi smokers in India, the responses to questionnaire items were used as follows: a) 'On average, how many manufactured cigarettes do you currently smoke per day?'(proxy question for daily cigarette smokers) and b) 'On average, how many bidis do you currently smoke per day (proxy question for daily bidi smokers)?' All respondents who replied to these questions were considered to be the relevant tobacco product users. The prevalence of current daily smokeless tobacco users was derived from the question: 'Do you currently use smokeless tobacco daily, less than daily or not at all?'

Daily tobacco consumption indicators

To estimate tobacco product daily consumption for cigarette and bidi smokers, the questionnaire items 'On average, how many manufactured cigarettes do you currently smoke per day?' and 'On average, how many bidis do you currently smoke per day?' were used. For smokeless daily tobacco, the questionnaire items used were as follows: 'On average, how many times a day do you use betel quid with tobacco product?'; 'On average, how many times a day do you use khaini or tobacco lime mixture?'; 'On average, how many times a day do you use gutkha or tobacco lime, areca nut mixture?'; 'On average, how many times a day do you use oral tobacco, such as snuff and gul gudakhu?'; 'On average, how many times a day do you use pan masala and betel quid without tobacco?'; 'On average, how many times a day do you use tobacco nasally?' and 'On average, how many times a day do you use any other form of tobacco product?' For estimating the total daily smokeless tobacco use, the usage of any type of smokeless tobacco product was added.

Expenditure indicators

A 'per stick price' was obtained by taking the amount paid ('the amount of money spent on them

Table 1. Comparison of per user expenditure by underage and adult tobacco users based on geographical location and socio-economic status using GATS data, 2010 (20).

	Underage (15–17 years old)			*Adult (18 years old and above)*		
	Per user spending on tobacco[a]			*Per user spending on tobacco*[a]		
	Cigarette	*Bidi*	*Smokeless*	*Cigarette*	*Bidi*	*Smokeless*
Geographical region						
Urban	53.0 ± 25.3	1.1 ± 0.3	16.1 ± 10.1	29.4 ± 28.9	7.5 ± 7.1	20.3 ± 14.7
Rural	37.5 ± 107.6	3.5 ± 2.1	18.9 ± 12.3	23.1 ± 24.8	7.3 ± 8.5	18.7 ± 15.0
Socio-economic status						
Lowest	4.4 ± 0.1	1.3 ± 0.1	8.0 ± 5.6	17.7 ± 25.0	6.5 ± 7.8	18.0 ± 15.0
Lower	22.2 ± 0.0	3.7 ± 1.6	8.6 ± 5.5	23.3 ± 23.3	8.0 ± 8.1	18.7 ± 14.5
Middle	42.2 ± 116.2	5.8 ± 2.3	8.9 ± 4.5	25.3 ± 26.9	7.9 ± 10.0	20.6 ± 15.2
Higher	65.1 ± 7.4	NA	4.1 ± 3.7	31.5 ± 28.9	7.1 ± 6.2	22.0 ± 15.7

[a]Values are in US cents.

during the last purchase') and dividing by the quantity ('the number of units of tobacco bought during the last purchase') to get the price of the tobacco product. The 'average consumption rate' was then multiplied with the obtained cost per stick, to have a realistic estimate of the expenditure on tobacco per day. It was further multiplied by 365 days and the number of underage users in the state to have an estimate of the yearly expenditure of the different states in India.

Per user expenditure was compared between urban and rural areas on the basis of socio-economic status (using a variable called 'asset quintile' as defined in the GATS survey (10)). The summative score was then divided into quintiles to obtain asset quintiles, which were used as a proxy for socio-economic status (Table 1).

Statistical analysis

Analysis was run using Statistical Package for Social Sciences (SPSS) software, Windows, version 16 (Chicago, IL, USA). Data analysis was reported using descriptive and analytic statistics. Descriptive statistics included reporting of proportions and mean along with its standard deviation. Comparison of daily tobacco consumption and daily expenditure among various age groups was done using an analysis of variance (ANOVA) test.

For the purpose of analysis, GATS survey study subjects were grouped into various age groups: 15–17 years old (7.6%), 18–21 years old (13.0%), 22–25 years old (12.9%) and 26 years old and above (66.4%). In each of these age groups, tobacco users (cigarette smokers, bidi smokers and smokeless tobacco) were listed. Furthermore, for each of the tobacco products, daily consumption and expenditure were reported. This process of working on subsamples resulted in reporting of standard deviations (SD) greater than the mean for some figures in this manuscript. This was more evident in the age groups having fewer study subjects (15–17, 18–21 and 22–25) and less evident for the age group 26 years old and above.

Results

Current daily underage tobacco user rates

In India, there are 4.4 million underage (15–17 years old) daily users of cigarettes, bidi and smokeless tobacco products. Of these, 0.1 million smoke cigarettes, 0.3 million smoke bidi and 4.0 million use a form of smokeless tobacco product. A similar trend for more smokeless tobacco users when compared to bidi and cigarette smokers is evident in the next age group of 18–21 years old (1.5 million cigarette smokers, 1.4 million bidi smokers and 12.2 million smokeless tobacco users) (Table 2).

In the age group of 15–17 years old, the difference between male (9.0%) and female (5.4%) daily tobacco users is quite small compared to older age

Table 2. Tobacco consumption and expenditure across different age groups in India using GATS data, 2010 (20).

Population of India	**Age groups**				
	15–17 years old	*18–21 years old*	*22–25 years old*	*26 years old and above*	*Total*
	n = 60.7 Millions	*n = 103.7 Millions*	*n = 102.8 Millions*	*n = 528.4 Millions*	*N = 795.5 Millions*
Daily tobacco users in millions (%)					
Cigarette	0.1 (0.1%) 95% CI (–0.01–0.21)	1.5 (1.4%) 95% CI (1.09–1.91)	2.2 (2.2%) 95% CI (1.71–2.69)	20.7 (3.9%) 95% CI (3.25–4.55)	24.5 (3.1%) 95% CI (3.08–3.09)
Bidi	0.3 (0.5%) 95% CI (0.31–0.69)	1.4 (1.4%) 95% CI (1.09–1.71)	3.9 (3.8%) 95% CI (3.30–4.31)	54.4 (10.3%) 95% CI (3.25–4.55)	59.9 (7.6%) 95% CI (7.53–7.56)
Smokeless tobacco	4.0 (6.6%) 95% CI (6.18–7.02)	12.2 (11.7%) 95% CI (11.1–12.24)	18.0 (17.5%) 95% CI (16.86–18.14)	136.0 (25.75) 95% CI (25.01–26.49)	170.2 (21.4%) 95% CI (21.41–21.44)
Total users of tobacco[a]	4.4 (7.2 %) 95% CI (6.86–7.54)	15.1 (14.6%) 95% CI (14.06–14.96)	24.1 (23.4%) 95% CI (23.43–24.66)	211.1 (40.0%) 95% CI (39.20–40.54)	254.6 (32.0%) 95% CI (32.02–32.04)
Per user daily consumption of sticks/pouches (standard deviation)					
Cigarette	8.4 (±11.7)	4.0 (±4.6)	5.0 (±4.2)	5.6 (±5.3)	5.5 (±5.2)
Bidi	6.1 (±3.9)	9.6 (±8.4)	9.7 (±7.3)	11.8 (±9.5)	11.6 (±9.4)
Smokeless tobacco	5.4 (±5.5)	7.1 (±7.9)	6.7 (±7.2)	6.7 (±7.0)	6.6 (±7.0)
Per user daily expenditure in cents (standard deviation)[b]					
Cigarette[c]	49.6 (±55.5)	21.1 (±23.3)	23.1 (±24.0)	26.4 (±27.4)	25.9 (±27.0)
Bidi[d]	3.3 (±2.2)	5.3 (±4.6)	6.2 (±6.5)	7.6 (±8.5)	7.3 (±8.3)
Smokeless tobacco[e]	18.4 (±12.0)	21.3 (±15.8)	19.6 (±14.1)	18.9 (±15.0)	19.0 (±14.9)
Yearly expenditure in million USD*					
Cigarette	13.6	115.7	188.8	1998.5	2316.6
Bidi	3.3	27.6	88.8	1499.9	1619.6
Smokeless tobacco	270.8	946.8	1282.3	9378.0	11877.9
Total	287.7	1,090.1	1,559.9	12,876.4	15,814.1

CI: confidence interval.

[a]For calculating the total number of tobacco users we added 'cigarette smokers', 'bidi smokers' and 'smokeless tobacco' users.

[b]Results of analysis of variance between groups for:

[c]Cigarette = sum of squares = 1182, *df* = 3, mean square = 394, $F = 1.55$, $p = 0.200$.

[d]Bidi = sum of squares = 91.1, *df* = 3, mean square = 30.3, $F = 2.5$, $p = 0.054$.

[e]Smokeless tobacco = sum of squares = 65.9, *df* = 3, mean square = 21.9, $F = 0.44$, $p = 0.720$.

*1 USD = Rs45 (for the year 2009).

Table 3. Socio-demographic correlations of current daily tobacco users across different age groups in India.

Age groups	*15–17 years old*		*18–21 years old*		*22–25 years old*		*26 years old and above*		*Total: 15 years old and above*	
Population (in millions)	*n = 60.7*	*Current daily user n = 4.4*	*n = 103.7*	*Current daily user n = 15.1*	*n = 102.8*	*Current daily user n = 24.1*	*N = 528.4*	*Current daily user n = 211.1*	*N = 795.5*	*Current daily user n = 254.6*
Gender										
Male	31.1	2.8 (9.0%)	55.8	12.5 (22.4%)	52.4	20.2 (38.5%)	271.7	154.1 (56.7%)	411.1	189.6 (46.1%)
Female	29.6	1.6 (5.4%)	47.9	2.6 (5.4%)	50.2	3.9 (7.7%)	256.6	57.0 (22.2%)	384.3	65.1 (16.9%)
Residence										
Urban	15.1	0.6 (3.9%)	29.3	3.6 (12.2%)	28.89	4.7 (16.2%)	159.26	46.2 (29.0%)	232.6	55.1 (23.6%)
Rural	45.6	3.8 (8.3%)	74.4	11.5 (15.4%)	73.87	19.4 (26.2%)	369.09	164.9 (44.6%)	563	199.6 (35.4%)

Note: Values are in millions.

groups, which have a much higher rate of daily smoking among males. There are more rural underage tobacco users (8.3%) than urban users (3.9%). This trend persists in subsequent age groups as well (Table 3).

The state data shows that among 15–17 year olds, Mizoram has the highest proportion of daily cigarette smokers (7.0%) followed by Sikkim (2.6%) and Meghalya (1.6%). For bidi smoking, Meghalya (3.1%), Tripura (2.9%) and Mizoram (1.7%) topped the list. Regarding smokeless tobacco, Mizoram (18.2%), Odisha (15.7%) and Bihar (15.3%) lead in the proportion of users (Figure 1).

Daily consumption of tobacco products

On average, underage tobacco users (aged 15–17 years old) daily smoke 8.4 cigarette sticks, smoke 6.1 bidis or chew 5.4 tobacco pouches. The average number of cigarette sticks smoked per day (by 15–17 year olds) is higher than that smoked by 18–21 year olds (four cigarettes/day) and 22–25 year olds (five cigarettes/day). The opposite trend is seen for bidis and smokeless tobacco; that is, underage consumers use these products less frequently when compared to older age groups (Table 2).

Per user average daily expenditure

Interestingly underage daily spending on smoking cigarettes is more (49.6 cents) when compared to subsequent age groups, 18–21 year olds (21.1 cents) and 22–25 year olds (23.1 cents). The per user expenditure on cigarettes, bidis and smokeless tobacco products is not significantly different across age groups (p = 0.20 for cigarettes, p = 0.054 for bidis and p = 0.72 for smokeless tobacco) (Table 2).

Per user underage spending on cigarettes is more in urban areas (53.0 ± 25.3 cents) when compared to rural areas (37.5 ± 107.6 cents). On the contrary, spending on smoking bidis (3.5 ± 2.1 cents) and smokeless tobacco is more in the rural areas (18.9 ± 12.3 cents) when compared to urban areas (bidi 1.1 ± 0.3 cents; smokeless 16.1 ± 10.1). Similarly, underage users belonging to a higher socio-economic group spend more on smoking cigarettes (65.1 ± 7.4 cents) when compared to the lowest socio-economic group (4.4 ± 0.1 cents). Cigarette smoking remains

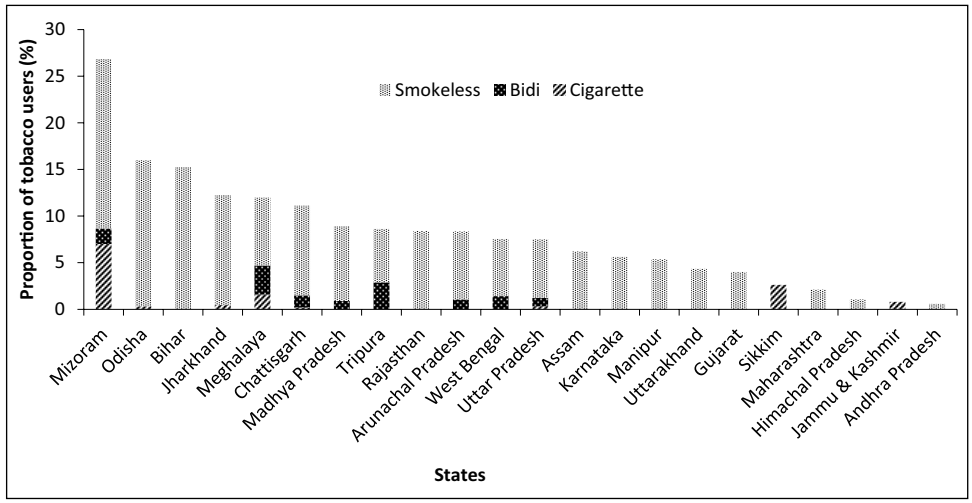

Figure 1. Distribution of current daily tobacco users, stratified by type of tobacco used, across different states of India using GATS data, 2010 (20). Note: GATS survey reported some states in India having no tobacco users in the age group 15–17 years old (20).

the first choice for experimentation among underage smokers.

State data shows that, in the north-eastern state of Meghalaya underage users spend more on cigarette smoking (USD2.30/per user/day) and chewing smokeless tobacco products (USD0.17/per user/day) compared to bidis (USD0.06/per user/day).

Similarly for the eastern state of Uttar Pradesh, underage users spend more on smoking cigarettes (USD0.67/per user/day) than chewing tobacco (USD0.13/per user/day) and smoking bidis (USD0.02/per user/day) (Figure 2).

Per annum expenditure by underage users

On an annual basis, underage cigarette and bidi users in India spend nearly USD13.6 million and USD3.3 million respectively. Spending on smokeless tobacco products is USD270.8 million. State level data shows that underage annual expenditure on different tobacco products is comparatively more in the states of Bihar (USD85.7), Uttar Pradesh (USD53.9 million) and Madhya Pradesh (US$38.9 million) (Figure 3).

Discussion

Nearly 7.2% of the population in the age group 15–17 years old are current daily users of tobacco. Although in absolute numbers and proportions this is less significant when compared to older age groups, this situation poses a serious concern for the future of the tobacco epidemic. Global evidence points to the fact that the younger a person initiates tobacco use (evidence is stronger for smoking than chewing) the greater the harm is likely to be. Studies also show that there is higher probability of subsequent heavier smoking, higher levels of dependency and a lower chance of quitting. This is evident from the data from this survey as well.

It was observed that underage daily spending on cigarette smoking was higher when compared to older age groups. This finding was not evident for bidis and smokeless tobacco products. A possible explanation of this finding is based on the observation from the current study in which underage people smoke nearly twice as many cigarettes when compared to older age groups (8.8 cigarettes in the 15–17 age group versus 4 cigarettes in the 18–21 age group, 5 cigarettes in the 22–25 age group and 5.6 cigarettes in the age group of 26 and above). Cigarettes remain an aspirational product, are subliminally advertised and appeal to underage users.

In our study, although Mizoram has the highest daily tobacco users, Meghalaya has the highest average daily spending on tobacco products. This can be explained by the difference in consumption patterns of tobacco use between these two states. In Meghalaya, although fewer underage users smoke

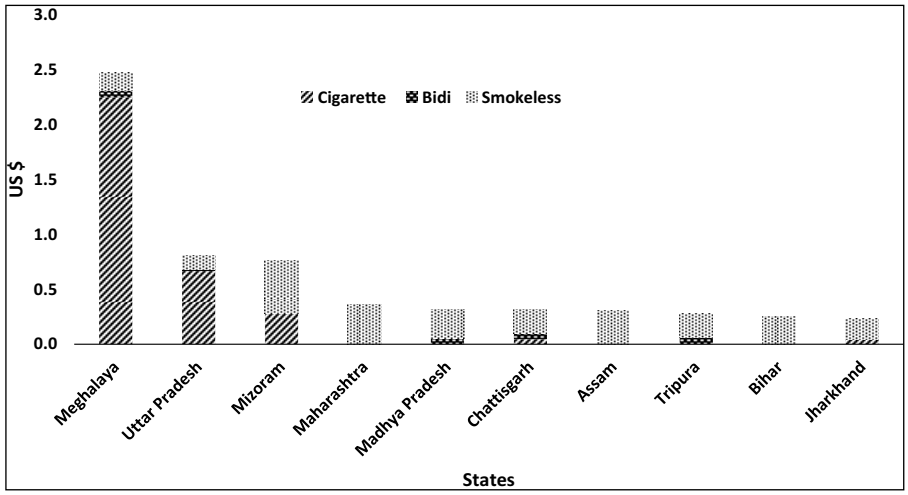

Figure 2. Per user daily spending on tobacco products in India using GATS data, 2010 (20). Note: USD1 = Rs45 (price in year 2009 at the time of the GATS survey); data presented of top ten spending states only.

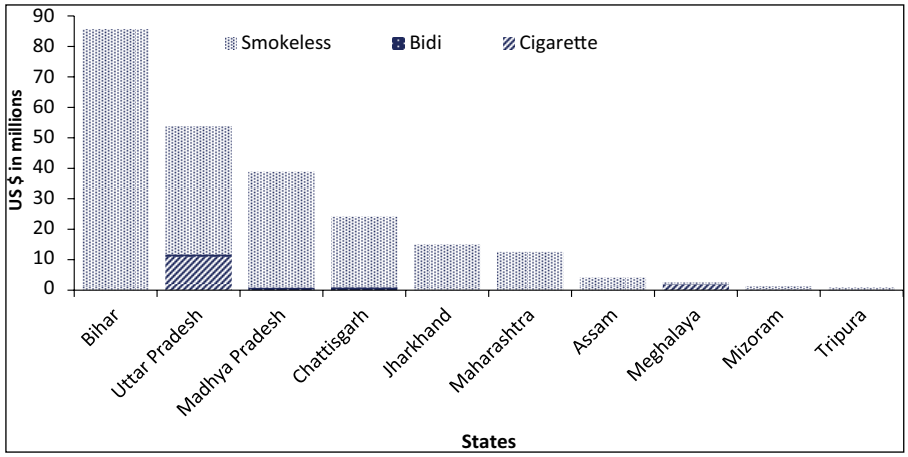

Figure 3. Yearly spending on tobacco products by various states of India using GATS data, 2010 (20). Note: USD1 = Rs45 (price in year 2009 at the time of the GATS survey); data presented of top ten spending states only.

cigarette (1.6%), its average daily consumption is higher (51.1 cigarette/day; SD = 45.8). On the contrary, in Mizoram, although more underage users smoke cigarettes daily (7%), its average daily consumption is less (10.1 cigarette/day; SD = 10.9).

Several policies and laws have had an impact on reducing the age of initiation and underage use. Some of these include the following: enforcing a comprehensive law that restricts sale, purchase and use (most legislation in developing countries including India does not have legal provisions to deal with use); raising the age of smoking to 21 years old; and adopting endgame strategies that protect youth (21). In the state of Goa, the state act mandates the age of purchase as 21 years, and this perhaps is reflected in the state having the lowest prevalence of underage use in India. This situation is also reflected in the present study results, wherein no underage people in Goa were found using any tobacco products (22).

One of the guiding principles of India's tobacco control legislation is 'to protect children and young people from being addicted to the use of tobacco'. To make a dent in the tobacco epidemic, protecting underage users and delaying initiation are effective strategies and these items are provisioned for in India's tobacco control legislation. However, the law is weakly enforced at present and greater emphasis needs to be placed in reducing exposure of vulnerable populations like underage users to tobacco industry tactics (23, 24).

There are some concerns about the generalizability of the findings from the estimates presented here. First, this study has assumed that tobacco users have the same average daily consumption and spending for a product on an annual basis. In this period, many may opt to cut down on their consumption, try quitting or do something else. Secondly, in the GATS survey, many states of India have not reported users of cigarette, bidi or smokeless tobacco products in the 15–17 year old age group. This would under represent the overall prevalence of tobacco use in minors. In addition, as the GATS survey is based on self-reported information on tobacco use from households, it is quite likely that there is an under-reporting of tobacco use especially in the presence of an adult in the household. In effect, the prevalence of tobacco use among minors may be greater than what is reported.

Conclusion

Given the addictive nature of tobacco, the pervasiveness of diverse forms of tobacco products and their use in India, our findings suggest that substantial and stable revenue streams accrue to the industry over the lifetime of tobacco users who begin use as minors. This underscores the need to decisively break the cycle of marketing and easy access of tobacco products to minors. The industry benefits from limited and often lax enforcement of tobacco control legislation. The industry revenue also means revenue to central and state governments. However, the cost of tobacco is paid by society. Health costs, costs to provide care and the loss of productivity due to illness and death far outweigh the money received by the government from the tobacco tax. The government of India received Rs121.33 billion or USD2.02 billion in 2012–13. In comparison, while the use by minors is dwarfed (USD287.7 million), it is significant and disturbing from the perspective of public health since the under 18 year old population comprises nearly 46% of the current population in India, and in effect this points towards a growing prevalence of tobacco use in the future.

The government of India has made little effort to reduce tobacco promotion although it has advanced tobacco control through national legislation in 2003 and backed it by a pilot phase national tobacco programme in 2007. The government is a shareholder in the tobacco industry and it allocates the tobacco taxes for provisioning for health care. This perverse relationship needs to change. The implementation of the legal provisions needs to be done at the vendor level but a strong message needs to come from the government itself. This is currently missing and therefore defeats any effective enforcement of provisions that protect underage users.

Conflict of interest

None declared.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

References

1. Chen J, Millar WJ. Age of smoking initiation: implications for quitting. Health Reports. 1998; 9: 39–46.
2. Choi WS, Pierce JP, Gilpin EA, Farkas et al Which adolescent experimenters progress to established smoking in the United States. Amer J Prev Med. 1997; 13: 385–391.
3. O'Loughli J, Karp I, Koulis T, et al Determinants of first puff and daily cigarette smoking in adolescents. Amer J Epidem. 2009; 170: 585–597.
4. Gemson DH, Moats HL, Watkins BX, et al Laying down the law: reducing illegal tobacco sales to minors in central Harlem. Amer J Prev Med. 1998; 88: 936–939.
5. Tutt D, Bauer L, Edwards C, et al Reducing adolescent smoking rates. Maintaining high retail compliance results in substantial improvements. Health Prom J Aust. 2000; 10: 20–24.
6. Levinson AH, Mickiewicz T. Reducing underage cigarette sales in an isolated community: the effect on adolescent cigarette supplies. Prev Med. 2007; 45: 447–453.
7. http://www.yss.uwaterloo.ca/results/YSS2008–2009_national_smoking_profile.pdf (accessed April 15, 2013).

8. Minowa M, Satomi H. Illegal sale of tobacco to minors in Japan. Nihon Koshu Eisei Zasshi. 1993; 40: 49–52.
9. Cismoski J, Sheridan M. Availability of cigarettes to underage youth in Fond du Lac, Wisconsin. Wis Med J. 1993; 92: 626–630.
10. Erickson AD, Woodruff SI, Wildey MB, et al A baseline assessment of cigarette sales to minors in San Diego County, California. J Community Health. 1993; 18: 213–224.
11. Altman DG, Foster V, Rasenick–Douss L, Tye JB. Reducing the illegal sale of cigarettes to minors. JAMA. 1989; 261: 80–83.
12. Centre for Disease Control. State laws restricting minors' access to tobacco. MMWR. 1990; 39: 349–353.
13. http://www.ndp.govt.nz/moh.nsf/pagescm/1014/$File/enforcinglawtobaccosales.pdf (accessed April 25, 2013).
14. http://www.lawscot.org.uk/media/30141/2293_lic%20%20proposed%20tobacco%20sales%20licensing%20(scotland)%20bill.pdf (accessed April 25, 2013).
15. http://www.health.gov.bc.ca/tobacco/pdf/MINORS_Brochure_final_1.04.pdf (accessed April 24, 2013).
16. Ahmad S, Franz GA. Raising taxes to reduce smoking prevalence in the US: a simulation of the anticipated health and economic impacts. Public Health. 2008; 122: 3–10.
17. Ahmad S. Increasing excise taxes on cigarettes in California: a dynamic simulation of health and economic impacts. Prev Med. 2005; 41: 276–283.
18. Rigotti NA, DiFranza JR, Change Y. The effect of enforcing tobacco-sales laws on adolescents' access to tobacco and smoking behavior. N Engl J Med. 1997; 337: 1044–1051.
19. Altman DG, Wheelis AY, McFarlane M, et al. The relationship between tobacco access and use among adolescents: a four community study. Soc Sci Med. 1999; 48: 759–775.
20. http://www.cdc.gov/tobacco/global/gtss/ (accessed April 25, 2013).
21. http://www.nytimes.com/2013/04/23/nyregion/new-york-proposes-raising-minimum-age-for-cigarette-purchases.html?pagewanted=all&_r=0 (accessed April 26, 2013).
22. http://goaenvis.nic.in/smokingspittingact.pdf (accessed April 12, 2013).
23. TH Lam. Adolescent smoking, school leavers, youth smoking prevention and the WHO Framework Convention on Tobacco Control. Internat J Epidem. 2004; 33: 1110–1111.
24. Jordan M. US tobacco cos. target India, counting on a shift to cigarette smoking. Asian Wall Street Journal Weekly, 15 September 1996, p. 15.