How effective is tobacco control enforcement to protect minors: Results from subnational surveys across four districts in India

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ABSTRACT

Context: On analogy with the WHO’s Framework Convention on Tobacco Control, Indian tobacco control legislation, namely, Cigarette and Other Tobacco Products Act (COTPA), prohibits the sale of tobacco products to minors and near an educational institution.

Aims: The objectives are to measure the compliance to the provisions of COTPA which bans the tobacco sale to and by the minors, prohibits sale within 100 yards distance of an educational institution, and an overall compliance to guidelines of “Tobacco-free educational institutions.”

Methods: Using a pretested observational checklist, a cross-sectional survey was conducted between January and March 2013 across 1227 point-of-sale and 1408 educational institutions in four districts in India in 2013. Requisite ethical and administrative approvals were taken.

Results: The study found moderate to low compliance to the provisions of COTPA regarding the ban on sale of tobacco products, to and by the minors, and around educational institutions. Tobacco products were easily accessible to minors in 57.7% of tobacco shops. The mandatory signages under Section-6 (b) of COTPA were not displayed in less than half of the educational institutions. In nearly one-fifth, tobacco products were being sold in and around 100 yards of institute’s boundary. More violations pertaining to Section-6 (a) and 6 (b) were reported in district Jhunjhunu (representing Western India) and district Dhar (representing Central India), respectively, as compared to other jurisdictions under study. The tobacco-free institution guidelines were being followed by most educational institutions of Ernakulam district (representing South India).

Conclusions: The present study observed a low compliance with enforcement of Indian tobacco control legislation. Thus, monitoring for compliance of policies and advocacy with policymakers is important for ensuring proper enforcement and preventing youth from initiating into tobacco use.

Key Words: Compliance, educational institutions, enforcement, India, minors, tobacco use prevalence, Youth

Introduction

Tobacco use among children had increased several folds globally over past few decades, thus posing a significant public health problem.[1] Between 80 and 100,000 young people worldwide become addicted to tobacco products daily.[2] In most countries of the world, majority begin to use tobacco before the age of 18 years.[3][4] Global Adult Tobacco Survey (GATS) 2009–2010 revealed that 39% of smokers and 40% of smokeless tobacco (SLT) users initiated tobacco use before the age of 17 years.[5] Two studies
have reported a downward trend in the age for tobacco consumption among children, especially girls.\textsuperscript{[1,14]} During this tender age, they have limited capacity to understand the addictiveness and harm of tobacco products. Besides this, increased tendency to experiment and peer pressure leads to initiating tobacco products among children.

Worldwide, it has been proven that easy availability and accessibility of tobacco products to the children and youths result in a high probability of initiation of tobacco use.\textsuperscript{[7–13]} A study by Doubeni \textit{et al.} revealed that the perceived accessibility of tobacco products increases the risk for smoking initiation and progression among youths.\textsuperscript{[5]} A study conducted by Mistry \textit{et al.} in Mumbai demonstrated an association of tobacco sales near the educational institutions with an increased risk of current tobacco use, particularly the cheap smokeless products.\textsuperscript{[14]} Hence, early age of initiation of tobacco products underscores an urgent need to intervene and protect this vulnerable group from falling prey to tobacco addiction.

Legal restrictions on access to tobacco use by minors can help delay and ultimately prevent initiating tobacco use.\textsuperscript{[15,16]} Article 16 of Framework Convention on Tobacco Control recommends that countries should make it illegal for people younger than 18 years to purchase tobacco products.\textsuperscript{[17]} India has taken a lead by framing its tobacco control legislation “The Cigarette and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production Supply and Distribution) Act-2003” (Cigarette and Other Tobacco Products Act [COTPA]-2003) under which Section-6 (a) specifies an age of 18 years and above as a legal age for tobacco sale and purchase and Section-6 (b) specifies that no person shall sell, offer for sale, or permit sale of cigarette or any other tobacco product in an area within a radius of 100 yards of any educational institution.\textsuperscript{[18]} Further to this, the Government of India had issued guidelines in 2012, for tobacco-free educational institutions with a mandate to provide its students, employees, and visitors with a safe and healthy environment, generate awareness about harms of tobacco use, and develop specific skills to deal with social influences and peer pressure that lead to tobacco use initiation.\textsuperscript{[19]}

Enforcement of tobacco control legislation in India has been suboptimal so far.\textsuperscript{[20–22]} Going by estimates made by the GATS 2009–2010, every day, at least 99 million underage users buy tobacco products in India.\textsuperscript{[23]} Periodic measurement of compliance with existing legislation is important, with the results guiding policy-makers and implementers on whether changes in legal provisions are required or midcourse corrective actions are needed in the implementation of existing provisions. There is limited literature on this issue; some of the publications on compliance with national legislation included relatively small numbers and covered specific regions of the country and as such were not nationally representative.\textsuperscript{[14–16,24,25]}

The present study was carried with the objectives to measure the compliance to the provisions of Section-6 (a) of COTPA which bans the sale to and by the minors and Section-6 (b) of COTPA which prohibits tobacco sale within 100 yards distance of educational institution. In addition, the compliance to guidelines of “Tobacco-free educational institutions” was assessed.

\textbf{Methods}

\textbf{Study design and settings}

This cross-sectional survey was conducted from January to March 2013 in four purposively selected districts, one from each major four zones of India. The district Una (pop; 5, 21,057) is a hilly district in Himachal Pradesh in North India, district Jhunjhunu (pop; 21, 39,658) in Rajasthan represents Western India, Ernakulam (pop; 32, 82,388) is a coastal district in Kerala in South India, whereas district Dhar (pop; 21, 84,672) is a tribal district in Madhya Pradesh represents Central India.

\textbf{Sampling methodology, sample size, and data collection}

The sample frame for the survey in four selected districts under the study was all point-of-sale (POS) where tobacco products are sold in educational institutions. Sample size of POS and educational institutions was calculated at an expected noncompliance rate of 70\% (mean from different studies)\textsuperscript{[25,26]} and margin of error 5\% using OpenEpi software (version 3.01, EpiData Association, Odense, Denmark). A minimal sample size of 306 was obtained. Against this, a sample of 345, 315, 167, and 400 POS (total = 1227) and 346, 306, 349, and 407 educational institutions (total = 1408) was covered in districts Ernakulam, Dhar, Una, and Jhunjhunu, respectively. The requisite minimal sample size of district Una was not covered due to feasibility and resource constraints. Three to five clusters were randomly selected in each district, and POS and educational institutions were randomly selected in each cluster based on probability proportionate to size method. The selected sampling units (POS and educational institutions) were enlisted. The field investigators visited each of the selected sampling units for observation and record them in the paper-based observational checklist. It was decided to observe a sampling unit for 15–20 min. Besides observational checklist, the team assessed the presence of Tobacco Control Committee or whether
regular meetings were held by looking at the records maintained by educational institutions.

Development of protocol and study tool
The International Union against Tuberculosis and Lung Disease (The Union), New Delhi, organized a national level consultation in August 2012 in Shimla, Himachal Pradesh, where a compliance assessment protocol for Section-6 of COTPA and an observational checklist were developed in consensus with participants from the tobacco control community comprising government, nongovernment organizations, academia, and international agencies. This study uses this protocol and observational checklist uniformly across all four jurisdictions. The detailed deliberations were held among participants on the operational definitions and rules framed under Section-6 of COTPA 2003 and its subsequent provisions regarding banning the sale of tobacco products to and by the minors and prohibition of sale within 100 yards of an educational institution[18] [Box 1].

Survey teams
A total of two teams in each district, each team comprising two field investigators, were formed. The teams were trained by the technical team of the union (also authors of the study) at the respective jurisdiction using the standardized protocol and methodology for recording observation developed earlier at the Shimla workshop. The training was followed by a field exercise (in few units of study, but not part of the study area) to build skills in recording in the observational checklist. The errors made during field exercise were discussed and processes of recording were corrected. The minor editing of the observational checklist was also done. The final observation checklist was then circulated among the team at all four jurisdictions along with clear filling instructions.

Data entry and data analysis
The data entry was done in Microsoft Excel 2007 by the field investigators at their respective study jurisdiction. The double data entry was done for checking accuracy, completeness, and consistency across responses. The inconsistency in responses was corrected by the principal investigator at respective jurisdiction after checking the actual observational checklist. The principal author of the study compiled the data from all the four jurisdictions and analyzed using Microsoft Excel 2007. The percentage and proportions were calculated for each domain of the checklist, which are then appropriately categorized.

Ethical consideration
The requisite permission was taken from the State and District Tobacco Control Cell and relevant local authorities before conduction of these surveys. Besides, approval has also been obtained from the Union’s Ethics Advisory Group. Informed consent from the In-charges’ of the educational institutions was also obtained.

Results

Compliance to Section-6 (a) of Cigarette and Other Tobacco Products Act
A total of 1227 POS, where tobacco products were sold, were observed across four jurisdictions. Over 90% were permanent shops and 1 in every 10 POS sold tobacco products exclusively [Table 1].

The warning signage mandated under national legislation was displayed in merely 5% (0%–19%) of POS across jurisdictions. Of them, nearly two-third were not placed obscurely and were not as per requisite size (60 cm × 30 cm). Only four signages met with content specifications. Tobacco products were easily accessible to minors in more than half (57.7%) of tobacco shops. Minors

Box 1: Provisions of Section-6 (a), 6 (b) and tobacco-free institution guidelines in Cigarette and Other Tobacco Products Act

| Section-6 (a) of COTPA | Section-6 (b) of COTPA | Tobacco free institution |
|------------------------|------------------------|-------------------------|
| A board displayed at POS which should contain the warning “sale of tobacco products to a person below the age of 18 years is a punishable offense,” in Indian language(s). Minimum size of the board should be 60 cm × 30 cm with white background | Display of board - all educational institutions should have a board on their boundary wall or at the entrance of their premises stating “sale of cigarette or any other tobacco product in an area within the radius of 100 yards of the educational institution is strictly prohibited; the offense is punishable with a fine up to Rs. 200”. Minimum size of the board should be 60 cm × 30 cm with white background | Display of signage “tobacco-free institution” within the institution |
| No tobacco product is handled or sold by minors | No sale of tobacco products within 100 yards of educational institute’s boundary | Display of “no smoking” signage in the institution |
| No tobacco products are displayed in a manner that enables its easy access to minors | | Presence of Tobacco Control Committees and their regular meetings |
| The seller of tobacco product shall confirm that the buyer of tobacco product is not a minor | | Absence of active smoking or use of smokeless tobacco products within institution |

COTPA - Cigarette and Other Tobacco Products Act, POS - Point-of-sale
were seen handling the tobacco products as vendors and purchasers in 2.4% and 12.7% of POS, respectively. More violations pertaining to Section-6 (a) were reported in district Jhunjhunu (representing Western India) as compared to other jurisdictions under study [Table 2]. Tobacco vending machines were not found in any of the districts.

Compliance to Section-6 (b) of Cigarette and Other Tobacco Products Act
A total of 1408 educational institutions were observed across the four districts; more than 60% of educational institutions were in the government sector. Except the district Dhar (0%), the mandatory signage was displayed in more than half (range – 51%–76%) of the educational institutions. All these signages were strictly complying with the content and color specifications of law. In nearly one-fifth of educational institutions (18.5%), tobacco products were being sold in and around 100 yards of institute’s boundary, whereas it was being sold within the campus in 8 (0.56%) institutions [Table 3].

Compliance to guidelines of “Tobacco-free Institutions”
One-fifth (20.5%) of institutions had displayed the “Tobacco-Free Institution” signage in the campus. It was high (76.3%) in Ernakulam district and almost negligible (0%–6%) in other districts. “No smoking signage” was found displayed in nearly half (54.8%) of the educational institutions with variation from 37.8% in Jhunjhunu to 79.8% in district Ernakulam. The Tobacco Control Committees were found in place in nearly one-fifth of educational institutions; however, the highest compliance was observed in district Ernakulam (84.7%). These committees wherever present, were conducting regular meetings. Smoking and SLT use were observed in nearly 1.2% and 1.8% educational institutions, respectively. Almost none of the institutions had displayed information, education, and communication material about health hazards of tobacco as posters or wall writings [Table 4].

Discussion
The intention of Government of India to protect minors from tobacco harms is very clear as evident from the strict regulations of COPTA 2003; however, an effective enforcement and compliance with the law is necessary to ensure a beneficial public health impact. This study revealed widespread violations of the provisions of the law across all study sites across the country. However, only around one-fifth of POS in present study sell tobacco

| Table 1: Profile of point-of-sale where tobacco products were sold across four jurisdictions in India, 2013 |
|-----------------------------------------------|
| Variables                  | Ernakulam (n=345) | Dhar (n=315) | Una (n=167) | Jhunjhunu (n=400) | Total (n=1227) |
|-----------------------------|-------------------|--------------|-------------|------------------|----------------|
| Nature of POS               |                   |              |             |                  |                |
| Temporary/movable           | 34 (9.6)          | 63 (20)      | 0           | 18 (4.5)         | 115 (9)        |
| Permanent/fixed             | 311 (90.4)        | 252 (80)     | 167 (100)   | 382 (95.5)       | 1112 (91)      |
| Type of vendor              |                   |              |             |                  |                |
| Exclusive tobacco shops     | 1 (0.3)           | 106 (33.6)   | 0           | 23 (5.7)         | 130 (10.6)     |
| Tobacco shops selling mainly tobacco products but also sell other things | 76 (22) | 85 (27) | 0 | 246 (61.6) | 407 (33.2) |
| Tobacco shops for which tobacco sale was not a major business | 268 (77.7) | 124 (39.4) | 167 (100) | 131 (32.7) | 690 (56.2) |

POS - Point-of-sale

| Table 2: Compliance to Section-6 (a) of Indian tobacco control legislation at point-of-sale across four jurisdictions in India, 2013 |
|-----------------------------------------------|
| Variables                  | Ernakulam (n=345) | Dhar (n=315) | Una (n=167) | Jhunjhunu (n=400) | Total (n=1227) |
|-----------------------------|-------------------|--------------|-------------|------------------|----------------|
| Mandatory signage under 6 (a) of COTPA display at POS | 28 (8.1) | 0 | 32 (19.2) | 1 (0.25) | 61 (5) |
| Prominent place             | 20 (5.8)          | 0            | 0           | 1 (0.25)         | 21 (1.7)       |
| Specified* size             | 19 (5.5)          | 0            | 0           | 1 (0.25)         | 20 (1.6)       |
| Specified* text             | 26 (7.5)          | 0            | 0           | 1 (0.25)         | 27 (2.2)       |
| Specified* content (50% picture + 50% text) | 4 (1.1) | 0 | 0 | 0 | 4 (0.3) |
| Minor is vendor at POS      | 7 (2)             | 2 (0.6)      | 0           | 21 (5.3)         | 30 (2.4)       |
| Minor is purchaser at POS   | 16 (4.6)          | 27 (8.5)     | 0           | 114 (28.5)       | 157 (12.7)     |
| Display of tobacco products within 6 inches of eatables | 270 (78.3) | 72 (22.8) | 33 (19.8) | 334 (83.5) | 709 (57.8) |

*Specified as per Indian tobacco control legislation. POS - Point-of-sale, COTPA - Cigarette and Other Tobacco Products Act
Table 3: Compliance to Section-6 (b) of Indian tobacco control legislation in educational institutions across four jurisdictions in India, 2013

| Variables                                                                 | Ernakulam (n = 346) | Dhar (n = 306) | Una (n = 349) | Jhunjhunu (n = 407) | Total (n = 1408) |
|---------------------------------------------------------------------------|---------------------|----------------|---------------|---------------------|------------------|
| Mandatory signage under 6 (b) of COTPA display at educational institutions | 264 (76.3)          | 0              | 205 (58.7)    | 207 (50.8)          | 676 (48)         |
| Specified* size, text, and background color                              | 264 (76.3)          | 0              | 205 (58.7)    | 207 (50.8)          | 676 (48)         |
| Educational institutions having tobacco products sale inside the campus   | 5 (1.4)             | 2 (0.7)        | 0             | 1 (0.2)             | 8 (0.6)          |
| Educational institutions having tobacco sale within 100 yards of institute’s boundary | 53 (15.3)           | 68 (22.2)      | 93 (26.6)     | 47 (11.5)           | 261 (19.5)       |

*Specified as per Indian tobacco control legislation. COTPA - Cigarette and Other Tobacco Products Act

Table 4: Compliance to “tobacco-free educational institutions guidelines” in educational institutions across four jurisdictions in India, 2013

| Variables                                                                  | Ernakulam (n = 346) | Dhar (n = 306) | Una (n = 349) | Jhunjhunu (n = 407) | Total (n = 1408) |
|---------------------------------------------------------------------------|---------------------|----------------|---------------|---------------------|------------------|
| Display of signage “tobacco-free institution”                             | 264 (76.3)          | 0              | 0             | 24 (5.9)            | 288 (20.5)       |
| Display of “no smoking” signage                                           | 276 (79.8)          | 135 (44.1)     | 206 (59)      | 154 (37.8)          | 771 (54.8)       |
| Presence of Tobacco Control Committees                                    | 293 (84.7)          | 1 (0.3)        | 1 (0.3)       | 40 (8.8)            | 335 (24)         |
| Regular meetings of Tobacco Control Committees                            | 288 (83.2)          | 1 (0.3)        | 1 (0.3)       | 39 (8.6)            | 329 (23.4)       |
| Presence of active smoking                                                 | 13 (3.7)            | 2 (0.6)        | 0             | 3 (0.7)             | 18 (1.2)         |
| Use of smokeless tobacco products                                          | 6 (1.7)             | 15 (4.9)       | 0             | 5 (1.2)             | 26 (1.8)         |

The study also raised an important issue of tobacco use inside the school. Although tobacco use was observed in very few educational institutions (1.8% and 1.2% for smokeless and smoking form), still it is not tolerable. Tobacco use prevalence among school personnel is pretty high in India; nearly one-third of male and one-tenth of female school personnel use tobacco in some forms.[27] There must be zero tolerance over tobacco use either as smoking or SLT use or even carrying the tobacco by staff/teachers as school personnel are role models for student, youth, and public. Mandatory signage under Section-6 (b) was missing in district Dhar, whereas in other districts under study, more than 50% educational institutions have displayed the signage; this is in contrast with the similar survey conducted in Mumbai by Salaam Bombay NGO, where nearly one-fifth of schools were displaying the signage.[26] Similarly, barring district Ernakulam, tobacco control committees were not constituted in more than 4/5th of educational institutions in other districts; this is similar to Mumbai study, where 12% of schools have such committees in place.[28] Evidence from industry documents and epidemiologic studies have shown that the nicotine addiction among these early smokers is more severe than those who initiate later.[29] Tobacco’s easy accessibility to the students and minors fuels the tobacco initiations. Access and availability of tobacco products to minors should be reduced to zero level by educating and involving other stakeholders such as community elders, school boards, and tobacco sellers.[27] Tobacco initiation and use in India have other dimensions too; in fact, it has rooted in cultural traditions in some part of the country. It is also a common practice in India for children and youth to buy tobacco products for their parents, relatives, and older friends.[23] Curiosity, emulation, lack of skills to resist influences to tobacco use, peer pressure, and family influences are other factors. Sensitizing students about tobacco harms as described in tobacco-free educational institutions guidelines would be instrumental. In fact, these educational institutions can become ideal venues for primordial prevention against tobacco use among the students and minors as it will be cost-effective to prevent the initiation of the habit than trying to stop the habit in late.

The strength of the present study was the large sample size and representation from every zone of India. However,
there were certain limitations of our study. The study was conducted in purposively selected districts of India, and hence results cannot be generalized to the entire nation.

Conclusions

The present study observed an overall low compliance with enforcement of India's tobacco control legislation. Preventing youth from initiating into tobacco use is an important strategy component of tobacco control. To enable this, monitoring for compliance of policies and advocacy with policy-makers is important not only for ensuring proper enforcement but also for assessing their impact on tobacco use over time.[29]

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Conflicts of interest

There are no conflicts of interest.

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