

Original Research Article

Assessment of compliance of prohibition of smoking (under section-4 of cigarettes and other tobacco products act) in Raipur city (C.G.), India: a cross sectional study

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ABSTRACT

Background: Use of tobacco has been proven to be one of the leading causes of preventable premature deaths and diseases across the globe. The global adult tobacco survey (GATS) India report 2009-10 estimates 34.6% of India's adult population use tobacco in some form or other. The government of India has taken various initiatives for tobacco control by enacting comprehensive tobacco control legislation (Cigarette and Other Tobacco Products Act {COTPA}, 2003). The objective of the study was to assess the level of compliance of section 4 of COTPA in public places of Raipur.

Methods: A cross sectional observational study was conducted in Raipur. The study was done around 480 public places for observing the compliance of section 4 of COTPA.

Results: From the total 480 public places visited, 36.9% public places displayed "No Smoking" signage, out of 117 public places where "No Smoking" signage displayed only 11.3% were as per the COTPA specification. Only 12.3% of public places active smoking was observed during visit.

Conclusions: This finding suggests a poor level of compliance of section 4 of COTPA in Raipur. Although the law has been drafted comprehensively, it is implemented only to certain extent.

Keywords: Cigarette and other tobacco products act, Compliance, Signage, Smoking, Tobacco

INTRODUCTION

Tobacco consumption kills nearly six million people worldwide each year. According to the World Health Organization (WHO) estimates, globally, there were 100 million premature deaths due to tobacco in the 20th century, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century.¹

One of the study from India have estimated that around 1 million deaths a year in India will be attributable to

smoking by the early 2010s.² Another study have estimated the tobacco-attributable mortality among Indian men and women from their Mumbai cohort study. According to these findings, nearly 23.7% of the deaths among men and 5.7% of the deaths among women aged 35–69 years are due to tobacco-attributable illnesses.³ Another cohort study from southern India reported mortality risks of 0.98 (0.86–0.94) and 1.22 (1.04–1.44) for all-cause and tobacco-related cancer mortality, respectively, for tobacco chewing, while with smoking, the respective mortality risks were 1.31 (1.24–1.39) and 1.68 (1.36–2.08).⁴

India's tobacco problem is very complex, with a large use of a variety of smoking forms and an array of smokeless tobacco products. Many of these products are manufactured as cottage and small-scale industries using varying mixtures and widely differing processes of manufacturing. Bidis are mostly manufactured in the unorganized sector while cigarettes are mainly manufactured in large-scale industries.⁵

WHO used its mandate of proposing international treaties on public health for the first time in its history, by initiating the Framework Convention on Tobacco Control (FCTC). After several years of negotiations in which over a hundred countries participated, the Convention was adopted by the World Health Assembly in May 2003. India was one among the first few countries to sign and ratify the FCTC. India was also among the first countries to enact a strong national law for tobacco control in April 2003-COTPA.⁶

This study unequivocally positions its analyses and recommendations from a public health perspective. However, the recognition of the integral links between health and sustainable development, and the organic connections between health and human rights lead to a consideration of the economic, socio-cultural, environmental and human rights aspects of tobacco's assault on human health. The multi-dimensional problem of tobacco and the multi-sectoral character of tobacco control are described with an objective to synthesize the available scientific knowledge on tobacco use in Chhattisgarh and India with a view to assessing the magnitude of the problem, the health problems being caused, identifying the gaps in knowledge, reviewing policies and attempts towards reducing implementation of a national programme for tobacco control. The purpose of this study is to provide a comprehensive overview of the tobacco problem for evolving future tobacco control policies and strategies from public health challenges to policy responses in Chhattisgarh.

With the above background present study was conducted to assess compliance of COTPA in public places under section 4 in urban Raipur Chhattisgarh.

METHODS

The present cross sectional community based study was conducted in selected ward of urban Raipur (C.G.) during June 2016 to April 2017.

Selection criteria

An inclusion criterion was seven categories of public places in selected wards as per guideline according to John Hopkins Bloomberg School of public health guide.

An exclusion criterion was public places where study and observation were not feasible.

Selection of public places for each ward

Recommended sample size for each ward was taken from the guide on assessing compliance with smoke-free law⁴ developed as a part of collaborative effort among the campaign for tobacco free kids, Johns Hopkins Bloomberg School of Public Health and International Union against Tuberculosis and Lung Disease.⁷ Raipur city comprises eight zones. Note that this table provides very general guidelines, and incorporates varying compliance rates between 50%-90% and margins of error between 5%–12%. From each zone one ward was randomly selected by using random number table. Thus at first stage of sampling, eight wards were identified. For the purpose of study the public places were grouped in to seven broad categories as follows:- a) educational institute b) hotels (accommodation facility) c) restaurants and bars d) offices (government and private) e) health care facility f) bus and taxi stand g) other public places (shopping malls, markets etc.). A list of all public places within municipal jurisdiction was obtained from municipal corporation and district authorities. Then a list of public places that may not have been registered or reported under local municipal authorities was prepared. The final list was developed after triangulation of these lists. As the entire selected wards had more than 176 number of public places according to the list, hence 60 public places were selected from each ward. In all 480 public places were selected from 8 wards so final sample size was 480.

Study tool

A structured observational checklist was adapted from the guide on Assessing compliance with smoke-free law⁴ developed as a part of collaborative effort among the campaign for tobacco free kids, Johns Hopkins Bloomberg School of Public Health and International Union against Tuberculosis and Lung Disease.⁷ This guide presents step-by-step information, beginning with the need to clarify why a compliance study might be conducted and how an assessment of public places can be done as per requirements of the law. In the current study, 'public places' were adopted as per Indian smoke-free law (COTPA-2003 and its subsequent amendment in year 2008) which define it as any place to which the public have access, whether as of right or not, and includes auditorium, hospital buildings, railway waiting room, amusement centres, restaurants, public offices, court buildings, work places, shopping malls, cinema halls, educational institutions, libraries and public conveyances which are visited by the general public.⁸

The compliance observation was done at an unannounced timing in order to capture typical behaviour. In the government buildings, educational institutions and healthcare institutions, visits were made during the office timings (09:00–17:00), school hours (08:00–14:00) and hospital visiting hours (10:00–11:00 and 17:00–18:00), respectively. The observations at the transit sites were made during the busiest hours (17:00–20:00). The average time spent at each location varied from 20 min to

half-an-hour depending on the area covered. While visiting the public place, the research investigators informed the in charge of the public place and requested their informed verbal consent. None of the public place in charge refused to accord verbal consent for the survey. Thereafter, the information regarding the location was recorded in the observation sheet.

The study variables included were absence of smoking, absence of odour of tobacco smoke, signage display, absence of cigarette/beedi stubs and absence of smoking aids at public places.

Ethical consideration

Approval was taken from institutional ethics committee before starting the study.

Statistical analysis

Data was entered and compiled in Microsoft excel 2007 and collected data was checked for its completeness and correctness before data was analyzed. Data was finally tabulated, analyzed and interpreted by using percentages and chi-square test was applied.

RESULTS

“No Smoking” signage as per guidelines of COTPA were displayed in only 36.9% of all observed public places. “No Smoking” signage display was significantly high (73.2%) in health care facility in comparison to low (3.3%) in most frequently visited sites. This observation was varied from (3.3-73.2%) of public places among all public places under study (Table 1).

The association between category of public places and signage at entrance was found to be statistically not in significant. Overall 39.5% (70 out of 170) public places had “No Smoking” signage at entrance public places visible at the entry of the public places as per COTPA act. The highest proportions of signage were displayed at entrance of healthcare facilities i.e. 58.5% (24) and contrary to that no signage was observed at most frequently visited places. Other public places eateries 37.0 (10 out of 27), educational institutes 41.7 (10 out of 24) and offices and workplaces 35.9% (23 out of 64) had seen “No Smoking” signage at entrance (Table 2).

Table 1: Association of ‘No Smoking’ signage according to the type of public place.

“No Smoking” signage	Type of public place						Total N=480 (%)
	Accommodation facilities (%)	Eateries (%)	Educational establishments (%)	Offices and workplaces (%)	Healthcare facility (%)	Most frequently visited places (%)	
Displayed	20 (69.0)	27 (21.4)	24 (20.5)	64 (52.5)	41 (73.2)	1 (3.3)	177 (36.9)
Not displayed	9 (31.0)	99 (78.6)	93 (79.5)	58 (47.5)	15 (26.8)	29 (96.7)	303 (63.1)
Total	29 (6.0)	126(26.3)	117 (24.4)	122 (25.4)	(11.7)	30 (6.2)	480 (100)

Chi-square=98.2, df=5, p<0.001.

Table 2: Distribution of public places according to “signage at entrance” in those public places which displayed the “No Smoking” signage (N*=177).

Public places	Signage at entrance				Total N*
	Not seen		Seen		
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	
Accommodation facilities	17	85.0	3	15.0	20
Eateries	17	63.0	10	37.0	27
Educational establishment	14	58.3	10	41.7	24
Offices and workplaces	41	64.1	23	35.9	64
Health care facility	17	41.5	24	58.5	41
Most frequently visited places	1	100.0	0	0.0	1
Total	107	60.5	70	39.5	177
Chi square value, d.f., p value	$\chi^2=6.307$, df=1, P=0.579 NS**				

N*= Those public places where displayed “No Smoking” signage; NS**=Non-significant.

The association between category of public places and signage as per law was considered to be statistically not significant. Overall 177 places had the “No Smoking” sign out of 480 sampled public places. Out of 177 places

only 11.3% places had displayed no smoking signage as per COTPA specification. However the compliance level varied across the public places. The highest compliance for no smoking sign as per specification of law was observed at accommodation facilities (40.0%), followed

by educational establishment (25.0%) and offices and workplaces (Table 3).

Table 3: Distribution of public places according to “No Smoking” signage as per law (N*=177).

Public places	“No smoking” signage as per law				Total N*	Chi square test
	Not displayed		Displayed			
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)		
Accommodation facilities	12	60.0	8	40.0	20	$\chi^2=0.954$ df=1 p=0.3288
Eateries	27	100.0	0	0.0	27	
Educational establishment	18	75.0	6	25.0	24	
Offices and workplaces	58	90.6	6	9.4	64	
Health care facility	41	100.0	0	0.0	41	
Most frequently visited places	1	100.0	0	0.0	1	
Total	157	88.7	20	11.3	177	

N*= those public places where displayed the “No smoking” signage.

Table 4: Distribution of public places according to “Complaint mechanism” (N*=177).

Public places	Complaint mechanism (contact details)				Total N*
	Not seen		Seen		
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	
Accommodation facilities	20	100.0	0	0.0	20
Eateries	27	100.0	0	0.0	27
Educational establishment	24	100.0	0	0.0	24
Offices and workplaces	64	100.0	0	0.0	64
Health care facility	41	100.0	0	0.0	41
Most frequently visited places	1	100.0	0	0.0	1
Total	177	100.0	0	0.0	177

N*= those public places where displayed the “No smoking” signage

Table 5: Distribution of public places according to “Notice of Active smoking” (N=480).

Public places	Active smoking				Total (N)	Chi-square value
	Not seen		Seen			
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)		
Accommodation facilities	27	93.1	2	6.9	29	$\chi^2=29.024$, df=1, P=<0.0001
Eateries	95	75.4	31	24.6	126	
Educational establishment	112	95.7	5	4.3	117	
Offices and workplaces	117	95.9	5	4.1	122	
Health care facility	55	98.2	1	1.8	56	
Most frequently visited places	15	50.0	15	50.0	30	
Total	422	87.9	58	12.1	480	

About 88.7% of the public places had “No Smoking” boards which were smaller in size than the specified size of 60×30 cm according to the rules and these did not comply with the color specifications too. Only 11.3% of signages were complied with the recommended law. All 177 public places observed had none of the public places any complaint mechanism in the form of a notice placed at a visible position (Table 4). The association between category of public places and notice of active smoking was considered to be statistically highly significant.

Out of the sampled 480 public places 422 (87.9%) places had not observed any smokers, active smokers were seen in only 58 (12.1%) of public places. The highest compliance about absence of active smoking was observed in healthcare facility (98.2%) and worst in other most frequently visited places or transit sites (50%). Other type of public places– accommodation facilities, eateries, educational institution and offices were showing >70% of compliance for absence of active smoking (Table 5).

Significantly high (84.0%) proportion of public places didn't have any kind of smoking aids. The highest level of compliance was observed in health facilities(100.0%), followed by educational establishment (97.4%), offices

(92.6%), accommodation facilities (82.8%), eateries (66.7%) with least level of compliance at transit sites or most frequently visited places (40.0%) (Table 6).

Table 6: Distribution of public places according to “presence of smoking aids” (N=480).

Public places	Smoking aids				Total (N)	Chi square value
	Not visible		Visible			
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)		
Accommodation facilities	24	82.8	5	17.2	29	$\chi^2=42.927$, df=1, p≤0.0001
Eateries	84	66.7	42	33.3	126	
Educational establishment	114	97.4	3	2.6	117	
Offices and workplaces	113	92.6	9	7.4	122	
Health care facility	56	100.0	0	0.0	56	
Most frequently visited places	12	40.0	18	60.0	30	
Total	403	84.0	77	16.0	480	

*The association between category of public places and Presence of smoking aids was considered to be statistically highly significant.

Table 7: Distribution of public places according to “perception of smell” as evident of recent smoking (N=480)

Public places	Evidence of smell				Total (N)	Chi square test
	Not perceived		perceived			
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)		
Accommodation facilities	27	93.1	2	6.9	29	$\chi^2=44.625$ Df=1 p≤0.0001 Significant
Eateries	88	69.8	38	30.2	126	
Educational establishment	116	99.1	1	0.9	117	
Offices and workplaces	117	95.9	5	4.1	122	
Health care facilities	56	100.0	0	0.0	56	
Most frequently visited places	15	50.0	15	50.0	30	
Total	419	87.3	61	12.7	480	

The association between ‘public places’ and ‘evidence of smell’ was found to be statistically highly significant.

Table 8: Distribution of public places according to “cigarette butts and bidi stubs” found (N=480)

Public places	Cigarette butts and bidi stubs				Total N	Chi square value
	Not found		Found			
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)		
Accommodation facilities	17	58.6	12	41.4	29	$\chi^2=6.85$, df=1, p<0.05
Eateries	79	62.7	47	37.3	126	
Educational establishment	78	66.7	39	33.3	117	
Offices and workplaces	102	83.6	20	16.4	122	
Health care facility	54	96.4	2	3.6	56	
Most frequently visited places	5	16.7	25	83.3	30	
Total	335	69.8	145	30.2	480	

Overall compliance about smoking smell was not perceived in 419 (87.3%) out of 480 public places. Smoking smell was perceived in 12.7% (61 out of 480) of public places, 100.0% compliance was perceived in health care facilities, followed by educational institutions

(99.1%), offices (95.9%) and accommodation places (93.1%). Least compliance was perceived in eateries (69.8%) and most frequently visited places (50.0%) (Table 7).

In the above table it was observed significantly high 335 (69.8%) no. of sampled places had not cigarette butts and bidi stubs. However 145 (30.2%) public places were observed to have cigarette butts and bidi stubs, indicating recent smoking in the sampled places. Health care facilities were highest compliance (96.4%) observed about absent of cigarette butts and bidi stubs followed by offices (83.6%), educational institution (66.7%), and hotels and restaurants approximately (50%-60%) and least in most frequently visited places (16.7%) (Table 8).

DISCUSSION

In other similar kind of study conducted by Habbu et al in 175 public places of Bengaluru city observed the boards with warning message “No Smoking” signage observed at 41.4% of the public places such boards were found at places inside the buildings (24.0%) e.g., written or pasted on the walls, both study showed wide range of observation of warning signage display at various types of public places.⁹

In a similar study conducted by Goel et al in district of North India 90% of public places “No Smoking” signage were displayed at entrance as per COTPA. Healthcare and educational institutions had maximum compliance with the smoke free law while transit sites showed the least compliance of signage at entrance and another study in a compliance survey (2014) by Kumar and Tomar et al done in Udupi district of Karnataka, it was found that compliance to display of signage at entrance of public places was only 7.5%, as per smoke free legislation.^{10,11}

Poor compliance about ‘No Smoking’ sign placed at entrance/exit, and other recommended identified sites because of unawareness and lack of proper knowledge about smoke-free law of Govt. of India.

In a similar study done in North India by Goel et al observed ‘No Smoking’ signage complying with COTPA guidelines varied from 50% at transit sites to 100% at hotels/bar/restaurant.¹⁰ High compliance in Punjab could be due to the effective enforcement of various provisions of COTPA. Our study showed less compliance as compare to study in Punjab due to least effort made by state tobacco control cell and district control societies for IEC activity in district under study.

In other similar study in India conducted by Kumar et al, in public places observed smoke-free compliance was lowest complaint mechanism about “No Smoking” signage written in public places.¹²

The reasons for this may be due to lack of awareness or knowledge about the law amongst owners and persons in charge of public places and, finally, lack of enforcement of smoke-free legislation.

Previous similar cross sectional studies other parts of India was conducted by Goel et al in Punjab to assess the

compliance of public places with smoke-free legislation and determine the factors associated with active smoking in public places. A total of 6875 public places across 22 districts of Punjab were observed 81 sites (1.6%) had people which were found actively smoking.¹³

Other previous study by Goel et al a district of Punjab observed that people at 6% of the public places were found actively smoking.¹⁰

Jain et al, in a study in western India (Rajasthan), found active smoking in 6% of the study sites, whereas Kumar et al, in his study in the northern hilly state of India (Himachal Pradesh), reported actively smoking in 16% of the sites.^{11,14}

Kumar et al reported in their previous study that educational institutions and healthcare facilities performed well, while restaurants and transit points performed poorly and another study done by Goel et al in the district of Punjab in 2010, a similar finding of poor compliance to smoke-free law in transit sites was reported.

All the studies including current study showed significantly very compliance of active smoking may be due to high awareness about smoke free law among people under study in public places.

Other similar studies, first study carried by Kumar R et al. observed exactly the same evidences as fixed facility structures such accommodation facilities, eateries, educational institutions, healthcare facilities and offices had no smoking aids in approximately 80–95%, and other public places (e.g. transit sites) compliance was less.¹²

Another study conducted by Goel et al in district of North India the compliance for smoke free law was 88.3% sites. Overall compliance for smoke free law was >70% taken as good compliance practice evidenced in this study.¹⁰

Similar kind of study conducted to ascertain the level of compliance with smoke-free law in public places of a district of North India by Goel et al observed 94.2% of sites were free of smell of recent tobacco smoke. In health care institutions and educational establishments had 100.0%, followed by offices and hotels were 95%.¹⁰

Another cross sectional study conducted by Kumar et al, to assess the level of compliance with smoke-free legislation (defined as the presence of no-smoking signage and the absence of active smoking, smoking aids, cigarette butts/bidi ends and smoking smell) and the role of enforcement systems in Indian jurisdictions observed 89–92% of all facilities there was no evidence smoking smell. In the fixed facility structures such accommodation facilities, eateries, educational institutions, healthcare facilities and office no smoking smells in approximately 80–95%. In the frequently visited other public places and public transport vehicles, compliance was generally less good.¹²

In a similar study done by Kumar et al, across 11 district headquarters in Himachal Pradesh, India, observed tobacco litter like cigarette butts was absent in 64.7% of the public places. Highest compliance about no cigarette or bidi butts was observed in educational institutions (85.3%), followed by health care facility (79.5%) and offices (71.1%). Worst compliance seen in other most frequently visited places.¹⁵

Another study done by Goel et al, observed 95% of public places had free from empty cigarette or bidi packs and litter of the butts. Highest compliance was found in educational institutions (100.0%) followed by health institutions (96.7%) and offices (95.2%). Least compliance was found in transit points.¹⁰

CONCLUSION

This study was conducted in identified public places of Raipur city. Current study observed that only few public places displayed- No Smoking signage out of them. Only small numbers of signage were the entrance. Moreover signage displayed with proper specification had very poor. All though majority of public places under study, active smoking couldn't observe but most of the places perception of smoking smell was evident despite of absence of smoking aids in about most of the study places. Approximately 1/3rd of study places were cigarette butts and bidi stubs were thrown and study quotes smoke free (section 4 of COTPA) compliance in public places in Raipur was suboptimal and was mainly related to the absence of- 'No Smoking' signage.

Recommendations

1. Structured training sessions should be organized for owners of workplaces which will help in increasing the compliance of public places to smoke-free legislation.
2. Sensitization workshops of different stakeholders, especially the media may be organized to raise awareness regarding the provisions under COTPA.

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