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Feasibility of the novel 'Tobacco-Free Hospital' model and its compliance assessment at a tertiary care hospital of New Delhi, India

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Abstract:

BACKGROUND: Tobacco is one of the biggest threats to the public health. Tobacco harms not only human health but also the environment. The Cigarette and Other Tobacco Products Act (COTPA) was implemented in India in 2003. Compliance of these laws in public places is mandatory. This study presents an innovative model to make hospitals tobacco-free. The aim is to assess the effectiveness of implementation of tobacco-free hospitals among security guards, tobacco users, and key observers visiting a tertiary care dental hospital through a comprehensive strategy.

MATERIALS AND METHODS: An exploratory study was conducted in three phases. Structured training was organized for all security guards (n = 25) along with pre- and post-assessment using a validated questionnaire. All the patients and attendants entering the hospital were screened for tobacco products by security guards. Those patients who were carrying tobacco products to the hospital (n = 107) were interviewed using a validated questionnaire. Opinions of key observers (n = 223) who witnessed the event were also recorded. Descriptive statistics (means, frequency distribution) and inferential statistics (Chi-square test) were calculated.

RESULTS: At the baseline, only 20% security guards were aware about tobacco legislations, whereas after 1 month, more than 80% security guards were aware about the laws. Around two-third of study participants of both the groups were aware of COTPA Section 4. Approximately 33.6% of tobacco users and 58.4% of key observers were aware of COTPA Section 6b. Forty tobacco users in the study availed tobacco cessation services of the hospital.

CONCLUSION: Every staff should be a torch bearer of tobacco control. The study highlights a comprehensive approach of integrating hospital staff and linking vital cessation services by implementing Sections of COTPA.

Keywords:

Hospital and ethics, hospital auxiliaries, tobacco products, tobacco use and cessation

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Introduction

Tobacco is one of the biggest threats to the public health and a leading cause of preventable mortality and morbidity in India. As per the Global Adult Tobacco Survey – 2 report of India, 266.8 million people consume tobacco in some form, of which 21.4% are smokeless tobacco (SLT) users, 10.7% are smokers, and others are dual users.[1] Tobacco has been a major risk factor and front runner in oral cancer. The oral cavity is the leading site for cancer among men in India, which stems out by the use of smokeless tobacco products in a frequency double the smoke form of tobacco use. Tobacco not only affects the individual who is consuming it but also is detrimental

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to the health of people nearby because of the toxic smoke inhaled during passive smoking.[2]

Apart from the personal health of an individual, tobacco also affects the environment at large. Around 340–680 million kilograms of tobacco waste is generated in the world every year, which litters our planet. Smokeless tobacco use instigates its users to spit in public places. In spite of repeated attempts to sensitize and revamp adequate waste management, the country suffers at large of the consequence of public nuisance. The Government of India has taken efforts to initiate and target hygiene and sanitation across the country. One such concrete program brought into existence is "Swaach Bharat Abhiyan".[3]

India was the seventh nation in the world to ratify Framework Convention on Tobacco Control (FCTC).[4] It was also among the first nations to enact a strong national law for tobacco control in 2003, that is, the Cigarettes and Other Tobacco Products Act (COTPA), under the auspices of the FCTC (MOHFW, 2003). Implementation of COTPA Section 4 banned smoking in public places, and the law came into action on October 2, 2008. The other breakthrough occurred with the introduction of Section 6 under COTPA, which stated that no person shall sell, offer for sale, or permit sale of cigarettes or any other tobacco product in an area within a radius of 100 yards of any educational institution.[5]

In 2018, Usha S conducted a study that highlighted the lack of awareness as a reason for low compliance to COTPA Section 4 in hospitals of Bangalore.[6] Rath R in 2018 concluded that compliance rates for COTPA Section 6 were less in urban areas and even lower in rural areas.[7] Rijhwani *et al*., from their study conducted in 2017, highlighted a lower compliance rate of various sections of COTPA in Government Hospitals in Delhi.[8] The presented data suggest that the tobacco control in India is still in its infancy.

Health care facilities form the backbone of the health system of any society with a central role in dissipating preventive and curative services. Cleanliness and hygiene in hospitals are critical in prevention of transmission of infections. Health care settings which are also listed as public places create an enabling environment to promote health and hygiene among patients and visitors with a positive experience. The Ministry of Health and Family Welfare, Government of India, launched a National initiative, KAYAKALP, on May 15, 2015 to promote cleanliness and enhance the quality of public health facility.[9] A tobacco-free hospital campus is one such path for the commitment to sound health, reducing vulnerability to tobacco use, increasing quitting rates, and changing the behavior of patients visiting the hospitals toward tobacco use.[10]

Ensuing these pressing numbers and the chiasma of normative and expressed needs, it is of paramount importance to control the usage of tobacco, especially in the hospitals and institutes dealing with health care services. The aim of the present study was to assess the effectiveness of implementation of tobacco-free hospitals among security guards, tobacco users, and key observers visiting a tertiary care dental hospital through a comprehensive strategy. The objectives were to train and evaluate security guards at different time intervals regarding tobacco-free hospitals, screen and interview patients for tobacco products entering inside hospitals, and assess the effectiveness of screening and the level of motivation to quit the habit.

Materials and Methods

Study design – Observational study.

Study setting – A public tertiary care dental hospital, New Delhi.

Study duration – Spanning over a duration of 2 months.

Ethical consideration – Standard and necessary approval from the Institutional Review Board of a tertiary care hospital was taken.

Study technique – The research was conducted in three phases [Figure 1].

Phase 1 – Training of security guards regarding various aspects of COTPA

A comprehensive training session was organized for all security guards of the hospital (census sampling). The training session included a structured multi-media presentation, the face validation of which was performed by six public health experts. The contents of the presentation ranged from types of tobacco and effects of tobacco on general and oral health to the tobacco control measures along with emphasis on COTPA Section 4 and 6b. A single didactic structured training session was conducted for 60 minutes in the local Hindi language. They were also trained to screen and frisk every patient and attendants for carrying tobacco products during their visit to the hospital.

Pre- and post-training assessment was performed via a self-administered, pre-validated questionnaire in the Hindi language. The study tool consisted of 13 closed-ended items which focused on three broad areas, namely, the tobacco consumption pattern and ill effects of tobacco on health, tobacco legislation, and

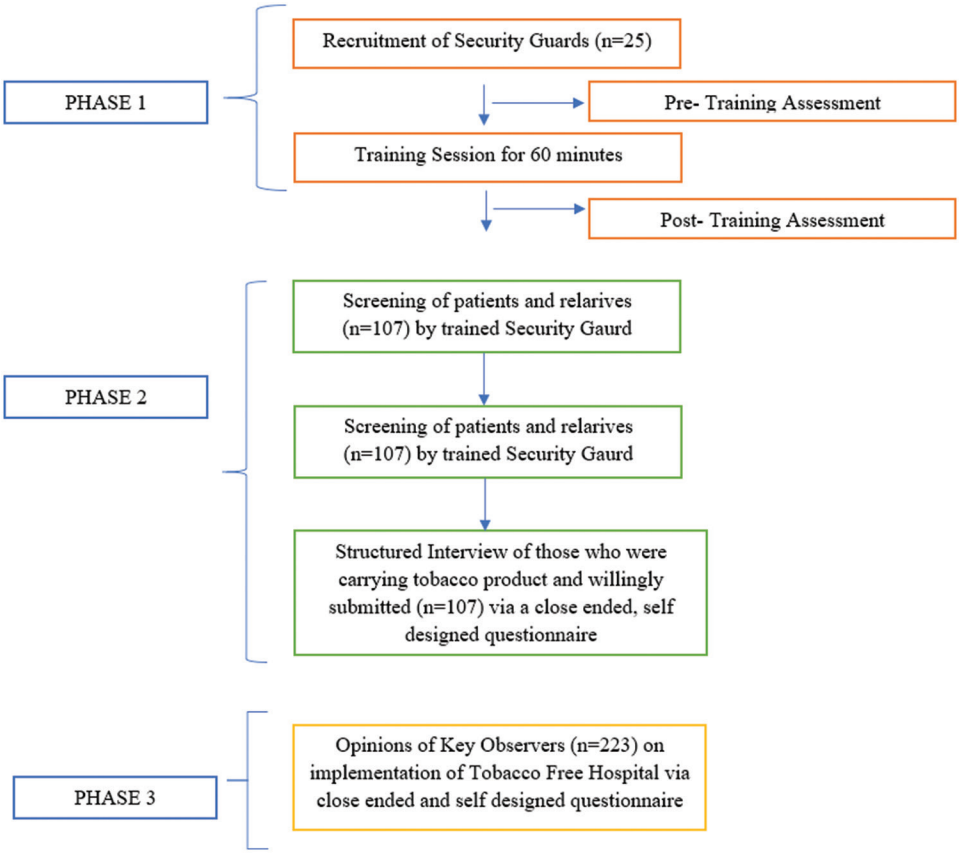

Figure 1: Flow diagram of the study

the respondents' attitude toward tobacco control. The intra-class correlation coefficient reliability assessment score was found to be 0.86. Post-evaluation was performed immediately after the first week and after 1 month by the administration of the same tool.

Phase 2 – Screening of Patients and Accompanying persons carrying tobacco products in any form

Following Phase 1 training, the trained security guards on duty established a routine protocol of frisking the patients and visitors to screen for tobacco products. If patients or their accompanying persons were found carrying any form of tobacco products, the same were willingly submitted in a plastic lid container box by security guards. All the individuals who willingly submitted their tobacco product were given a packet of regular chewing gum as an incentive. A structured interview via a questionnaire was conducted among them (convenience sampling) in order to assess their understanding of tobacco control measures, motivation to quit, and knowledge and perception about tobacco along with socio-demographic details. A self-designed, pre-validated, and close-ended questionnaire was developed in the English language consisting of 18 items. Face validation of the questionnaire was performed by six public health experts, and the content validation ratio was found to be 0.84.

Phase 3 - Opinions and Feedback of key observers on implementation of tobacco-free hospital measures

Phase 3 focused on the evaluation of the whole process carried out in phase 1 and phase 2. The evaluation was performed by the "Key Observers" (n = 223), who had observed the strategy of tobacco control being implemented. For every one patient who willingly submitted to tobacco products, two key observers who gave informed consent were interviewed (simple random sampling).

A self-designed, pre-validated, and close-ended questionnaire was prepared in English and consisted of 15 questions. The questionnaire comprised demographic details, appropriateness of the act, tobacco legislations, tobacco product disposal measures, personal tobacco consumption patterns if any, and motivation to quit if habits are present. The face validation of the study tool was conducted in a similar manner as for the other questionnaires, and the content validation index score was found to be 0.86.

Statistical analysis

Data from all the questionnaires were collated and subjected to judicious and appropriate statistical analysis. Descriptive statistics (means, frequency

distribution) and inferential statistics (Chi square test) were analyzed using Statistical Package for Social Science, SPSS Version 21. The confidence interval was set at 95%, with a priori power of the study set at 80% and the Type 1 error at 5%. A *P* value of less than 0.05 indicated statistical significance.

Results

The present exploratory study assessed the security guards on various aspects of tobacco control and compliance and patients to laws of COTPA and their motivation to quit tobacco.

Training and assessment of security guards

A total of 25 security guards attended the training session. The majority of security guards were male (n = 23), and the mean age was 49.48 ± 9.17. years. Approximately 44% (n = 11) completed high school.

With regard to knowledge about tobacco and its ill effects, 76% (n = 19) of security guards were aware. With regard to tobacco control and various tobacco legislations, only a few were aware of tobacco legislation COTPA Section 4 (16%) and COTPA Section 6b (12%). Post-assessment results revealed an increase in all the variables. Post-training awareness among all security guards about deleterious effects of tobacco and Section 4 and 6b COTPA legislations improved [Table 1].

Tobacco users and key observers

All those who were carrying tobacco products to the hospital were males with a mean age of 43.12 ± 1.38 years; the majority of them completed middle school (47.52%). The key observers consisted of both male and female with a mean age of 34.23 ± 8.56 years [Table 2].

Three-fourth (75.7%, n = 81) of the patients who willingly submitted tobacco products agreed that they had never seen such a measure in any hospital. Approximately 20% (n = 45) of key observers also reported to be tobacco consumers as revealed in their depth interview. Almost all (91.4%, n = 204) key observers agreed that actions taken were appropriate.

Approximately 69.2% (n = 74) of patients who willingly submitted to tobacco products and more than three-fourth of the key observers felt that this kind of tobacco control measure could deter the use of tobacco [Figure 2].

Varying response was observed in regard to knowledge related to the current tobacco legislations. Among tobacco users, 69.1% were aware of COTPA Section 4, whereas only 33.6% had knowledge about COTPA Section 6b [Figure 3].

Around 70% of tobacco users (n = 75) were ready to quit in the next 1 month. This intervention motivated 40 tobacco users to avail tobacco cessation services. Ten key observers brought their family members who consumed tobacco to the tobacco cessation center. Around 29.5% (n = 66) of key observers agreed that such efforts with integration with the Tobacco Cessation Clinic will be more effective.

Discussion

Tobacco control has been researched and discussed through multi-modular mechanisms and through the lens of various stakeholders, end users, and perpetrators. What the current study envisages to append is not only the tripoding and triangulating of the study populations but also exploration of the techno-behavioral compliance and constructs of COTPA directives.

Security personnel form a frontline working taskforce through their demanding, stress-induced and laborious key roles of actions, making them a vulnerable cohort to various inflictions, including the perils of tobacco in smoked and smokeless forms. Although robust efforts have been made at discerning the knowledge, attitude, and

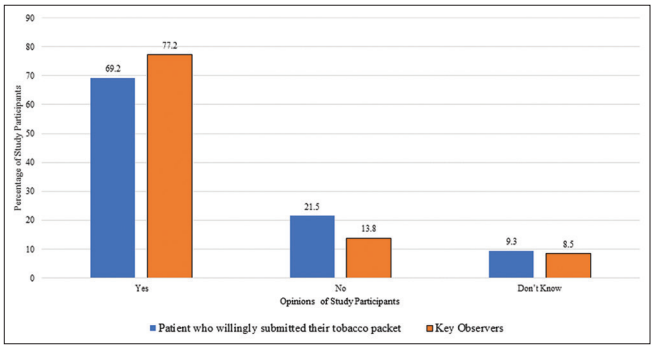

Figure 2: Opinions of study participants regarding initiative will reduce tobacco consumption

Table 1: Pre- and Post-assessment Training of Security Guards (knowledge, attitude, and practice)

Variables	Pre-assessment (Baseline)	Post-assessment (Immediate)	Post-assessment (1 week)	Post-assessment (1 month)	Chi square value	df	*P*
Willingness to abstain from tobacco	60% (*n*=15)	100% (*n*=25)	100% (*n*=25)	100% (*n*=25)	-	-	-
Deleterious Effects of Tobacco	76% (*n*=19)	100% (*n*=25)	100% (*n*=25)	88% (*n*=22)	-	-	-
Tobacco Legislation COTPA Section 4	16% (*n*=4)	100% (*n*=25)	96% (*n*=24)	84% (*n*=21)	12.00	9	0.213 (NS)
Tobacco Legislation COTPA Section 6b	12% (*n*=3)	100%	88% (*n*=22)	80% (*n*=20)	12.00	9	0.213 (NS)

P≤0.05 (S)

Table 2: Socio-demographic details of patients carrying tobacco packets to hospitals and key observers

Study Participants	Mean Age (in years)	Gender (in percentage, *n*)	Education (in percentage, *n*)[11]	Occupation (in percentage, *n*)[11]
Patients carrying tobacco packets (*n*=107)	43.12_+ 1.38 Range 20-70	Males - 100%	Intermediate or diploma - 5.60%, *n*=6 High school Certificate - 37.38%, *n*=40 Middle school Certificate - 47.66%, *n*=51 Primary school certificate - 9.34%, *n*=10	Skilled workers and shop and market sales worker - 31.77%, *n*=34 Skilled agricultural and fishery work - 20.56%, *n*=22 Plant and machine operators and assemblers - 23.36%, *n*=25 Elementary occupation - 24.29%, *n*=26
Key observers (*n*=223)	34.59_+ 1.38 Range - 15-75	Males - 66.37%, *n*=148 Females - 33.63%, *n*=75	Graduate - 22.86%, *n*=51 Intermediate or diploma - 41.70%, *n*=93 High school Certificate - 17.04%, *n*=38 Middle school Certificate - 14.79%, *n*=33 Primary school certificate - 3.58%, *n*=8	Skilled workers and shop and market sales worker - 43.94%, *n*=98 Skilled agricultural and fishery work - 15.24%, *n*=34 Plant and machine operators and assemblers - 20.62%, *n*=46 Elementary occupation - 11.65%, *n*=26 Unemployed - 8.52%, *n*=19

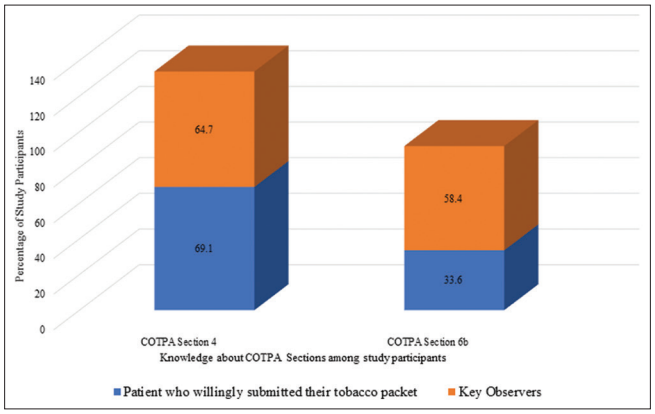

Figure 3: Knowledge about COTPA Section 4 and 6b among patients confiscated with tobacco products (*n*=107) and Key Observer (*n*=223)

practice of various populations regarding tobacco and its curtailing machinery, scattered and sporadic sequencing in the scientific domain is present pertaining to the demeanor of security guards toward COTPA compliances.

Tobacco control in India has come a long way from signing the FCTC to the ratifications brought through COTPA in 2003 (WHO, 2003) and to implementation of the National Tobacco Control Program in 2007–08.[4,5,12] Hence, to maintain the implementation of these regulations, it is necessary to evaluate various implementation strategies. Coupling a bio-behavioral approach of intervention with a cross-sectional appendage and subsequent evaluation, this triphasic study tripods the security guards, the beneficiaries of the tertiary care facility, and the key observers of the implementation activity under its ambit, making it a first of its kind comprehensive evaluation. Stakeholder training of the security guards is conducted to discern the difference in their take toward COTPA, with subsequent implementation of this training to them, comprehensively screening visitors for possession of tobacco products and opinions of the key observers.

Research has shown that there is a lack of knowledge and compliance of COTPA laws. Studies conducted by Athuluru *et al*.[13] showed a lack of knowledge about smoke-free legislations among institutional personnel. Various studies have also assessed the implementation and compliance of various aspects of Section 4 and Section 6b COTPA laws, which have been conducted by Rijhwani *et al*.[10] (2018), Tripathy *et al*.[14] (2018), and Goel *et al*.[15,16] (2014, 2018). They have highlighted poor implementation of the laws and significant gaps in current strategies for tobacco control in various states of India. The present study has explored the implementation of an innovative measure to ensure tobacco control in hospitals.

In Bangladesh, the National Tobacco Control Cell has carried out training sessions for the Executive Magistrates, Senior Health Education Officers, Sanitary Inspectors, Industry Inspectors, Police Officers, Ansar Officers, and Civil Defense Officers to implement tobacco control laws in their country. The study concluded that such strategies made citizens to abide by the laws.[17] Sucakli *et al*.[18] (2011) in their study stated that the smoking rate among religious officials is much lower than that of the general public. In order to help religious officials to take a more active role on this issue, they should be trained on the subject and appropriate platforms should be established. Similarly, in the present study, capacity building and mobilization of security staff were performed considering the fact that the security guards are the first contact point for any patient entering the hospital premises.

In the present study, all patients carrying tobacco products in hospital premises were males in the middle age group. The majority of patients carrying tobacco products in hospital premises were middle school certificate holders. Education has been associated as

an important determinant in tobacco use, and patterns of tobacco use vary among various educational backgrounds. The majority of them revealed that the habit of tobacco consumption was a result of being free at the work place and/or the enticement by the fellow colleagues. Bidi was the most popular tobacco product, followed by Khaini, among the study population. Similar trends were revealed by GATS 2 data.[2]

In the present study, two key observers were identified for every individual with tobacco products. They have provided the vital inputs other than observing the implementation of the tobacco-free hospital strategy. For the success of any public health interventions, it is important that in-built feedback and evaluation processes should be in place. Key observers during the interview also shared their personal concerns with some family members consuming tobacco and felt motivated to avail these services.

Limitations and recommendation

The study is not without inherent limitations, and certain inferences need to be interpreted with caution. The novelty of the study sets precedence to a number of simple yet impactful repeatable and reproducible recommendations. The strategies developed were unique and have not been tested previously. There are no stringent measures or policies focusing on training and reinforcement of hospital staff regarding tobacco legislations. Targeted and focused Information, Education, and Communication (IEC) health awareness material related to tobacco control laws of COTPA Sections needs to be specifically designed and displayed along with various tobacco-related warning signs.

Effective implementation of tobacco legislations under COTPA is the need of the hour. The Tobacco Cessation Clinics of various states should implement the current strategy and think of innovative methods to make control measures relevant to certain settings such as hospitals. The program should address specific issues by realistically planning needs to take into account the existing capacity of the health system. Quality assurance assessment of health systems should also incorporate Section 4 and Section 6b in their checklist for better implementation at hospitals. Although extensive scientific evidence exists on the tobacco epidemic, the lack of coordination of many activities is deterrent in implementation and hinders effective tobacco control. Hence, in order to strengthen the implementation and suggest mid-way course corrections in the existing policies, there is a need to strengthen the integration of tobacco control to the current health system. Structure training sessions for hospital staff on tobacco legislation should be part of internal training with regular reinforcement.

This is a novel initiative to enroll para-medical staff in order to enforce tobacco legislations in tertiary care public institutes. The security guards were instrumental in implementing COTPA laws in the hospital.

Conclusion

The study highlights a comprehensive approach of integrating hospital staff and linking vital cessation services by implementing Sections of COTPA. Health care units should be role models in displaying stringent tobacco control measures.

Acknowledgements

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) have given their consent for their clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. Gats-2 Global Adult Tobacco Survey Fact Sheet India. 2016–2017. Available from: https://mohfw.gov.in/sites/default/files/GATS-2 FactSheet.pdf. [Last accessed on 2019 Oct 10].
2. World Health Organization. Tobacco and Its Environmental Impact: An Overview. 2017.
3. Swaach Bharat Abhiyan. Available from: https://www.pmindia.gov.in/en/major_initiatives/swachh-bharat-abhiyan/. [Last accessed on 2019 Oct 10].
4. WHO framework convention on tobacco control (FCTC). Geneva: World Health Organisation, 2003.
5. Ministry of Law, Government of India, the Cigarettes and Other Tobacco Products Bill, 2003 (as passed by the Houses of Parliament). Available from: http://164.100.154.238/NTCP/Acts-Rules-Regulations/COTPA-2003-English-Version.pdf. [Last accessed on 2019 Oct 09].
6. Usha S, Sindhu R. Awareness of smoke-free legislation (Section 4 of COTPA) among owners or person in-charge of the public places in Ramanagara City. Indian J Public Health Res Dev 2008;9:132-8.
7. Rath R, Krishnan A, Nongkynrih B, Misra P. Assessment of implementation status of Cigarettes and Other Tobacco Products Act (COTPA) and its awareness among residents in a block of Haryana. Indian J Public Health 2018;62:100-3.
8. Rijhwani K, Mohanty VR, Balappanavar AY, Hashmi S. Compliance assessment of cigarette and other tobacco products act in public places in Delhi government hospitals. Asian Pac J Cancer Prev 2018;19:2097-102.

9. Kayakalp revised booklet august 2016. Kayakalp - Swacchta Guidelines for Public Health Facilities | National Health Portal Of India. Nhp.gov.in. 2019. Available from: https://www.nhp.gov.in/kayakalp-swacchta-guidelines-for-public-health-facilities_pg. [Last accessed on 2019 Oct 10].
10. Wheeler JG, Pulley L, Felix HC, Bursac Z, Siddiqui NJ, Stewart MK, *et al*. Impact of a smoke-free hospital campus policy on employee and consumer behavior. Public Health Rep 2007;122:744-52.
11. Sharma R, Saini NK. A critical appraisal of Kuppuswamy's socioeconomic status scale in the present scenario. J Family Med Prim Care 2014;3:3-4.
12. Ministry of Health and Family Welfare, Government of India, National Health Mission. National Tobacco Control Programme, [Internet]. Accessed from: http://ntcp.nhp.gov.in/. [Last accessed on 2020 Sep 10].
13. Athuluru D, Reddy C, Sudhir KM, Kumar K, Gomasani S, Nagarakanti S. Cognizance and social attitudes regarding tobacco control laws in and around educational institutions of Nellore city, India. J Educ Health Promot 2018;7:125.
14. Tripathy JP, Goel S, Patro BK. Compliance monitoring of prohibition of smoking (under section-4 of COTPA) at a tertiary health-care institution in a smoke-free city of India. Lung India 2013;30:312-5.
15. Goel S, Ravindra K, Singh RJ, Sharma D. Effective smoke-free policies in achieving a high level of compliance with smoke-free law: Experiences from a district of North India. Tob Control 2014;23:291-4.
16. Goel S, Sharma D, Gupta R, Mahajan V. Compliance with smoke-free legislation and smoking behaviour: Observational field study from Punjab, India. Tob Control 2018;27:407-13.
17. Sobhan SM, Quader R, Quddus MR, Alam SM, Chowdhury I. Investment and getting back the reward: Training different government agencies to implement the tobacco control law in Bangladesh. Tob Induc Dis 2018;16(Suppl 1):A657.
18. Sucakli MH, Ozer A, Celik M, Kahraman H, Ekerbicer HC. Religious officials' knowledge, attitude, and behavior towards smoking and the new tobacco law in Kahramanmaras, Turkey. BMC Public Health 2011;11:1-7.