Original Article

Development and Validation of a Comic Tool: An Innovative Approach to Raise Awareness about Tobacco Control among School Teachers

Chaity Sarkar, Vikrant Mohanty, Aswini Y. Balappanavar, Puneet Chahar, Kavita Rijhwani
Department of Public Health Dentistry, Maulana Azad Institute of Dental Sciences, New Delhi, India

Abstract

Background: National legislation (COTPA) in India has focused on school children with dedicated section (6a and 6b) for tobacco control at Educational Institutions. Innovative mediums like Comic offer unique and engaging medium for dissemination of health information. However, its true potential remains unexplored in tobacco control. The study was conducted to develop and validate Comic for promotion of tobacco control laws in school settings. **Materials and Methods:** The present cross-sectional study was conducted among school teachers in Delhi in three phases: (1) need assessment, (2) development of Comic, and (3) validation (face/content validity by experts in public health/tobacco control, and construct validity by school teachers). Ethical clearance was obtained from Institutional Ethical Review Board. Prevalidated, structured, close-ended, and self-administered Questionnaire was used for the data collection. SPSS version 21 was used for descriptive and inferential results. **Results:** Phase 1 showed, out of 150 school teachers, 121 participated (80.66%). Mean age and teaching experience was 41.85 ± 9.76 years and 10.35 ± 6.53 years, respectively. Overall awareness about COTPA was 47.9% (n = 58) and COTPA sections 4 and 6 were 37.2% (n = 45). Majority 59.5% (n = 72) reported lack of access to training material. Phase 2 and 3 showed overall content validity index (CVI) score of 0.84. Construct validity evaluation from pre–postintervention yield mean ± SD scores of 3.94 ± 0.99 and 7.97 ± 1.17, respectively, ($P < 0.001$). **Conclusion:** Comic was developed on sound theoretical basis with satisfactory face, content and construct validity, to raise awareness about tobacco control among school children, and teachers to promote tobacco-free school.

Keywords: Adolescent, school teachers, tobacco, validation

Introduction

Tobacco use during adolescence and early adulthood has profound public health implications. Globally, approximately 80% of adult smokers initiate their tobacco use before 18 years of age.[1,2] In India, as per Global Youth Tobacco Survey (GYTS-4, 2019) nearly 8.5% students aged 1brs use some form of tobacco (7.3% smoked and 4.1% smokeless tobacco).[3] The Big Tobacco Industries have multifaceted strategies to attract consumers for initiation as well as continued tobacco use. Moreover, these industries are now targeting the younger generation to expand their market.[4]

For effective and sustained tobacco control amongst youth, it is imperative to enforce strict laws against tobacco promotion and preventing its use among youth, especially in vicinity of educational institutions.

School as a setting and School Teachers as facilitators can be instrumental in health promotion and tobacco control.[5] Under the National Legislation, Cigarettes and Other Tobacco Products Act (COTPA Act 2003), tobacco control activities pertaining to educational institutions falls under section 6a and 6b. Dedicated guidelines in the form of "Tobacco-Free Educational Institutions" has been issued by Ministry of Health and Family Welfare, Government of India in 2017. However, strict, adequate implementation of

Address for correspondence: Dr. Vikrant Mohanty, Department of Public Health Dentistry, Associate Professor and Head of the Department, Maulana Azad Institute of Dental Sciences, New Delhi, India.
E-mail: vikrantmohanty@gmail.com

How to cite this article: Sarkar C, Mohanty V, Balappanavar AY, Chahar P, Rijhwani K. Development and validation of a comic tool: An innovative approach to raise awareness about Tobacco control among school teachers. Indian J Community Med 2022;47:536-42.

Received: 22-12-21, **Accepted:** 16-08-22, **Published:** 14-12-22

Access this article online

Quick Response Code:

Website: www.ijcm.org.in

DOI: 10.4103/ijcm.ijcm_1507_21

COTPA and ToFEI guidelines is a complex and challenging process.

Adolescence is an influential stage in students' life course, lifelong behaviors such as tobacco use may initiate at this stage.[6] Therefore it is the most critical and appropriate age group to raise awareness through innovative medium. Comics offer a unique, engaging, and accessible medium for dissemination of health information and health communication. Comics have proven to positively enforce health behaviors among individuals especially children and young adults.[7]

Use of comic intervention medium for health awareness is already substantiated. However, its true potential has not been explored.[8] Prior to its implementation, development of any new tool requires an essential step of validation.[9] Thus, this study aims to assess the awareness regarding tobacco control legislations among school teachers in Delhi followed by development and validation of Comic for promotion of tobacco control laws in school settings.

Methodology

The present cross-sectional study was conducted in three phases over a period of 6 months: first phase involved assessing the awareness regarding tobacco control legislations among school teachers in Delhi. Followed by second and third phase of development and validation of the comic. The methodological steps involved are shown in Figure 1. Ethical clearance was obtained from the Institutional Ethical Review Board. Informed Consent was obtained from all the participants prior to the study.

Phase I: Need Assessment among school teachers regarding tobacco control legislations

Prior to the development of comic, need assessment was conducted to get an overview of the awareness about tobacco control laws among school teachers in Delhi. School teachers ($n = 150$) were selected by convenience sampling from six Government schools across Delhi. Study tool comprised of a prevalidated, structured, and close-ended 18 items Questionnaire, explained in detail in Figure 1.

Phase II: Development of comic

The development process of the comic involved a thorough literature review of the existing resources. Based on scientific evidence, the content, language, textual components and layout were developed with the suggestions from 10 subject experts in the field of Public Health and Tobacco Control. The theoretical framework of the comic was based on ToFEI Guidelines. Comic was developed in native language Hindi. Illustrations were made by the Institutional Artist. [Figure 2].

Phase III: Validation of comic

For evaluation of face and content validity, sample size was calculated from assuming expected proportion (50%) indicating the adequacy of each item and relative precision (e) as 15%. Thus, estimated sample size of Subject Experts was 24.5 rounded off to 25.

Face and content validity of comic by subject experts

Face Validity was assessed by Subject Experts ($n = 25$) in Public Health and Tobacco control, by grading the importance of each domain of the comic on 5-point Likert scale to assess the impact factor.[10] Domains were validated using the "clinical impact method".[11] In this method, impact of each item is determined from number of respondents who scored ≥3 on Likert Scale i.e., identified it as important (frequency), and the mean importance score attributed to each item. Impact score is calculated by the formula, frequency multiplied by importance mean.

Content validity was assessed on two domains, firstly, comic was rated in terms of relevance, clarity and completeness of items based on 4-point Likert Scale. Content validity index (CVI) for each Item (I-CVI) and overall average Scale CVI (S-CVI) was derived.[10] I-CVI values higher than 79%, item will be appropriate, between 70 and 79% require revision, less than 70% to be eliminated.

Comic was further assessed based on five criteria (22 items): front cover, writing style, structure and presentation, objectives, relevance, and overall score of the comic on a 4-point Likert scale.[12] S-CVI Score was computed for all five criteria.

Construct validity of comic by school teachers

For construct validity school teachers were approached as they are proxy to the children, by pre and post knowledge assessment through comic as an intervention. Sample size was calculated by considering a difference in proportion of 35% for knowledge improvement with health education material, was considered with 80% power and 5% level of significance. The required sample size of School Teachers was 35.3 rounded off to 35.[13]

Pre and post knowledge assessment evaluation forms were used to evaluate the impact of comic among the school teachers. Pre and post intervention structured closed-ended questionnaire (sociodemographic profile, qualification, history of tobacco use and knowledge pertaining to COTPA and ToFEI) were distributed among the participants before and after circulating the comic. Each participant could achieve a maximum knowledge score of 10 which coincide with 1 mark for each question.

Statistical analysis

Variables were coded and data collected was entered into Microsoft excel sheet. The IBM statistical package for social sciences (SPSS) for Windows version 25 was used for data compilation and analysis. For the analysis, the level of significance was set at 5%. Data was represented as tables, proportions, charts.

Results

Phase I: Need assessment among school teachers regarding tobacco control legislations

In this study, need assessment questionnaire was administered in 150 participants, among which 121 completed the

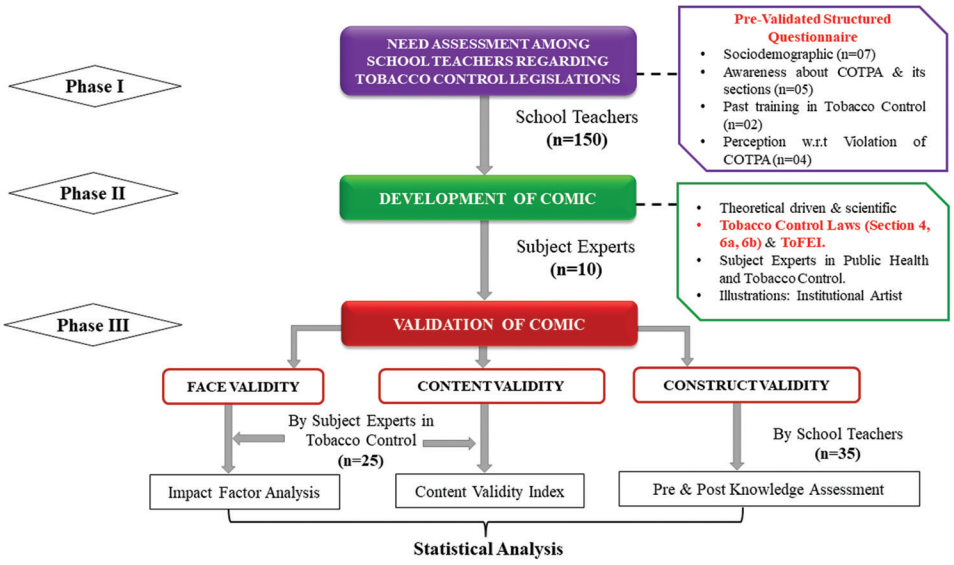

Figure 1: Study Flow Chart

Figure 2: (a) Cover Page of the Comic, (b) Presentation of the characters and content, (c) Compiled Information about COTPA Section4, 6a and 6b laws, (d) Information about Tobacco Free Educational Institutions Guidelines (summary)

questionnaire (Response rate = 80.66%). Demographic profile, tobacco use profile and awareness regarding COTPA and To FEI guidelines have been summarized in Tables 1 and 2.

Phase II: Development of comic

Final version of comic was presented in a set of 26 frames. Comic frames were designed by juxtaposing illustration, arranged in a sequential order following the storyline. The introductory panel presented the title of the story and an overview of the narrative. Verbal messages were embedded in a text box for clarity. A summary box stating the checklist for a ToFEI guidelines was displayed in the end. Comic framework was designed based on the understanding and readability level of an adolescent age group of 13–15 years. This resulted in a preliminary version of the Comic, which was subjected to Validation by Subject Experts.

Phase III: Validation of comic

Face and content validation by subject experts

The domains of the comic were ranked by 25 Subject Experts. The overall impact score of all domains of the comic were estimated to be ≥1.5, which suggested an acceptable face validity of the comic tool. All items were found to have satisfactory Content Validity in terms of relevance, clarity and completeness. [Table 3] Comic was further rated based on front cover, writing style, structure and presentation, objectives and relevance of the revised comic. The overall S-CVI score was 0.84, which was satisfactory and above the minimum level of 0.80. [Table 4] Overall consensus was obtained from all the subject experts with respect to face and content validity which led to the development of the preliminary version of the comic.

Construct validation by school teachers

In this study, 35 school teachers participated to fill the pre and post intervention questionnaire. Among 35 participants 21 (29.7%) were females and 14 (19.6%) were male. Mean (SD) age of the school teachers was 38.31 ± 7.98 years. As shown in Table 5, mean (SD) pre- and post-intervention scores were 3.94 ± 0.998 and 7.97 ± 1.175, respectively. There was a statistically significant difference in the mean pre- and post-intervention scores.

Discussion

School teachers are role models and key influencers for tobacco control policies in schools.[14] Also, School Principal and Teachers are authorized by Ministry of Health and Family Welfare, Government of India to impose Section 4, 6a and 6b and collect the fine against the violation of section 4.[15] Despite authorization of these laws, lack of awareness regarding tobacco free school policies, relevant teaching materials and training among school teachers indicate undermined scope of implementation of these laws.[16–18]

Around 67% teachers reported that they had never undergone any training in tobacco control and 66% never conducted any program to raise awareness regarding the same. This was in contrast to study conducted in Assam (84% and 78% respectively)[18] and Mangalore, Karnataka, which stated that 86.7% schools reported that tobacco control activities were integrated with school health programs and 63% reported to have conducted awareness sessions on tobacco control.[19]

Lack of complete information of the Act, public opposition, cultural acceptance of tobacco use, lack of political support, and less priority for tobacco control and strategy of tobacco company to attract the youth were reported primarily as barriers for COTPA implementation. Efforts should be made to increase the awareness of COTPA focusing on younger population on high priority.[16,20]

In the need assessment phase, about 2% of school teachers in this study reported that they were current tobacco users (smoke or smokeless form) comparable to a study from Botswana and Assam.[16,21] The low percentage of tobacco users among school teachers may be due to the fact that majority 78.5% were female participants and non-reporting due to social-desirability bias, found to be common in survey-based studies.[22]

The present study revealed only 47.9% school teachers were aware of COTPA in contrast to a study conducted

Table 1: Sociodemographic profile of the study participants in Phase I: Need Assessment

Demographic profile and Tobacco profile	Study Participants *n* (%)
Gender	
Female	95 (78.5%)
Male	26 (21.5%)
Mean Age (mean±SD) years	41.85±9.76
Mean teaching experience (mean±SD) years	10.35±6.53 years
Qualification	
Postgraduation degree (MEd)	56 (46.28%)
Under graduation degrees	65 (53.71%)
Tobacco history	
Current Tobacco Users	3 (2.5%)
Previous Users	6 (4.95%)
Non-Users	112 (92.56%)

Table 2: Need Assessment among School Teachers regarding Tobacco Control Legislations Questionnaire Reponses (*n*=121)

Item	Yes *n* (%)	No *n* (%)	Don't know (%)
Is there any existing school policy for implementation of tobacco control?	69 (57)	11 (9.1)	41 (33.9)
Have you seen any violation of school policy on tobacco control?	12 (9.1)	81 (66.9)	28 (23.1)
Is there any existing school policy prohibiting tobacco use among the school personnel?	66 (54.5)	18 (14.9)	37 (30.6)
Have you seen any student consuming tobacco (smoke/smokeless form) inside or outside the school?	22 (18.2)	94 (77.7)	5 (4.1)
Are you aware of tobacco control laws at school level?	83 (68.6)	22 (18.2)	16 (13.2)
Are you aware of COTPA (2003)?	58 (47.9)	45 (37.2)	18 (14.9)
Are you aware of COTPA Section 4 and Section 6 of COTPA?	45 (37.2)	50 (41.3)	26 (21.5)
Are you aware of the penalty on violation of the above-mentioned laws?	49 (40.5)	44 (36.4)	28 (23.1)
Are you aware of Tobacco Free Educational Institution Guidelines (ToFEI)?	35 (28.9)	70 (57.9)	16 (13.2)
Have you seen students consume any form of tobacco (smoke/smokeless) in school?	16 (13.2)	100 (82.6)	05 (4.1)
Have you seen tobacco selling shops within 300 feet (100 yards) of your school?	27 (22.3)	86 (71.1)	8 (6.6)
Have you seen tobacco products being sold by children or to children?	19 (15.7)	98 (81)	4 (3.3)
Have you ever been trained in implementation of tobacco control activities at school level?	40 (33.1)	66 (54.5)	15 (12.4)
Do you have access to any teaching-learning material on tobacco use prevention among youth?	41 (33.9)	58 (47.9)	22 (18.2)
Have you ever conducted any health education programs for tobacco awareness (by using either classroom or non-classroom activities)/signs and boards for no tobacco use within school premises?		Never 72 (59.5) Occasionally 32 (26.4) Everyday 7 (5.8) Once a month 7 (5.8) Don't Know 3 (2.5)	

Table 3: Content Validity Assessment in terms of relevance, clarity and completeness of the Comic

Content Validity	Relevance		Clarity		Completeness		Interpretation
Items of Content Validity	Relevant (Rating 3 or 4)	I-CVI	Relevant (Rating 3 or 4)	I-CVI	Relevant (Rating 3 or 4)	I-CVI	
COTPA	24	0.96	22	0.88	24	0.96	Appropriate
COTPA Section 4	24	0.96	23	0.92	24	0.96	Appropriate
COTPA Section 6	24	0.96	22	0.88	24	0.96	Appropriate
State Tobacco Control Cell	22	0.88	19	0.76	20	0.80	Appropriate
ToFEI Guidelines	24	0.96	24	0.96	24	0.96	Appropriate
Tobacco Cessation Counselling	24	0.96	20	0.80	19	0.76	Appropriate
Average of I-CVIs (S-CVI/Ave)	0.94		0.87		0.90		

Table 4: Content Validity Assessment based on front cover, writing style, structure and presentation, objectives and relevance

S. no	Item	Strongly Agree & Agree	I-CVI
A	Front Cover		
1.	Cover is suitable and catchy	19	0.76
2.	Title is suitable	21	0.84
3.	Cover is in accordance with title	19	0.76
B	Writing Style		
1.	Font and style are suitable	22	0.88
2.	Written content is clear and neat	21	0.84
3.	Chosen font and size is appropriate	20	0.80
4.	Line and paragraph spacing between the texts are appropriate and consistent	21	0.84
C	Structure and presentation		
1.	Arrangement of content is clear and attractive	22	0.88
2.	Word structure and activities are appropriate and suitable	20	0.80
3.	Language used is easy to understand	21	0.84
4.	Scope of contents was sufficiently in-depth	20	0.86
5.	Use of images coincide with the topics presented	19	0.76
6.	Images easily attract readers	19	0.76
7.	Information presented is scientifically correct	20	0.80
8.	Material is socially and culturally appropriate for the proposed target audience	23	0.92
9.	Booklet has a suitable number of pages	24	0.96
D	Objectives		
1.	Coincides with target population	20	0.80
2.	Can be circulated and executed within the community	22	0.88
3.	Can improve knowledge and attitude towards tobacco control.	24	0.96
E	Relevance		
1.	Topics portray key aspects that need to be reinforced	19	0.76
2.	Comic proposes that target audience should acquire about tobacco control.	21	0.84
3.	Comic addresses relevant aspects of tobacco control laws and Tobacco free Educational Institution Guidelines?	22	0.88

S-CVI (average)=Total I-CVI/Total number of Items=18.42/22=0.84

Table 5: Construct validity scores at pre- and post-intervention among school teachers ($n=35$)

Pre-Test Score Mean (SD)	Post-Test Score Mean (SD)	*P*	df	*t*
3.94±0.998)	7.97±1.175	0.001	34	-18.097

in Gujrat (15%)[17] and Nellore (24.2%).[23] In this study, 57% school teachers reported that their school has a policy prohibiting tobacco use among students which is comparable to 68.7%, stated by Global Youth Tobacco Survey report (2009).[24] Total 22.3% school teachers in the current study, observed shops selling tobacco within close proximity to school. This finding was in contrast to the study conducted in Moradabad city, where it was found that 40.47% of school authorities were in agreement to notice shop selling tobacco within 100 yards from school.[25] It has been previously reported that over all point of sale in Delhi around 100 meters of schools was 41.19% which reflects that implementation of laws, is a challenge.[26]

Validation of education materials have the advantage of standardizing information and optimizes quality of intervention.[27] In the current scenario, the country is witnessing a multitude of implementation programs promoting health education interventions. The rigor and intent with which these education tools are validated before reaching millions of people is the need that the programmers have to address.[12] Thus, in the present study, validation aspect of the Comic as a health intervention tool was primarily focused upon and was assessed as adequate and relevant in all domains by most of the subject experts in public health and tobacco control.

Our study demonstrated an S-CVI score of 0.94 which was comparable to multiple studies conducted in Brazil among school children through comic intervention[28] and printable health education material developed for maternal and child health.[29] The score was also comparable with a study conducted to develop and validate two flipbooks on health, nutrition, and hygiene information for adolescents and young married women in Delhi. [12]

In our study there was statistically significant improvement in knowledge of teachers post intervention. Other studies have reported similar effectiveness of printed material in marginalized populations like adolescents, pregnant women in Delhi[12] and among school children of rural north India.[30]

This study used a step-by-step approach to assess the awareness about tobacco control laws among school teachers, followed by development and validation of Comic. However, it had its limitations. Comic was developed in only one language, Hindi which may be a challenge for its multilingual use in a diverse country like India. The Comic could not be assessed in terms of its readability, due to a lack of Readability tools for the Hindi Language. Despite the limitations, our study explored newer dimensions that led to development of a validated education tool that would also allow better adherence to ToFEI guidelines through innovative and targeted strategies.

Recommendation

Comic may be used as a dual educational approach to promote Tobacco-Free Educational Institute, targeting both school teachers and children. Comics would be a more economical alternative, to engage and sensitize school teachers and other school personnel. It can be developed as a series for multilingual dissemination across India. It can be added as relevant education material on the dashboard of the National Tobacco Control Program (NTCP) and other Government of India websites. Tobacco-related health effects may be added to modify the Comic and be used to train community health workers like ASHA and Anganwadi workers and utilized in technology constrained rural India.

Conclusion

The current study successfully developed and validated Comic, as an effective tool in improving knowledge of tobacco control laws and ToFEI guidelines among school teachers in India. Comic was developed with a sound theoretical basis and followed a standard assessment leading to a satisfactory face, content and construct validity.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Seth T, Kotwal A, Thakur R. Correlates of tobacco-use pattern amongst adolescents in two schools of New Delhi, India. Indian J Med Sci 2005;59:243-52.
2. Gilman SE, Rende R, Boergers J, Abrams DB, Buka SL, Clark MA, *et al*. Parental smoking and adolescent smoking initiation: An intergenerational perspective on tobacco control. Pediatrics 2009;123:e274–81.
3. Chhabra A, Hussain S, Rashid S. Recent trends of tobacco use in India. J Public Health2021;29:27–36.
4. Braun S, Mejia R, Ling PM, Perez-Stable EJ. Tobacco industry targeting youth in Argentina. Tob Control 2008;17:111-7.
5. Sorensen G, Pednekar MS, Sinha DN, Stoddard AM, Nagler E, Aghi MB, *et al*. Effects of a tobacco control intervention for teachers in India: Results of the Bihar school teachers study. Am J Public Health 2013;103:2035–40.
6. Poulsen LH, Osler M, Roberts C, Due P, Damsgaard MT, Holstein BE. Exposure to teachers smoking and adolescent smoking behaviour: Analysis of cross-sectional data from Denmark. Tob Control 2002;11:246–51.
7. Dobbins S. Comics in public health: The sociocultural and cognitive influence of narrative on health behaviours. J Graph Nov Comics 2016;7:35–52.
8. Brown B, Nasiruddin M, Cabral A, Soohoo M. Childhood idols, shifting from superheroes to public health heroes. J Public Health 2016;38:625–9.
9. Farizan NH, Sutan R, Hod R, KC Mani K. Development and validation of a health educational booklet: A parent's role in water safety and drowning prevention. J Health Res 2020;34:233–46.
10. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar A-R. Design and implementation content validity study: Development of an instrument for measuring Patient-Centered Communication. J Caring Sci 2015;4:165–78.
11. Juniper EF, Guyatt GH, Streiner DL, King DR. Clinical impact versus factor analysis for quality of life questionnaire construction. J Clin Epidemiol 1997;50:233–8.
12. Sharma S, Akhtar F, Singh RK, Mehra S. Validation of health education material for youth: A step to ensure implementation fidelity in community-based interventions. Healthcare (Basel) 2019;8:8.
13. Brukiene V, Aleksejūniene J. An overview of oral health promotion in adolescents. Int J Paediatr Dent 2009;19:163–71.
14. Sinha DN, Gupta PC, Dobe M, Prasad VM. Tobacco control in schools of India: Review from India Global School personnel survey 2006. Indian J Public Health 2007;51:101-6.
15. National Tobacco Control Programme (NTCP), Ministry of Health and Family Welfare. Available from: https://main.mohfw.gov.in/major-programmes/other-national-health-programmes/national-tobacco-control-programme-ntcp. [Last accessed on 2021 Sep 05].
16. Sharma I, Sarma PS, Thankappan KR. Awareness, attitude and perceived barriers regarding implementation of the cigarettes and other tobacco products act in Assam, India. Indian J Cancer 2010;47:63-8.
17. Desai D, Desai D. Knowledge attitude and practice of school personnel on COTPA. Int J Prev Clin Dent Res 2020;7:104-6.
18. Pradhan A, Oswal K, Adhikari K, Singh A, Kanodia R, Sethuraman L, *et al*. Key drivers to implement an evidence-based tobacco control programme in schools of India: A mixed-methods study. Asian Pac J Cancer Prev 2021;22:419–26.
19. Ravi P, Rao A, Rajesh G, Ramya S, Mithun P. Compliance with statutory

tobacco guidelines in and around schools in Mangaluru, India: An observational study. World J Dent 2017;8:10–3.
20. Ali I, Patthi B, Singla A, Dhama K, Muchhal M, Rajeev A, *et al*. Assessment of implementation and compliance of (COTPA) cigarette and other tobacco products act (2003) in open places of Delhi. J Family Med Prim Care 2020;9:3094-9.
21. Erick PN, Smith DR. Prevalence of tobacco smoking among school teachers in Botswana. Tob Induc Dis 2013;11:24.
22. Larson RB. Controlling social desirability bias. Int J Mark Res 2019;61:534–47.
23. 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.
24. Gajalakshmi V, Kanimozhi C. A survey of 24,000 students aged 13–15 years in India: Global youth tobacco survey 2006 and 2009. Tobacco Use Insights 2010;3. doi: 10.1177/1179173X1000300001.
25. Tl R, Chandra S, Tirth A, Tandon V, Ain TS. Knowledge, attitude and practice of retail tobacco vendors and school personnel on Indian Tobacco Control Laws (COTPA) in Moradabad City, India. Int J Contemp Med Res 2015;3:5.
26. Balappanavar AY, Mohanty V, Hussain A. Compliance with Tobacco promotion and sale laws in school neighbourhoods in India. Asian Pac J Cancer Prev 2017;18:563–70.
27. Sousa CS, Turrini RNT. Creating and validating educational material for patients undergoing orthognathic surgery. Asian Nurs Res (Korean Soc Nurs Sci) 2012;6:166–72.
28. de Castro Varela Cruz G, Vasconcelos MGF, de Freitas Maniva SJC, de Carvalho REFL. Construction and validation of an educational technology on human papillomavirus vaccine for adolescents. Esc Anna Nery 2019;23:e20190050.
29. de Oliveira SC, Lopes MV, Fernandes AF. Development and validation of an educational booklet for healthy eating during pregnancy. Rev Lat Am Enfermagem 2014;22:611–20.
30. Saraf DS, Gupta SK, Pandav CS, Nongkinrih B, Kapoor SK, Pradhan SK, *et al.* Effectiveness of a school based intervention for prevention of non-communicable diseases in middle school children of rural North India: A randomized controlled trial. Indian J Pediatr 2015;82:354–62.