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Appraisal of the effectiveness of pictorial warning in anti-tobacco campaign: a community based study from Davangere, Karnataka India

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Abstract
Global studies from around the world have shown that tobacco is a leading preventable cause of death, killing nearly six million people worldwide each year of which nearly one sixth are from India. Informing about the harm of tobacco use through large and colorful pictorial warnings on tobacco products are an effective way of communicating the deleterious effects of tobacco to the consumers and general public. India has introduced the pictorial health warnings for the first time in 2009 with the drawings of a scorpion on smokeless forms of tobacco and pictures and X- rays of diseased lungs for smoking forms. The study was conducted using a structured questionnaire in the months of October to November 2010 in Davangere of India with both smokeless and smoke form users at the point of vendor sale. The results indicated that the pictorial warnings, especially the ones present on the smoking forms were not effective and did no not serve the desired purpose as the consumers could not comprehend the meaning of the picture. The scorpion becomes associated with the product in a non-scientific manner. In conclusion, in our study we observed that most of the tobacco consumers have seen pictorial warnings on tobacco products, but hardly few of them have comprehended the pictorial warnings correctly. The present pictorial warnings were able to motivate very few tobacco consumers to quit/reduce tobacco consumption. Therefore the impact factor was very less among tobacco consumers and that an urgent need for reconsideration for more effective pictorial warnings is required.

Keywords: Pictorial warning, anti-tobacco, Global studies

Introduction
Global reports suggest that the use of tobacco, which is a major preventable cause of premature diseases and death, is approximately 5 million [1] and that the figures will increase to more than 8 million a year by 2030 [2]. Reports also indicate that India is currently the second largest consumer of tobacco after China [3] and that nearly one million people died from smoking alone in the year 2010 [4]. Current estimates are that Reports suggest that the approximate estimated number of tobacco users in India is 274.9 million, with 163.7 million users of only smokeless tobacco; 68.9 million are exclusive smokers, and 42.3 million users of both smoking and smokeless tobacco [5]. The worrisome facts are that tobacco abuse continues to grow at 2-3% per annum [6] and would inflict a major burden on the socioeconomic and healthcare system. In lieu of these observations, it is predicted that by the year 2020 tobacco will account for nearly 13% of all deaths in the country [6].
When compared to the most developed countries that have predominately cigarettes users, in India, in addition to cigarettes, tobacco is used in a large variety of smoking forms especially the beedi, hooka and chutta, and a range of smokeless forms like snuff, khaini, mawa, pan (betel quid with tobacco), zarda, gutkha and toombakoo [7]. The use of non cigarette forms of tobacco is more prevalent among men, in people from the rural areas, illiterates, poor and vulnerable section of the society who are mostly unaware of its ill effects [3]. The extent of use of smokeless tobacco products is reported to be higher in males (33%) than females (18%) [5]. These indigenous forms of tobacco have longer and early histories of use in the Indian population than cigarettes and are also shown to impart grievous health consequences

especially increase the risk factors for various cancers in their abusers [8-10] and that focus needs to be given towards people living in the low-income regions [11].

Global studies from the developed countries have shown that educating the consumer on the ill effects has led to much greater reductions in tobacco and that when compared to the text, the pictorial health warnings are more likely to be noticed and are effective in conveying the negative affect and risks of tobacco use. Correctly depicted pictures are also helpful in creating unfavorable associations with use of tobacco, and are more likely to motivate cessation-related activities [3, 6, 12-23]. Studies have shown that large, colorful and scary warnings images on the cover of tobacco products are more effective in enlightening the less educated consumers on the deleterious effects of tobacco, and that it instills a desire to quit and reduce tobacco consumption in the users [24, 25]. India adopted the pictorial tobacco warnings in the year 2003 and their correct display on the tobacco products is mandatory under The Cigarettes and Other Tobacco Products Act (COTPA) since 2009 [4, 26, 27]. The present study was carried out to assess people's understanding and attitude towards the pictures in the pictorial warning in Davengere, Karnataka, India.

Materials and Methods

This was a cross-sectional, community based, descriptive study and was done in Davangere city of Karnataka State of India (Figure 1). Davangere is spread between 75.3^0 to 76.3^0 longitude and 13.450 to 14.50 latitude, in the central part of Karnataka (Figure 1) and is predominately an agriculture based area of the country with population of about 1.8 million. The study was carried out after obtaining the permission of the institutional ethics committee. The primary objective of the study was to assess people's understanding and attitude towards the pictures in the pictorial warning with willing volunteer (smoking or smokeless form) at the point of sale by interviewing the compliant volunteer. Irrespective of their overall tobacco habits, we grouped them as either using smoking or smokeless form on what they procured during the procurement period. Additionally as a secondary objective, commonly sold tobacco packages were analyzed for their compliance with guidelines through checklist prescribed earlier [28].

The Inclusion criteria for the study included people who came to purchase tobacco products, while exclusion criteria included people coming to purchase tobacco for others, were not residents of the city and people who were already interviewed once during the study period by one of the investigators (HSP, AB, AK). The sample size was calculated using the formula $4pq/d^2$ and considering earlier reports that 61-64% people had reasonable knowledge on health warnings on tobacco products [15, 29], and an allowable error of 10%. The results from the calculation indicated a minimum number of 266 which was rounded to 300. The required number of willing volunteers (150 using the various smoking forms and 150 the smokeless forms) were interviewed using a pre-tested questionnaire. The tobacco selling outlets were randomly selected by lots after assuring that different areas of the city were included. At each outlet 10 tobacco users were interviewed by one of the investigators (HSP or AB or AK) from October to November 2010.

Results

The study showed that nearly 50% of the volunteers were of the 25-40 years of age for both smoking and smokeless form of tobacco users (Figure 2). The most striking feature was that 1.33% (2/150) in the smoking and 2.66 % (4/150) of the smokeless form users were below the age of 18 years to whom sale of tobacco is prohibited by law of the country. It was observed that the use of smoking forms were more common among the educated and professionals volunteers while the use of smokeless form was more common among the not so well educated group (Figure 3) and the unskilled and skilled groups (Figure 4).

Nearly 34% of the smokers (Figure 5) confessed to have started it to relieve stress while 26.7 and 37% of the smokeless form users expressed that the habit helped then enhance their work performance and assisted them in being attentive and awake (Figure 6) Only 30% of the smoking form users purchased it in packs while 67% of them bought single and the remaining (3%) bought it in loose forms of two to five (Figure 7). Majority of the volunteers (50%) used tobacco for more than 5 years (Figure 8) and nearly 75% used them more than 5 times in a day (Figure 9). The most important aspect was that 94% of the volunteers using the smoking form and 91% habituated for smokeless form had seen the pictorial warning on the pack.

Association studies showed that there was no significance between education vs. awareness about tobacco health hazards in volunteers using the smoking forms ($p = 0.328$, NS); while it was significant for the smokeless form users ($p = 0.01$, significance). In this study it was also observed that the volunteers using both smoking ($p<0.001$) and smokeless form ($p<0.01$) were unaware about the actual meaning of the pictorial warning. Additionally it was also observed that the pictorial warning had a poor impact at stimulating the volunteers to quit tobacco for smoking ($p = 0.50$), while for smokeless form it was significant ($p<0.01$). The most common violation of the stipulated display of the tobacco warning on the brands was that the warnings occupied less than 40% area on the packs.

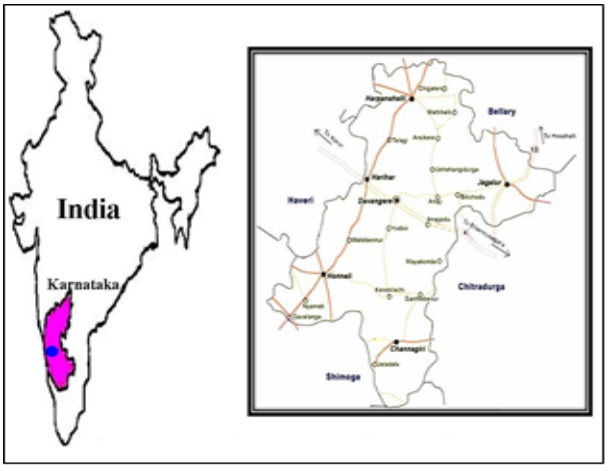

Fig 1: Geographical location of Davengere in India

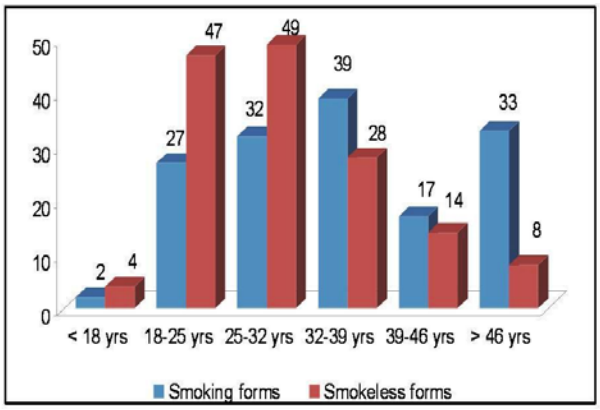

Fig 2: Age distribution of the study group

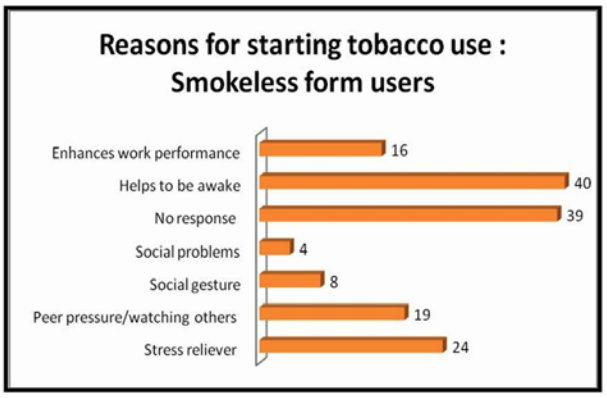

Fig 6: Reasons for starting smokeless forms of tobacco by the habituals

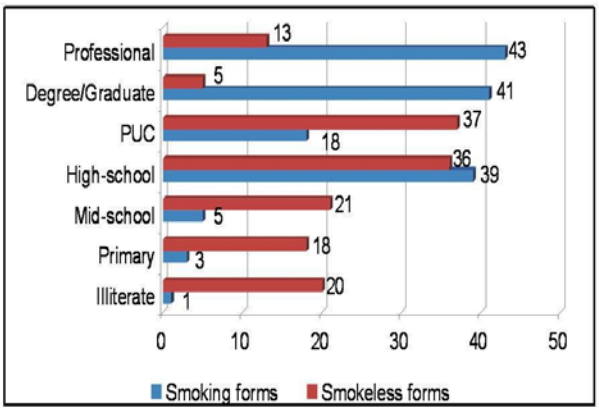

Fig 3: Educational status of the volunteers

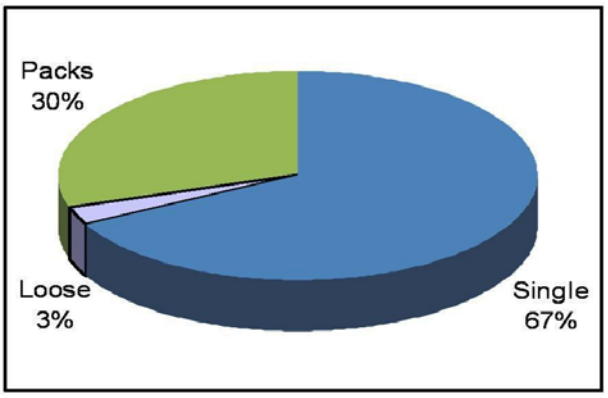

Fig 7: Common modes of purchasing smoking forms of tobacco

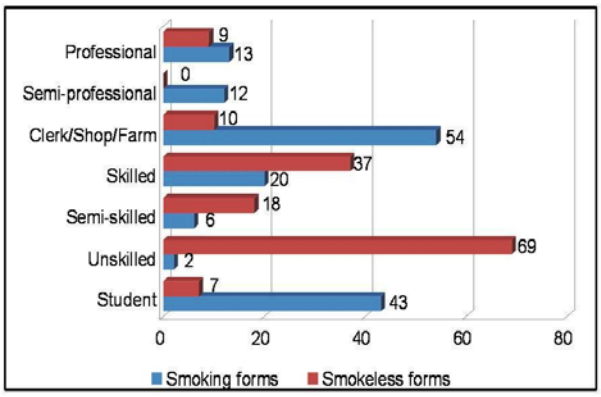

Fig 4: Occupational categories of the volunteers

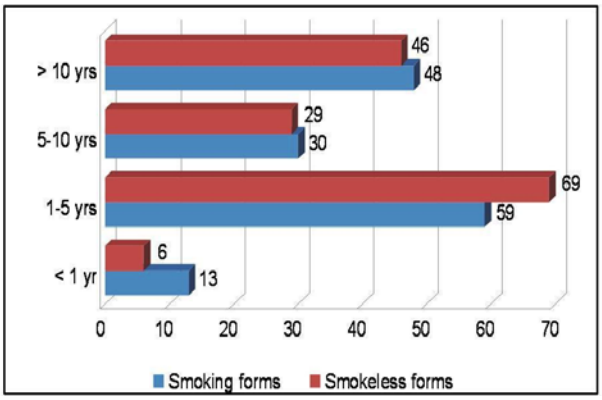

Fig 8: Duration of tobacco use by the volunteers

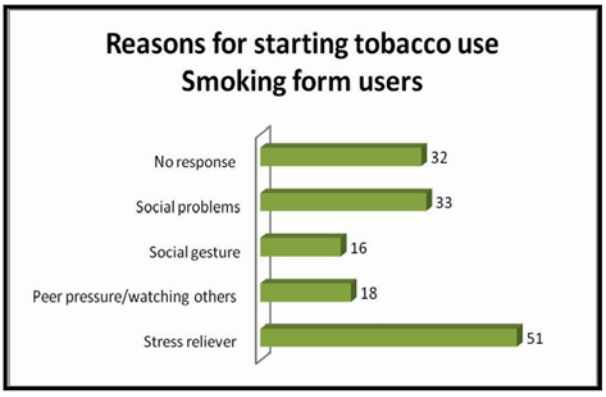

Fig 5: Reasons for staring smoking forms of tobacco by the habituals

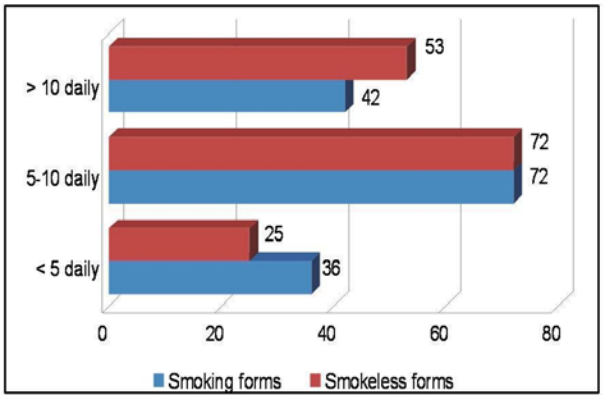

Fig 9: Daily usage of tobacco products by the volunteers

Discussion

Globally, tobacco use remains a major preventable cause of death and pictorial warnings are considered to be effective in communicating their adverse effects especially to populations with lower literacy rates [30]. Reports indicate that in India approximately one-third of women and two-thirds of men use tobacco in one form or another with smokeless forms and beedi being more common among the rural and uneducated people, and cigarettes being prevalent in the educated people and in cities [5]. In a country like India, where large proportion of the population is illiterate, and diverse forms of tobacco are used, the written warnings may be ignored. This has necessitated the need for pictorial warnings to create a sense of repulsion towards tobacco use in the user and the Government of India through the Cigarettes and Other Tobacco Products Act, 2003 (COTPA 2003), has enforced it in 2009 [4, 27, 30, 31].

In this study it was observed that majority (50%) of the tobacco users who volunteered to take part in the study were of the productive age group of 25-40 years (Figure 2) and is in agreement to earlier studies [32-41]. The most important observation was that 3% of the volunteers were below the age of 18 years and as per the government of India rules, sale of any form of tobacco is prohibited to adolescents. The fact that tobacco is sold to adolescents is suggestive that the vendors do not adhere to the rules. These observations when considered along with that of recent reports from other parts of the country [42, 43] clearly suggest that the rules are not adhered to by the vendors [42].

The other most important observation was that the use of smoking forms of tobacco, especially cigarettes was more common among the educated and professionals, while smokeless form was more common among the not so well educated group and the unskilled and skilled groups (Figure 3 and 4). These observations are in agreement to the recent reports of Prabhakar and co workers [5]. The possible reason for the use of cigarettes was a status symbol for the educated and professionals, who mostly consider the other forms of tobacco as specifically applicable to rustic and the uneducated people.

In our study, nearly 34% of the smokers (Figure 5) confessed to have started it to relieve stress while 26.7 and 37% of the smokeless form users expressed that the habit helped then enhance their work performance and assists to keep them awake (Figure 6). Majority of the volunteers (50%) used tobacco for more than 5 years (Figure 8) and nearly 75% using them for more than 5 times in a day (Figure 9). Only 30% of the smoking form users purchased it in packs while 67% of them bought single and the remaining (3%) bought it in loose forms of two to five. The most important aspect was that 94% of the volunteers using the smoking form and 91% habituated for smokeless form had seen the warning on the pack and that irrespective of their educational background were aware about the hazards of tobacco. Detail investigations showed that the pictorial warning (X ray picture of lungs) had a poor impact at stimulating the volunteers to quit tobacco for smoking ($p = 0.50$), while for smokeless form (scorpion) was significant ($p<0.01$). This was because most of the volunteers were unaware of the actual meaning of the pictorial warning for the ones representing the smoking (X ray picture of lung). The most common violation of the stipulated display of the tobacco warning on the brands was that the warnings occupied less than the stipulated 40% area on the packs.

In conclusion, in our study we found that most of the tobacco consumers have seen pictorial warnings on tobacco products, but hardly few of them have comprehended the pictorial warnings correctly. Since the data collection, the Ministry of Health and Family Welfare has notified new pictorial health warnings under vide No. G.S.R. 417(E) of Gazette Notification dated 27th May 2011 and G.S.R. 570(E), for mandatory display of new specified health warnings on all tobacco products and these revised pictorial warnings are being displayed on all tobacco products packages post December 2011. Multicentric studies are underway to assess the effectiveness of the older and newer version of pictorial warnings and on their ability to motivate anti-tobacco stand among the users.

References

1. World Health Organization. Report on the global tobacco epidemic, 2008. Geneva, Switzerland
2. Mutti S, Hammond D, Reid JL, Thrasher JF. The efficacy of cigarette warning labels on health beliefs in the United States and Mexico. J Health Commun. 2013; 18:1180-92.
3. Schwartz RL, Wipfli HL, Samet JM. World No Tobacco Day 2011: India's progress in implementing the framework convention on tobacco control. Indian J Med Res. 2011; 133:455-7.
4. Karinagannanavar A, Raghavendra B, Hemagiri K, Goud TG. Awareness about pictorial warnings on tobacco products and its impact on tobacco consumers in Bellary, India. Asian Pac J Cancer Prev. 2011; 12:2485-9.
5. Prabhakar B, Narake SS, Pednekar MS. Social disparities in tobacco use in India: The roles of occupation, education and gender. Indian J Cancer. 2012; 49:401-9.
6. Jandoo T, Mehrotra R. Tobacco control in India: present scenario and challenges ahead. Asian Pac J Cancer Prev. 2008; 9:805-10.
7. Mishra GA, Pimple SA, Shastri SS. An overview of the tobacco problem in India. Indian J Med Paediatr Oncol. 2012; 33:139-45.
8. Secretan B, Straif K, Baan R, Grosse Y, El Ghissassi F, Bouvard V *et al*. WHO International Agency for Research on Cancer Monograph Working Group. A review of human carcinogens--Part E: tobacco, areca nut, alcohol, coal smoke, and salted fish. Lancet Oncol. 2009; 10:1033-4.
9. Prignot JJ, Sasco AJ, Poulet E, Gupta PC, Aditama TY. Alternative forms of tobacco use. Int J Tuberc Lung Dis. 2008; 12(7):718-27.
10. O'Connor RJ. Non-cigarette tobacco products: what have we learnt and where are we headed? Tob Control. 2012; 21:181-90.
11. Barbeau EM, Krieger N, Soobader M. Working class matters: Socio economic disadvantage, race/ethnicity, gender, and smoking in NHIS 2000. Am J Public Health. 2004; 94:269-78.
12. Cantrell J, Vallone DM, Thrasher JF, Nagler RH, Feirman SP, Muenz LR *et al*. Impact of tobacco-related health warning labels across socioeconomic, race and ethnic groups: results from a randomized web-based experiment. PLoS One. 2013; 8:e52206.
13. Thrasher JF, Hammond D, Fong GT, Arillo-Santillan E. Smokers' reactions to cigarette package warnings with

graphic imagery and with only text: a comparison between Mexico and Canada. Salud Publica Mex. 2007; 49:(2):S233-240.
14. Thrasher JF, Villalobos V, Szklo A, Fong GT, Perez C, *et al*. Assessing the impact of cigarette package health warning labels: a cross-country comparison in Brazil, Uruguay and Mexico. Salud Publica Mex. 2010; 52(2):S206-215.
15. Hammond D, Fong GT, McNeill A, Borland R, Cummings KM. Effectiveness of cigarette warning labels in informing smokers about the risks of smoking: findings from the International Tobacco Control (ITC) Four Country Survey. Tob Control. 2006; 15(3):19-25.
16. Kees J, Burton S, Andrews JC. Tests of graphic visuals and cigarette package warning combinations: implications for the framework convention on tobacco control. J Public Policy Marketing. 2006; 25:212–223.
17. Peters EEA. The impact and acceptability of Canadian-style cigarette warning labels among U.S. smokers and nonsmokers. Nicotine Tob Res. 2007; 9:473-481.
18. Hassan LM, Shiu E, Thrasher JF, Fong GT, Hastings G. Exploring the effectiveness of cigarette warning labels: findings from the United States and United Kingdom arms of the International Tobacco Control (ITC) Four Country Survey. NVSM. 2008; 13:263-274.
19. Borland R, Wilson N, Fong GT, Hammond D, Cummings KM *et al*. Impact of graphic and text warnings on cigarette packs: findings from four countries over five years. Tob Control. 2009; 18:358-364.
20. Borland R, Yong HH, Wilson N, Fong GT, Hammond D, Cummings KM *et al*. How reactions to cigarette packet health warnings influence quitting: findings from the ITC Four-Country survey. Addiction. 2009; 104:669-75.
21. Azagba S, Sharaf MF. The effect of graphic cigarette warning labels on smoking behavior: evidence from the Canadian experience. Nicotine Tob Res. 2012-2013; 15:708-17.
22. Fathelrahman AI, Omar M, Awang R, Cummings KM, Borland R *et al*. Impact of the new Malaysian cigarette pack warnings on smokers' awareness of health risks and interest in quitting smoking. Int J Environ Res Public Health. 2010; 7:4089-4099.
23. Schneider S, Gadinger M, Fischer A. Does the effect go up in smoke? A randomized controlled trial of pictorial warnings on cigarette packaging. Patient Educ Couns. 2012; 86:77-83.
24. Fong GT, Hammond D, Hitchman SC. The impact of pictures on the effectiveness of tobacco warnings. Bull World Health Organ. 2009; 87:640-3.
25. Thomson G, Wilson N, Maubach N. Switch to large pictorial health warnings on cigarette packs. BMJ. 2013; 346:f2084.
26. Oswal KC, Raute LJ, Pednekar MS *et al*. Are current tobacco pictorial warnings in India effective? Asian Pac J Cancer Prev. 2011; 12:121-4.
27. Karabi M, Majumdar G. Pictorial health warnings: measure to deter tobacco use. Health for the Millions, 2008; 33-34:44-8.
28. Specified health warnings for all tobacco products. Gazette notification G.S.R. 182(E) dated 15th March 2008 & S.O. 2130. (E) dated 27th August 2008: www.mohfw.nic.in/National%20Programme%20for%20Tobacco%20control.html
29. Global adult tobacco survey India 2009-10. Executive summary. Mumbai: Indian institute of population sciences and Ministry of Health and Family Welfare, Government of India. 2010.
30. Heydari G, Yousefifard M, Hosseini M, Ramezankhani A, Masjedi MR. Cigarette smoking, knowledge, attitude and prediction of smoking between male students, teachers and clergymen in tehran, iran, 2009. Int J Prev Med. 2013; 4:557-64.
31. Hammond D. Tobacco labelling & packaging toolkit: a guide to FCTC Article 11. Waterloo, ON: Tobacco Labelling Resource Centre, 2009. Available from: http://www.tobaccolabels.ca/tobaccolab/iuatldtook
32. Kaur J, Jain DC. Tobacco control policies in India: implementation and challenges. Indian J Public Health. 2011; 55:220-7.
33. Sinha DN, Gupta PC, Reddy KS, Prasad VM, Rahman K, Warren CW *et al*. Linking Global Youth Tobacco Survey 2003 and 2006 data to tobacco control policy in India. J Sch Health. 2008; 78:368-73.
34. Shah PB, Pednekar MS, Gupta PC, Sinha DN. The relationship between tobacco advertisements and smoking status of youth in India. Asian Pac J Cancer Prev. 2008; 9:637-42.
35. Arora M, Reddy KS, Stigler MH, Perry CL. Associations between tobacco marketing and use among urban youth in India. Am J Health Behav. 2008; 32:283-94.
36. Joshi SR. Tobacco free India: save our children. J Assoc Physicians India. 2006; 54:605-7.
37. McClure LA, Arheart KL, Lee DJ, Sly DF, Dietz NA. Young adult former ever smokers: The role of type of smoker, quit attempts, quit aids, attitudes/beliefs, and demographics. Prev Med. 2013; 57:690-5.
38. Amundson EP. Tobacco use: A health epidemic aimed at our youth. S D Med. 2013; 66:287.
39. Kabir MA, Goh KL, Kamal SM, Khan MM. Tobacco smoking and its association with illicit drug use among young men aged 15-24 years living in urban slums of Bangladesh. PLoS One. 2013; 30(8):e68728.
40. Finch KA, Ramo DE, Delucchi KL, Liu H, Prochaska JJ. Subjective social status and substance use severity in a young adult sample. Psychol Addict Behav. 2013; 27:901-8.
41. Valdivieso-López E, Flores-Mateo G, Molina-Gómez JD, Rey-Reñones C, Barrera Uriarte ML, Duch J *et al*. Efficacy of a mobile application for smoking cessation in young people: study protocol for a clustered, randomized trial. BMC Public Health. 2013; 13:704.
42. Elf JL, Modi B, Stillman F, Dave P, Apelberg B. Tobacco sales and marketing within 100 yards of schools in Ahmedabad City, India. Public Health. 2013; 127:442-8.
43. Patel D, Kassim S, Croucher R. Tobacco promotion and availability in school neighborhoods in India: a cross-sectional study of their impact on adolescent tobacco use. Asian Pac J Cancer Prev. 2012; 13:4173-6.