Effectiveness of pictorial warnings on tobacco packs: Hospital-based study findings from Vikarabad

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Abstract

Background: Recently, the Indian government introduced pictorial warnings that occupy an important position among different tobacco control initiatives. A study was done to evaluate the opinion of tobacco consumers on the implementation of pictorial warnings on tobacco packs and to compare the effectiveness of these warnings among individuals of varying socioeconomic status. **Materials and Methods:** This was a hospital-based study carried out among the tobacco-using patients attending the Outpatient Department of Sri Sai College of Dental Surgery, Vikarabad, Andhra Pradesh. The number of participants in the survey was 111. Questionnaire method was used for collecting the data. **Results:** Among the 111 participants, maximum number of study participants using any form of tobacco products were in the age group of 15–24 years, and higher consumption was seen among the lower socioeconomic strata. 88.3% of the participants strongly agreed on strengthening the warnings while 73.2% of them felt that pictures on tobacco packs should occupy 100% of the display area to make them more effective. **Conclusion:** These results suggest that policy makers should not be reluctant to introduce stronger and vivid pictures.

Key words: *Pictorial health warnings, socioeconomic status, tobacco*

INTRODUCTION

Tobacco is used in various forms (smoking/smokeless forms) all over the world today. The World Health Organisation reports it to be the leading preventable cause of death worldwide, and estimates that it currently causes 5.4 million deaths per year.[1] Rates of smoking have levelled off or declined in developed countries. However, they continue to rise in the developing countries.

As in other developing countries, India too suffers a stage of the tobacco epidemic, hosting nearly 17% of the world's smokers, with the number constantly on the rise. According to the report of the Tobacco Control in India, 800,000–900,000 Indians die annually due to diseases attributable to tobacco. Among these deaths, 50% are due to cancer and 40% are other reported health-related problems such as cardiovascular and lung disorders.[2] Tobacco is used by various groups of people irrespective of their social, economic or educational background, and majority of them use it despite knowing the hazards to their health.

Communicating the hazardous effects of smoking remains a primary goal of the tobacco control policy. Hence, several acts have been passed by the Indian Government to curb the tobacco epidemic. The Cigarettes and Other Tobacco Products Act (COTPA) enacted in 2003 is intended to discourage tobacco consumption.[2] Article 11 of the Framework Convention on Tobacco Control (FCTC) recognized pictorial health warnings on tobacco products as one of the proven strategies to inform consumers of the harmful effects of tobacco on health. Countries that adopted pictorial warnings recorded a reduction in tobacco use through greater exposure to the warning labels and enhanced knowledge of health.

However, these acts have not been strictly enforced till today. While several measures are directed to dissuade people from tobacco use, the present strategy to educate people regarding the ill-effects of tobacco is through pictorial warnings. The theme for the World No Tobacco Day in 2009 was *"Tobacco Health Warnings."*[3] Countries such as Brazil, Thailand, Singapore, Hong Kong, Chile, Australia and Canada have effectively implemented pictorial warnings on tobacco product packets. The impact was found to be strongest on people with low education and low economic status.[2]

In India, approximately 72% of the population resides in rural areas where illiteracy rates are high, socioeconomic status low and there is poor access to health education. The low-income and disadvantaged groups are most exposed to tobacco risk. Because of the low levels of literacy in India, pictorial warnings are most helpful to provide knowledge about these products.[4] In India, implementation of the pictorial warnings has taken a rather long time, and was to be enforced in full as for guidelines notified by the Ministry of Health on 31 May 2009, but did not bear fruit and continued to be ineffective.[5]

A poll conducted by the health research institute, Healis Sekhsaria Institute for Public Health and Voluntary Health Association of India, across four metropolises of India revealed that 99% of the respondents support larger, more-effective pictorial warnings on all tobacco products.[6] However, there are very few studies that have investigated the effectiveness of pictorial health warnings on tobacco products in India. Given this background, the present study was conducted with an aim to evaluate the opinion of tobacco consumers on the implementation of pictorial warnings on tobacco packs and to compare the effectiveness of these warnings among people from different socioeconomic strata.

MATERIALS AND METHODS

A hospital-based cross-sectional study was conducted among the tobacco using patients attending the Outpatient Department of Sri Sai College of Dental Surgery, Vikarabad. One hundred and eleven (111) patients (males = 107, females = seven) who indulged in the habit of tobacco were included in the study. These patients attended the Outpatient Department of the Sri Sai College of Dental Surgery, Vikarabad, during the study period from 1 February 2010 to 2 March 2010.

Persons younger than 17 years and individuals suffering from any systemic disease that may influence the oral mucosal status were excluded from this study. Verbal consent was obtained from all the participants at the time of recruitment. Ethical clearance for conducting the study was obtained from the Institutional Review Board of Sri Sai College of Dental Surgery, Vikarabad.

A questionnaire consisting of 15 closed-ended questions and multiple choice items printed in English was used as the data collection instrument. Once the purpose of the study and its conceptual basis were defined, the generation of items was accomplished by means of a broad-based review of the literature, including questions used in pre-existing instruments.[7,8]

The questionnaire comprised 15 questions divided into four areas of enquiry on sociodemographic details, tobacco use, awareness on pictorial warnings and support for implementation of pictorial warnings on tobacco packs. A pilot study was conducted 1 month prior to the original study with a sample of 20 individuals who were not part of the main sample. A final modification of the questionnaire was carried out based on the questions and suggestions that arose during the pilot study.

The questions were asked by the investigator and responses recorded. To test the reliability of the questionnaire, Cronbach's alfa was performed and the value obtained was 0.85 for the given sample thus showing a high degree of reliability.

The data was compiled and entered into Standard Microsoft Excel 2007. Statistical analysis was conducted using SPSS computer package version 19.0. In this survey, differences between variables were assessed by the Chi-square test and a significance level of $P < 0.05$ was set throughout.

RESULTS

A total of 111 participants completed the baseline survey. The study sample was categorized based on various criteria such as age, sex, education, occupation, etc. for the purpose of statistical analysis.

The mean age group of the study subjects was 35.01 ± 4.5 years (age range 17–75 years). The study subjects comprised different socioeconomic strata. Maximum numbers of study participants using tobacco were found to be from the lower socioeconomic strata.

Among the males, 65% of them smoked tobacco while

27.9% were using a smokeless form of tobacco, while among the females, only 6.3% reported the use of the smokeless form of tobacco and none of them reportedly smoked tobacco [Table 1].

The participants from different socioeconomic strata felt that the pictorial warnings need to carry stronger messages such as pictures of dreadful diseases like cancer to make people quit their habits, even though results were shown to be statistically insignificant [Table 2] (P = 0.292).

The response of participants regarding the area to be covered by pictorial warnings on the cover-page of the tobacco packs is shown in Table 3. Most of them were of the opinion that these graphic warnings should cover 100% of the pack to be more effective, although the results were shown to be statistically insignificant (P = 0.078).

The response of participants to if they ever tried to quit their tobacco habits and, if so, what made them do so is shown in Table 4. The results showed that majority of the participants never tried to quit their habit (P = 0.518).

The opinions of participants were found to vary slightly when comparisons were made across the participants' age, gender, duration and quantity of tobacco consumed, and the results were shown to be statistically insignificant (P > 0.05).

DISCUSSION

The present study was conducted to evaluate the opinion of tobacco consumers on the implementation of pictorial warnings on tobacco packs and to compare the effectiveness of these warnings among people of different socioeconomic strata. Recently, pictorial warnings were introduced on the sachets of tobacco products, but its effectiveness in preventing the usage of tobacco, particularly among the rural and socioeconomic groups, has to be assessed.[9,10] Health professionals have an important role in educating people on tobacco prevention and to know the effectiveness of different tobacco control policies. Necessary changes have to be made to reach people who use tobacco to make them quit tobacco-related habits.

In the present study, it was found that the use of tobacco products among the age group of 15–24 years was higher compared with the other age groups. These findings were similar to the study done by Gupta and Ray[10] on tobacco use with reference to age. The higher prevalence of tobacco use in the younger age group may be due to peer influence.[11]

The findings in the survey reveal that 104 (93.7%) males and seven (6.3%) females indulged in some form of the tobacco usage, the results of which were in contrast to the study done by Vishaka *et al.* in Gulabgarh, where no woman were found to be using tobacco.[12]

The maximum numbers of participants using different tobacco products were from the lower socioeconomic strata. The result obtained could be due to the fact that a greater density of retail outlets selling tobacco are in the disadvantaged areas.[13] The present findings also show that people of both lower and middle socioeconomic status are more in favor of implementation of the warnings compared with the higher socioeconomic status groups [Table 2].

In a similar study, Cooper *et al.*[14] in 2008 showed that the graphic warnings tend to be more effective among people from a lower socioeconomic status than in those of a higher socioeconomic status. The graphic warnings are somewhat more effective among people in the lower

Table 1: Distribution of study subjects based on their usage of tobacco products

	Males		Females	
	Number	%	Number	%
Smokers	73	65	0	0
Smokeless tobacco	31	27.9	7	6.3
Total	104	92.9	7	6.3

Table 2: Response of participants regarding whether stronger messages such as pictures of dreadful diseases like cancer to be set as pictorial warnings, to make people quit their habits

Socioeconomic status	Yes		No		Unsure	
	Number	%	Number	%	Number	%
Lower class	31	35.6	4	36.4	6	46.2
Middle class	30	34.5	6	54.4	2	15.4
High class	26	29.9	1	9.9	5	38.5

χ^2 = 4.955, df = 4, P = 0.292, NS

Table 3: Response of participants regarding % of cover page warnings need to occupy								
Socioeconomic status	100%		50%		30%		Unsure	
	Number	%	Number	%	Number	%	Number	%
Lower class	30	73.2	2	4.9	0	0	9	22.0
Middle class	24	63.2	10	26.3	1	2.6	3	7.9
High class	23	71.9	3	9.4	1	3.1	5	15.6

$\chi^2 = 11.345$, $df = 6$, $P = 0.078$, NS

Table 4: Response of participants if they ever tried to quit their tobacco habits; if so, what made them do so									
Socioeconomic status	Text warnings		Pictorial warnings		Because of disease		Peer pressure/ pressure at home		Never tried to quit	
	Number	%	Number	%	Number	%	Number	%	Number	%
Lower class	1	2.4	2	4.9	13	31.7	9	22.0	16	39.0
Middle class	1	2.6	7	18.4	9	23.7	5	13.2	16	42.1
High class	0	0.0	7	21.9	8	25.0	7	21.9	10	31.3

$\chi^2 = 7.177$, $df = 8$, $P = 0.518$, NS
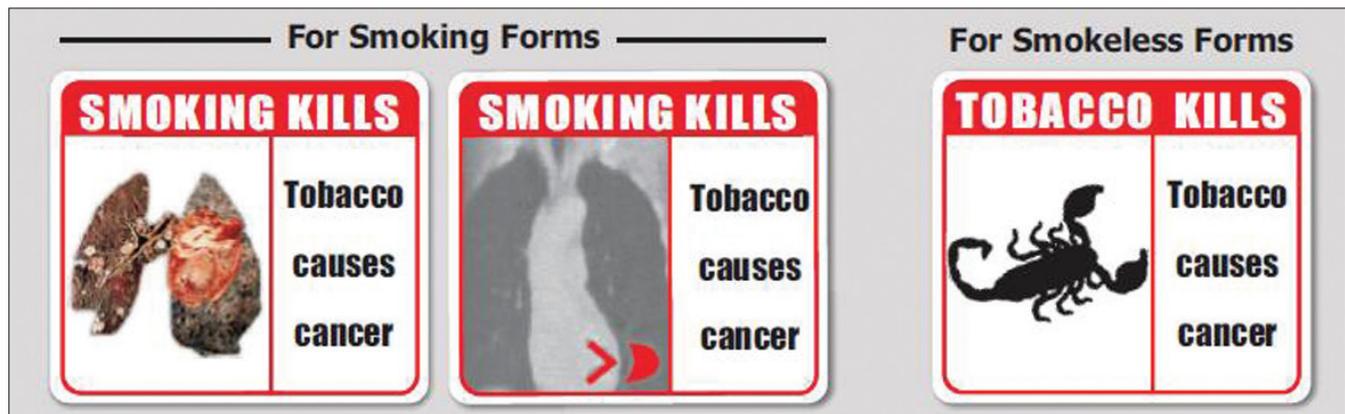
Figure 1: Pictorial health warnings currently displayed on all tobacco product packages

than people in the higher socioeconomic status groups in prompting action. One possible explanation for this finding is that people from lower socioeconomic groups may have been previously unaware of the ill-effects caused by tobacco usage.

The present findings also show that 81.3% of the study subjects felt that the government needs to introduce much stronger messages such as graphic pictures of cancer to make these warnings more effective. These findings are comparable with the observations of Raute et al.[7] in India, where 88.3% of them felt that the government needs to introduce much stronger messages such as dreadful pictures of cancer to make these warnings more effective as current warnings appearing on tobacco packs at present are weak and ineffective, which will not perform the crucial role of informing users and saving lives.

In this study, about 73.2% of the subjects felt that graphic warnings need to cover 100% of the cover page to make these warnings more effective. These findings are in contrast to the study done by Shastri[8] at railway stations in India, where only 41% of them felt a similar need. This result may be due to the fact that majority of the warnings go unnoticed because of a smaller display area.

The findings also show that only 21.9% of the study subjects tried to quit their tobacco-related habits after the introduction of pictorial warnings, which was in contrast to the study done in Brussels by the European Cancer leagues association where, 38% of them said the new warnings were a factor in motivating them to try to quit.[15] It can be stated that while lesser number of people quit the tobacco habit influenced by pictorial warnings in this study, subjects from Brazil showed a

Appendix

Questionnaire
1) Name:
2) Age:
3) Sex:
4) Occupation:

5) Educaton:
6) Annual income:
7) Place:

1) Do you use any form of tobacco products?
   a) Yes
   b) No

If yes, continue-

2) Which of the tobacco products do you use frequently?
   a) Biddies
   b) Cigarettes
   c) ghutka
   d) Others

3) Which of the following statements describes your current use of tobacco products?
   a) Regularly everyday
   b) At least once a week
   c) Occasionally
   d) Quit the habit

4) Since how long have you been using tobacco?
   a) <1 year
   b) <5 years
   c) <10 Years
   d) >10 Years

5) On days you smoke/chew, how many would you smoke/chew per day?
   a) <10
   b) >10
   c) <1 Packet
   d) >1 Packet

6) Have you noticed any warnings on the tobacco products you use?
   a) Yes
   b) No

7) If yes, what are those?
   a) Text warnings (written)
   b) Pictorial warnings (pictures)
   c) Both
   d) None

8) Which of the following can you understand more?
   a) Pictorial warnings
   b) Text warnings
   c) Both
   d) None

9) Should graphic warning labels be one-side/two-sided?
   a) One-sided
   b) Two-sided
   c) Unsure

10) How much of the cover page (%) should the warnings cover?
   a) 100%
   b) 50%
   c) 30%
   d) Unsure

11) According to you, pictorial warnings should be in which colour to be more eye-catching?
   a) Red
   b) Green
   c) Black
   d) Any color
   e) Unsure

12) Have you ever tried to quit this habit? If so, what made you do so?
   a) Text warnings   b) Pictorial warnings
   c) Because of having suffered from disease   d) Due to pressure at home/peer-pressure
   e) Any other reason/never tried to quit their habit

13) Do you think these warnings should carry much stronger messages such as pictures of dreadful diseases like cancer, to make people quit their habits?
   a) Yes   b) No   c) Unsure

14) What will be the effect of improved health warnings on tobacco packs?
   a) Non-tobacco users will think twice before starting the habit
   b) Tobacco users will think before opening the pack
   c) Tobacco users will think of reducing the habit
   d) Tobacco users will think to quit their habit

15) Should the law mandate pictorial warnings on tobacco packs?
   a) Yes   b) No   c) Unsure

better impact. This could be attributed to the differing socioeconomic status between these countries, and to more emphatic pictorial warnings depicting tobacco hazards in developed countries.[7,15]

Even though the Government of India notified strong and effective pictorial warnings with 50% display area on both sides of the tobacco products packages in July 2006, these could not be implemented due to immense political and tobacco industry pressure.[9] Hence, with this impact, the strong pictorial warnings were diluted and the new ones covered only 40% of the principal display area of the front panel of a tobacco pack [Figure 1]. This shows the need on the part of health professionals to put stronger pressure on the government and help implement these strategies at a national level. However, because the study is hospital based and has been carried out in a small population for a short period of time, the results obtained could have occurred by chance, and cannot be applied to the whole population. In the future, population-based surveys should be done in rural areas of India where knowledge about the ill-effects of tobacco is most needed.

CONCLUSION

In the present study, 78.4% of the subjects were in favor of stronger pictorial warnings, suggesting their role in implementation. The need for pictorial warnings is felt more emphatically by the lower socioeconomic groups than the higher socioeconomic groups. These results suggest that policy makers should not be reluctant to introduce more stronger and vivid pictures to enhance the effectiveness of warnings.

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