

A Study To Assess The Impact Of Pictorial And Textual Warnings On Packing's Of Smoked And Smokeless Tobacco Products

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Abstract: Various pictorial and textual warnings are depicted with a hope that they will deter the individuals from using tobacco and inform them regarding the risks of tobacco. Yet there is lack of information regarding the comprehension and the deterrence of these signs on the general population. A questionnaire based cross-sectional study was conducted on a rural population at Pune to assess understanding and persuasiveness of the pictorial and textual warnings on panel of smoked and chewable tobacco. Nearly one-third of the study participants had often noticed warnings on tobacco packs, had sometimes read or looked closely at the warnings on tobacco packs in the last month and had rarely discussed with anyone about these warnings. About more than two-third of the study participants had found the warning related pictures as not easy to understand, not believable and that these images did not deter them from the likely use of tobacco, and did not stop them from using tobacco. After analysis of the data it is inferred that the textual and pictorial warnings on the packaging of tobacco products failed to have desired deterrence on the people who tend to initiate or continue the tobacco usage.

Key words: Perception, pictorial and textual warnings, tobacco.

I. INTRODUCTION

Tobacco in smoke and smokeless form is a leading cause of preventable morbidity and mortality worldwide. The consequences of using smoked or smokeless tobacco in the oral cavity range from stains on tooth, periodontal diseases, and tooth loss to life-threatening oral cancer.^[1] With the current trends, by 2030, tobacco would kill more than 8 million people worldwide each year, with 80% of these premature deaths among people living in low- and middle-income countries.^[2]

As per the WHO global report on "Tobacco Attributable Mortality", 7% of all deaths in India are attributable to tobacco. Framework Convention on Tobacco Control states that "every person should be informed of the health consequences, addictive nature and mortal threat posed by tobacco consumption and exposure to tobacco smoke."^[3] Government of India being a signatory to this convention has taken many initiatives to discourage the use of tobacco and its products which include the ban of sale, banning of smoking in public places, advertisements of tobacco products and placing pictorial warnings on packing of tobacco products. The efforts have been to raise the awareness among the population regarding the ill effects of tobacco consumption and discourage people from adopting this habit.^[2] More than 60 countries now require pictorial health warnings on packs and in five countries they cover 75% or more of the principal surfaces (Canada, Brunei, Uruguay, Sri Lanka, Australia). Following the FCTC guidelines it is mandatory to display such warnings on the packings of all tobacco products.

As far as India is concerned, implementation of the pictorial warnings was enforced on May 31, 2009, under Section 7 of The Cigarettes and Other Tobacco Products (Prohibition of Advertisement & Regulation of Trade & Commerce, Production, & Supply and Distribution) Act, 2003.^[4] An initiative to drive home the point of prevention was taken by Health Ministry, on April 1 2016, wherein it was mandatory to display new health warnings covering 85% of the principal display area on all tobacco products, making India 3rd among countries with largest pictorial warnings on tobacco products.

An analysis of the awareness of the presence of warning messages among tobacco users is important and little is known about its impact on people's behaviour. Hence, this study was conducted with the aim to assess the understanding and persuasiveness of the pictorial and textual warnings on packings of tobacco products on the people who want to initiate this habit or continue its usage in any form.

II. MATERIALS AND METHODS

A cross-sectional study was conducted among the people of rural area at Pune district from Nov 2019 to Jan 2020. The study population consisted of those patients attending the OPD at a Rural Health Training Centre at the same location and those who consumed tobacco in some form.

Informed consent was obtained from all the study participants. A pilot study was conducted among 30 participants to assess the feasibility of the study. As per the results of the pilot study, the sample size was determined 520 study subjects with the probability of 90% and error of 5%. The questionnaire used for this study was translated to Marathi which is the local language and back translated to English by a bilingual expert and the face and content validity was assessed. The reliability of the questionnaire was assessed in pilot study by measuring Cronbach's alpha and inter-item correlations. The internal consistency

reliability coefficient (Cronbach's alpha) for the questionnaire was 0.71. The item-scale correlations of all the items of questionnaire ranged from 0.52 to 0.60, in which none was less than the minimum acceptable level of 0.4.

Inclusion criteria were those who consumed tobacco in some form, were willing to participate and those who were present on the day of study. A specially designed questionnaire was given to assess understanding and persuasiveness of the pictorial and textual warnings on the packages of smoked and smokeless tobacco products. The questionnaire consisted of 6 questions 4 dealing with the comprehension of the warnings and other two dealt with the perceived seriousness of the warnings. The responses were "never," "sometimes," "rarely," "very often" and last two questions responses were dichotomized as "yes" or "no." The questionnaire assessed the salience (noticing, looking closely at warnings), depth of processing (thinking about warnings, discussing them with others), comprehension and credibility (warning comprehensibility, believability, and truthfulness), unaided recall, persuasiveness (warnings as a deterrent to smoking. The recorded data were transferred to the computer in Microsoft Excel worksheet and was subjected to statistical analysis by using SPSS version 20.0 (SPSS Inc., Chicago, IL, USA). Chi-square test was used for intergroup comparisons based on gender and age of the participants. *P* value was set at < 0.05.

III. RESULTS

The participants belonged to 8 age groups the youngest being 17 years and oldest being 85 years old. Majority 150(28.6%) of the population belonged to the age group of 50-59 years of age while 2.9 % belonged to the age group 10-19 and 80-89 years each (Table 1). The study population mainly consisted of males (88.6%) while females constituted only 11.4% of the population. (Fig 1)

Approximately 63% of the participants believed in the written warnings on the tobacco products panels while 60% believed that written and pictorial warnings are truthful in respect of health risks associated with tobacco usage and make you less likely to use tobacco. About 46% of the participants believed that the Warning signs on the pickings did not stop them from using tobacco. (Fig 2)

Participants above the age of 70 had a history of tobacco consumption for more than 20 years (Table 2) and in age group of greater than 80 years had "Never" noticed or read or looked closely at the warnings on tobacco packings. (Tables 3 and 4)

In the age group 10-19 years, all of them had a history of tobacco consumption of 0-5 years (Table 2) and they all noticed, read or looked closely at the warnings on the packings "Sometimes" (Tables 3 and 4).

The participants in the age group 10-19 years, the group in which initiation of this deleterious habit starts, 100% of them responded 'Sometimes' to the question "How often, in the last month, have you thought about what warnings on the tobacco packs?" while none in the oldest age group 81-89 years discussed about warnings on the packings. (Table 5) Same results were obtained when responding to the question "How often, in the last month, have you discussed with anyone about these warnings?"(Table 6)

All participants in the age group of 10-19 years and 30-39 years felt that the warnings are believable, truthful and makes them less likely to use tobacco while none in the age group greater than 80 years felt that warnings are believable, truthful and makes them less likely to use tobacco. (Tables 7, 8 and 9)

Hundred percent of the participants in the age group 10-19 years believed that these warning signs stopped them from using tobacco while 100% users in the age group of greater than 80 years believed that warning signs did not stop them from using tobacco.(Table 10)

Slightly more than 50% of the male population never or rarely thought about the warning signs while 75% of the female population very often thought about the warning signs on the packings of tobacco products. (Table 11)

Slightly more than 50% of the male population and 75% of female population believed that the warning signs stop them from using tobacco. (Table 12) Approximately one thirds of the population never advised others to quit tobacco consumption on seeing the pictorial warnings. Also 10.2% of the population never tried to quit themselves and there was no tendency of reducing the frequency of tobacco consumption in about one fifth of the population.

Tables

Table 1. Distribution of the population according to various age groups

Age (years)	N(%)
10-19	15(2.9)
20-29	75(14.3)
30-39	45(8.6)
40-49	75(14.3)
50-59	150(28.6)
60-69	105(20.0)
70-79	45(8.6)
80-89	15(2.9)
Total	525(100)

Table2. Duration of tobacco consumption in various age groups

Age (Years)	Time since consuming tobacco (years)					P value (chi-square test)
	0-5	6-10	11-15	16-20	>20	
10-19	15	0	0	0	0	<0.001
20-29	60	15	0	0	0	
30-39	30	0	15	0	0	
40-49	60	0	0	0	15	
50-59	0	45	30	0	75	
60-69	0	0	0	15	90	
70-79	0	0	0	0	45	
>80	0	0	0	0	15	

Table3. Responses in various age groups to the question “How often, in the last month, have you noticed warnings on tobacco packs?”

Age (Years)	How often, in the last month, have you noticed warnings on tobacco packs					P value (chi-square test)
	Never	Rarely	Sometimes	Often	Very often	
10-19	0	0	15	0	0	<0.001
20-29	15	15	0	15	30	
30-39	0	0	15	30	0	
40-49	30	0	30	15	0	
50-59	60	15	60	15	0	
60-69	30	60	0	0	15	
70-79	0	15	0	30	0	
>80	15	0	0	0	0	

Table 4. Responses in various age groups to the question “How often, in the last month, have you read or looked closely at the warnings on tobacco packs?”

Age (years)	How often, in the last month, have you read or looked closely at the warnings on tobacco packs					P value (chi-square test)
	Never	Rarely	Sometimes	Often	Very often	
10-19	0	0	15	0	0	<0.001
20-29	15	15	0	45	0	
30-39	0	0	15	30	0	
40-49	30	0	30	0	15	
50-59	45	15	45	30	15	
60-69	45	30	15	0	15	
70-79	0	15	15	15	0	
>80	15	0	0	0	0	

Table 5. Responses in various age groups to the question “How often, in the last month, have you thought about what warnings on the tobacco packs?”

Age groups (years)	How often, in the last month, have you thought about what warnings on the tobacco packs are telling you with the pack in sight/out of sight					P value (chi-square test)
	Never	Rarely	Sometimes	Often	Very often	
10-19	0(0.0%)	0(0.0%)	15(100.0%)	0(0.0%)	0(0.0%)	<0.001
20-29	15(20.0%)	15(20.0%)	0(0.0%)	45(60.0%)	0(0.0%)	
30-39	0(0.0%)	0(0.0%)	15(33.3%)	15(33.3%)	15(33.3%)	
40-49	30(40.0%)	15(20.0%)	30(40.0%)	0(0.0%)	0(0.0%)	
50-59	45(30.0%)	15(10.0%)	60(40.0%)	15(10.0%)	15(10.0%)	
60-69	45(42.9%)	30(28.6%)	15(14.3%)	0(0.0%)	15(14.3%)	
70-79	0(0.0%)	15(33.3%)	15(33.3%)	15(33.3%)	0(0.0%)	
>80	15(100.0%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	

Table 6. Responses in various age groups to the question “How often, in the last month, have you discussed with anyone about these warnings?”

Age groups (years)	How often, in the last month, have you talked with anyone about these warnings?					P value (chi-square test)
	Never	Rarely	Sometimes	Often	Very often	
10-19	0(0.0%)	0(0.0%)	15(100.0%)	0(0.0%)	0(0.0%)	<0.001
20-29	15(20.0%)	15(20.0%)	0(0.0%)	30(40.0%)	15(20.0%)	
30-39	0(0.0%)	0(0.0%)	30(66.7%)	15(33.3%)	0(0.0%)	
40-49	30(40.0%)	0(0.0%)	30(40.0%)	15(20.0%)	0(0.0%)	
50-59	45(30.0%)	30(20.0%)	45(30.0%)	30(20.0%)	0(0.0%)	
60-69	60(57.1%)	30(28.6%)	0(0.0%)	0(0.0%)	15(14.3%)	
70-79	0(0.0%)	45(100.0%)	0(0.0%)	0(0.0%)	0(0.0%)	
>80	15(100.0%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	

Table 7. Responses in various age groups to the question “Do you feel these pictures and written warnings are believable?”

Age group (years)	Do you feel these pictures and written warnings are believable		P value (chi-square test)
	Yes	No	
10-19	15(100.0%)	0(0.0%)	<0.001
20-29	45(60.0%)	30(40.0%)	
30-39	45(100.0%)	0(0.0%)	
40-49	45(60.0%)	30(40.0%)	
50-59	75(50.0%)	75(50.0%)	
60-69	90(85.7%)	15(14.3%)	
70-79	15(33.3%)	30(66.7%)	
>80	0(0.0%)	15(100.0%)	

Table 8. Responses in various age groups to the question “Do you feel these pictures and written warnings are truthful in respect to the health risks associated with tobacco use?”

Age groups (years)	Do you feel these pictures and written warnings are truthful in respect to the health risks associated with tobacco use		P value (chi-square test)
	Yes	No	
10-19	15(100.0%)	0(.0%)	<0.001
20-29	45(60.0%)	30(40.0%)	
30-39	45(100.0%)	0(.0%)	
40-49	45(60.0%)	30(40.0%)	
50-59	75(50.0%)	75(50.0%)	
60-69	75(71.4%)	30(28.6%)	
70-79	15(33.3%)	30(66.7%)	
>80	0(.0%)	15(100.0%)	

Table 9. Responses in various age groups to the question ” Do these warning signs makes you less likely to use tobacco?”

Age groups (years)	Do these warning signs makes you less likely to use tobacco		P value (chi-square test)
	Yes	No	
10-19	15(100%)	0(.0%)	<0.001
20-29	45(60.0%)	30(40.0%)	
30-39	45(100%)	0(.0%)	
40-49	30(40.0%)	45(60.0%)	
50-59	75(50.0%)	75(50.0%)	
60-69	75(71.4%)	30(28.6%)	
70-79	30(66.7%)	15(33.3%)	
>80	0(.0%)	15(100%)	

Table 10. Responses in various age groups to the question “Do these warning signs stop you from using tobacco?”

Age group (years)	Do these warning signs stop you from using tobacco		P value (chi-square test)
	Yes	No	
10-19	15(100.0%)	0(.0%)	<0.001
20-29	30(40.0%)	45(60.0%)	
30-39	30(66.7%)	15(33.3%)	
40-49	45(60.0%)	30(40.0%)	
50-59	60(40.0%)	90(60.0%)	
60-69	75(71.4%)	30(28.6%)	
70-79	30(66.7%)	15(33.3%)	
>80	0(.0%)	15(100.0%)	

Table 11. Gender wise responses to the question “How often, in the last month, have you thought about what warnings on the tobacco packs ?”

Gender	How often, in the last month, have you thought about what warnings on the tobacco packs					P value (chi-square test)
	Never	Rarely	Sometimes	Often	Very often	
Male	150(32.3%)	90(19.4%)	135(29.0%)	90(19.4%)	0(.0%)	<0.001
Female	0(.0%)	0(.0%)	15(25.0%)	0(.0%)	45(75.0%)	

Table 12. Gender wise responses to the question “Do these warning signs stop you from using tobacco?”

Gender	Do these warning signs stop you from using tobacco		P value (chi-square test)
	Yes	No	
Male	240(51.6%)	225(48.4%)	<0.001
Female	45(75.0%)	15(25.0%)	

Figures

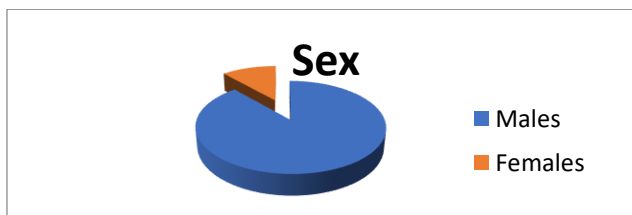


Fig1. Population distribution according to gender

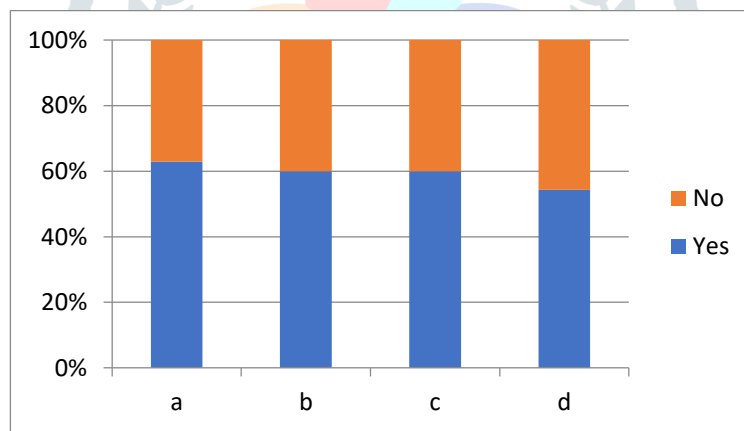


Fig 2. Impact of Pictorial & Textual warning on population

- a. Do you feel these pictures and written warnings are believable?
- b. Do you feel these pictures and written warnings are truthful in respect to the health risks associated with tobacco use?
- c. Do these warning signs make you less likely to use tobacco?
- d. Do these warning signs stop you from using tobacco?

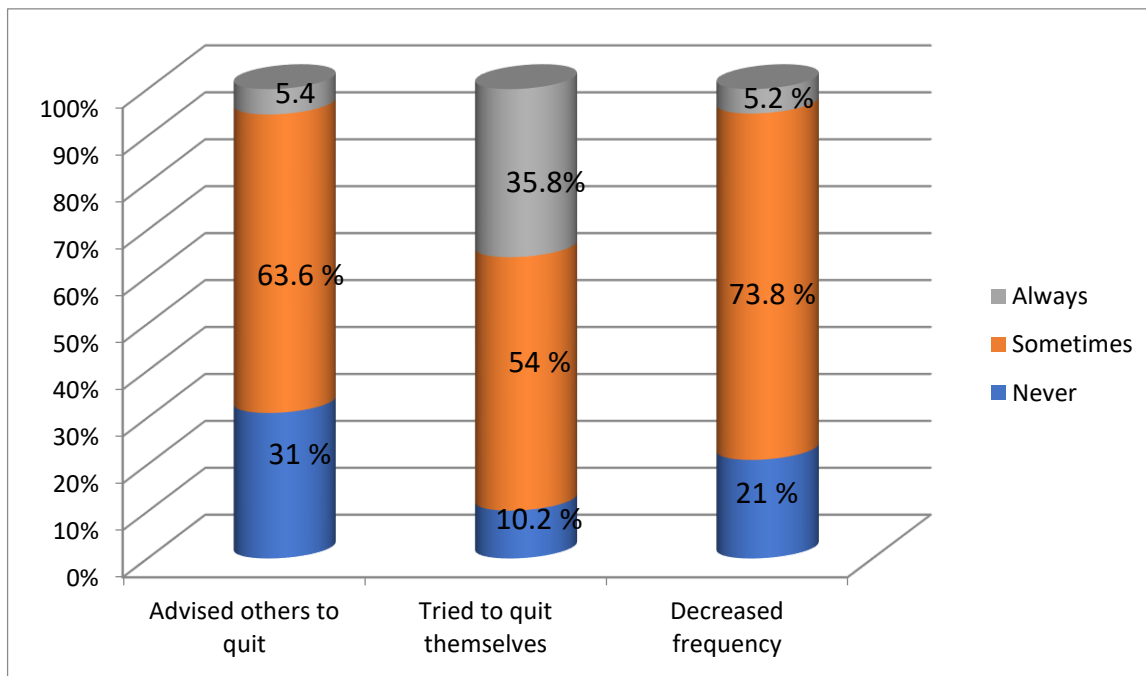


Fig 3. Impact of the warnings on individual tobacco consumption

IV. DISCUSSION

Pictorial health warnings on the packaging of tobacco products are placed to dissuade people from substance abuse. This study was undertaken to assess the response and effect of these warnings on the packaging of tobacco products on the users.

In this study, majority of the population comprised of males (almost 90% of the population). High preponderance of males in this study might have influenced the outcomes because of high risk taking nature and disregard to health when compared with females.

It was observed that all tobacco users in youngest age group had observed the warnings sometimes in the last one month and therefore with proper deterrence strategy they can be weaned away from this habit. It was also observed that as the age and duration of tobacco consumption increases the deterrence of these warnings decrease. This can be due to the fact that a false sense of security develops in the minds of users to the harmful effects of tobacco. They feel that in spite of consuming tobacco for longer periods nothing has happened to them and they will be immune to its ill effects in future also.

Though majority of the study participants found these warnings as believable and truthful but did not deter them from using tobacco. Despite of having knowledge about the harmful effects of tobacco users found it difficult to quit, shows a strong dependence on tobacco and its products. These findings are not in line to those observed by Moodie *et al.*^[5] but are in consonance with findings in a study by Callery *et al.*^[6]

Another reason for these warnings not severe enough to desist initiation or discontinuation of this habit is that the pictorial warnings usually show the advanced stages of the disease. Users of these products are not able to comprehend these pictures as they have not seen them in actual life. The authors believe that the warnings should also include the early signs and symptoms with which the users can correlate. Seeing the same picture time and again tends to reduce its impact, hence the need of changing the picture and wordings of warnings more frequently which is in line with the study conducted by J Li and M Grigg.^[13]

Findings of this study also corroborate with those of an earlier study conducted in five different states by Arora M *et al.*, which suggested that pictorial warnings that existed on tobacco packs are perceived to be ineffective by the Indian population.^[4]

Educational background was not considered in this study which plays a vital role in understanding the warnings. A positive finding in this study was that female population were wary of the harmful effects of this habit and can play a vital role in educating the children against the harmful effect of tobacco.

V. CONCLUSION

Tobacco use continues to be the leading global cause of preventable death. Health warning labels on tobacco products constitute the most cost-effective tool for educating smokers and non-smokers about the health risks of tobacco use. All warnings are subject to wear-out over time.

Based on the findings of this study, it can be concluded that there is need for more refinement in the textual and pictorial warnings on the tobacco packing. People should be able to relate themselves with the warnings to enable them to take responsible decisions.

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