

**Assessment of Awareness of Pictorial Warning Present on Tobacco Products Used In India among Tobacco Users Attending Outpatient Department of Oxford Dental College.**

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**Abstract**

**Background:** Tobacco usage is considered to be the leading cause of preventable death worldwide. People using tobacco products must be aware of the health problems posed by it. Under COTPA, statutory warnings were introduced on all tobacco products in 2005. The Government of India introduced pictorial warnings on tobacco products in July 2006 as they are effective in promoting tobacco associated risks.

**Objective:** To assess the knowledge and perceptions of pictorial warnings present on tobacco products used in India among tobacco users attending outpatient department of the Oxford Dental College, Bengaluru.

**Materials and Methods:** This study was carried out among 100 tobacco users who attended the outpatient department of the Oxford Dental College, Bengaluru. Written consent was obtained from the tobacco users who fulfilled the inclusion and exclusion criteria. A self structured validated questionnaire was given to the tobacco users which consisted of demographic details, knowledge and perceptions of pictorial warnings on tobacco products. The statistical analysis was performed using Chi square test and the p value < 0.05 was considered statistically significant.

**Results:** Among the tobacco users, 79% of participants used smoked form of tobacco. Gender distribution showed

that almost 87% were males and 13% were females. Almost 95% of the tobacco users were aware of the health warnings on tobacco products. Almost 47% of them have been using tobacco products since > 10 years. About 80% of them felt such warnings are required on tobacco products and 70% of them wanted the warnings to carry stronger messages.

**Conclusion:** The present study showed that majority of the study participants have noticed the warnings on tobacco products. To improve awareness among tobacco users on the deleterious effect of using tobacco products, pictorial warnings were proven to be very much effective.

**Keywords-** Pictorial warnings, tobacco users, tobacco products.

### **Introduction**

Tobacco is used in many forms which includes smoke and smokeless forms all over the world today. The World Health Organisation has reported it to be one of the preventable cause of death worldwide, and has estimated that 5.4 million deaths per year is caused every year due to tobacco usage.<sup>1</sup>

Many diseases have been identified, including cardiovascular disease, respiratory disease and 10 different forms of cancer as a result of smoking. At present, every country has made it a rule to mandatorily place warning labels in cigarette packets, but the size, number and the way the health information is presented differs between countries. Labelling policies range from ordinary statements of risk like “Smoking can be harmful to your health”, to graphic pictorial depictions of disease. As there is variation between countries in package warning labels, an opportunity exists now to explore the impact of different warning policies on consumer knowledge.<sup>2</sup> The people who are most exposed to tobacco risk are the low income and disadvantaged groups. Due to the low levels of literacy in India, pictorial warnings are

most helpful to provide knowledge about the tobacco products.<sup>1</sup>

There was a major death of more than one billion people during the 21<sup>st</sup> century as a result of consumption of tobacco products. By adopting pictorial health warning labels on cigarette packs there is an improvement about the health hazards of smoking among smokers. The text only warnings are not very much effective in showing the disease complications compared to pictorial warnings<sup>3</sup>. The physical consequences of using smoked or smokeless tobacco on the oral cavity range from the appearance of tobacco stains on tooth initially followed by periodontal diseases, and tooth loss to life threatening oral cancer preceded by premalignant red and white lesions. Studies have shown that warning labels on tobacco products can help in communicating the consequences of tobacco use and bring about behavioral changes which involves quitting and reducing the tobacco consumption.<sup>4</sup>

To make people aware of hazardous effects of tobacco products, health warnings can be very strong and cost effective. After usage, unlike many other products, tobacco packaging is not removed and discarded but is used as a container until the contents have been consumed; it thus gives high reach and frequency of exposure to its users. Tobacco packs left in public view between uses may help in curbing passive smoking as it serves as portable advertisement making non smokers aware of deleterious effects of inhaling tobacco smoke. Hence tobacco packs having text and pictorial warnings are a successful way of increasing awareness about the health hazards of tobacco.<sup>5</sup>

Graphic pictorial warnings strongly increase smokers’ intentions to quit smoking, attracts attention better and helps in motivating people to think more carefully about the risks of smoking.<sup>6</sup> Though the hazards caused due to tobacco use are well known, only small numbers of

tobacco users are fully aware of the harmful, fatal effects of tobacco which leads to initiation and continuation of tobacco use. They think of it as a bad habit that they are knowingly involved with., from which they cannot quit. So it is very much essential to assess the knowledge as well as perception of tobacco users regarding the pictorial warnings which the government has implemented on the tobacco products. It helps us to understand whether the tobacco users are aware of the harm which these products can cause to their lives. Hence this study aims at assessing the awareness among tobacco users on the pictorial warnings on tobacco packs.

### **Materials and methods**

The study was conducted among the tobacco users attending outpatient department of the Oxford dental college, Bengaluru. Prior to the start of the study, a protocol of the intended study was submitted to the Ethical Review Committee, The Oxford Dental College, Bengaluru and ethical clearance for the present study was obtained. Permission from the outpatient department of Oral Medicine and Radiology was also obtained. Based on the probability, that at least 50% of patients visiting the OPD of the dental college are aware of pictorial warnings present on tobacco products in India and keeping 95% Confidence Interval the sample size obtained was 100.

Subjects aged above 18 years, who were literates in English or Kannada, were selected. Subjects who were not willing to participate, were excluded. Written consent was obtained from the patients by disclosing the purpose of the study and only those who were willing to participate were given the questionnaire. Validation of the questionnaire was done using Lawshe method by 6 panel experts of dentists. Content validity ratio (CVR) value was 0.99, which was acceptable.

The demographic details of the study subjects which included name, age and gender were recorded. A self

constructed questionnaire which was content validated consisting of multiple choice items in English and in Kannada was used to collect the data. The subjects were asked to fill the questionnaire regarding their knowledge and perceptions of pictorial warnings on tobacco products. After distribution of questionnaire, 10 minutes was allotted for completing the questionnaire. The collected data were subjected to statistical analysis.

**Statistical analysis:** Statistical Package for Social Sciences [SPSS] for Windows, Version 22.0 Released 2013 Armonk, NY: IBM Corp, was used to perform statistical analyses.

**Descriptive Statistics:** The frequency distribution for categorical data will be expressed in terms of number & percentage, whereas for continuous data, it will be expressed in frequency, mean, and standard deviation (SD).

**Inferential Statistics:** Chi square Test will be used to compare the responses of the study participants to the questionnaire based on their important socio demographic and other study related characteristics.

The level of significance will be set at  $P < 0.05$ .

And any other relevant test, if found appropriate during the time of data analysis will be dealt accordingly.

### **Result**

The table 1 represents the age, sex and the demographic distribution among the study samples. It showed that almost 58% of the study samples were in the age group of 21-40 years. About 34% were in the age group of 41-60 years and almost 8% were above 60 years. Gender distribution showed that almost 87% were males and 13% were females. When socioeconomic status was considered, it was seen that 2% of the study population belonged to the upper class, almost 58% of them belonged to the upper middle class, about 26% of them belonged to

the upper lower class and about 14% of them belonged to the lower middle class.

Table 1: Distribution of demographic characteristics among study samples

Variables	Category	n	%
Age	21-40 years	58	58%
	41-60 years	34	34%
	> 60 years	8	8%
Sex	Males	87	87%
	Females	13	13%
Socioeconomic status	Upper	2	2%
	Upper Middle	58	58%
	Upper Lower	26	26%
	Lower Middle	14	14%

It was found that almost 79% of the study participants used smoked form of tobacco products and 21% of them used the smokeless form. About 46% of the tobacco users used tobacco products regularly, whereas 44% of them used it occasionally and about 10% of them used it weekly once. Almost 47% of them have been using tobacco products since > 10 years. About 33% of them have been

using it since > 28 days. Almost 95% were aware of health warnings on tobacco products whereas about 1% of the study participants were not aware of it and 4% were unsure about it. About 20% of the study participants said that graphic labels depicted on tobacco packets were one sided. Almost 68% of them said it was two sided and 12% were unsure about it. This is shown in table 2.

Table 2: Comparison of distribution of study participant's' responses towards Knowledge of warnings on tobacco products.

Questions	Responses	n	%	$\chi^2$ Value	p-Value
Types of tobacco products used	Smoke	79	79%	33.640	<0.001*
	Smokeless	21	21%		
Frequency of tobacco products use	Regularly	46	46%	24.560	<0.001*
	Occasionally	44	44%		
	Weekly Once	10	10%		
Duration of use of tobacco products	< 28 days	4	4%	42.800	<0.001*
	> 28 days	33	33%		
	> 1 Year	16	16%		
	> 10 years	47	47%		
Aware of health warnings on tobacco products	Yes	95	95%	171.800	<0.001*
	No	1	1%		
	Unsure	4	4%		

Depiction of GPW	One Sided	20	20%	55.040	<0.001*
	Two Sided	68	68%		
	Unsure	12	12%		

In table 3, it can be seen that almost 75% of the study participants understood both text and pictorial warnings. About 4% of them understood only text warnings whereas 21% of them understood only pictorial warnings. About 79% of the study participants were satisfied with the readability of the warning signs on tobacco products and 81% of them were satisfied with the warning picture on tobacco products. Almost 80% of them felt such warnings are required on tobacco products and about 16% of them could not give an opinion about it. It was found that pictorial warnings helped almost 47% of the study participants quit their habit whereas text warnings made only 1% of them quit their habit. Pictorial warnings helped 71% of the study participants to refrain from tobacco use for few weeks. Almost 59% of them were of the opinion

that pictorial warnings should be in red colour to be more eye catching and about 24% did not have any opinion about the colour. Almost 42% of the study participants wanted change of warnings on tobacco products at the interval of 12 months. About 39% of the study participants wanted the warning picture to cover upto 85% of the tobacco packet and almost 25% of the participants wanted it to cover upto 100%. About 70% of the study participants were of the opinion that these pictorial warnings should carry much stronger messages and 28% were unsure about it.

Table 3: Comparison of distribution of study participant's' perceptions towards pictorial warnings on tobacco products.

Questions	Responses	n	%	$\chi^2$ Value	p-Value
Which of the followings can be understood more?	Text Warnings	4	4%	82.460	<0.001*
	Pictorial Warnings	21	21%		
	Both	75	75%		
	None	0	0%		
Satisfaction with readability of the warning signs on tobacco products	Yes	79	79%	95.060	<0.001*
	No	6	6%		
	Can't say	15	15%		
Satisfaction with the warning picture on tobacco products	Yes	81	81%	103.460	<0.001*
	No	5	5%		
	Can't say	14	14%		
Feel such warnings are required on tobacco products?	Yes	80	80%	100.160	<0.001*
	No	4	4%		
	Can't say	16	16%		
Reasons that made you quit tobacco	Text Warnings	1	1%	68.000	<0.001*

	Pictorial Warnings	47	47%		
	Suffered from disease	9	9%		
	Peer/ Family Pressure	30	30%		
	Other Reason	13	13%		
Did pictorial warnings refrain you from tobacco use?	No Impact	10	10%	113.360	<0.001*
	Yes, for few days	7	7%		
	Yes, for few weeks	71	71%		
	Yes, for few months	12	12%		
Pictorial warnings should be in which colour to be more eye catching?	Red	59	59%	71.440	<0.001*
	Green	2	2%		
	Black	15	15%		
	Any Color	24	24%		
Frequency of change of such warnings on tobacco products	< 6 months	12	12%	18.720	<0.001*
	6 months	24	24%		
	12 months	42	42%		
	24 months	22	22%		
Percentage of the packaging should the warning picture cover	Upto 50%	9	9%	18.880	<0.001*
	Upto 85%	39	39%		
	Upto100%	23	23%		
	Unsure	29	29%		
These Pictorial warnings should carry much stronger messages	Yes	70	70%	70.640	<0.001*
	No	2	2%		
	Unsure	28	28%		

Table 4 showed that when we compare the age groups, almost 84.5% of the tobacco users in the age group of 21-40 years and 61.9% of the tobacco users above 40 years of age understood both pictorial as well as textual warnings which was found to be statistically significant. About

41.4% of the tobacco users in the age group of 21-40 years and about 35.7% tobacco users above 42 years wanted the warning picture to cover upto 85% of the packet which was also found to be statistically significant

Table 4: Comparison of perceptions towards pictorial warnings on tobacco products based on the age groups of participants

Questions	Responses	21-40 years (n=58)		> 40 years (n=42)		$\chi^2$ Value	p-Value
		n	%	n	%		
Which of the followings can be understood more?	Text Warnings	1	1.7%	3	7.1%	6.859	0.03*
	Pictorial Warnings	8	13.8%	13	31.0%		
	Both	49	84.5%	26	61.9%		
	None	0	0.0%	0	0.0%		
Satisfaction with readability of the warning signs on tobacco products	Yes	49	84.5%	30	71.4%	4.457	0.11
	No	4	6.9%	2	4.8%		
	Can't say	5	8.6%	10	23.8%		
Satisfaction with the warning picture on tobacco products	Yes	48	82.8%	33	78.6%	2.364	0.31
	No	4	6.9%	1	2.4%		
	Can't say	6	10.3%	8	19.0%		
Feel such warnings are required on tobacco products?	Yes	49	84.5%	31	73.8%	3.583	0.17
	No	3	5.2%	1	2.4%		
	Can't say	6	10.3%	10	23.8%		
Reasons that made you quit tobacco	Text Warnings	1	1.7%	0	0.0%	6.198	0.49
	Pictorial Warnings	30	51.7%	17	40.5%		
	Suffered from disease	2	3.4%	7	16.7%		
	Peer/ Family Pressure	17	29.3%	13	31.0%		
	Other Reason	8	13.8%	5	11.9%		
Did pictorial warnings refrain you from tobacco use?	No Impact	4	6.9%	6	14.3%	2.449	0.49
	Yes, for few days	3	5.2%	4	9.5%		
	Yes, for few weeks	44	75.9%	27	64.3%		
	Yes, for few months	7	12.1%	5	11.9%		
Pictorial warnings should be in which colour to be more eye catching?	Red	35	60.3%	24	57.1%	2.830	0.42
	Green	0	0.0%	2	4.8%		
	Black	9	15.5%	6	14.3%		
	Any Color	14	24.1%	10	23.8%		
Frequency of change of such warnings on	< 6 months	8	13.8%	4	9.5%	2.224	0.53



Questions	Responses	21-40 years (n=58)		> 40 years (n=42)		$\chi^2$ Value	p-Value
		n	%	n	%		
tobacco products	6 months	16	27.6%	8	19.0%		
	12 months	21	36.2%	21	50.0%		
	24 months	13	22.4%	9	21.4%		
Percentage of the packaging should the warning picture cover	Upto 50%	2	3.4%	7	16.7%	9.931	0.02*
	Upto 85%	24	41.4%	15	35.7%		
	Upto 100%	18	31.0%	5	11.9%		
	Unsure	14	24.1%	15	35.7%		
These pictorial warnings should carry much stronger messages	Yes	42	72.4%	28	66.7%	2.885	0.24
	No	0	0.0%	2	4.8%		
	Unsure	16	27.6%	12	28.6%		

**Discussion**

The present study was done to assess the knowledge and perceptions of pictorial warnings present on tobacco products among the tobacco users. This study helped us to know the impact of pictorial warnings on tobacco products in the minds of its users.

In our present study it was seen that almost 87% of the tobacco users were males, only 13% were females. In a similar study done by Rekha et al (2012) majority of tobacco users were males.<sup>1</sup> The findings suggests the cultural scenario of our country, due to which tobacco products are more accessible to males than females.

In our study we see that people in the age group of 21-40 years were more aware of the health warnings on tobacco products which was similar to the study done by Bharadwaj VK et al (2019).<sup>7</sup> The findings suggests that younger people who had better education were aware of the harmful aspects of tobacco.

When we see participants' perceptions towards pictorial warnings on tobacco products, it was seen that in the present study, pictorial warnings helped almost 47% of the study participants quit their habit which suggests that pictorial warnings greatly left an impact on the minds of

the tobacco users. But in the study done by Rajeswary K et al (2012) it was seen that pictorial warnings had no major role in helping smokers to quit smoking.<sup>2</sup>

Our study gave the results that majority of the study participants believed that pictorial warnings create impact in the minds of its users about the health hazards caused by using tobacco products which was comparable to that of the study results done by Vanishree et al.<sup>4</sup> It suggested that less educated people could also understand the pictorial warnings.

Pictorial warnings serves as an important medium to communicate the harmful effects of tobacco. They help in giving the tobacco users a visual effect of the diseases that they might get due to tobacco usage. According to our study almost 70% of the study participants were of the opinion that the pictorial warnings should carry much stronger messages. These findings were similar to the study findings of Rekha et al (2012)<sup>1</sup> and Raute et al (2009)<sup>8</sup> wherein people were of the opinion that government should take initiative to implement much stronger messages such as graphic pictures of cancer to make these warnings more effective.



There is a need for reconsideration of pictorial warnings that are currently used on tobacco products such that more effective pictorial warnings should be developed and implemented to combat tobacco consumption. However which picture will be most effective to serve the purpose of increasing the awareness and thereby motivating the people to reduce tobacco consumption has to be answered. The present study showed that almost 47% of the study participants had been using tobacco products since > 10 years. The study done by Rajeswary K et al also showed that majority of the study participants were long term tobacco users which says that tobacco products have greatly influenced majority of the population of our country.<sup>2</sup>

To gain attention of the people, it is important to make the warning pictures more eye catching. Our study results showed that almost 57% of the study participants wanted the pictorial warnings to be red in colour. This finding was similar to the that of the study done by Vanishree et al wherein about 57.1% of the study participants felt that colourful form of pictorial warnings are more effective than black and white pictures.<sup>4</sup>. The study done by Raute LJ et al on pictorial health warnings also had similar results.<sup>8</sup>

The present study showed that almost 35.7% of the participants were of the opinion that the warning picture should cover upto 85% of the tobacco packet, which was statistically significant and similar to that of the study done by Majumdar A et al.<sup>9</sup>

Among the 1.1 billion smokers worldwide, 182 million (16.6%) live in India. In fact, India is suffering a stage of tobacco epidemic.<sup>10</sup> It was seen in 2004, when an estimated population of 1065 million was considered, 0.8–0.9 million Indians die annually from diseases associated with tobacco, which amounts to approximately around 2500 a day. It is predicted that by 2020, tobacco will be

responsible for the cause of almost 13% of all the deaths. Among these deaths, almost 50% deaths will be due to cancer and remaining due to other health-related problems such as cardiovascular and lung disorders.<sup>11</sup>

In order to inform the illiterate people about the health hazards of smoking, pictorial warnings are very much helpful.<sup>12</sup> The continued use of ineffective warning labels on tobacco products has shown a missed opportunity because the government has failed to effectively utilize this evidence based strategy to enhance knowledge about the ill effects of tobacco among the people in addition to other educational interventions, like the anti-tobacco advertising employed by the Ministry of Health and Family Welfare in India. More effective warning labels are required in order to influence the people and achieve the goals set for tobacco control.<sup>12</sup>

Our study results have clearly shown that pictorial warnings are understood by majority of the study participants and has greatly helped them to quit their habits atleast for a short period of time. Hence the government should take initiative in the implementation of stronger pictorial warnings which should be changed periodically.

### **Conclusion**

The results of this study suggests that pictorial warnings are effective in imbining fear in the minds of tobacco users, so policy makers should take initiative to implement more stronger warning pictures on tobacco products. These pictorial warnings have greatly helped in creating awareness among tobacco users.

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