

# Does Pictorial Health Warnings on Tobacco Products Promote its Cessation? A Cross-Sectional Study from a Rural Health Centre in Trichy, Tamil Nadu

Prabha Thangaraj<sup>1</sup>, Kumarasamy Hemalatha<sup>2</sup>

## ABSTRACT

**Background:** Under the National Tobacco Control Programme several measures have been taken to reduce its consumptions. Annual change in pictorial warning on cigarette packs is one such measure. The study aims to assess effectiveness of warning messages on tobacco products in promoting smoking cessation. **Methods:** A cross-sectional study was conducted among 178 smokers visiting a rural health centre attached to teaching hospital in Tamil Nadu either as patient or their attendee. A structured questionnaire was used to collect data on sociodemographic details, smoking habits, factors influencing to smoke, awareness on pictorial warning and its impact towards smoking cessation. Pictorial warning motivating to quit smoking was expressed in proportion with 95% confidence interval (CI). **Results:** Mean age of participants were  $45.25 \pm 15.7$  years. Majority smoked daily (43.8%) and consumed more than 20 cigarettes in past one week (44.4%). Factors influencing to smoke were self-interest/pleasure (81.5%), job stress (65.7%), family stress (50.6%) and peer pressure (48.3%). The study found that 132 (71.4%) smokers had seen the pictorial warning on tobacco products of which 81 were motivated to quit smoking i.e. 45.5% (95% CI: 38.04-53.12). Intention to quit smoking in next one month was reported only by 6.2%. **Conclusion:** A significant proportion of smokers were not motivated to quit smoking based on the pictorial warning. Since many purchased cigarettes in singles rather than whole pack, their probability of viewing the pictorial representation of harmful effects could have been missed. There is need to explore factors that can initiate tobacco cessation among smokers.

**KEY WORDS:** Tobacco, Pictorial Warning, Awareness, COTPA, Smoking.

## Introduction

Around 100 million Indians smoke tobacco as per the latest Global Adult Tobacco Survey (GATS)<sup>[1]</sup>. Globally, there has been an increase in tobacco users and its consequences. Realizing this, the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) was framed in 2003 with the objective of protecting mankind from

the deadly consequences of tobacco consumption and smoke exposure.<sup>[2]</sup> Government of India signed the WHO FCTC convention and implemented the Cigarettes and Other Tobacco Products Act (COTPA) and subsequently the National Tobacco Control Programme in 2007.<sup>[3]</sup> The COTPA was intended to protect and improve public health, encompasses a wide array of evidence based strategies to reduce tobacco consumption. An important component of the law deals with rules and regulation of textual and pictorial health warning on tobacco products. It is essential to explore the impact of such law in motivating smokers to quit smoking, especially during the COVID-19 pandemic as a meta-analysis reported that smokers had more severe outcomes than non-smokers.<sup>[4]</sup>

Access this article online

Quick Response Code:



Website: [www.jmsh.ac.in](http://www.jmsh.ac.in)

Doi: 10.46347/jmsh.v11.i1.24.344

<sup>1</sup>Associate Professor, Department of Community Medicine, Trichy SRM Medical College Hospital & Research Centre, Tamil Nadu, India, <sup>2</sup>Professor and Head of Department, Department of Community Medicine, Trichy SRM Medical College Hospital & Research Centre, Tamil Nadu, India

**Address for correspondence:**

Prabha Thangaraj, Associate Professor, Department of Community Medicine, Trichy SRM Medical College Hospital & Research Centre, Tamil Nadu, India. E-mail: [prabha\\_thangaraj@yahoo.com](mailto:prabha_thangaraj@yahoo.com)

Several studies have been done in India to assess the effect of pictorial warning on quitting smoking. Few studies<sup>[5-7]</sup> concluded that pictorial warning is ineffective while others<sup>[8-11]</sup> found it motivating. In view of this contradictory evidence and absence of similar studies in our setting, there arise needs to understand the impact of pictorial warning among this population. Moreover, a systematic review on perceived effectiveness of pictorial health warnings on changes in smoking behaviour in Asia from 2010 - 18 suggested the need for studies on pictorial health warnings in relevance to changing or refreshing of pictorial health warning on cigarette packages after a period of time.<sup>[12]</sup> Under COTPA, Government of India is rotating the pictorial health warning every 12 months with the latest notification given in July 2022 that will come to force from 1<sup>st</sup> December 2022.<sup>[13]</sup> The study aims to assess the effectiveness of warning messages and graphics on tobacco products in promoting smokers to quit smoking. We also aimed to assess the factors that influence smoking behaviour of the individuals and their willingness to quit smoking. Results of this study would provide necessary information needed in reframing policy for tobacco control. In addition, it also helps us to identify individuals needing support to quit tobacco and refer them to the de-addiction unit under the psychiatric department of the parent institution.

## Methodology

A cross-sectional study was conducted at the Rural Training Health Centre (RHTC) attached to the Department of Community Medicine of a teaching hospital in Trichy, Tamil Nadu. Considering 43% of smokers willing to quit smoking based on pictorial warning from a previous study<sup>[14]</sup> and 8% precision, using the formula  $4pq/d^2$  sample size was calculated to be 153. Assuming 20% non-response rate the sample size was 183. All current smokers aged more than 18 years visiting the RHTC OPD either as patient or accompanying them, during the period (October to December 2023) were included in the study. Those not giving consent were excluded. Consecutive sampling was done till the desired sample size was obtained. The study was conducted only after institutional ethics clearance certificate was obtained. (Ref. No. 1401/TSRMCH&RC/ME-1/IEC No.185)

Questionnaire was prepared from review of literature to collect information. The data collection tool comprised of three sections. The first section had details pertaining to the sociodemographic information of

the study participants. The second section focused on the smoking habits, factors influencing them to smoke, and amount spent on smoking. The third section had questions to assess their awareness on pictorial warning and its impact towards smoking cessation.

Statistical Analysis: Data entry was done in MS excel and analysis in SPSS version 21 (IBM Corp., Armonk, NY, USA). Quantitative data was expressed in mean and standard deviation while qualitative data in frequency and percentage. Pictorial warning motivating smokers to quit smoking was expressed in proportion with 95% confidence interval.

## Results

**Table 1: Sociodemographic details of study participants (N= 178)**

Variables	Frequency (%)
<b>Age (years)</b>	
18-25	24 (13.5)
26-35	36 (20.2)
36-45	35 (19.7)
46-55	27 (15.2)
56-65	30 (16.9)
>65	26 (14.6)
<b>Educational status</b>	
Illiterate	2 (1.1)
Primary school	20 (11.2)
Secondary school	53 (29.8)
Higher secondary	50 (28.1)
Undergraduate	47 (26.4)
Postgraduate	6 (3.4)
<b>Socioeconomic status*</b>	
Class I	47 (26.4)
Class II	53 (29.8)
Class III	45 (25.3)
Class IV	33 (18.5)
Class V	0 (0)
<b>Occupation</b>	
Labour/daily wage	58 (32.6)
Salaried employee	42 (23.6)
Self-employed/own business	66 (37.0)
Unemployed	12 (6.7)

\*Modified B.G.Prasad scale

The mean age of study participants was  $45.25 \pm 15.7$  years with a range of 20 to 78 years. Most of them had completed secondary schooling and above (87.7%), belonging to a socioeconomic class of 3 and above

(81.5%) and either self-employed (37.0%) or daily wage worker (32.6%) (Table 1).

**Table 2: Smoking habits of study participants (N=178)**

Smoking details	Frequency (%)
<b>Age when smoking was started</b>	
<18	40 (22.5)
18 to 20	45 (25.3)
21 to 25	59 (33.1)
26 to 30	26 (14.6)
>30	8 (4.5)
<b>Type of tobacco smoked</b>	
Cigarette	94 (52.8)
Bidi	56 (31.5)
Both	28 (15.8)
<b>Frequency of smoking</b>	
Daily	78 (43.8)
Most days of a week	49 (27.5)
Occasionally	45 (25.3)
Cannot predict	6 (3.4)
<b>Number of cigarette/bidi smoked in past one week</b>	
< 7	18 (10.1)
7 to 14	34 (19.1)
15 to 20	47 (26.4)
>20	79 (44.4)
<b>Do buy cigarette/bidi in packs or single?</b>	
Packs	100 (56.2)
Single	78 (43.8)
<b>How much do you spend on smoking in past one week?</b>	
<500 Rs	103 (57.9)
501 – 1000 Rs	41 (23.0)
>1000 Rs	34 (19.1)
<b>Do you borrow money from others for smoking</b>	
Yes	51 (28.7)
No	112 (62.9)
Occasionally	15 (8.4)

The most common factors motivating to smoke were self-interest or pleasure (81.5%), job stress (65.7%), family stress (50.6%) and peer pressure (48.3%) (Table 3).

It was documented that 132 (71.4%) smokers had seen the pictorial warning on tobacco products

**Table 3: Factors influencing study participants to smoke (N=178)**

Factors influencing smoking*	Frequency (%)
Self-interest and pleasure	145 (81.5)
Job stress	117 (65.7)
Family stress	90 (50.6)
Friends and peers pressure	86 (48.3)
Movie actors	40 (22.5)
Advertisements	38 (21.3)

\*More than one factor reported by each smoker.

of which 81 individuals were motivated to quit smoking. Hence, only 45.5% (95% Confidence interval: 38.04-53.12) found the pictorial warning motivating them to quit smoking. The other source of information on anti-smoking was obtained from television (53.6%) and movie theater (27.1%). Only 6.2% smokers had the intention to quit smoking in the next 1 month with 28.1% undecided and 24.7% not willing to quit at all (Table 4).

## Discussion

The first country to include health warning on the cigarette packs was United States of America (USA) in the 1960s to educate the consumers on the health risks of tobacco usage. The government of India in 1975, passed similar legislation to restrict trade, production, supply, and distribution of tobacco products. Initially the warning contained only text messages such as “cigarette smoking is injurious to health” on all tobacco related advertisements.<sup>[15]</sup> This was unsuccessful in discouraging tobacco usage, since the warnings were made mandatory only on cigarette packs excluding bidi, cigar, cheroot, gutka and other chewable tobacco. Other factors contributing to ineffectiveness was the difference in tobacco usage across India along with huge illiteracy rate.<sup>[16]</sup> But over the years, things have changed, and people have become aware of the harmful effects of tobacco. Despite this increase in awareness, the consumption of tobacco continues to be an epidemic requiring the expansion of tobacco regulation to decrease the overall health burden associated with its consumption.<sup>[17]</sup> The present study aimed to assess the impact of pictorial warnings on the cigarette packs and its impact on motivating smokers to quit smoking among current smokers visiting a rural centre in Sangenthi, Trichy for any reason during the study period. Our study found that only 74.1% of smokers had seen the pictorial warning on the

**Table 4: Impact of pictorial warning on tobacco products and willingness to quit smoking among study participants**

Question	Frequency (%)
<b>Have you noticed the pictorial warning on the tobacco products? (n=178)</b>	
Yes	132 (74.1)
No	46 (25.9)
<b>Does the pictorial warning motivate you to quit smoking? (n=132)</b>	
Yes	81 (61.4)
No	51 (38.6)
<b>Have you ever seen any other anti-smoking information? (n=178)</b>	
Yes	166 (93.2)
No	12 (6.7)
<b>Where all have you seen anti-smoking information?* (n=166)</b>	
Television	89 (53.6)
Movie theatre	45 (27.1)
Hospital	24 (14.4)
Newspaper	8 (4.8)
Radio	4 (2.4)
Others	2 (1.2)
<b>Have any of your family members asked you to quit smoking? (n=178)</b>	
Yes	134 (75.3)
No	44 (24.8)
<b>When do you intend of quitting smoking? (n=178)</b>	
Intend to quit smoking within the next month	11 (6.2)
Consider quitting smoking within the next 12 months	35 (19.7)
Will quit smoking but not within the next 12 months	38 (21.3)
Do not intend to quit smoking	44 (24.7)
Don't know/undecided	50 (28.1)

\*multiple options included.

cigarette packs. In previous studies by Dahiya et. al.<sup>[6]</sup> from Himachal Pradesh, Oswal et.al.<sup>[7]</sup> from Mumbai and Shah et. al.<sup>[11]</sup> from Gujarat reported a lesser proportion of smokers ranging between 59 - 72% having noticed the health warnings on tobacco products. One possible reason for this low awareness could be due to the fact that some smokers buy individual cigarette than a pack and hence miss noticing the warning signs.

Among those who noticed the pictorial warning, 61.4% were motivated to quit smoking but among these only 6.2% smokers had the intention to quit smoking in the next one month. Rajeswary et.al.<sup>[14]</sup> also reported that pictorial warning did not play a vital role in motivating smokers to quit smoking. Havale et. al.<sup>[18]</sup> in their study found 42.1% smokers reduced the consumption due to the warning on packs. Other studies<sup>[10,19]</sup> done among the general population documented that 70 to 80% believed pictorial warning are effective in either decreasing the quantity or encouraging to quit smoking. Vanishree et. al.<sup>[9]</sup> found only 8.4% smokers have decreased the frequency and 3.8% tried to quit it. Overall, there is a gross disparity of findings across various studies. A systematic review<sup>[12]</sup> stated that pictorial warnings are effective in deterring non-smoker to initiate smoking habit and stimulate smokers to decrease its consumption but not conclusive to quit smoking.

Around 80.9% had started to smoke at an age less than 25 years with a mean age of  $22.23 \pm 5.04$  years. Havale et. al.<sup>[18]</sup> also reported the mean age of 24.8 years with majority ranging between 20-30 years. This reflects the time period post education, starting their jobs and marriage life. There is a need to focus research on this aspect, to understand the trigger factors for smoking initiations. Factors motivating to smoke in the present study were self-interest or pleasure (81.5%), job stress (65.7%), family stress (50.6%) and peer pressure (48.3%). In Havale et. al.<sup>[18]</sup> study, peer pressure, curiosity and family problems were considered to be the major influencers to start smoking. While Chopra et.al.<sup>[10]</sup> attributed stress and peer pressure to be the main reason for smoking.

The average amount spent towards smoking products in the present study was around 700 Rs per week which turns out to be 2,800 to 3000 Rs per month. In a previous study done in Karnataka,<sup>[18]</sup> about 80% spent less than 1500 Rs per month on smoking.

Hence, the amount spent on tobacco among our study participants was high. This could be used as an educational tool to persuade smokers on quitting smoking. Sindelar et. al.<sup>[20]</sup> in their study compared the effect of financial versus health motivation to quit smoking in a low-income setting of Connecticut, USA, they found financial messages regarding the amount of money saved on smoking cessation to be more attractive than health benefits among the study participants. Similar studies need to be conducted in our setting to assess its impact.

## Conclusion

Pictorial warnings were noticed by three-fourth of the smokers which could motivate less than half of the smokers but not to the extent of quitting smoking in near future. The study findings had shown that significant proportion of the smokers purchased cigarettes in singles rather than whole pack which reduced their probability of viewing the pictorial representation of harmful effects. Hence, we suggest imprinting warnings in individual cigarettes. Other measures such as group motivation sessions involving peer smokers and engaging family members in motivation and monitoring of quitting process could be considered, the effectiveness of which has to be evaluated with further studies.

## Disclosure

### Acknowledgement

The authors thank the interns and medical officers posted at Rural Health Training Centre, Sangenthi for their contributions in data collections. We also thank all the participants for participating in this study.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

## References

1. Global Adult Tobacco Survey, Second Round. India 2016-2017 Report. 2016. Available from: <https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-Second-Round-India-2016-2017.pdf>.
2. WHO Framework Convention on Tobacco Control (WHO FCTC). 2004. Available from: [https://www.who.int/europe/teams/tobacco/who-framework-convention-on-tobacco-control-\(who-fctc\)](https://www.who.int/europe/teams/tobacco/who-framework-convention-on-tobacco-control-(who-fctc)).
3. National Tobacco Control Programme (NTCP). Ministry of Health and Family Welfare Programme, Government of India. . Available from: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=1052&lid=607#:~:text=Government%20of%20India%20launched%20the,ensure%20effective%20implementation%20of%20the>.
4. Zhao Q, Meng M, Kumar R, Wu Y, Huang J, Lian N, et al. The impact of COPD and smoking history on the severity of COVID-19: A systematic review and meta-analysis. *Journal of medical virology*. 2020;92(10):1915–1921. Available from: <https://doi.org/10.1002/jmv.25889>.
5. Arora M, Tewari A, Nazar GP, Gupta VK, Shrivastav R. Ineffective Pictorial Health Warnings on Tobacco Products. Lessons Learnt from India. *Indian Journal of Public Health* . 2012;56(1):61–64. Available from: <https://doi.org/10.4103/0019-557X.96978>.
6. Dahiya P, Kamal R, Gupta R, Bhatt S, Didhra G, Bansal V. Assessment of awareness about pictorial warnings on tobacco products in tobacco users in paonta sahib. *India Archives of Medicine and Health Sciences*. 2017;5(1):39–43. Available from: [https://doi.org/10.4103/amhs.amhs\\_83\\_16](https://doi.org/10.4103/amhs.amhs_83_16).
7. Oswal KC, Raute LJ, Pednekar MS, Gupta PC. Are current tobacco pictorial warnings in India effective. *Asian Pacific Journal of Cancer Prevention*. 2011;12(1):121–124. Available from: <https://pubmed.ncbi.nlm.nih.gov/21517243/>.
8. Singh SK, Schensul J, Singh A, Kashyap GC, Sharma N. Effectiveness of Pictorial Health Warnings in Tobacco Control Program in India . 2018;p. 15–36. Available from: [https://www.researchgate.net/publication/323847781\\_Effectiveness\\_of\\_Pictorial\\_Health\\_Warnings\\_in\\_Tobacco\\_Control\\_Program\\_in\\_India](https://www.researchgate.net/publication/323847781_Effectiveness_of_Pictorial_Health_Warnings_in_Tobacco_Control_Program_in_India).
9. Vanishree N, Narayan RR, Naveen N, Bullapa D, Vignesh D, Raveendran NMP. Impact of pictorial warning labels on tobacco products among patients attending outpatient department of a dental college in Bangalore city: A cross-sectional study. *Indian journal of cancer*. 2017;54(2):461–466. Available from: [https://doi.org/10.4103/ijc.ijc\\_203\\_17](https://doi.org/10.4103/ijc.ijc_203_17).
10. Chopra A, Rao NC, Gupta N, Vashisth S. Communicating tobacco health risks: How effective are the warning labels on tobacco products? *Nigerian Medical Journal*. 2014;55(5):411–416. Available from: <https://doi.org/10.4103/0300-1652.140383>.
11. Shah VR, Dave VR, Sonaliya KN. Impact of anti-tobacco warning labels on behaviour of tobacco users in one of the cities of Gujarat, India. *Journal of Preventive Medicine and Hygiene*. 2013;54(2):109–113. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC4718388/>.
12. Ratih SP, Susanna D. Perceived effectiveness of pictorial health warnings on changes in smoking



- behaviour in Asia: a literature review. BMC public health. 2018;18(1):1–16. Available from: <https://doi.org/10.1186/s12889-018-6072-7>.
13. New Specified Health Warning on Tobacco Products packs. 2022. Available from: <https://pib.gov.in/PressReleaseframePage.aspx?PRID=1846046>.
  14. Rajeswary K, Kumar PDM, Shivakumar M, Lenin KR. Role of pictorial warning on cigarette packets in tobacco cessation - a questionnaire survey among cigarette smokers in Chennai. International Journal of Pharmaceutical and Biological Research. 2012;3(5):182–186. Available from: <https://www.cabidigitallibrary.org/doi/full/10.5555/20133114155>.
  15. The Cigarettes (Regulations of Production, Supply and Distribution) Act. 1975. Available from: [https://www.indiacode.nic.in/bitstream/123456789/15366/1/the\\_cigarettes\\_and\\_other\\_tobacco\\_products\\_%28prohibition.pdf](https://www.indiacode.nic.in/bitstream/123456789/15366/1/the_cigarettes_and_other_tobacco_products_%28prohibition.pdf).
  16. Arora M, Yadav A. Pictorial health warnings on tobacco products in India: sociopolitical and legal developments. National Medical Journal of India. 2010;23(6):357–359. Available from: <https://nmji.in/nmji/archives/Volume-23/Issue-6/Medicine-and-Societies-II.pdf>.
  17. Shaikh R, Janssen F, Vogt T. The progression of the tobacco epidemic in India on the national and regional level, 1998-2016. BMC Public Health. 2022;22(1):1–11. Available from: <https://doi.org/10.1186/s12889-021-12261-y>.
  18. Havale NG, Naik PM, Kalappa H, Undi M, Naik M, Shreedhar S. Awareness about pictorial warnings on tobacco products and its impact on tobacco consumers in coastal Karnataka. Indian Journal of Community Health. 2022;34(3):381–387. Available from: <https://www.iapsmupuk.org/journal/index.php/IJCH/article/view/2370>.
  19. Raute LJ, Pednekar MS, Gupta PC. Pictorial health warnings on cigarette packs: A population based study findings from India. Tobacco Use Insights. 2009;2:11–16. Available from: <https://doi.org/10.4137/TUI.S275>.
  20. Sindelar JL, O'Malley SS. Financial versus health motivation to quit smoking: A randomized field study. Preventive medicine. 2014;59:1–4. Available from: <https://doi.org/10.1016/j.ypmed.2013.10.008>.

**How to cite this article:** Thangaraj P, Hemalatha K. Does Pictorial Health Warnings on Tobacco Products Promote its Cessation? A Cross-Sectional Study from a Rural Health Centre in Trichy, Tamil Nadu. J Med Sci Health 2025; 11(1):15-20

Date of submission: 06.10.2024

Date of review: 23.10.2024

Date of acceptance: 04.01.2025

Date of publication: 06.02.2025