Original Article

DOI: 10.7860/JCDR/2013/5588.3475

Internal Medicine Section

# Reactions of Nepali Adults to Warning Labels on Cigarette Packages: A Survey with Employee and Medical Students of a Tertiary Care Medical College of Western Region of Nepal

BADRI PAUDEL[1], KLARA PAUDEL[2], DEEPA TIMILSINA[3]

## ABSTRACT

**Background:** For the past 30 years, there have been no changes in the text-only cigarette warning labels in Nepal. During this same time period, other countries placed large graphic warning labels on cigarette packages. The purpose of the current study was primarily to compare the differences in reactions to different types of warning labels on cigarette packages, with a specific focus on whether the new warning label adopted by WHO FCTC was better than the text only label used by Nepal.

**Material and Methods:** This study was conducted in Gandaki Medical College Teaching Hospital (GMCTH) in 2012, in a tertiary care hospital located in the western region of Nepal. Eligible study participants included in this survey were those aged 18 years and over and those who are studying MBBS/Nursing or who were employees of GMCTH. 500 participants finished the survey. Participants were shown nine types of warning labels found on cigarette packages.They comprised one text only warning label used within Nepalese market and eight foreign brand labels. Participants were asked about the impact of the warning labels on: their knowledge of harm from smoking, giving cigarettes as a gift, and quitting smoking.

**Results:** On comparing the Nepalese warning label with other foreign labels with regards to providing knowledge of harm warning, impact of quitting smoking and giving cigarettes as a gift, the overseas labels were found to be more effective. Both smokers and non–smokers thought that warning labels with text plus graphics were substantially more of a deterrent than text-only labels.

**Conclusion:** The findings from this study support previous research that has found that text-plus graphic warning labels were more salient and potentially more effective than text-only labels.Warning labels are one of the component of comprehensive tobacco control and smoking cessation efforts. Stronger warnings on cigarette packages need to be part of a larger Nepalese public health educational efforts.

**Key words:** Warning labels, Reaction, Cigarette package, Nepali adults

## INTRODUCTION

Tobacco smoking has been significantly increasing during last 20 years in Nepal. About half of all continuing smokers will die prematurely as a result of their addiction. Despite the numerous public reports on the risks of smoking, studies show that a large number of smokers have inadequate knowledge on the health effects of smoking. While some smokers generally know that tobacco use is harmful, they underestimate the severity and magnitude of the health risks. Instead, cigarettes are considered as a good vehicle for communication, and a popular gift for relatives or friends, especially for holidays [1]. Knowledge on the health risks of smoking is even poor among people with low income and fewer years of education, because of limited access to information on the hazards of smoking.

Warning labels were first made compulsory on cigarette packs by the Federal Cigarette Labeling and Advertising Act of 1965. Unfortunately, since, the current requirements for warning labels were established in 1984, their effect on smokers has drastically weakened, and the current labels are now virtually meaningless. Using the same parameters and the same four messages approved by Congress more than 20 years ago, today's labels are small and smokers are easily overwhelmed by the designs on cigarette packages [2]. Moreover, smokers have become habitualized to the style of labels, to the point that the labels go unnoticed altogether.

To overcome these drawbacks, the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), the world's first public health treaty, calls for warning labels to be displayed as large and clear health warnings which cover 30% to 50% of the package in the form of pictures, pictograms or text. Every person should be informed of the health consequences, addictive nature, and mortal threat posed by tobacco use and exposure to tobacco smoke [1]. Canada has been an international leader, as the 1994 regulations on warnings established some important precedents concerning the size, location, colour, and content of the warnings. Cigarette warnings were moved from the bottom to the top of the pack and covered 25% of the front and back faces of the pack (in English on one face and French on the other). In 2000, Canada implemented new regulations that required text and graphic labels to cover over 50% of the top front and back of the packages, and to include updated and youth-oriented messages as well as information on toxic substances [1-3] with cessation and specific health-risk information inside the package [4]. Australia, Brazil, Singapore, and Thailand have both strong labels and pictures on their packages, and South Africa and Poland include strong labels [5-12].

Evaluation of new warning labels in Australia and Canada has shown that they attract the attention of smokers [13] the increase awareness of the health hazards of smoking [8,9], increase beliefs about the risks associated with smoking [5,8], and decrease cigarette consumption [5,6]. Most importantly, some smokers reported that these warnings had motivated them to quit [10,11].

Even after the Government of Nepal enacted legislation requiring cigarette warnings to state, 'smoking is injurious to your health' in Nepali, this warning appeared on one of the side panels of every cigarette package. Warning labels which have been used to promote interest in quitting, to educate smokers about the health effects of tobacco, and to provide information on assistance for quitting, are not meeting the goal of Government of Nepal, but no initiation has been taken yet.

The purpose of the current study was primarily to compare the differences in reactions by the health worker professionals to different types of warning labels on cigarette packages, with a specific focus on whether the new warning label adopted by WHO FCTC was better than the text only label used by Nepal.

## MATERIAL AND METHODS

### Study Sites

This study was conducted in 2012 in Gandaki Medical College Teaching Hospital (GMCTH), a tertiary care hospital located in the heart of Pokhara, western region of Nepal. Pokhara is a major tourist destination city in Nepal.

### Participants

Eligible study participants included in this survey were those aged 18 years and over and those who are studying MBBS/Nursing in GMCTH or who were employees of GMCTH. Altogether, 750 adults were approached, and 515 participants agreed to participate and 500 participants including smokers and non-smokers, finished the survey. All participants were asked to complete a face-to-face interview by using a standard questionnaire; informed consents were sought prior to the conduction of interview . The study was approved by the ethical board of GMCTH. Verbal consent was obtained from each participant.

### Smoking Status and Demographic Variables

Information was obtained from all participants on their smoking status. Smoking status was measured by asking whether participants had ever smoked. Participants were grouped into three cat-


**[Table/Fig-1]:** Different warning label used for the study

egories; non-smokers, smokers and former smokers.Smokers were defined as those who had smoked at least 100 cigarettes in their lifetime, and those who had smoked at least one cigarette per day at the time of the survey. Former smokers were defined as individuals who had quit smoking at least one month prior to the survey and those who had smoked at least one cigarette per day, prior to quitting. Those who did not meet the above criteria were labeled as non-smokers. Participants also reported their genders, ages, and education levels.

### Warning Levels of Cigarette Package

Nine warning labels (8 labels with both pictures and text and one with only text) were included in the interview questionnaire. They were coded as A-I. Label A was 'Cigarettes cause cancer' [Table/Fig-1]. Label B was 'Cigarettes cause strokes and heart diseases'. Label C was 'Tobacco smoke causes fatal lung disease in non-smokers'. Label D was 'Tobacco smoke hurts babies'. Label E was 'Tobacco smoking is addictive', while Label F was 'Smoking causes peripheral vascular diseases'. Label G was 'Smoking is injurious to health'. Label H was 'Quitting smoking greatly reduces serious risk to your health'. Label I was 'Smoking can kill you'. All English health warnings were translated into Nepali during the interview. Only the Label G was the text warning in the side panel of the package, while other Labels included the pictorials and text information on the whole front face of the package.

### Harm Warning Provided by Warning Levels

By making reference to Labels A to I, participants were asked whether each label gave them clear information on the harm which cigarette smoking could cause on health and about the specific diseases that occurred in relation to cigarette smoking. Participants were also asked whether Labels A, B, C, D, E, F, H and I gave them clear information on specific diseases which smoking could cause (as has been described above).

### The Perceived Impact of giving Cigarettes as a Gift

Two questions on the perceived impact of giving cigarettes as a gift were asked. These included: 1) If you want to give cigarettes as a gift? do the following cigarette labels (A-I) make you change your mind ? 2) If you want to give cigarettes as a gift, which warning label is most likely to stop you from giving cigarettes as a gift?

### The Perceived Impact on the Decision to Quit Smoking

Participants were asked two questions on the perceived impact of quitting smoking. These included: 1) If you were a cigarette smoker, would the following labels (A-I) make you want to quit smoking? 2) If you are a cigarette smoker, which warning label is most likely to cause you to quit?

### Knowledge on the FCTC and its Provision for Cigarette Packaging

Participants were asked if they knew that WHO FCTC and if Nepal had ratified. If they answered yes, participants were then asked whether they were aware of the FCTC requirement that health warnings on cigarette packaging should be large, clear, visible and legible.

## STATISTICAL ANALYSIS

Univariate and bivariate analyses were conducted to examine how much impact each of the different cigarette warning labels had and the knowledge on the FCTC by age groups, gender, education levels and smoking status. To compare the current Nepali label with international labels, Label A, B, C, D, E, F, H and I were aggregated into one group. Chi-square tests were used to assess differences among groups, wherever they were appropriate. All analyses were conducted by using SPSS, 20.0 (SPSS Inc., Chicago, IL, USA).

## RESULTS

### General Information

Eligible study participants included in this survey were those aged 18 years and over and those who are studying MBBS/Nursing or who were employees of GMCTH. A total of 500 participants (187 males and 313 females) were involved in the study. The average age was 22.0 ± 10.0 years. A higher proportion of males reported that they were current or former smokers as compared to females and 24.4% of participants had bachelor degrees from technical universities or even higher degrees. [Table/Fig-2] demonstrates the demographic characteristics of the sample.

| | | Male | Female | Total |
|---|---|---|---|---|
| Number | | 187 (37.4) | 313(62.6) | 500 (100) |
| Age distribution | 20-29 | 150 (80.2) | 290 (92.7) | 440 (88.0) |
| | 30-39 | 23 (12.3) | 20 (6.3) | 43 (8.6) |
| | 40-49 | 12 (6.4) | 2 (0.7) | 14 (2.8) |
| | 50- above | 2 (1.1) | 1 (0.3) | 3 (0.6) |
| Educational status | (Low) under grade 10 | 1 (0.5) | 3 (1.0) | 4 (0.8) |
| | (Medium) grade 10 passed | 117 (62.5) | 257 (82.1) | 374 (68.8) |
| | (High) Bachelor degree passed | 43 (23.0) | 49 (15.6) | 92 (18.4) |
| | (Very High) master degree passed | 26 (14.0) | 4 (1.3) | 30 (6.0) |
| Smoking status | Current | 29 (15.5) | 1 (0.3) | 30 (6.0) |
| | Former smoker | 9 (4.8) | 2 (0.6) | 11 (2.2) |
| | Non smoker | 149 (79.7) | 310 (99.1) | 459 (91.8) |
| FCTC knowledge | Knowledge regarding FCTC | 7 (3.7) | 4 (1.2) | 11 (2.2) |
| | Ratification in Nepal | 6(3.2) | 3(0.9) | 9(1.8) |

**[Table/Fig-2]:** Characteristics of the study sample

### Knowledge of and Attitude Towards FCTC

Only 2.2% of the participants were aware of FCTC and 1.8% knew that Nepal had not ratified the FCTC. Furthermore, 1.4% knew the requirement of the FCTC, that health warnings on cigarette packings should be large, clear, visible, and legible.

### Beliefs about Text Only and Text Plus Graphic Labels

The text plus graphic warning labels were judged to be more effective for prevention, motivation to quit and motivation to be absentees, and to be concerned about health effects.

### The Harm Warning Provided by the Labels

Among the participants, 51.6% said that Label G provided least information on the of the cigarette while other all the text plus graphic labels provided more detailed and specific information on harm. Labels A-F, H and I gave adequate information on the harm of cigarette smoking, 69.0% for Label A, 70.2% for label B, 87.6% for label C, 95.4% for label D, 78.2% for label E, 90.6% for label F, 70.3% for label H, and 84.6% for label I. A higher proportion of participants said that as compared to label G, label D gave them clearer information on the harm of smoking across all the subcategories [Table/Fig-3].

### The Perceived Impact of giving Cigarettes as a Gift

Among the participants, 75.6% and 81.4% reported that they would not give cigarettes with Labels G and H (respectively) on the package as a gift to somebody. Over 90% of participants refused to give cigarettes as a gift if the package displayed warning Labels A, B and I. The proportion of those who would not give cigarettes as gift was higher among females, those who had never smoked and those who had higher educational levels. On comparing Label

| | | n | Label A | Label B | Label C | Label D | Label E | Label F | Label G | Label H | Label I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | Male | 187 | 138 | 141 | 149 | 174 | 144 | 170 | 71 | 121 | 161 |
| | Female | 313 | 209 | 210 | 289 | 303 | 247 | 283 | 187 | 244 | 262 |
| Age | 20-29 | | 303 | 303 | 381 | 419 | 337 | 397 | 241 | 326 | 375 |
| | 30-39 | | 35 | 36 | 40 | 42 | 39 | 40 | 11 | 30 | 34 |
| | Above 40 | | 11 | 13 | 17 | 17 | 16 | 17 | 6 | 9 | 14 |
| Educational status | (Low) under grade 10 | | 2 | 3 | 4 | 4 | 4 | 4 | 2 | 2 | 2 |
| | (Medium) grade 10 passed | | 249 | 251 | 325 | 360 | 281 | 337 | 204 | 170 | 320 |
| | (High) Bachelor degree passed | | 77 | 77 | 82 | 85 | 84 | 87 | 46 | 46 | 77 |
| | (Very High) master degree passed | | 21 | 21 | 28 | 30 | 24 | 27 | 7 | 23 | 25 |
| Smoking status | Current | | 23 | 27 | 28 | 29 | 24 | 28 | 7 | 21 | 27 |
| | Former smoker | | 9 | 9 | 11 | 11 | 10 | 11 | 6 | 8 | 11 |
| | Non smoker | | 317 | 316 | 400 | 439 | 359 | 416 | 246 | 337 | 386 |

**[Table/Fig-3]:** The proportion of positive response to the harm information provided by different cigarette labels by gender, age groups, education and smoking status

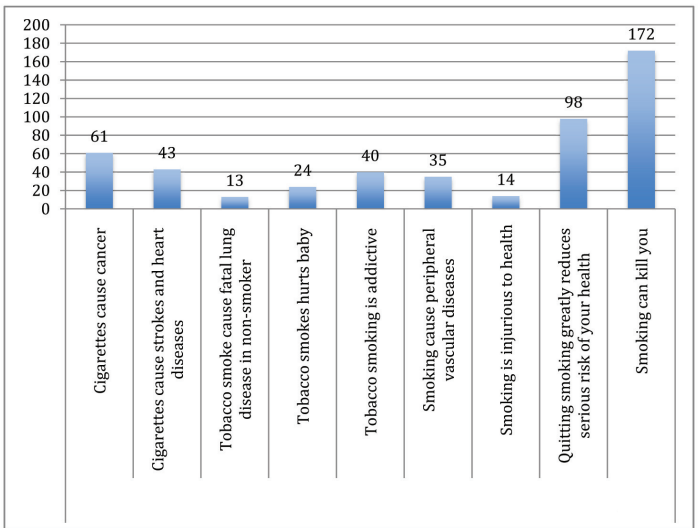
| | | n | Label A | Label B | Label C | Label D | Label E | Label F | Label G | Label H | Label I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | Male | | 156 | 159 | 133 | 142 | 123 | 142 | 108 | 124 | 164 |
| | Female | | 302 | 305 | 290 | 299 | 286 | 300 | 270 | 283 | 302 |
| Age | 20-29 | | 408 | 413 | 375 | 390 | 360 | 391 | 333 | 361 | 417 |
| | 30-39 | | 37 | 38 | 34 | 37 | 35 | 37 | 33 | 33 | 37 |
| | Above 40 | | 14 | 14 | 15 | 15 | 15 | 15 | 13 | 14 | 13 |
| Educational status | (Low) under grade 10 | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | (Medium) grade 10 passed | | 347 | 351 | 324 | 331 | 314 | 336 | 292 | 309 | 352 |
| | (High) Bachelor degree passed | | 84 | 86 | 75 | 83 | 73 | 81 | 68 | 75 | 88 |
| | (Very High) master degree passed | | 25 | 25 | 22 | 25 | 20 | 23 | 16 | 21 | 24 |
| Smoking status | Current | | 21 | 22 | 15 | 23 | 15 | 18 | 14 | 17 | 24 |
| | Former smoker | | 9 | 9 | 6 | 9 | 7 | 7 | 6 | 7 | 9 |
| | Non smoker | | 430 | 435 | 404 | 411 | 389 | 419 | 360 | 385 | 435 |

**[Table/Fig-4]:** The perceived impact of not giving cigarette as gift by gender, age group, education levels and smoking status

G with the combined labels, it was found that the proportion of respondents who would not give cigarettes as a gift was higher if any of Labels A-F and I were on the package [Table/Fig-4]. A majority of participants considered that Label G was least likely to stop them from giving cigarettes as a gift, while >90% participants considered that Label I was most likely to stop them from giving cigarettes as a gift.

## Motivation to Quit Smoking/Remain Abstinent

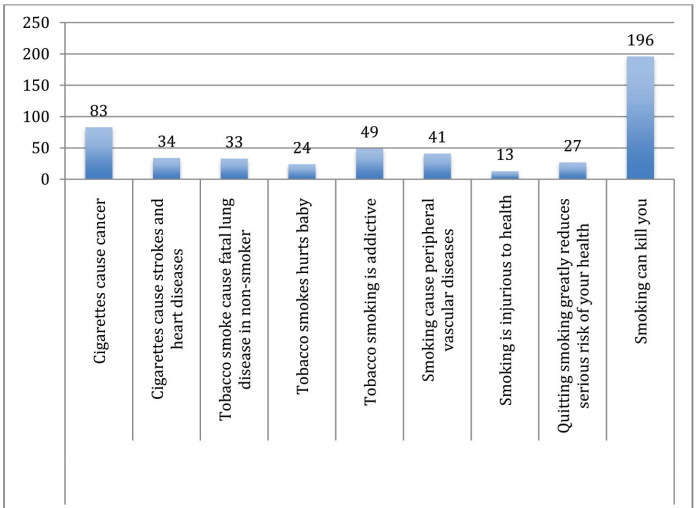
34.4% and 19.6% of the participants reported thinking about quitting due to warning Label I and Label H, respectively. We asked non-smokers whether they were smokers, if the labels would impact on a decision to quit smoking. Non-smokers were more likely to quit smoking due to Labels H and I, in comparison to those who were smokers. It was seen that due to the warning on Label G, least participants were motivated to quite smoking, or to remain abstinent or to not start smoking [Table/Fig-5-7]. More than one third of participants (34.4%) considered that Label I was most likely to cause them to quit, to remain abstinent and to not start smoking.



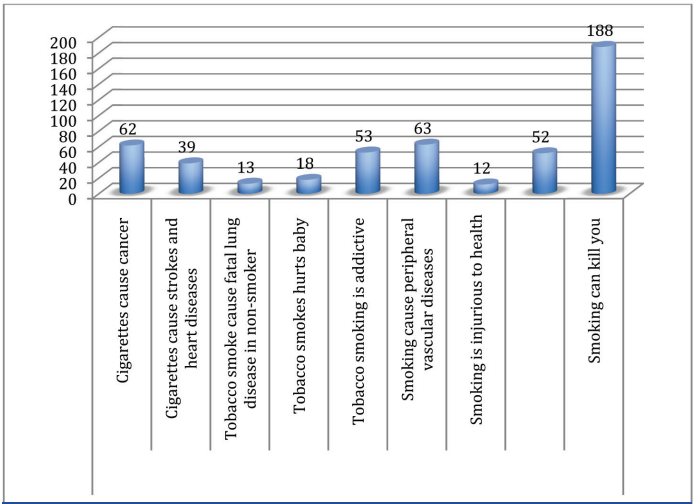

**[Table/Fig-5]:** Respondents choice on more effective level to quite the smoking

## Concerned about Health Effects

Of all the labels, text only label, "smoking is injurious to health" produced the least percentage (4%) of the panelists who reported that the label would make them least concerned about the health effects of smoking. In contrast, 27.6% said that the text plus graphic warning label, "smoking can kill you" would make them more worried about the health effects [Table/Fig-8].




**[Table/Fig-6]:** Respondents choice on more effective level to discourage people from starting smoking




**[Table/Fig-7]:** Respondents choice on more effective level for not to smoke again

| Of the eight labels you just saw, which do you think would be the most effective? | Total | |
|---|---|---|
| | N | % |
| Cigarettes cause cancer (Label A) | 97 | 19.4 |
| Cigarettes cause strokes and heart diseases (Label B) | 45 | 9 |
| Tobacco smoke cause fatal lung disease in non-smoker (Label C) | 28 | 5.6 |
| Tobacco smokes hurts baby (Label D) | 59 | 11.8 |
| Tobacco smoking is addictive (Label E) | 35 | 7 |
| Smoking cause peripheral vascular diseases (Label F) | 60 | 12 |
| Quitting smoking greatly reduces serious risk of your health (Label H) | 18 | 3.6 |
| Smoking can kill you (Label I) | 138 | 27.6 |
| None of the pictures would be effective :text is effective | 20 | 4 |

**[Table/Fig-8]:** Most effective picture label

### Perceived Effectiveness of Text-Plus-Graphic versus Text-Only Labels: Overall Comparison

Separate logistic regression models were used to compare text-only versus text-plus-graphic labels with regards to perceived effectiveness for discouraging people from starting to smoke (prevention); discouraging people from presenting cigarettes as gift; encouraging smokers to quit; motivating former smokers to remain abstinent; and level of concern about the health effects of smoking. The perceived effectiveness was much higher for the text-plus-graphic as compared to the text-only labels for prevention (odds ratio[OR]5.20; 95% confidence interval [CI] 2.82-9.60); discouraging people from presenting cigarettes as a gift (OR 2.31; 95% CI 1.65-3.25); encouraging smokers to quit (OR 4.73; 95% CI 2.60-8.59); motivating former smokers to remain abstinent(OR 5.65;95% CI 3.00-10.63); and concern about the health effects (OR 4.07; 95% CI 3.06-5.41).

## DISCUSSION

The tobacco industry uses the tobacco package as a promotional opportunity.Public awareness is low about the true risks of tobacco use, even in countries with widespread anti-smoking campaigns [14]. Most smokers cannot recall the specific health effects associated with smoking [15]. Even smokers who understand the dangers of smoking underestimate the severity of its impact on health. Most smokers perceive other smokers to be at greater risk from smoking than themselves [16]. Smokers tend to be even less aware of the risks of secondhand smoke to others [17]. An understanding of both the risks and severity of smoking are important factors in motivating smokers to quit.

Public health proponents see the tobacco package as an educational opportunity.Warning labels have been found to inform smokers about the health hazards of smoking, encourage smokers to quit, and prevent nonsmokers from starting to smoke. Warning labels on tobacco products are an ideal way of communicating with smokers. Pack-a-day smokers are exposed to images printed on packs at least 20 times a day (and 7,000 times a year), when they buy and use cigarettes. That's 20 opportunities a day for delivering anti-smoking messages at critical junctures: the point of purchase and the time of smoking. The use of pictorial images enhances the impact of the public health message [13]. Smokers sepotted that they receive more information about the risks of smoking from the tobacco product package than from any other source except television [18].

Given the reach and frequency of exposure, warning labels have the potential to have a significant impact on smoking behaviour. Further, two-thirds of all smokers indicate that the package is an important source of health information and health knowledge is strongly associated with an intention to quit smoking [19].

A major study which compared warning label data from four countries with widely varying labeling policies (Australia, Canada, the United Kingdom and the United States) found that that text-only labels (as seen in the U.S.) were associated with lower levels of awareness about the health risks of smoking as compared to prominent, pictorial warning labels (as seen in Canada and Australia). Furthermore, the study indicated that pictorial warning labels were more effective than text-only labels in leading people to think about quitting and deterring them from having a cigarette [15]. A follow-up investigation of the four-country study revealed that larger, pictorial warning labels were more likely to be noticed and rated as effective by smokers. Pictorial warning labels increased awareness about the association between smoking and specific health hazards (e.g., lung cancer, heart disease, stroke, impotence, etc) and were associated with increased quit attempts [20]. As more countries introduce stronger labels and evaluate their effectiveness, growing evidence shows that larger, bold and pictorial labels have an impact on awareness of the risks of tobacco use. Effective warning labels increase knowledge on risks associated with smoking and can persuade smokers to quit [19].

After Canada introduced large pictorial warning labels in 2000, 91% of smokers surveyed said they had read the warnings and were able to demonstrate a strong knowledge on the subjects the warnings covered. Smokers who had read and discussed the warnings were more likely to quit or make attempts to quit at the 3-months follow-up [13]. After Australia introduced pictorial warning labels in 2006, 63% of non–smokers and 54% of ex-smokers thought the new labels "would help in preventing people from taking up smoking

[21]."

After Singapore introduced pictorial warning labels in 2004, a Health Promotion Board survey found that 28% of the smokers surveyed reported smoking fewer cigarettes because of the warnings; 14% of the smokers surveyed said that they made it a point to avoid smoking in front of children;12% said that they avoided smoking in front of pregnant women; and 8% said that they smoked less at home [22]. Since, Thailand introduced its second round of pictorial labels in 2006, 53% of smokers said the pictorial warning labels made them think "a lot" about the health risks and 44% of smokers said the warnings made them "a lot" more likely to quit over the next month [23].

A study on U.S. and Canadian adult smokers found that more graphic representations of health consequences evoked more fear and resulted in stronger intentions to quit smoking [24]. After Brazil introduced new pictorial warnings in 2002, 67% of smokers said the new warnings made them want to quit [25]. Brazil introduced a second round of labels in 2004. In a study which evaluated both rounds, researchers found that the most threatening and fear-arousing images on warning labels increased intention to avoid smoking [26]. A study in Canada (where large, pictorial pack warnings are required) suggested that reading and thinking about warning labels was positively associated with intention to quit smoking [13]. An investigation on the impact of the text-only Chinese labels as compared to other text and pictorial labels from around the world, found that larger pictorial labels were perceived to be more effective in informing about the dangers of smoking, convincing youth not to start, and motivating smokers to quit [27]. A Greek study on adolescents found that approximately 84% of non-smoking adolescents reported that the proposed EU pictorial labels were more effective than the old EU text labels in preventing initiation of smoking [28].

Strasser AA et al., found that graphic images on cigarette packages can help health warnings stick in people's minds better, and improve their recall of the health warning. The 200 participants in this study were current smokers, aged 21–65 years, who reported smoking a minimum of ten cigarettes a day for at least five years. Participants could not mode to attempt to quit at the time of the study. This study did not test whether remembering health warnings more accurately translated into the desired effect of making a person quit smoking. Therefore, this study alone cannot justify whether graphic warning labels on cigarette packs really "work better" than written warnings when it comes to quit rates [29].

In our study, pictorial warning label, 'smoking can kill you' significantly drew the attention of the participants, that strongly agreed with findings of most of the studies. Our study provides strong evidence that perhaps the most effective way of conveying health risks to smokers is using graphic, large and comprehensive warning labels. Our study also suggested that picture warnings that include graphic, fear-arousing depictions of smoking's effects on the body are the most effective, because they are associated with increase in motivation to quit smoking, thinking about health risks and engaging in cessation behaviour.

As of June 2011, 44 countries and jurisdictions in the Americas, Eastern Mediterranean, Europe, South-East Asia and Western Pacific regions passed legislation which asked for pictures or images on cigarette packs. A European Union directive gave its 27 member countries, the option of adding pictures to warnings as a way of educating smokers on the risks of continuing to smoke. It is time for government of Nepal to follow the WHO FCTC protocol in the cigarette packages, for the displaying of pictorial warning labels for promoting smokers to quit and discouraging non smokers from starting to smoke. These actions will reflect the growing consensus that warning labels are effective at communicating health messages and discouraging tobacco use.

## CONCLUSION

The findings of this study support previous research that has found that text-plus graphic warning labels are more salient and potentially more effective than text-only labels. Pictorial warning labels counter tobacco industry advertising on tobacco products, increase knowledge about risks associated with tobacco use, reduce adolescents' intentions to smoke, and motivate smokers to quit. Stronger warnings on cigarette packages need to be part of a larger Nepalese public health educational effort. It is time for Government of Nepal to adopt stronger pictorial warnings on cigarette packages.

## LIMITATION

This article was aimed at observing the difference of perception of students and staff of a tertiary care medical college towards different pictorial warning labels vs text labels on cigarette packages. It may not reflect the community, since all the participants were literate. A majority of the participants in the institute were non-smokers and the smokers and non-smokers could not be compared.

## REFERENCES


[1] Health Canada. The Tobacco Act: Proposed tobacco labeling regulations. Jan 1999. Available at: http://www.hc-sc.gc.ca/english/media/releases/1999/9907ebk2.htm.

[2] Cunningham R. Canada: warnings with colour text graphics required. *Tob Control.* 2000;9:359.

[3] Health Canada. 2000 Warning labels available at http://www/hc-sc.gc.ca/hecssesc/tobacco/ legislation/warnings/index.html.

[4] Hammond D, Fong GT, McDonald PW, Brown KS, Cameron R. Graphic cigarette package warning labels do not lead to adverse outcomes: evidence from Canadian smokers. *Am J Public Health.* 2004;94:1442–5.

[5] Borland R. Tobacco health warnings and smoking-related cognitions and behaviors. *Addiction.* 1997;92:1427–35.

[6] Borland R, Hill D. Initial impact of the new Australian tobacco health warnings on knowledge and beliefs. *Tob Control.* 1997;6:317–25.

[7] Tobacco fact sheet: tobacco warning labels and packaging. Presented at the 11th World Conference on Tobacco or Health. San Francisco, 2003

[8] Mahood G. Canadian tobacco package warning system. *Tob Control.* 1995; 4:10–4.

[9] Senior K. Bigger and better tobacco warning labels. *Lancet.* 2000;356:139.

[10] Tandemar Research Inc. Cigarette packaging study: the evaluation of new health warning messages. Prepared for Health Canada, Montreal, Canada. March 1996.

[11] Environics Research Group Ltd. Evaluation of new warnings on cigarette packages. Prepared for Canadian Cancer Society, Ottawa, Canada 2001-3. Available at: http://www.cancer.ca/vgn/images/portal/ cit_776/35/20/ 41720738niw_label study.pdf.

[12] Brazil to add graphic images to cigarette packages. Available from URL: http://jointogether.org/sa/news/summaries/reader/0%2C11854%2C547920%2C00.htm.

[13] Hammond D, Fong GT, McDonald PW, Cameron R, Brown KS. Impact of the graphic Canadian warning labels on adult smoking behaviour. *Tob Control.* 2003: 12:391–5.

[14] Ayanian JZ, Cleary PD. Perceived risks of heart disease and cancer among cigarette smokers. *JAMA*. 1999;281(11):1019-21.

[15] Hammond D, Fong GT, Borland R, Cummings KM, McNeill A, Driezen P. Text and graphic warnings on cigarette packages: Findings from the international tobacco control four country study. *American Journal of Preventive Medicine*. 2007;32(3):202-9.

[16] Hammond D. Tobacco labelling toolkit: Implementation. In: Hammond D, editor. Tobacco Labeling and Packaging Toolkit: a guide to FCTC article 11. Waterloo: University of Waterloo; 2008.

[17] Environics Research Group. Assessment of perceived health risks due to smoking. Ottawa: Health Canada, Office of Tobacco Control; 1999.

[18] Hammond D. FCTC Article 11 Fact Sheet: Health warnings on tobacco packages. Waterloo: University of Waterloo; 2008. Available online at www. tobaccolabels.ca/tobaccolab/labeling.

[19] Hammond D, et al., "Effectiveness of Cigarette Warning Labels in informing smokers about the risks of smoking: Findings from the International Control Four Contry Study," *Tobacco Control.* June 2006; 15(Suppl III):19-25.

[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 Feb 10.

[21] Shanahan P, Elliott D. Evaluation of the Effectiveness of the Graphic Health Warnings on Tobacco Product Packaging 2008 – Executive Summary. Australian Government Department of Health and Ageing; 2009. Available online at www.health.gov.au/internet/main/publishing.nsf/Content/83F39 7C5993B9AA4CA25

75880078FCF2/$File/hw-eval-execsum.pdf.
[22] Health Promotion Board – Singapore. Graphic health warnings on tobacco packaging inspire smokers to quit the habit Singapore: 2006. Available online at www.hpb.gov.sg/hpb/default.asp?pg_id=2233.
[23] International Tobacco Control Policy Evaluation Project (ITC). ITC Thailand survey summary. Waterloo: Institute for Population and Social Research, Mahidol University Salaya, and Thai Health Promotion Foundation; 2009. Available online at http://itcconference.com /ITCWorkshopResources /ITCprojectCountryBrochures /ITCThailand4PagerV115single.pdf.
[24] Kees J, Burton S., Andrews J C, Kozup J. Understanding How Graphic Pictorial Warnings Work on Cigarette Packaging. *Journal of Public Policy and Marketing*. 2010;29(2):265-76.
[25] Presentation to EU Commission on enforcenment of health warnings in Brazil: (2002).
[26] Nascimento BE, Oliveira L, Vieira AS, Joffily M, Gleiser S, Pereira MG, et al. Avoidance of smoking: the impact of warning labels in Brazil. *Tobbaco Control*. 2008;17(6):405-9.
[27] Fong G, Hammond D, Jiang Y, Li Q, Quah A, Driezen P, Yan M, et al. ITC China Project Team. Perceptions of tobacco health warnings in China compared with picture and text only health warnings from other countries: an experimental study. *Tob Control*. 2010;19(Suppl 2):i69-i77.
[28] Vardavas CI, Connolly G, Karamanolis K, Kafatos A. Adolescents perceived effectiveness of the proposed European graphic tobacco warning labels. *European Journal of Public Health*. 2009;19(2):212-7.
[29] Strasser AA, Tang KZ, Romer D, et al. Graphic Warning Labels in Cigarette Advertisements: Recall and Viewing Patterns. *American Journal of Preventive Medicine*. 2012;43: 41-47.

**PARTICULARS OF CONTRIBUTORS:**
1. Associate Professor, Department of Medicine, Gandaki Medicial College Teaching Hospital, Pokhara, Nepal.
2. Assistant Professor, Department of Medicine, Gandaki Medicial College Teaching Hospital, Pokhara, Nepal.
3. ICU in-charge, Gandaki Medicial College Teaching Hospital, Pokhara, Nepal.

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**
Dr. Badri Paudel,
Associate Professor, Department of Medicine, Gandaki Medical College Teaching Hospital,Prithivichowk, Pokhara, Nepal.
Phone: +977-9856030567, E-mail: badribmu@gmail.com

**FINANCIAL OR OTHER COMPETING INTERESTS:** None.

Date of Submission: **Jan 07, 2013**
Date of Peer Review: **Jun 03, 2013**
Date of Acceptance: **Aug 17, 2013**
Date of Publishing: **Oct 05, 2013**