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RESEARCH ON HEALTH WARNING DEVELOPMENT IN VIENTIANE, LAO PDR

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“RESEARCH ON HEALTH WARNING DEVELOPMENT IN VIENTIANE, LAO PDR”

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EXECUTIVE SUMMARY

Health warnings are very important because they play a role in educating and informing smokers, especially young smokers of the health risks of smoking (Elliot & Shanahan, 1996). Previous studies highlighted the potential of on-pack health information to inform smokers of the hazards of smoking, encourage quitting and disrupt tobacco brand imagery.

The objectives of this study were 1) to understand the perception and opinion of policymakers, particularly members of parliaments on health warnings, including pictorial health warnings; 2) to understand the community's perception on current health warning and their opinion on the preferable types of health warnings; 3) to test the effectiveness of text and pictorial of the effect of harmfulness of tobacco use and their acceptability among the public; and 4) To explore the most preferable and effective pictograph health warnings. The research was conducted in Vientiane Capital City, Lao PDR and was focused on 3 different studies such as i) survey of policy-makers; ii) survey of smokers and non-smokers, iii) evaluating the efficiency and effectiveness of text and pictorial health warnings.

The study revealed that the current health warning messages were not appropriate, ineffective, too small in size, lack its prominence and not noticeable. The respondents expressed a desire for larger, more effective health messages that addressed issues of relevance to them but which were not currently designed hidden in the side pack and not partly thoroughly "washed-out". Thus, the smokers did not pay any attention to the current health warnings. The pictorial warnings are more likely to have impact, attractive, confrontational the smokers and difficult to ignore. The study showed that pictorial health warnings have more impact on knowledge of the risk of smoking, and on quitting and help to convey potential health effects of smoking and to do so more effectively through pictures than words; to raise fear appeal and social appeal among smokers and to increase their awareness and to attract them. The pictorial health warning is a powerful element added to the messages; they can communicate quickly, and dramatic. The majority of policymakers and respondents strongly supported the implementation of pictorial health warnings.

The graphics with the most impact and that were memorable were those with clearer and scary pictures, that were easy to understand and more noticeable (throat cancer, lung cancer, mouth cancer, emphysema, heart attack). The least effective were those with less clearly defined pictures; those with difficult images to understand, especially if they were without messages (stroke, newborn baby); those with conceptually obscure or small pictures; those which were not evocative enough (Smoking causes bad breath, smoking harms your family, tobacco smoke harms people around you).

Recommendations:

1. Larger, more comprehensive health warnings on cigarette packages are more effective. The size of the health warning should be 50% to 100% of the principal area of the cigarette package.
2. Strong support for the effectiveness of prominent health warnings that meet World Health Organization Framework Convention on Tobacco Control (WHO FCTC) the international standards.

3. Support for large pictorial health warnings that are most effective means of communicating the full range and severity of health risks to smokers.
4. Introduction of new warnings on a more regular basis: once every two years
5. Health warnings that are necessary and represent an important element in tobacco control and are considered as one component in the communication of information on the effect of smoking on health.
6. There should be dissemination of information on labels through other media channels or strategies linking health messages to anti-smoking campaigns.
7. The following health warnings were considered for introduction:
    - Smoking causes Throat Cancer,
    - Smoking causes Lung Cancer,
    - Smoking causes Mouth Cancer,
    - Smoking causes Emphysema,
    - Smoking causes Heart Attack

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1. INTRODUCTION

In Laos, health warnings were first introduced in the country with the printing of warning messages on the side of the package of "Laimthong" brand of cigarette in the Lao language in 1993; this was then followed by printing in "Dogmaideang" brand which decided to put the health warning on one side of its cigarette package in English. After the tobacco control policy was approved in 2001, each unit of pack and package of tobacco products have to carry a health warning describing the harmful effects of smoking on front side. The Marlboro and L&M cigarettes carry health warnings in the Lao and English languages on the front bottom of the package. Until 2003-2004, the company which produced the cigarette brand name "555", also developed health warnings describing the hazards of smoking such as "Smoking is dangerous to health" in both Lao and English and "not selling tobacco to children under 18 years old".

On 29 June 2004, the Lao PDR ratified the World Health Organizatio Framework Convention on Tobacco Control (WHO FCTC), a global tobacco control treaty. According to the FCTC, each pack and package of tobacco products should have a health warning explaining the harmful effects of tobacco. Specifically, Article 11 of the FCTC requires that the health warning should be large, clear, visible, legible, and should occupy 50% or more, but no less than 30% of the total display areas and could be in the form of pictorial (MOH, 2007).

The health warnings on cigarette packages must be in the Lao language according to the regulations of the Ministry of Health, dated 23 November 2006. In the case of imported cigarettes, this should follow the current regulations of Lao PDR, should include key messages. The health warnings should cover 50% or more of the display areas and anticipated to inform smokers and non-smokers about the harmful effects of smoking and aimed to discourage, especially young people to quit smoking or not to smoke. Numerous countries implemented pictorial health warnings on cigarette packets but not Lao PDR. (MOH, 2007).

The Tobacco Control in Lao PDR aimed to improve health warnings in order to increase awareness on the harmful effects of smoking, and to reduce the proportion of smoking among children. The health warnings on tobacco products have the following functions: to provide information about health risks of smoking; provide information on the benefits of quitting; motivate people to quit; deter people from starting to smoke or from becoming habitual users and help those who have decided to quit to do so.

According to The Labeling of Tobacco Product Containers Regulations, 6 warnings are to be carried in rotations that are approved by the MOH No 660/MOH dated 23 November, 2006:

- Smoking causes Ccancer
- Smoking causes heart disease
- Smoking causes stroke leading to death
- Smoking causes impotence
- Smoking harms those aound us;
- Smoking causes black teeth and bad smell

These warnings were to be prescribed in bold, white, letters in Saysetha Lao font with a size of 20, on a black background and covering the lower 30% of the two largest surfaces of the packet. However, these health warnings have not been implemented yet.

Moreover, the prevailing health warning in Laos is only a health warning which covers 30% of the packet and may not be impressive and useful to remind people and understand the hazards of smoking, and that "cigarettes are harmful not only to smokers but also to second-hand smokers," which is global issue.

The package warnings must be noticeable, relevant and memorable. Making health warnings more prominent should increase the frequency of the health warnings to be noticed; thus leading to an increase in the frequency of concern about smoking (Borland, 1997). Pictorial warnings are also necessary, particularly in countries with low literacy rates or where research shows smokers are ignoring standard warning labels. Previous studies have shown that smokers in countries where a warning depicts a particular health hazard of smoking (e.g., impotence) are much more likely to know about that hazard (Hammond, et al, 2005). Recently, a growing number of countries have been using the pictorial health warning which is shown to be more effective in many countries.

Pictures helped us to show the nature and risk of tobacco use which causes diseases which are useful to convey health messages, particularly in low-income countries with lower literacy levels (Les Etudes de marche Createc, 2003). Five countries have implemented laws requiring picture-based warnings: Canada, Brazil, Singapore, Thailand, and Australia (Framework Convention Alliance, 2008). Malaysia will require graphic warnings on packs by January 2009.

Previous research suggested the role of on-pack messages as a valid health communication tool. A survey carried out in Australia (Borland, 1997) reported that health message on the package of tobacco resulted in an increased chance that the warning is noticed, was more likely to motivate negative consequences about smoking. Countries such as Canada, Brazil, Poland and Australia had already introduced graphic warnings through new legislations in this area, entailing the use of large, more prominent messages and pictorial images.

The health warning information has an effect on those who are considering experimenting with smoking (usually adolescents) and those contemplating giving up smoking (usually mature smokers) and that it is important that all smokers and potential smokers reconsider the range of health effects before they start smoking a cigarette. To be effective, health warnings need to be noticed, persuasive and provide guidance for appropriate action. To be noticed, health warnings need to stand out from the surrounding pack design and they need to be large enough to be read easily. To be persuasive, the warnings need to be implicit, believed and judged relevant by the reader. It follows those warnings about a range of comprehensive health-effects of smoking, which is more likely to increase the opportunity that people reading health warning will be influenced to change their personal behaviors. Finally, the effectiveness of any call to action is improved by specific advice about the first step to take to quit (CBRC,1992).

Thus, the principle of large, picture-based warnings has been accepted on five continents. Amongst the many arguments for such warnings included reaching more vulnerable groups such as women and children of family smokers, and frequent exposure of the health warning labels to smokers (Framework Convention Alliance, 2001).

In order to minimize the disease caused by smoking, efforts need to be taken to make people aware of the consequences of smoking, hence graphic health warnings system need to be tested in order to recommend the effective health warning to the health policymakers in order to renew regulation not only on health warning describing the effect of tobacco use, but also pictographic on each packet and package of tobacco products in order to generate awareness of the hazards of smoking.

Study Rationale

To our knowledge, there are no studies on the health warning on cigarette packs that have been carried out in Lao PDR. This study is the first one.

2. RESEARCH OBJECTIVES

2.1. Overall Objective

To gain understanding on health warning efficiency and its impact .

2.2. Specific Objectives

1. To understand the perception and opinion of policymakers, particularly members of parliaments on health warning, including pictorial health warning.
2. To understand the community's perception on current health warning and preferable type of health warning.
3. To test the effectiveness of text and pictorial of the harmful effects of tobacco use and their acceptability among the public.
4. To explore the most preferable and effective pictograph health warnings.

3. METHODOLOGY

Combining quantitative and qualitative research in cross-sectional study, this research study covered a range of areas including consumer attitudes towards current and proposed cigarette package design, views on health warning messages on the flip/slide and inserts, views on the relative importance of the size, content and pictures of health warning messages.

From the above-mentioned study objectives it is evident that this study was focused on 3 different aspects, such as i) survey of policymakers; ii) survey of smokers and non-smokers, iii) evaluating the efficiency and effectiveness of text and pictorial warnings.

3.1. In-depth Interview of Policymakers

Qualitative research methodology was used to assess the perception and opinion of policymakers such as National Assemblies on health warnings on cigarette packs and the effectiveness of the pictorial design of tobacco health warnings. Qualitative in-depth interviews were also used. The key informants were policymakers such as Members of Parliament who were chosen based on purposive sampling for in-depth interviews. Initially, we planned to recruit about 16 members of parliament from different ministries such as health, education, agriculture, culture, commerce and trade, finance were recruited into the study; however, the parliament members are not representatives of the ministries but they are more representatives of the provinces. In total, 16 parliament members from different provinces were recruited for the study. The key-informants were asked their opinion and attitudes regarding current health warnings, the effective way of labelling tobacco to discourage smoking, and their opinion regarding the printing pictorial health warnings.

3.2. Survey of Smokers and Non-smokers

A cross sectional study was conducted by convenient sampling method with several quick questions used to ask the respondents who were smokers and non-smokers on their perception of health warning. The aim of the survey of smokers and non-smokers is to gain their understanding on current health warning and preferable type of health warning, including format, colour and graphics, position and coverage, rotation and inserts and other information.

The target groups are male and female youth aged 15-20 years with a quota of 461 (141 male and 123 female non-smokers and 181 male and 16 female-smokers); adults aged 21-45 years old with a quota of 450 (136 male and 110 female non-smokers and 173 male and 31 female smokers), 449 men and women aged 46-55 years (155 male and 102 female non-smokers and 169 male and 23 female smokers). In total, 1360 participants were recruited to assess their opinion regarding health warnings.

The target group was selected in the public places such as ITEC shopping centres, public parks, markets, restaurants, sporting venues, and entertainment venues. This method allowed us to approach target groups from different backgrounds. We changed the places on a daily basis to recruit the participants. The respondents were approached in these areas privately, the purpose of the study was explained to them

and they were then invited to participate in the study. The purpose of the quick survey with the non-smokers and smokers was to identify their perceptions and their attitudes towards health warning and preferable method of health warning.

3.3. Evaluating the Efficiency and Effectiveness of Text and Pictorial Health Warnings

Several health warnings consisting of text and graph warnings were shown to the respondents in order for them to choose. The purpose of this process is to test 10 chosen designs, using quantitative and qualitative methods to select between 5 designs. The objective of the evaluation was to determine the effectiveness and impact on consumers. The evaluation explored the impact of the content of the health warnings and explanatory messages and the size, colour and location of the warnings.

In addition to the quantitative survey, focus group discussion (FGD) was carried out with the following target groups (Table 1) to get their opinion related to pictorial health warning and test the pictorial health warning among the general people. The target group was recruited at the community based in 2 urban districts and 2 semi-urban and rural districts.

Table 1: Number of target groups for testing in each group and district

		Urban		Semi urban-semi Rural	
	Target groups	**District Chanthabury**	**District Sikhottabong**	**District Saythany**	**District Naxaythong**
Gr1	Men 21-35 smokers	10 persons	9	7	8
Gr2	Men 36-60 smokers	7	8	10	10
Gr3	Men 36-60 Non-smokers	8	8	10	7
Gr4	Teenager 15-20 smokers	7	8	8	9
Gr5	Women with smoking husband	7	8	8	9
Gr6	Women with non-smoking husband	6	8	10	9
Gr7	Male teenagers 15-20 non-smokers	7	10	10	8
Gr8	Female teenagers 15-20 nonsmokers	8	8	8	8
	Total	60	67	71	68

The respondents for the focus group discussions were selected at the community based on criteria such as age, sex, and smoking status. The head villagers, youth union and Lao women union were enlisted to identify key informants by age, sex and

smoking status and recruited them for the FGDs. Each group of FGDs consisted of 8 to 10 persons.

3.4. Quantitative

The theoretical basis of this evaluation method is derived from the behavior change such as social cognitive theory, health belief model (Glanz *et al*, 2002) and fear appeal (West & Turner, 2000). The respondents were asked about the content of health warnings, format, colour graphic, text, pictorial health warning and to give a score.

The quantitative methodology was used aimed at getting individual rating of the 10 pictorial health warnings, using a scoring system from 0 to 10 (Annex 2). Each subject (person) was asked "how effective are the designed health warnings in getting smokers to quit or non-smokers not to start smoking? Then, each of the individual in the group was given a few minutes to look at 10 designs, in which the health warnings cover 50% of the main display of cigarette packs.

The participants then gave a score to each design: score 10 means that the warning is extremely good and effective and score 0 means that it is not effective at all or bad. The respondents are asked to select the most effective designs first and assign a score to them and then select and give a score to the others in a decreasing order of effectiveness step by step.

10 designs cards with health warnings with coverage of 50% are shown in a set. The order of each design in the set is changed randomly so as to avoid the "order effect".

3.5. Qualitative

Right after the quantitative research, the qualitative test was conducted using the guideline in Annex 2 to ask their opinion and perception regarding the health warnings and to gain a better understanding of the reason for the ratings such as the score and to get feedback to improve the design.

The qualitative evaluation method was used to understand the opinions of a particular age group on the health warning on tobacco and the reason why they select such health warning pictures (Patton, 2002).

3.6. Study Site

Target groups and testing location were conducted in the Vientiane Capital City. The main reason for selecting this study site is that Vientiane Capital City is where many government and non-government facilities and the National Assemblies are concentrated, and it is a big city with a population of 698,318 people. In addition, there are a lot of manufacturing factories, including those of the tobacco industry and there also exist some data available of the prevalence of smoking in Vientiane Capital city. Thus, there is an opportunity to examine the perception of policymakers and our target group towards health warning on cigarette packages and to test the effectiveness of the pictorial health warning. In Vientiane Capital City, Sikhottabong

and Chanthabury districts were selected as urban districts. In addition, Xaythany and Naxaythong districts also were included as semi-urban and rural districts.

3.7. Research Instruments

The quantitative questionnaires included brief socio-demographic background, perception towards existing health warning, pictorial health warning, size and key messages (see Annex 1). The other tool is to test health warning by using both qualitative and quantitative designs. With each target group a Quantitative survey (with questionnaire and scoring scale) and a qualitative (with focus group discussion guidelines) were carried out. 10 designs of health warning were selected from neighbouring countries like Thailand, Vietnam, Singapore and the Philippines.

3.8. Data Management, Analysis, Dissemination, Limitations

3.8.1. Data Analysis

Data from all forms were entered into a standard relational database Epi.Info version 6.0 and then transferred to SPSS version 11.0. Data entry validity and integrity checks were performed by the data management team. Summary data results and quality assurance reports were forwarded to the field investigators.

Data analysis consisted of descriptive statistics and standard statistical tests. Background information was ran for univariate analysis. For comparing characteristics between smoker and non-smokers, categorical data were analyzed by using either Chi-Square or Fisher's Exact Test.

The field notes were fully transcribed and then analyzed by arranging, organizing in sequence polar, category, and a basic analysis. The content analysis technique was used to analyze the data. The analysis encompassed a back and forth process including an initial descriptive phase of identifying the meaning units and assigning codes to these. Then, the coding was compared and grouped into categories. The core of the qualitative data analysis is aimed towards systematization to identify themes and to arrange tentative explanation.

3.8.2. Data Management

After data collection and data analysis, the principal investigator is responsible to disseminate the findings to the stakeholders, especially to the National Committee Control for Tobacco. The findings from this study were used for strengthening health warnings in the cigarette packages. Additionally, the principal investigator wrote the paper to be submitting for peer reviews and publication in International Journals.

3.9. Ethical Requirements:

3.9.1 Informed Consent of Respondents:

Informed consent was obtained from all respondents who answered the questionnaire or participated in the focus group discussions and interviews. It was ensured by the research staff administering the questionnaires or facilitating the focus group discussions among the respondents. Anonymity of individual questionnaire respondents was ensured through a coding system.

3.9.2 Confidentiality of Interview and Data:

The research team tried their best to give confidentiality and privacy when interviewing the respondents.

The research team kept all data in a secure and locked office and only the principal researcher and co-investigators can have access to the data. All data were analyzed as a group and no individual data were used. No personal identification was obtained from the individuals and an anonymous identification number was used to identify the interviewees.

4. RESULTS

This study were composed of 3 parts: the first part aimed to interview the parliament members about their opinion of the current health warning and the effectiveness of pictorial health warning; while the second part was to obtain the opinions from the smokers and non-smokers about the current health warning and the third part was to test the effectiveness of pictorial health warnings and their impact on consumers. The research had revealed some key feature findings related to the current health warning and the new pictorial health warning and how these should be implemented in the future in Lao PDR.

4. 1 In-depth Interview of the Members of Parliament

4.1.1. Socio-demographic Characteristics

Half of the participants were female and represented nearly all the provinces in Lao PDR, except Luangnamtha, Champassack and Khammouane. All of them were Members of Parliament and a few held more than one position in their province. Regarding their smoking status, the majority of male smoked compared to the female participants (Table 2).

Table 2: Socio-demographic characteristics of Members of the Parliament, Lao PDR

	Sex	Age	Education	Position & Responsibility	Smoking status	Province
1	Male	52	High School	Head of permanent parliament selection region II, I time	Non-smoker	Phongsaly
2	Male	56	High school	Vice head of the parliament selection region XII, VI times Vice head of the parliament member	Occasion ally Smoker	Khammouane
3	Female	52	High School	Committee Member of provincial party, President of the LWU, and parliament member of selection region XIV, committee member of culture	Non smoker	Saravanne
4	Male	53	High School	Permanent parliament member in the selection region II, VI time	Non-smoker Second hand smoker	Bolikhamxay
5	Female	51	Teacher Training College	Director of the TTC Houaphanh, parliament member, VI time Committee member of culture	Non smoker	Houaphanh
6	Female	46	Bachelor	President of the provincial	Non-	Luangnamtha

	Sex	Age	Education	Position & Responsibility	Smoking status	Province
			of teacher	LWU, parliament member, V time & responsible for law & ethnic	smoker Second hand smoker	
7	Male	54	Bachelor of Law	Vice head of parliament and permanent member of parliament region XIII, I time	Smoker	Savannakhet
8	Male	52	High School	Vice head of parliament and permanent member of parliament region VI	Non smoker	Luangprabang
9	Male	62	High School	Permanent member of parliament region XV, III time	Smoker	Vientiane Capital City
10	Female	52	High School	Permanent member of parliament region IV, VI time, responsible for culture	Non smoker	Xayabuly
11	Female	54	Teacher Training College	Permanent member of parliament region XVII, III time. Head of the region and Vice governor of Attapeu Province	Non smoker	Attapeu
12	Male	50	High School	Secretary of party, Vice governor of Oudomxay province, Permanent member of parliament region XVII, Permanent member of parliament region IV, VI time.	Smoker	Oudomxay
13	Female	42	Bachelor of architect	Head of the permanent member of parliament region V.	Non smoker	Bokeo
14	Female	49	High school	Permanent member of parliament region XVI	Non smoker	Sekong
15	Female	46	Teacher Training College	Permanent member of parliament region X	Non smoker	Vientiane Province

4.1.2. Opinion and Attitudes Regarding Current Health Warning

Respondents found that the lettering in the packs was too small and that there was a lack of contrast with the white background. As such, the current health warning was less noticeable. They suggested that the message should be produced in a style that complements the other features of the pack.

> *"The letters are too small, you can barely see them" (Male non-smoker, 52 years)*

"The writing is too small to start with – no one reads it." (Male smoker, 54 years)

"I saw the small letter in the side of the packs with one line. If you are not so interested, you won't read it" (Male smoker, 62 years old)

"It is a small text, you can't see it" (Female non-smoker, 46 years old)

The health message was too general and did not indicate the composition or ingredients of the cigarettes such as the nicotine and tar content. In addition, some participants also commented that the message was too short and did not explain about the health effects of smoking.

It was apparent that the current messages compound the problems. The respondents felt that the messages say nothing and had been unchanged for many years. The current message was not too attractive and was the least memorable element of the pack; the warning was just printed on the side of the pack, so the people did not see it and rarely read it carefully, thus the health warning would not have any impact on the smokers.

"The current health message is not attractive to the smokers; however, some smokers even rarely read the health messages" (Female, 52 years old)

"The warning covered too small an area and is located by the side of the pack" (Male non-smoker, 52 years old)

Pertaining to the content of the message, it should be made more prominent as the current perception is that the present content was inadequate as it only has one sentence. Furthermore, the message was not dealing with some specific diseases.

"The information is little, and the content of the message is not in-depth and not adequate" (Male smoker, 56 years old)

Concerning the believability of the current health warning, some considered the warning such as "Smoking is dangerous to your health" to be too general and thus would not encourage smokers or person who wants to try stop smoking to give up the habit,

"..The current health warning is too general and the letter is too small, not attractive and not prominent, so it can't stop smoking". (Male smoker, 50 years old)

However, many of the respondents agreed that the content of the health warning was believable.

"I think, the health warning has the believability because it is true and there are smokers getting some diseases" (Male smoker, 54 years old)

A few Members of Parliament mentioned that the messages were generally clear, short and the public like simple and direct messages *"It is simple and does not go around" (Male, 52 years old).*

It was obvious that the current health warnings on tobacco packs is inadequate, less noticeable, less believability and provide less information; thus, there is clearly the need to improve the format to make it more visually prominent and simulating and to make the content more specific and persuasive. Most of the informants believed that the health warning is outdated and does not include any new information and that the warning has lost its novelty and attraction.

4.1.3. Opinion on the Effectiveness of the Current Health Warning

Regarding the current text health warning, most of the respondents suggested that the small size of the messages and the current messages were not effective. The current letters were black and a few of them mentioned that they should be in red colour and that some pictures of skull with croix should be added, so people can understand more about the danger of smoking effectively.

> "*They should make the health warning bigger and in red to mark danger, so it will be more attractive and illustrative" (Male, 52 years old)*
>
> *"To be more effective and more fear appeal, they should add the skull head with a big croix to demonstrate danger" (Male, 56 years old)*
>
> *"There should be a big health warning in the front side of the packs or the cover." (Female, 46 years old)*
>
> *"The letters should be big enough and clear. The health warning should be state about the danger to environment and the people's life. There also should have the pictures of the health hazards of smoking on the packs and there should have some instructions regarding the health effects of smoking and the place of smoking" (Female, 46 years old)*

Some parliament members also mentioned that the message should be more specific on the negative health consequences, social appeals, and on financial burden of smoking, not just fear appeal.

> *"Smoking harms you and the people around you" (Male smoker, 56 years old)*
>
> *"Smoking loses money and have negative economic consequences" (Male smoker, 54 years old)*
>
> *"People discriminate smoking and smoking causes mouth diseases and bad smell." (Female non-smoker, 51 years old)*
>
> *"Smoking causes mouth cancer." (Female non-smoker, 54 years old)*

"Society discriminates smoking" and "Smoking has a bad smell" (Female non-smoker, 51 year)

"Smoking causes lung cancer and so on and emphasized on the fatality consequences of smoking." (Female non-smoker, 46 years o ld)

"Prohibit youth aged less than 20 years old to smoke." (Male smoker, 50 years old)

"Not to smoke near children and pregnant women." (Female non-smoker, 46 years old)

Most parliament members commented that the health messages should be placed in the front of cigarette packages. Some of them mentioned that the health message should be placed in all sides, including the front and the back of the pack, thus the smokers could see it.

"The health message should be located in the front of the package, so people can see easily." (Female non-smoker, 49 years old)

"I think that the health message should be printed on both sides, front and back of the packs, so the smokers would not touch the cigarette package." (Female non-smoker, 46 years old)

All parliament members agreed that health warning message labels are a cost-effective way to inform the public, especially smokers, of the hazards of tobacco use. Furthermore, the parliament member also emphasized about the tobacco law on prohibiting selling of tobacco to children under 18 years old and limiting the sale of tobacco to specific tobacco shops and prohibiting smoking in some premises. Additionally, the government should limit the production and the growing of tobacco.

"I think that we need some health warning to prohibit children and pregnant women from smoking, especially the health warning that prohibits children from buying cigarettes or smoking near pregnant women."(Female, 46 years old)

There was a desire reflected across all parliament members for the health warnings to be stronger than they are currently, and in this regard a number of possible pack changes should be considered:

- Enlarging the size of the warnings and increasing the warning coverage area on the pack;
- The introduction of various health messages;
- The introduction of visuals, particularly pictorial health warnings.

4.1.4. Perception of Pictorial Health Warning

The pictorial health warnings will be more effective because smokers will see the pictures directly with messages, or even without messages, they will be turned off. The graphic packs in particular tended to reinforce the decision of young non-smokers not to consider or take up smoking.

"The pictures will turn people away from cigarettes, to stop you getting a pack. It shows you what happens when you do smoke. Conveys a stronger image. Gets a stronger message across." (*Male smoker, 54 years old*)

"I thought the ones with the pictures will be better – most of them. Yes, they have more of an impact. They have more of visual effects; you didn't just read through them, you actually saw what the graphics can do." (Male smoker, 50 years old)

"The picture is in front your face. There's no need to sit and read it. If it is a message, you have to read and understand. Here, the picture is in front of the smokers when they buy it". (Male non-smoker, 52 years old)

"I think it's excellent because on a normal cigarette pack all they have is written text such as "smoking kills you" or "smoking is dangerous to your health and people around you". They don't have any pictures, they don't tell you what it actually does to your body. I think we should get the picture of a person with lung cancer or other pictures with severe health consequences from smoking such as throat cancer and so on. And the pictures are more attractive and more persuasive." (*Female non-smoker, 51 years old*)

"It will get people talking about the side effects with the pictures being so much up in front and in your face. It will get people talking a lot more about giving up, for instance, if they see the pictures of lung cancer and other gruesome pictures, the smokers will be clear of the side effects." (Male non-smoker, 53 years old)

Especially for those smokers who are illiterate, they can see the graphic pictures directly and this will have more impact on them.

"I think that the graphic picture will be more effective to reduce smoking among young people and they have a direct impact without a lot of health messages to describe the negative effect of smoking on health. Particularly for those smokers who are illiterate and also those who do not like reading health message" (Female non-smoker, 51 years old)

"If we could change the belief of people that smoking is for relaxation, enjoyment and smart to a new belief that smoking is dangerous and harmful to health and people around you by putting the pictorial health warning…" (Female non-smoker, 42 years old).

Most of the policymakers agreed that the pictorial health warning should be 20% to 50% of the display area of a pack especially in the front, so as to make it obvious in order to make it easy for people to see.

"The size of health warnings should be 50% of the front pack so that people who smoke will see immediately while the other side should have key information of the harmful effects of smoking."

Overall, the pictorial health warning helps us to convey the message of the potential health effects of smoking and to do so more effectively; to increase and reinforce awareness of the negative health effects of smoking; to reinforce the increasing social embarrassment of smoking (through the pictures of diseases on the pack); and to raise fear appeal and social appeal among smokers.

4.1.5. Perspective on the Implementation of Health Warning

All policymakers supported the implementation of pictorial health warning because it will raise people's fear appeal. If the smokers see the pictorial health warning, they probably will not smoke because of the health hazards of smoking. On the other hand, it will also enhance public awareness of the health hazards of using tobacco products.

> *"I fully supported the implementation of pictorial health warning, so people will not smoke. Especially people who smoke did not see this harmful effect because it happens inside the body". (Male, 54 years old)*

> *"I fully agree to the implementation of the pictorial health warning in our country because people will be more aware of the danger of smoking; however, we need to explore more in-depth on the health warning and the pictorial that will be suitable for Laos." (Male, 52 years old)*

> *"I also support the implementation of the pictorial health warning; however, we need to put the picture gradually from not severe to very severe and we need to provide health education to youth at the same time."(Female non-smoker, 54 years old)*

The other reasons of supporting the pictorial health warning were the socio-economic impact, disturbance or harm to people around you and pollution of the environment.

> *"…Smoking pollutes the environment and people around you; in addition smoking has socio-economic impact." (Male non smoker, 53 years old)*

In order to implement the pictorial health warning, we need to have a committee, comprising of different stakeholders such as Ministry of Health, Food and Drug Administration (FDA), Ministry of Industry, Ministry of Environment, Planning and Investment to develop the regulation of implementing of pictorial health warning and submit to the parliament and then will be approved by the Prime Minister and finally submit to the President and get official approval.

Besides the implementation of pictorial health warning, most parliament members also agreed about the effectiveness of pictorial health warning, however, we could not reduce the number of smokers among young people; the government should also develop the law related to tobacco by prohibiting smoking at the public places and increase the tobacco tax.

> *"…The government also needs to develop regulation and law related to tobacco in order to prohibit selling tobacco in limited places, not selling tobacco to children under 18 years old, prohibiting smoking in the public places" (Male non smoker and second hand smoker, 53 years old)*

"…There should be an increased in tobacco tax, so the price of cigarettes will be increased and some smokers could not afford to buy it…(Female non - smoker, 46 years old)

The other concern raised by the parliament member is people in the rural areas smoked higher than people in the urban areas due to traditional customs and belief. Their parents also smoked from the child and continue from generation to generation; particularly they used the rolling cigarettes by themselves and they also growth the tobacco plantation; thus they do not need to buy tobacco. Besides the implementation of pictorial health warning in the manufactured cigarettes, there is also need to implement the pictorial health warning in the rolling tobacco. Furthermore, there should be focused on the dissemination of health hazard of smoking in the rural areas by using mass media such as posters, community events to campaign against smoking.

"People in the rural areas, did not see the pictorial health warning because they used the rolling tobacco made by themselves…" (Male smoker, 62 years old)

"Local people in the rural areas smoked to escape or repel mosquitoes and they also grow the tobacco plantation by themselves and smoked the rolling tobacco" (Male smoker, 50 years old)

"Lao rural community composed of 80% of the total population, and this rural population still smoked rolling tobacco; if we implemented pictorial health warning in the cigarette packs, the message will not reach them." (Female non-smoker, 49 years old)

Some parliament members also mentioned about the local manufacturer of tobacco encouraging the villagers to growth the tobacco trees for them to enhance the village's income generation. Thus, the government has to find a strategy to encourage them to find other means of economic support, such as growing vegetables or fruits.

"... In addition, the local manufacturer encourages the farmer to grow tobacco trees for their socio-economic status. Thus, we need to eradicate the plantation of tobacco trees due to the harmful effects of smoking on health." *(Male, 56 years old)*

"The government should prohibit the plantation of tobacco trees in order to reduce smoking among young people." (Female non-smoker, 54 years old)

4.1.6. Ways of Disseminating Health Messages Related to Tobacco

Most of parliament members emphasized on the using mass media as an effective means of disseminate health information on tobacco in addition to the health warning. For example, newspaper, television used to propaganda the negative health effect of smoking in order to keep raising risk awareness among public.

"It is good if we could disseminate information on the health hazards of smoking in newspapers or television weekly. Additionally, we can organize a campaign in the schools and public places and so on." (Female,46 years old)

Nevertheless, some of them suggested that the government should pay more attention to the health of the young generation and the socio-economic development of the country; thus the health information of smoking should be disseminated more widely, especially to the rural and remote communities.

"People in the rural areas mostly used rolling tobacco, so they did not see any health messages. The government should disseminate the health messages on tobacco through the media, and training; thus our young generation will learn about the health dangers of smoking and encourage them to quit smoking due to health hazards of smoking." (Female, 52 years old)

The health message on tobacco should be disseminated in the school by integrating some lessons on the harmful effect of tobacco. One key informant suggested:

"School instructor should pay attention to smoking among youth and integrate tobacco into the school curriculum, so the students know about the dangers of smoking." (Female non-smoker, 54 years old)

4.2 Survey of Smokers and Non-smokers

The respondents were recruited from different public places such as shopping mall, supermarket, entertainment places, bus station, Patuxay gate, public places, restaurants, and so on. The socio-demographic characteristics are presented in Table 3. Overall, 1360 respondents were recruited. The mean age ranged from 15 to 55 years with a mean of 32.42. and SD=13.68. About one third of respondents were female; while the vast majority of smokers were males (70.2%).

One third of respondents have completed upper secondary school; whereas 16.5% finished lower secondary schools and 14.9% received bachelor degrees. There was a statistically significant difference of education entertainment level by smoking status. Compared to smokers, non-smokers had a higher level of education than smokers ($p<.001$).

Most of the respondents were students (29%); whereas 15.4% were daily paid workers and 14.1% were government officers. The occupation of the respondent was associated with smoking status with daily paid worker found to smoked more than those who had other occupations ($p<.001$).

Table 3: Socio-demography of respondents by smoking status

	Non-Smoker		Smoker		Total	
Variables	**N**	**%**	**N**	**%**	**N**	**%**
Age (p=0.327)						
15-20	264	34.4	197	33.2	461	33.9
21-35	205	26.7	143	24.1	348	25.6
36-55	298	38.9	253	42.7	551	40.5
Min-15, Max-55 Mean= 32.42, SD=13.68						
Gender (p<.001)						
Male	432	56.3	523	88.2	955	70.2
Female	335	43.7	70	11.8	504	29.8
Education level (p<.001)						
No schooling	4	0.5	14	2.4	18	1.3
Lower elementary	11	1.4	14	2.4	25	1.8
Upper elementary	80	10.4	53	8.9	133	9.8
Lower secondary	106	13.8	118	19.9	224	16.5
Upper secondary	249	32.5	208	35.1	457	33.6
Pre-university	114	14.9	73	12.3	187	13.8
Diploma	56	7.3	41	6.9	97	7.1
Bachelor	135	17.6	67	11.3	202	14.9
Master, PhD	12	1.6	5	0.8	17	1.3
Occupation (p<.001)						
Student	273	35.6	134	22.6	407	29.9
Private Officer	71	9.3	64	10.8	135	9.9
Government officer	120	15.6	72	12.1	192	14.1
Farmer	19	2.5	22	3.7	41	3.0
Housewife	31	4.0	10	1.7	41	3.0
Owner enterprise	39	5.1	31	5.2	70	5.1
Merchandise	114	14.9	61	10.3	175	12.9
Daily paid worker	61	8.0	149	25.1	210	15.4
Unemployment	23	3.0	32	5.4	55	4.0
Driver	9	1.2	12	2.0	21	1.5
Other	7	0.6	6	0.8	13	0.9

4.2.1. Smoking Status

Table 4 illustrates smoking status by gender. Among the surveyed respondents, 44.6% never smoked; 11.8% were ex-smokers and 43.6% were smokers with 25.4% being daily smokers. There was a gender difference between smoking status with more daily smokers found among males compared to females (32.6% versus 8.6%, p<.001).

Table 4: Smoking status of respondents by gender

Variables	Male		Female		Total	
	N	%	N	%	N	%
Smoking status (p<.001)						
Never smoke	303	31.7	304	75.1	607	44.6
Ex-smoker	129	13.5	31	7.7	160	11.8
Occasionally smoker	212	22.2	35	8.6	247	18.2
Daily smoker	311	32.6	35	8.6	346	25.4
Total	955	100	405	100	1360	100.0

4.2.2. Awareness of Health Warning

Table 5 presents results of awareness of health warning among respondents. The study revealed that awareness of health message in the front, and back of the cigarette package was quite low; compared to non-smokers, smokers had a higher sense of awareness of the health message. (19.2% versus 18.1%, p=.613).

Awareness of health information on the side of cigarette packs was higher than awareness of the warning on the back and front of the packs. Smokers, not surprisingly, were more aware of the health warning on the side of the packs than non-smokers (84.5% versus 51.8%, p<.001).

Knowledge of health information on the back of cigarette packs was lower than awareness of the warning on the front and side of the packs. Smokers, not surprisingly, were more aware of the health warning than non-smokers (14.7% versus 9.9%, p=.020).

Overall, recall information on the front, and back of the pack of cigarettes tended to be lower for all subgroups than awareness on the side pack of cigarettes. The health warnings were less noticeable and they merged into the background of the pack.

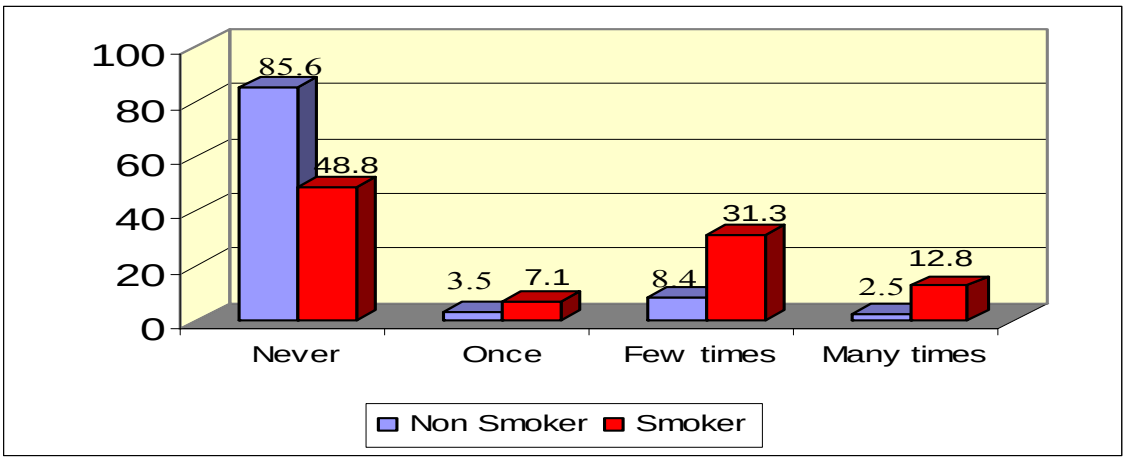
Table 5: Perceptions towards health warning

	Non-smoker		Smoker		Total	
Variables	**N**	**%**	**N**	**%**	**N**	**%**
Awareness of health warning						
Front of pack (p=.613)						
Yes	139	18.1	114	19.2	253	18.6
No	627	81.9	479	80.8	1106	81.4
DK						
Side of pack (p<.001)						
Yes	397	51.8	501	84.5	898	66.0
No	370	48.2	92	15.5	462	34.0
DK						
Back of pack (p=.020)						
Yes	76	9.9	87	14.7	163	12.0
No	689	57.7	506	85.3	1195	87.9
DK	1	0.1	0	0.0	1	0.1

4.2.3. Reading Health Warning During Last Month

Table 6 shows the frequency of reading health warnings. Overall, few respondents, irrespective of their smoking status have read health warnings a few times (18.3%). The majority of smokers claimed to have read health warning a few times (31.3%) compared to non-smokers (8.4%) with statistically significant difference (p<.001).

Figure 1: Frequency of reading health warning during last month



4.2.4. Awareness of Health Information of the Health Warning

Table 6 illustrates the recall of health warning. The respondent's awareness of the health information of health warning was low. The health messages that were most frequently recalled in health warnings were:

"Smoking reduces your health" was cited as the most common of health warning that they were aware of, irrespective of smoking status. It was a key warning for general people.

The other health warning mostly cited by the respondents was "Smoking causes lung cancer" which accounted for 18.6% of respondents, irrespective of their smoking status. Smokers were more likely to cite these health warnings than non-smokers (22.3% versus 15.8%, p<.001).

"Smoking is addictive" was also listed by the respondents (16%), irrespective of their smoking status. Thus, it conveys the addictive nature of smoking to the smokers that they already somewhat know.

"Smoking harms you and your health" was recorded by the respondents (14.8%) with statistically significant difference by smoking status (p<.001).

However, the health messages "Smoking causes heart disease", "Smoking when pregnant harms your baby", and "Smoking causes cancer of mouth" were less likely cited by respondents, accounting for only 8% for each.

Table 6: Awareness of health messages

Variables	Non-smoker		Smoker		Total		P value
	N	%	N	%	N	%	
Awareness of following health messages							
1. Smoking causes heart disease	52	6.8	67	11.3	119	8.8	P=.013
2. Smoking causes lung cancer	121	15.8	132	22.3	253	18.6	P<.001
3. Smoking is addictive	111	14.5	107	18.0	218	16.0	P<.001
4. Smoking causes throat cancer	71	9.3	106	17.9	177	13.0	P<.001
5. Smoking reduces your health	291	38.0	333	56.2	624	45.9	P<.001
6. Smoking kills	75	9.8	66	11.1	141	10.4	P=.046
7. Smoking harm you and others	104	13.6	97	16.4	201	14.8	P<.001
8. Smoking when pregnant harms your baby	66	8.6	52	8.8	118	8.7	P=.148
9. Smoking causes cancer of mouth	59	7.7	49	8.3	108	8.0	P<.001

4.2.5. Effect of Health Warnings on Knowledge

Table 7 shows the effect of health messages on knowledge of smoking and its impact on health. Approximately 13.7% of respondents, irrespective of their smoking status, claimed that the health warnings have not raised their awareness about the health risks at all; while 46.7% indicated that they thought about health risks "a lot". Compared to non-smokers, smokers were more likely to be concern about the health risk ($p<.001$).

About 48.3% of respondents suggested that their knowledge about the health effects of tobacco has improved "a lot" as a result of the inclusion of health warnings and health information on cigarette packs. Compared to non-smokers, smokers were more inclined to suggest that their knowledge has improved.

Table 7: Effect of health warnings on knowledge

	Non-smoker		Smoker		Total	
Variables	**N**	**%**	**N**	**%**	**N**	**%**
Health warnings make you think about the health risks ($p<.001$)						
Not at all	99	13.1	86	14.6	185	13.7
A little	121	16.0	168	28.4	289	21.4
Somewhat	142	18.8	103	17.4	245	18.2
A lot	395	52.2	234	39.6	629	46.7
Inclusion of health warnings and health information on cigarette packs has improved your knowledge of the health effects of tobacco ($p<.001$)						
Not at all	70	9.2	82	13.9	152	11.3
A little	110	14.5	145	24.5	255	18.9
Somewhat	157	20.7	134	22.7	291	21.6
A lot	422	55.6	230	38.9	652	48.3

4.2.6. Effect of Health Warning on Quitting

Regarding the effect of health warning on quitting among smokers, about 36.9% of them stated that the health warning stopped them from having cigarettes for a few times, while 47.2% claimed that the health warning did not have any effect on stopping them from having cigarettes. Overall, the results showed the health warning had influenced 24.8% of the respondents to consider foregoing smoking or stimulated the smokers to contemplate quitting while some have taken action to quit (Table 8).

About 32.2% indicated that health warnings had helped them to smoke less "a little"; whereas 25.5% claimed that health warnings had helped them smoke less "a lot".

Table 8: Effect of health warnings on quitting

	Total	
Variables	**N**	**%**
Health warning stopped from having cigarettes (For smokers)		
Never	266	47.2
Once	22	3.9
Few times	208	36.9
Many times	68	12.1
Health warnings on cigarette packs make you more likely to quit smoking (For smokers)		
Not at all	145	25.5
A little	161	28.3
Somewhat	122	21.4
A lot	141	24.8
Health warnings on packs of cigarettes and tobacco have helped you smoke less (For smokers)		
Not at all	117	20.6
A little	183	32.2
Somewhat	124	21.8
A lot	145	25.5

4.2.7. Perception of Health Message in Health Warning

Table 9 presents the perception of health message in the health warning. Slightly more than half of respondents (59.3%) believed "very much" the information on the health warnings printed on cigarette packages; on the other hand, 31.9% mentioned that they believed only "a little". However, there was no statistically significant difference between perception of health message among smokers and non-smokers (p=.117).

The vast majority of respondents (81%) mentioned that cigarette packages should have more health information than they do now. Compared to smokers, non-smokers were more likely to state that there should be more health warnings (83.9% versus 77.2%, p=.022).

Table 9: Perception of health messages in the health warning

	Non - Smoker		Smoker		Total	
Variables	**N**	**%**	**N**	**%**	**N**	**%**
Health warning information on cigarette packages (p=.117)						
Not all believable	69	9.0	51	8.6	120	8.8
A little believable	227	29.6	206	34.9	433	31.9
Very believable	471	61.4	334	56.5	805	59.3
Cigarette packages should have more health information than they do now (p=.002)						
Less health information	24	3.2	16	2.7	40	3.0
About the same	98	12.9	118	20.0	216	16.0
More health information	638	83.9	445	77.2	1093	81.0

4.2.8. Effectiveness of Pictorial Health Warning

The effectiveness of pictorial health warnings as compared with the "text only" warnings is shown in Table 10. In comparison with "text only" alternatives the graphic pictorial health warnings were generally more likely to stimulate thinking about the health risks of smoking (82.9%), with non-smokers giving more thought about the health risks compared to smokers (p<.001).

The pictorial health warnings also were likely to be more effective in conveying potential health effects (81.5%); increasing and reinforcing awareness of the negative health effect of smoking (80%); in aiding memorability of the health effects (79%); and in arousing fear of smoking (77.3%). However, compared to "text only", the pictorial health warnings were not effective in encouraging smokers to quit. The study revealed that only 56.3% claimed that pictorial health warnings were more likely to encourage smokers to give up smoking; in addition, 69.4% indicated that pictorial health warnings were more likely to encourage smokers to think about their smoking habits. However, there was no statistically significant difference between the statement "encouraging to quit smoking" and "encouraging to think about their smoking habit" (p=.370 and p=.163 respectively).

Table 10: Effectiveness of pictorial health warning compared to text message only

	Non-Smoker		Smoker		Total		P value
Compared to the text only, Pictorial Health warning	**More likely**		**More likely**		**More likely**		
	N	**%**	**N**	**%**	**N**	**%**	
a. In making you think of the health risk of smoking	669	87.3	458	77.2	1127	82.9	P<.001
b. In conveying potential health effect of smoking effectively?	659	86.1	448	75.5	1107	81.5	P<.001
c. In increasing and reinforcing awareness of the negative health effect of smoking?	629	83.0	450	76.1	1079	80.0	P=.008
d. In aiding memorability of the health effects?	631	82.5	442	74.5	1073	79.0	P=.001
e. In arousing fear of smoking	616	80.5	434	73.2	1050	77.3	P=.004
f. In encouraging smokers to quit?	419	54.8	334	58.2	763	56.3	P=.370
g. In encouraging smokers in general to think about their smoking habit?	546	71.5	394	66.8	940	69.4	P=.163

4.2.9. Implementation of Pictorial Health Warning

About 65% of respondents suggested that health warnings on tobacco packs were very important and 30.5% cited health warnings were quite important (Table 11). Non-smokers were more likely to rate the health warnings on tobacco and cigarette packs

as “very important”, compared to smokers (69.1% versus 59.8%, p=.005). With regards to the effectiveness of pictorial health warnings, 44% pointed out that pictorial health warnings were very effective; on the other hand, 19.4% noted that health warnings were neutral (neither effective nor ineffective). There was no statistically significant difference between effective pictorial health warning and smoking status (p=.742).

Approximately 65.2% strongly supported implementation of graphic health warnings on cigarette packs with non-smokers more so than smokers (71.3% versus 57.3%, p<.001).

Regarding the effect of pictorial health warnings on knowledge, 89.3% stated that knowledge of the effect of smoking had improved due to the implementation of the tobacco policy; while non-smokers were more likely to claim that their knowledge on the health effect has improved than smokers (p<.001).

In relation to the size of pictorial health warning, 42.2% stated that the size of pictorial health warnings should be 50% of the display area to be more effective. It is interesting to note that smokers were less likely to agree to have greater size displays on the tobacco packs than non-smokers (p<.001).

Table 11: Importance of supporting the implementation of health warning in Lao PDR

Variables	N	%	N	%	N	%
Importance of health warnings on packs of tobacco and Cigarettes (p=.005)						
Very important	530	69.1	354	59.8	884	65.0
Quite important	209	27.2	205	34.6	414	30.5
Neither important	15	2.0	23	3.9	38	2.8
Quite unimportant	11	1.4	8	1.4	19	1.4
Very unimportant	2	0.3	2	0.3	4	0.3
Effective of pictorial health warning (p=.742)						
Very effective	384	45.4	250	42.2	598	44.0
Effective	239	31.2	190	32.1	429	31.6
Neither effective nor ineffective	143	18.6	121	20.4	264	19.4
Ineffective	35	4.6	28	4.7	63	4.6
Very ineffective	2	0.3	3	0.5	5	0.4
Implementation of graphic health warnings on cigarette packs (p<.001)						
Strongly support	547	71.3	340	57.3	887	65.2
Somewhat support	189	24.6	202	34.1	391	28.8
Neither support or oppose	19	2.5	37	6.2	56	4.1
Strongly oppose	10	1.3	13	2.2	23	1.7
Somewhat oppose	2	0.3	1	0.2	3	0.2
Improve knowledge of the effect of smoking due to implementation of tobacco (p<.001)						
A lot	701	91.4	512	86.5	1213	89.3
A little	37	4.8	23	3.9	60	4.4
Made no difference	28	3.7	54	9.1	82	6.0
Don’t know	1	0.1	3	0.5	4	0.3
Size of pictorial health warning is more effective (p<.001)						
25%	40	5.2	58	9.8	98	7.2

Variables	N	%	N	%	N	%
30%	86	11.3	98	16.6	184	13.6
50%	314	41.2	254	43.1	568	42.2
70%	226	34.9	139	23.6	97	7.2
100%	56	7.3	41	6.9	97	7.2

4.3. Evaluating the Efficiency and Effectiveness of Text and Pictorial Warnings

Four FGDs were carried out for each category of respondents such as men aged 21-35 smokers; men 36-60 smokers; men 36-60 non-smokers; women whose husbands smoke; women with non-smoking husband; male teenager 15-20 smokers; male teenagers 15-20 non-smokers; and female teenagers 15-20 non-smokers. In total 32 FGDs with 266 participants were carried out to test the effectiveness of pictorial health warnings.

4.3.1. Quantitative Test Results:

The average score for all designs is presented in Table 12. Overall the score ranges from 4.7 to 8.9 out of the maximum 10. Although there is a big difference between the highest score and the lowest score of all designs, most of the ratings fluctuated between 2 and 3 score around the average point (Table 13).

Among the 10 designs tested, the pictorial health warnings which received higher scoring were pictorial health designs 3, 4, 1, 7, 5. The highest mean score of pictorial health warning was 7.84 and the lowest mean score was 4.09.

Pictorial health warning 3: **Smoking cause throat cancer**
Pictorial health warning 4: **"Smoking causes lung cancer"**
Pictorial health warning 1: **Smoking causes mouth cancer**
Pictorial health warning 5: **"Smoking causes heart attack"**
Pictorial health warning 7: **"Smoking causes emphysema"**

Table 12: Detailed scoring for the design of pictorial health warnings

	N	Mean	SD	Min	Max
H1	266	7.46	1.501	4	10
H2	266	5.31	1.267	3	7
H3	266	7.84	1.380	5	10
H4	266	7.55	1.613	4	10
H5	266	5.72	1.309	3	8
H6	266	5.29	1.215	3	9
H7	266	5.40	1.004	3	9
H8	266	4.09	1.660	1	8
H9	266	4.46	1.503	2	8
H10	266	4.42	1.518	2	8

Table 13: Mean scoring according to smoking status

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
Smokers	7.14	5.61	7.84	7.25	5.77	5.19	5.27	4.1	4.32	4.07
Non Smoker	7.78	5.01	7.85	7.85	5.67	5.39	5.54	4.08	4.6	4.75
Total	7.46	5.31	7.84	7.55	5.72	5.29	5.4	4.09	4.46	4.42

The objective of this qualitative data is to identify the most effective health warnings and formats in terms of consumer awareness and impact among the public in different age groups and smoking status. Reaction to the proposed options for the new health warnings and explanatory messages were gauged in terms of:

- Noticeability – messages stand out from surrounding pack design, large enough to be read easily;
- Comprehensibility – understandable, reliable;
- Believability – truthful, personally relevant;
- Memorability;
- Information – interesting and informative;
- Size of label; and
- Persuasiveness – influential upon behavior, in particular to increase and reinforce awareness of the negative health effects of smoking; to quit smoking or to stay smoking.

4.3.2. Picture 1: "Smoking causes mouth cancer"

This was a powerful warning as "mouth cancer" was a real fear for many people. The horror and gruesome image can stimulate fear among smokers. Most study participants believed and accepted that smoking can cause mouth cancers as tobacco smoke comes in direct contact with the mouth. As a result of these factors, smokers tended to personalize this warning.

> *"It is ugly as your mouth is destroyed. I think of fungus or something." (Male smoker, 15-20 years old)*

> *"It is horrible and society will discriminate you. This picture is more graphic and presents the severity of this disease; smokers will reduce smoking." (Male smoker, 15-20 years old)*

"If you got like this disease, you cannot eat or drink anything and you could not socialize with other people. Smokers might be afraid of this mouth cancer" (Female non-smoker, 36-60 years old)

"If other people see you get this disease, they will not speak with you and there will be discrimination…" (Male non-smoker, 30-60 years old)

"Mouth cancer is very severe and horrible, people heard and saw it, they are afraid of it." (Female non-smokers, 15-20 years old)

Additionally, young smokers were concerned not only about the severity of mouth cancer, but the possible disfigurement this might cause and its effect on their socialization with friends.

"It makes me fear and not want to smoke any more and it is very dirty and people do not want to socialize with you." (Male smoker, 30-60 years old)

"For the youth, this might not have any fear appeal because they just started smoking and they smoked occasionally." (Male non-smokers, 15-20 years old)

Some of them have never seen this mouth cancer and they rationalized that it might not be relevant to smoking and that it could be caused by other factors. For those who have seen it, it had a significant impact on them and the memory had stayed with them.

"… if I did not see the message, I do not know what is caused by smoking. It might be caused by other things such as mouth ulcer or other mouth diseases." (Male smokers, 15-20 years old)

"When I saw only the picture, if I had not seen the health message, I would think it was mouth ulcer caused by drinking hot things or alcohol." (Women with smoking husband)

4.3.3. Picture 2: "Smoking causes bad breath"

The picture of teeth provoked a highly emotional response and the respondents feel disgusted and dirty, especially in the external appearance. This picture gives a strong impression for all target groups.

"This picture is dirty and disgusting. You'll get teeth like this, if you do not take care of them." (Male non-smoker 36-60 years old)

"The teeth is not good and had bad smell. When smokers see this picture, they might think about reducing smoking due to the smell and the blame they receive from society." (Male non-smoker, 36-60 years old).

With regard to the persuasiveness and believability of the picture among smokers, some respondents from the FGDs mentioned that this oral disease could be the result of other causes such as bad oral hygiene, and not just smoking specifically.

"*Tobacco is not the only cause of the yellow teeth, it can also be caused by other diseases."*

"With proper care and hygiene, you can prevent the problem even if you smoke." "It is not relevant to smoking; people who did not take care of teeth can also have teeth like this" (Male non-smoker 36-60 years old)

"Smokers could not stop smoking, if they see this picture because they think that it is normal; they can eat chewing gum and the smell will disappear. "(Women with non-smoking husband, 29-55 years old)

"When we drink a lot of coffee or tea, our teeth also turn black or yellow, so this picture is not always relevant to smoking. "(Women with non smoking husband, 29-55 years old)

For some, notably hardened smokers, the effects were too exaggerated leading to disbelief and some associated the graphic with yellowing of the teeth from smoking, and this is not a disease, just external appearance. This picture did not illustrate the severity of the disease and did not have a strong impact on the smokers.

"This picture is not horrible and it can occur to anyone who smoke or do not smoke" (Male non-smoker, 15-20 years old)

"Smoking can cause yellow teeth and does have not much impact. It is usual and could be happened with anyone who did not take care of their teeth." (Male non-smoker, 15-20 years old)

4.3.4. Picture 3 : Smoking causes throat cancer

This is the preferable picture and illustrated the severity of smoking. This design got the high scoring. Most participants criticized this picture as being horrible and gruesome with some hole in the neck. This disease should come through the mouth and go to the throat. The explanatory message contained new information and it highlighted the severity of this form of cancer. The picture was full of impact and

disturbing particularly with reference to "problems in eating, swallowing, respiration, speech problems and permanent disfigurement".

> *"This picture is horrible because you won't have any voice and make life difficult for yourself and and the family who have to take care of you." (Female non-smoker, 15-20 years old)*

> *"And the picture says 'Problems with eating and swallowing'. That's a daily thing that you do, and referring to it makes it more effective in that it will affect your life daily." (Female non-smoker, 15-20 years old)*

> *"I have heard that smoking can cause throat cancer, but I have not seen a real case; however, I believed because I saw the smokers suffering from laryngitis and bronchitis." (Women with non-smoking husband)*

> *"This picture illustrates the severity of diseases and can be used to persuade people to quit smoking." (Male smoker, 21-35 years old)*

> *"This picture is a very frightening picture; if smokers saw this picture, they would be afraid and non-smokers would not dare to smoke because of the severity, and its gruesomeness. In addition, the society will discriminate and that person will spend a lot of money on treatment." (Smoker, 15-20 years old)*

Some of the participants thought that it was not related to smoking and they have not seen it before; especially those who did not understand.

> *"I think that it is irrelevant to smoke and people did not believe if there is no health message in the picture" (Male non-smoker, 15-20 years old)*

> *"…The patient with this disease cannot have any voice and the society discriminates against them; however, I think that it is more related to other diseases such as diseases which are associated with the throat and that is not related to smoking." (Male non-smoker, 36-60 years old)*

Some participants mentioned that this picture is too exaggerated and some people might not believe in it..

> *"I think the smokers might not believe, and might think it is just a design that was drawn to be horrible. It is not related to tobacco because I have never seen or heard about it." (Women with smoking husband)*

4.3.5. Picture 4: "Smoking causes Lung Cancer"

This picture was the most preferred design among all target groups and the message relating to lung cancer was familiar to smokers. Most of them have seen this picture before and had heard about lung cancer being associated with tobacco in the mass media.

Most study participants accepted this warning as familiar and true and they believed in it totally. Lung cancer is a well-publicized health issue associated with smoking. It is recognized as one of the main illnesses associated with smoking and there is concern about it. Additionally, the explanatory message added to the credibility and relevance of this warning.

> *"It is apparent that smoking too much causes lung cancer because I have seen a case of smoking and he coughed a lot. " (Smoker, 36-60 years old)*

> *"This picture is communicated directly and presents the severity of smoking which can cause lung cancer. When we smoke, we inhaled the smoke directly into the lung, especially for people who are heavy smokers and had smoked for a long time." (Women with non-smoker husband, 43 years old)*

> *"This picture is easy to understand and clear and most people had heard of a lot of cases of lung cancer associated with smoking and they all believed this picture." (Male smoker, 15-20 years old)*

> *"I had heard about lung cancer among smokers and I've had seen lung cancer in my village." (Male non-smoker, 30-60 years old)*

The long term smokers might not able to stop smoking because they have been addicted to it and it has become their habit.

> *"For smokers who had smoked for a long time, he might not be afraid because lung cancer is inside the body and he claimed that despite having smoked for long time, nothing had happened." (Smoker, 30-60 years old)*

> *"I think that it could help to reduce smoking, but it could not stop smoking. If the smokers had a cough, they are going to see the doctor and get treated. After that, he starts smoking again.."(Women with non-smoker husband)*

> *"It can persuade smokers to quit smoking for a while because they are afraid of the picture; however, smoking cessation depends on the motivation or intention to quit." (Male smoker, 15-20 years old)*

However, there were some smokers who seemed to have become desensitized to the warning, while young smokers tended to consider lung cancer a future issue and not something they need worry about currently.

> *"We all know it causes lung cancer and I am going to quit. (But I will do so) when I am a little bit older; it is just that when I am young I may as well have a bit of fun. The damage happens in the long term, I mean my Grandfather had lung cancer but so what, I'm not 80." (Male smoker, 15-20 years old)*

Some of them argued that lung cancer is not just due to smoking; however, it has other causes such as pollution.

> *"…I think there are 2 possibilities. First, smokers are more likely to get lung cancer; but on the other hand, non-smokers also can get lung cancer. For example it might be due to air pollution and so on.." (Male non-smoker, 15-20 years old)*

To improve the design, they should show the lung more clearly and precisely and compare a normal lung with a cancerous lung.

4.3.6. Picture 5: "Smoking causes Heart Attack"

Overall, this picture received an average score and indicated the severity of heart diseases. There was a mixed response to the graphic; for example: some thought that this picture has some fear-provoking and believability because they have seen it before in the hospitals.

> *"This picture is gruesome, if the smokers see it, they will stop smoking because they will be afraid of this disease and that their lives will be shortened." (Women with non-smoking husbands)*

> *"This design is scary me and even the smokers. If the smokers saw this picture, their smoking habit will reduce. "(Male non-smoker, 36-60 years old)*

Some of the participants, particularly the smokers thought that heart attack is not related to smoking as they have never seen it happened before. They thought that the causes of heart attack could be multiple etiologies and not just caused by smoking.

> *"..This design is not relevant to smoking because we smoke and the smoke goes to the lung, not to the heart." (Women with non-smoking husbands)*

"..The patients already had cardiac diseases and smoking hastened the occurrence of the heart attack. "(Female non-smoker, 15-20 years old)

"…I never see this picture before. I think it is not relevant to smoking and it should be associated with high blood pressure." (Male smoker, 15-20 years old)

"..Heart attack might have occurred due to other causes such as hypercholesterolemia and only 20% is related to smoking.." (Male non-smoker, 15-20 years old)

" ..If I did not see the health message, I think that it is not related to smoking." (Male smoker, 30-60 years old)

Nonetheless, for many the visual was small, messed up and the heart difficult to see. Also, some felt it was reminiscent of any situation in the emergency room. As a result its impact was not as strong as it could be. The size of the heart was very small, thus it should be enlarged

The graphic was not detailed enough to convey heart by-pass; it just showed a person with a severe condition being hooked up with artificial respiration.

4.3.7. Picture 6: "Smoking causes Stroke"

There was a middle preference for the graphic pack as an effective means of conveying this health warning and this picture showed the fatality of the disease. While it was essentially a strong image, some felt that an image depicting the result of a stroke would be more effective. Some commented that the health message was terrifying.

"The brain doesn't really resemble a stroke to me. I think more of someone falling over. The picture and message just don't go together." (Male, 15-17 years old)

"The picture is fear-provoking because smoking can cause stroke which mostly occur in people who experience more stress. These people smoke to reduce their stress." (Female non-smoker, 15-20 years old)

Some participants have misconceptions that smoking is not related to stroke; however, smoking reduces the blood pressure. Stroke can have different etiology, not just from smoking. Thus, this picture does not have high believability. Additionally, a few

participants mentioned that the health message was not understood by the local people because of the technical medical terms.

> *"This picture is not attractive; however, the cause of stroke could be due to other reasons, for example, high blood pressure. If there are no health messages, this picture will make it difficult to understand about the link between stroke and smoking." (Male non-smoker, 30-60 years old)*

> *"I have not heard that smoking causes stroke. I think that stroke might occur due to accidents and stress." (Smokers, 30-60 years old)*

There is a lot of improvement that could be done on this picture. It should enlarge the size of brain and put it in the skull.

4.3.8. Picture 7: "Smoking causes Emphysema"

This picture gives a middle score and illustrated the severity of diseases. Most of the study participants did not know exactly what emphysema is, but even if they were not completely familiar with the disease, most agreed that this disease is fatal and is a serious condition. The design of the graphic did not illustrate exactly what emphysema is; so most participants did not exactly know this disease.

> *"The picture, with the artificial respirator, looks frightening, but it did not indicate the emphysema because it happened inside the body." (Male smoker, 15-20 years old)*

> *"I have never seen or heard about this disease and the smokers might think that they will not get this disease. I do not understand the picture, but it shows some severe condition of the patient." (Male non-smoker, 15-20 years old)*

> *"If there is no health message, I would not know that it is related to smoking. It might be associated with pneumonia, TB and so on." (Male smoker, 30-60 years old)*
> *"This picture shows the severity of patient with artificial respirator. It seemed that patient had difficulty breathing."(Male non-smoker, 30-60 years old)*

> *"It is scaring me; however, I think that it is not relevant to smoking and I have never seen it before. It might not persuade the smokers to give up smoking." (Female non-smoker, 15-20 years old)*

This warning conveyed "new" information to young smokers, some of whom were unaware of the breathing problem. The explanatory information was useful to young smokers who showed greatest unawareness of and ignorance about emphysema.

> *"I think that this picture has some believability because smoking has an impact on the lung as smoke accumulates in the lung." (Male smoker, 21-35 years old)*

4.3.9. Picture 8: "Smoking harms your family"

This picture is not impressive; it is too general and gets the low score. The design is not clear with the picture of the husband smoking behind his family. This picture got the lowest score of all the 10 designs. The participants commented that it was concerned only for someone who had children and family. The impression for this picture is similar to that of the picture "Smoking harms people around you". This design is confining the warning to "en narrows the target audience significantly - people without family and children considered this message to have little relevance to them.

> *"This picture does not have a lot of impact on the smokers, if the smokers see it, they would not stop smoking." (Male Smoker, 15-20 years old)*

> *"This design is just relevant to those with family and children, they will smoke away from the family and children (Male Smoker, 30-60 years old)*

> *"I think this picture is good for family, so the smokers had to be concern about their family." (Women with non-smoking husband)*

> *"The young smokers will not give up smoking because they do not have children yet." (Smoker, 15-20 years old).*

There should be a lot of improvement on this design. The face of the family should be sadder and it should show the husband smoking more clearly with smoke in front of the family.

4.3.10. Picture 9: "Tobacco smoke harms people around you"

This design received a low score and most study participants accepted this warning, but considered it as common knowledge for the target group who has children. It was also commented that tobacco smoke harms all children and people around you. Furthermore, both smokers and non-smokers said that smokers can smoke far away from children and people around them, but they did not have to give up smoking.

> *"This picture did not give a good impression to smokers. It suggests that smokers should smoke far away from children or outside their house, but it does not encourage them to give up smoking." (Female non-smoker, 15-20 years old)*
>
> *"..In our culture, mostly women bear the small child, not men. This picture gives the impression that smokers should not smoke while bearing their child." (Female non-smoker, 15-20 years old)*
>
> *"The picture could not persuade smokers to stop smoking due to the not fear-provoking design. However, they raised some concern that they should smoke away from their family and children." (Female non-smoker, 15-20 years old, Male smoker, 30-60 years old)*
>
> *"This design is not horrible; smokers would not stop smoking if they see this design. For people with a family, they might think about their families and their children; however, youth does not think about family, they smoke for their enjoyment and amusement." (Male smoker, 15-20 years old).*
>
> *"I think that this picture is good and has some believability because smoking harms your children and the people around you. People near the smokers do not like the smell from the smokers and will walk away if they see smokers come to sit near them." (Non-smoker, 30-60 years old)*

The explanatory message is focused on passive smoking and it can raise awareness of the dangers of passive smoking. Smokers felt guilty or not comfortable when smoking around non-smokers.

There were some comments to improve the design by showing a thinner or sicker child and more on the smokers holding cigarettes. The content of the health warning is not related specifically to children, but the picture shows children, so the message should therefore have more messages about "children" and not just "people around you".

4.3.11. Picture 10: "Smoking kills your newborn baby"

This warning got a low score, but typically, the focus of the warning was said to be the pregnant smokers. However, the majority accepted the warning as true, and considered it an important and relevant warning for pregnant women or female smokers planning to conceive.

> *"It is related to smoking. If pregnant mothers smoked, they will do harm to the fetus and the newborn might be infirmity. It affect women more." (Male smoker, 15-21 years old)*

> *"This picture can help to prevent pregnant women from smoking because they will be afraid that their child will be like in the picture." (Female non smoker, 15-20 years old)*

Some felt that the design was clear, but without the health messages, the link to smoking was not made directly. They thought that the premature newborn might be caused by other diseases such as AIDS or other infectious diseases. A few smokers were threatened by the image and argued that many new born babies can have complications and could like the baby depicted in the visual.

> *"This design is not communicated directly to smoking. The newborn is premature and have malnutrition and I have never seen a newborn who died from smoking." (Male non-smoker, 30-60 years old)*

> *"I looked at the fact that maybe if it was born prematurely, it's not fair on the child because the baby hasn't asked to be smoking." (Female with smoking husband)*

> *"The baby is just laying there and can't do anything about it." (Male smokers, 21-35 years old)*

> *"Premature newborn baby could have congenital malformation, toxics during pregnancy, and so on.." (Male smoker, 30-60 years old)*

However, a few considered it as directed not only at pregnant women but all others who may smoke in the vicinity of the pregnant women, or their husbands (passive smoking). However, it could remind the smokers to smoke far away from children and pregnant women. Some youth think it was not related to them directly because they do not have family and children yet. They were not the target audience and the warning does not apply to them. They were less threatened by this message.

"Most men smoke far from their family. If the smokers saw this picture, they might not give up smoking, but they think about the consequences for their children, thus they will smoke far from family or reduce smoking gradually." (Male smoker, 36-60 years old)

"It is not relevant to youth. The focus is mainly on the pregnant women and their husband. In someway, it reminded us to smoke far away from pregnant women ". (Male smokers 15-20 years old)

There were some suggestion that the design can be improved by showing smoke in front of the baby as to make the link between cigarettes and newborn babies.

4.3.12. The Size of the Pictorial Health Warning

Most of the participants mentioned that the size of the health warning should be 50% to 100% of the principle area of the cigarette package. If it covers 30%, it is difficult to see the health warning because it is too small and the picture is not clear. In addition, there will not have a lot of impact on the smokers and will not attract the smokers. Most of them would like to put the health warning in both sides such as in front and back of the package.

Some of them commented that the size of the health warning should be 70% and put it in the front of the pack, so that the smokers can see the warning directly when opening the cigarette package. Some of them suggested that the size should be 100% and put it in the front of pack.

In conclusion, all target groups agreed that, the pictorial health warning has a stronger impact than text-only message because the message can be easily conveyed by pictures and is easily understood. The public give more attention to the picture than to the text-only message. Thus, when choosing the pictorial health warning, it should be focused on the clear, easy and simple pictures. Some of the health warnings were not known by the participants, for instance diseases such as emphysema while some pictures were too exaggerated for them to be afraid of. We observed the belief that "*cigarettes alone cannot cause the mentioned of illnesses. They only worsen an already poor condition*." The statements of several smokers illustrated a type of "magical thinking."

Some pictures could not be understood and associated with smoking if stand alone without supporting text, thus, it is needed to determine the clarity and acceptability among local people.

5. DISCUSSION

A review of literature on public health communications concluded that "strong fear appeals and high-efficacy messages produce the greatest behavior change", and found no evidence of any iatrogenic or "boomerang" effects for strong fear appeals.

5.1. Awareness of Current Health Warning with "Text only"

This study revealed some interesting findings on the awareness of health warning messages on the side of packs of cigarettes, with smokers being more likely to be aware of the health warnings than non-smokers. Awareness of health warnings in the front and back of packs and readership of the health warnings was low and recall of health warnings was also low. The position of health warning on the side of packs made them less likely to be noticed, a finding which was similar to the survey by European tobacco control Organizations (Action on Smoking and Health, 1998).

The effectiveness of "text only" health warnings was low which indicated a low level of increased in awareness on health risks, less likelihood in improving knowledge on health effects and the low effect of health warnings on quitting. Overall, the health warnings with "text only" had not had an impact or been effective in conveying the potential negative health consequences of smoking. The results from this study were consistent with findings from previous researches comparing reactions to text-only warning labels in other countries which showed that (Hammond *et al*, 2006 and 2007). These authors also found that health knowledge is lower among smokers, even in the highly educated countries; however, they would expect health knowledge to be substantially lower among the majority of the world's smokers, particularly those living in lower and middle income countries. Thus, the effectiveness of health warning labels could address knowledge deficits by providing comprehensive health warnings to smokers with regular access to health information on the risks of smoking.

In regards to the credibility of current health warnings, only slightly higher than half of respondents suggested that the health warnings with "text only" had some credibility. As the literature have suggested, warning labels with text-only did not have a high credibility (Elliot & Shannan, 2003). The study carried out by European tobacco control organizations also showed that health warnings with text-only are largely ignored by smokers because they are difficult to see and tend to blend in with the packing design (Action on Smoking and Health, 1998). Thus, the current health warning system has clearly failed to adequately inform people of the risks of smoking and needs to be radically overhauled.

The qualitative data from in-depth interview of Members of Parliament also revealed that the current health warnings were less noticeable. Similarly, the FCTC also claimed that to be effective, health warnings should be prominent enough to capture smoker's attention and must break down the "wear-out" that results from habituation to message; thus the warning labels should be 50% or more of the principal display areas, but shall not be less than 30% of the principal display areas (Thraser; Hammond, Fong & Arillo-Santillan, 2007).

5.2. Effectiveness of Pictorial Health Warning

The study revealed that the vast majority of respondents believed in the effectiveness of pictorial health warnings. In comparison with the "text only" warnings the pictorial health warnings were generally thought to be more likely to convey potential health effects of smoking and to do so more effectively; to increase and reinforce awareness of the negative health effects of smoking; to aid memorability of the health effects; to encourage smokers to quit and to think about their smoking habits. All evidence from previous studies suggested that graphic warnings were (i) a prominent source of health information, second only to television in many jurisdictions; (ii) more likely to be noticed and discussed than text warnings; (iii) associated with greater health knowledge; (iv) associated with increased cessation behavior; and (v) enjoy high credibility and support from smokers themselves (Elliott & Shanahan, 2003; Hammond *et al*, 2007). These authors also found that the graphic will contribute to an increase in the unacceptability of smoking for both health and social reasons; in addition, the graphics will increase anxiety and anger and will elicit more emotional reaction (Elliott & Shanahan, 2003).

This present study was consistent with previous studies indicating that prominent warning labels, more comprehensive health messages with graphic elements are more likely to encourage smokers to forego smoking than text-only warning labels and to be noticed and cited as effective by smokers (Elliott & Shanahan, 2003; Hammond *et al*, 2007). The survey of smokers have been carried out in the USA, Canada and the United Kingdom and Australia with widely different health warnings ranging from large, graphic depictions of diseases in Canada to small text-only warnings in the USA. Smokers in Canada were the most likely to report thinking about the health risks of smoking, to stop having cigarettes and to think about quitting; however, smokers in the US reported the lowest levels of effectiveness for almost all measured items (Hammond *et al*, 2007). Smokers in countries where a warning depicts a particular health hazard of smoking are much more likely to know about the hazards and smokers who reported noticing warnings were 1.5 to 3 times more likely to believe each health hazard (Hammond *et al*,, 2006a).

Especially, pictorial warnings may be particularly important in reaching low-income or low-literacy individuals who may not have access to other mediums of health information (Hammond *et al*, 2006. Graphic warning labels are more powerful, low cost means of informing consumers about smoking dangers in a manner that mitigates the level of "wear-out" of text-only messages**.**

The most effective health warnings should be the most dramatic, arresting and potentially more memorable; however, the least memorable and least effective pictorial health warnings were those whose pictures were less clear, difficult to understand and obscure, not evocative enough or less powerful.

5.3. Perspective on the Implementation of Health Warning

Most policymakers strongly supported implementation of graphic health warnings on cigarette packs. The policymakers have a strong moral obligation to inform consumers about the risks of smoking. The primary intent of pictorial warnings is not

to scare, but to inform smokers about the full range, likelihood, and severity of smoking-related diseases.

In contrary, some policymakers raised concern about the implementation of pictorial health warnings within the Lao cultural context because the majority of rural people used the rolling tobacco, thus they might not have access to health warning images. Parallel to this, there should be a focus on more effective interventions and policies such as dissemination of health information through various channels such as radio, posters, leaflets, health education in the community; and the integrating of health information into the school curriculum.

5.4. Size Matters

This study revealed that size of the health warnings should be 50% to 100% of the principle area of the cigarette package which was consistent with the Framework of FCTC (Framework Convention Alliance, 2001). Given the tobacco's exceptionally hazardous nature and tobacco companies' failure to adequately disclose risks, warning should occupy at least as much area on tobacco product packaging as any artwork designed to make cigarette attractive. Recently, many countries have passed laws requiring that health messages comprise significant portions of the front and back of the package.

CONCLUSION AND RECOMMENDATIONS

The study suggested that the opinion of Members of Parliament regarding the current health warning was that the warning was not appropriate, too small. the messages were inadequate and designed hidden in the side pack, and partly were thoroughly "washed-out". Thus the smokers did not pay any attention to the current health warning. Furthermore, the Members of Parliament also suggested that the current health messages be improved by enlarging the size of the warnings and increasing the warning coverage area on the pack; the introduction of various health messages and the introduction of visuals, particularly pictorial health warnings.

With regards to their perception of pictorial health warning, the majority of parliament members suggested that the pictorial health warning helps us to convey potential health effects of smoking and to do so more effectively from the words to the pictures; to raise fear appeal and social appeal among smokers and to increase their awareness and attract them. For the illiterate people, it is more convenient to translate the text-only warnings into pictures. The vast majority supported the implementation of health warnings; however, the pictorial health warnings should be appropriate within the Lao cultural context and health information on the risk of smoking should be disseminated to the rural areas. Similarly, community members also agreed that pictorial health warnings were more effective in conveying health information regarding the contents of cigarettes and cigarettes smoke than were the "the text-only" alternatives. The pictorial warnings are more likely to have impact, attract, confront in face of smokers and make it difficult to ignore.

The community members perceived the current health warning as important; however, despite the importance of the health warning expressed by the community members, awareness and readership of the health warning with "text only" on the front, back and side packs of cigarettes were low. Recall of the specific health warnings was low. The effectiveness of health warnings with "text only" was low which indicated a high level of increased in health risks, less knowledge on health effects and the low effect on quitting.

The graphic with most impact and memorable was the graphic that has clearer pictures, was easy to understand and more noticeable (Throat cancer, Lung Cancer, Mouth cancer, Emphysema, Heart Attack). The least effective were those with less clearly defined pictures; those with difficult image to understand, especially without messages (Stroke, Newborn baby); those with conceptually obscure or small pictures; those which was not evocative enough (Smoking causes smelling, smoking harms your family, tobacco smoke harms people around you).

6.1. Recommendations:

1. Larger, more comprehensive health warnings on cigarette packages are more effective.

2. Strong support for the effectiveness of prominent health warnings that meet World Health Organization Framework Convention on Tobacco Control

(WHO FCTC) standards. The size of the health warning should be 50% to 100% of the principle area of the cigarette package.

3. Support for large pictorial health warnings that are most effective means of communicating the full range and severity of health risks to smokers.

4. Introduction of new warnings on a more regular basis: Once every 2 years.

5. Health warnings that are necessary and represent an important element in tobacco control and are considered as one component in the communication of information on the effect of smoking on health.

6. There should be dissemination of information on labels through other channels of media or strategies linking health messages to anti-smoking campaigns such as integrating the health effect of cigarettes into school curriculum, posters, radio and television.

7. The following health warnings were considered for introduction and rotated:

- Smoking causes Throat cancer,
- Smoking causes Lung Cancer,
- Smoking causes Mouth cancer,
- Smoking causes Emphysema,
- Smoking causes Heart Attack

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ANNEX 1

In-depth Interview Guidelines for the Policy Makers

1. Socio-demographic background (Age, sex, education, position, Ministry)

2. Smoking status? When? For how long? Present & Past?

3. What is your opinion of current health warning on tobacco in the cigarette packs? In terms of size (larger type), color (use of colour/black and white), coverage (more label area devoted to warning), places (Front, side, & back), health information? Why?

3.1. What is your attitude toward the presence of warnings (acceptance/rejection); probe personal response to warnings; attitudes and beliefs regarding warnings and information; believability of warnings.

4. What is your perception whether cigarette packages should have more, less, or about the same amount of health information than they do now? Why?

4.1. What do you think that there should be a more effective way of labelling tobacco to discourage smoking or providing consumer information with purchase? Why?

5. What is your opinion of whether printing of pictorial health warnings about harmful effects of smoking on cigarette packs is an effective way to reduce smoking among young people? Why? How? Reaction to visuals (supportive or not)

6. Do you support the implementation of graphic health warnings on cigarette packs in the Lao PDR? Why? How?

ANNEX 2

Survey Questionnaire for Perception of Cigarette Health Warnings in the Lao PDR

Date:_____
Name of interviewers_____
Id number_____
District_____Province_____
Urban/Rural_____

I. Socio-demographic Characteristic:

101 What is your age? _____(Enter number)

102 What is your gender?

1	Male
2	Female

103 What is the highest level of formal education that you have completed?

01	No schooling
02	Lower elementary
03	Upper elementary
04	Lower secondary
05	Upper secondary
06	Pre-university
07	Diploma, certificate
08	Bachelor degree
09	Masters, PhD degree
10	Other -- Specify: _____

104 What is your main occupation?

01	Student
02	Private officers
03	Government Officers
04	Farmers
05	Housewife
06	Owner enterprise
07	Merchandise
08	Daily paid worker
09	Unemployment
10	Other -- Specify: _____

II. Smoking status

201 **Which of the following best describes your smoking?**

1	I have never smoked
2	I have quit smoking
3	I currently smoke at least a few times a week
4	I currently smoke everyday

III. Perceptions towards health warning

301 **Are you aware of any health message on the front, side or the back of tobacco pack?**

301.1 Front of pack

1	Yes
2	No
3	DK

301.2 Side of pack

1	Yes
2	No
3	DK

302.3 Back of pack

1	Yes
2	No
3	DK

302 I'm going to read out to you some health messages and information. Could you please tell me if the messages or information appears on the pack or does not appear at all or if you are uncertain? **(ROTATE & READ)**

	Yes	**No**	**Uncertain**
1. Smoking causes heart disease	1	2	3
2. Smoking causes lung cancer	1	2	3
3. Smoking is addictive	1	2	3
4. Smoking causes throat cancer	1	2	3
5. Smoking reduces your health	1	2	3
6. Smoking kills	1	2	3
7. Smoking can harm others	1	2	3
8. Smoking when pregnant harms your baby	1	2	3
9. Smoking causes cancer of mouth	1	2	3

303 **In the last month, how often, if at all, have you read or looked closely at the health warnings on cigarette packages?**

1	Never
2	Once
3	A few times
4	Many times

304 **In the last month, have the health warnings stopped you from having a cigarette when you were about to smoke one? Would you say . . . (For smokers)**

1	Never
2	Once
3	A few times
4	Many times

305 **To what extent, if at all, do the health warnings make you think about the health risks (health dangers) of smoking?**

1	Not at all
2	A little
3	Somewhat
4	A lot

306 **Would you say the inclusion of health warnings and health information on cigarette packs has improved your knowledge of the health effects of tobacco consumption**?

1	Not at all
2	A little
3	Somewhat
4	A lot

307 **To what extent, if at all, do the health warnings on cigarette packs make you more likely to quit smoking?** (For smokers)

1	Not at all
2	A little
3	Somewhat
4	A lot

308 **In terms of the way you feel about your own smoking behavior would you say the health warnings on packs of cigarettes and tobacco have helped you smoke less?** (For smokers)

1	Not at all
2	A little
3	Somewhat
4	A lot

309 **Would you say that the health warning information on cigarette packages is:**

1	Not at all believable
2	A little believable
3	Very believable

310 **Do you think that cigarette packages should have more health information than they do now, less, or about the same amount as they do now?**

1	**Less health information**
2	**About the same**
3	**More health information**

Note: Show a cigarette pack with "text only" warning and a sample of a cigarette pack with
311 graphic warning.

(Compared to "text only" warning, is the graphic warning more likely, less likely or make no difference .....)	Tick ☑ in the appropriate box		
	[1]More likely	**[2]Less likely**	**[8]Make no difference**
a. In making you think of the health risk of smoking	☐	☐	☐

b. In conveying potential health effect of smoking effectively?	☐	☐	☐
c. In increasing and reinforcing awareness of the negative health effect of smoking?	☐	☐	☐
d. In aiding memorability of the health effects?	☐	☐	☐
e. In arousing fear of smoking	☐	☐	☐
f. In encouraging smokers to quit?	☐	☐	☐
g. In encouraging smokers in general to think about their smoking habit?	☐	☐	☐

312 **How important is it that the Government has health warnings on packs of tobacco and cigarettes. Would you say**...

1	Very important
2	Quite important
3	Neither important
4	Quite unimportant
5	Very unimportant

313 **Do you think printing pictorial health warnings about harmful effects of smoking on cigarette packs is an effective way to reduce smoking among young people?**

1	Very effective
2	Effective
3	Neither effective nor ineffective
4	Ineffective
5	Very ineffective

314 **Do you support the implementation of graphic health warnings on cigarette packs in the Lao PDR?**

1	Strongly support
2	Somewhat support
3	Neither support nor oppose
4	Strongly oppose
5	Somewhat oppose

315 Would you say the inclusion of pictorial health warnings and health information on cigarette packs has improved your knowledge of the health effects of tobacco consumption...

1	A lot
2	A little
3	Made no difference
4	Don't know

316 **Which size of pictorial health warning is more effective?**

1	25%
2	30%
3	50%
4	70%

ANNEX 3

Scoring Table for Health Warnings

Please rate each of the following health warning pictures with score from 0 to 10, with 0 being the lowest and 10 is the highest according to their impact on quitting smoking based on your perception.

Health warning score

Health Warning	Score
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

ANNEX 3.2

Focus Group Discussion Guidelines

Purpose:
1. Understand better the reasons behind the high or low scores basing on the criteria:
- Attractive
- Clear and easy to view
- Easy to understand and remember
- Reliable information
- Persuasiveness

The research team will collect information regarding a number of characteristics that are important in evaluating or measuring the effectiveness of health warnings and explanatory information on tobacco packs such as format, content (size, place), readability, believability, memorability and information processing of the material. All the issues will be asked of the respondents in FGDs.

1. Get feedbacks (for picture, message and design) to further improve the design of health warnings that have been chosen.

Warm up Short self-introduction about name, job, family of group members (in an entertaining way with demonstration given by moderator)	Talk about the contents and purpose of the group discussion
Defining the criteria for scoring the HWs designs: Impressive, attractive, clear and easy to view, easy to understand and remember, most importantly: effectiveness	**Give each HW design to each person and ask:** • Why did you score this HW that way? • What did you see in this design? **Suggestions:** What is this picture? What does the message mean? • How do you feel when you see this? Why? • How strong or weak impact do you think this design will have on people? Why you think so? • What do you think about the reliability of this design? why?
Define which size is more effective	**Show some designs of the HWs intern with 3 sizes (30%. 50% ,70%).** • What size do you think have the strongest impact in getting smokers to quit and preventing non-smokers from taking up the habit? Why?
Find errors for the designs Get feedback for pictures and messages	**Show the 12 designs (in A4 size) on a table for people to have a close look and give opinions of what should be done for**

	improvement. • What do you find in these designs that encourage smokers to quit and prevent non-smoker from taking up the habit? Why? • What do you find that may have unwanted impact? Why? • What should be done (any change of text and picture) to make the designs more effective?

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About SEATCA

The Southeast Asia Tobacco Control Alliance (SEATCA) works closely with key partners in ASEAN member countries to generate local evidence through research programs, to enhance local capacity through advocacy fellowship program, and to be catalyst in policy development through regional forums and in-country networking. By adopting a regional policy advocacy mission, it has supported member countries to ratify and implement the WHO Framework Convention on Tobacco Control (FCTC)

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