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Demarketing Tobacco through Pictorial Warning in Indonesia

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Abstract: Smoking behavior contributes to bad impact for human healthiness. Indonesian government issued regulations in order to reduce smoking prevalence including put pictorial warning in every package of tobacco product. The pictorial warning illustrates the effect of smoking for its smoker such as mouth, throat and lung cancer. This study aims to analyze consumer's perception upon the pictorial warning on packages toward their smoking behavior. Data collected from respondents using questionnaires to identify their knowledge, awareness, and inconvenience, contained at the pictorial warning on the danger of smoking. The result shows that knowledge of the pictorial warning is positively associated to inconvenience of cigarette packaging and awareness of the effects of smoking. The inconvenience to the cigarette packaging and awareness of the effects of smoking as it appears on the packaging are positively associated with a desire to quit smoking.

Keywords: Smoking, tobacco, pictorial warning.

INTRODUCTION

Smoking is an activity that causes negative effect for the smoker's body and health, either in short or long term. The effects of tobacco to the human's body are caused by the content of more than 7000 hazardous chemical (CDC, 2010). FDA (2015) acknowledged that tobacco is the main contributor to several diseases such as cardiovascular, stroke, cancer, lung problem and diabetes. Not only for active smoker, it also able to harm people around active smokers that inhale the cigarette smoke which is known as the passive smokers

Despite the fact that smoking is dangerous for people's health, World Health Organization (WHO) reported that Indonesia is now in the third rank position with great number of smokers in the world after China and India which has the significant increase in number of smokers particularly among the teenagers (Swa, 2014). Indonesia minister of health stated that the number of active smoker in Indonesia was 66 million and dominated by the middle to low class society (Republika, 2014).

The main segmented market of tobacco is male productive age, however, in fact, the tobacco consumers is wider including females and children. According to ASEAN Tobacco Control Report Card (ASEAN TCRC, 2012), 34.7 % of adult population is active smoker, and 41 % of male teenager aged between 13 to 15 years old has also been active smoker. On the other hand, National Economic Census showed that the spending to buy tobacco is five times higher than the spending for eggs and milk, double than the spending of fish, and seventeen times higher than the spending of meat (Kompas, 2009).

To reduce the rate of smokers in Indonesia, government has made various preventive efforts. One of them is by issuing the Government Regulation number 38 in 2000 about the Tobacco security for Health. This regulation contained prohibition in advertising the cigarette such as prohibition to suggest or stimulate people to smoke, to illustrate the benefit of smoking for health, to show a person who is smoking, to show the form of cigarette and its packaging and the compulsory of the danger of smoking inclusion for health.

Beside government regulation number 38 in 2000, the government also issued government regulation number 109 in 2012 about the security of tobacco product that contains addictive substances. This regulation was effectively regulated on June 24, 2014 which required cigarette producer to add the pictorial warning in every package of their cigarette product. This is a kind of pictorial warning by using illustration variation such as mouth, throat and lung cancer, an adult person who is holding a child, and the picture of cigarette smoke that form skeleton image. Overall, all cigarette packages which circulate in Indonesia nowadays include the pictorial warning which is addressed by government regulation number 19 in 2012.



Picture 1: Five types of pictorial warning in tobacco's package in Indonesia

Both government regulations, are a form of prevention by implementing demarketing concept. Demarketing is an effort to decrease and limit the level of product consumption. (Kotler and Keller, 2012). Since cigarette is a dangerous product for people's health, it is necessary to formulate the efforts to limit and reduce the level of consumption of this product to improve the life quality of Indonesian society. It is hoped that in the future, Indonesian society's health and welfare will be better. Therefore, this research aims to analyze consumers perception who were active smokers, upon the pictorial warning on the cigarette packages toward their smoking behavior

THEORETICAL FRAMEWORK

Jossens and Raw (2006) suggested that in 2003, the World Bank had released six options of cigarette consumption control, those are;

1. price increment trough increasing cigarette tax,
2. prohibiting smoking in public area and work place,

3. improving consumers knowledge through campaign, media, and research publication,
4. advertisement, logo, and brand restriction,
5. enlarging warning label on cigarette packages, and
6. facilitating those who willingly to stop, including rehabilitation access.

According to an article released by Indonesia Central Bureau of Statistic (CBS) in 2015, 22,57% of urban young-adult (15 years old and older) were active smokers, meanwhile in Indonesia rural area, the percentage is higher as 25,05% (CBS, 2015).

Genuinely, prior to the smokers' data provided by CBS above, Indonesian government has issued regulations as an effort to suppress numbers of active smokers. The government has issued a Bill (government regulation) no. 38 in 2000 about Cigarette Custody for Health and no. 109 in 2012 about Tobacco Product with Addictive Substance Custody for Health. Both regulations are considered as the way of cigarette demarketing. The regulation no. 109 year 2012 which effectively applied in 2014, obliged cigarette producers to put pictorial warning on cigarette packages, with five illustration's varieties namely; lung cancer, mouth cancer, laryngeal cancer, adult smoking while hugging a child, and skull shaped fume.

The pictorial warning and or warning label inclusion on the cigarette packages, as proposed by the World Bank and required by the Indonesia government, are consentient to Wakefield *et. al.* (2002), who argued that packaging of cigarettes is the most significant in its marketing due to high visibilities since the package is constantly display during consumption. Cigarettes package is different from other product packages. In addition, the consumers of this product perpetually carry the cigarettes inside its package; therefore, the package itself can be utilized as an effective promotion tool (Underwood and Ozanne, 1998). Consequently, it is then necessary to placed pictorial warning on the cigarettes package, since a study by Thrasher, *et. al.*, (2007) had indicated that prominent warning with graphic elements is more likely to promote quitting behavior among smokers. Heydari *et. al.*, (2011) found that knowledge about implementation of pictorial health warnings on cigarettes packs has significantly enhanced smoker believe about the effect of smoking. Thus, we proposed the following hypothesis

H1: Knowledge of the pictorial warning is positively associated to the inconvenience of the cigarette packaging

H2: Knowledge of the pictorial warning is positively associated to the awareness of the effects of smoking

Hammond *et.al.* (2007) also found that the large warnings label on cigarette packs tend to reach more attention and more effective for smokers. They also argued that a change of pictorial warnings on cigarette packs associated with an increase in the effectiveness of the label in influencing consumer behavior. O'Hegarty *et. al.* (2006) found that the combination of text and pictures was more effective than text-only warnings. Kees *et. al.* (2010) suggested that the graphic depiction of warnings can strengthen the intention of smokers to quit. Hammond (2007) argues that health warning labels are an effective means in terms of costs to boost awareness of youth and non-smokers about the negative impact of smoking. Thus, we proposed the following hypothesis

H3: Inconvenience to the cigarette packaging is positively associated with an intention to quit smoking

H4: Awareness of the effects of smoking as it appears on the packaging is positively associated with an intention to stop smoking

RESEARCH METHOD

Participants

Out of 400 sets of questionnaires spread, 358 set of questionnaires can be processed. Male respondents dominate research respondents overall as much as 332 (93%). While the age range of the respondents participating in this research were concentrated at the range of 15 to 25 years old as much as 29.3% and the range of 26 to 35 years old as much as 32.4%. It was followed by the range of 36 to 45 years old as much as 17.6% and the respondents with age more than 45 years old participated in this research as much as 20.4%. Moreover, 214 respondents (59.8%) were married, and 139 respondents (38.8%) were unmarried. The educational background of the respondents was dominated by senior high school graduates. The number senior high school graduates were as much as 144 respondents or 43.3%, then followed respectively respondents of diploma and undergraduate background as much as 26.5%, junior high school graduates as much as 14.8%, elementary school graduates as much as 10.3% and the respondents without any educational background as much as 1.9%.

Table 1
Descriptive Statistic

<i>Demographics</i>	<i>Items</i>	<i>No of Response</i>	<i>Percentage</i>
Age	15-25	105	29%
	26-35	116	32%
	36-45	63	18%
	> 45	73	20%
Marital Status	Yes	217	61%
	No	141	39%
Education	< High School	45	13%
	High School	209	58%
	Graduate	96	27%
	Post Graduate	8	2%
Length of Consumption	< 1 Year	13	4%
	1-3 Years	33	9%
	3-5 Years	37	10%
	> 5 Years	275	77%
Consumption per Day (bar)	< 10	69	19%
	11-20	198	55%
	21-30	32	9%
	31-40	52	15%
	41-50	5	1%
	> 50	2	1%

It has known that 76.5 % respondents has been being the smokers for more than five years, 9.2% of them in duration of one to three years and 10.4% has been being the smokers for three to five years. Only 3,4% of the respondents who were the beginner in smoking, since they smoked less than one year. Beside smoking periods, respondents were asked to give information about the number of tobacco they consumed per day. The result shows that 55.3% of the respondents spent eleven to twenty of cigarettes daily. Then, as much as 62 respondents or 17.3% sucked the cigarette one to ten per day, 14.5% did it as much as 31 to 40 daily, 8.9% sucked 21 to 30 cigarettes and 2% of the respondents sucked more than 40 to 60 cigarettes per day. Based on the data, the respondents can be grouped into three categories on the frequency of the consumed cigarette per day, namely light smokers, medium smokers and heavy smokers. The light smokers spent one to ten cigarettes daily, medium smokers spent 11 to 20 cigarettes a day and heavy smokers sucked more than 20 cigarettes per day.

From each group of the smokers based on the frequency of their smoking, 81% of the light smokers had expenditure to IDR 3,500,000 a month. While respondents with expenditure more than IDR 3,500,000 a month, only 19% which was categorized as light smokers. For medium smokers, 78 % of the respondents spent not more than IDR 3,500,000 a month and 22% of them had expenditure more than IDR 3,500,000 monthly. Lastly, for heavy smokers, 63% of the respondents spent to IDR 3,500,000 a month, and 37 % of the respondents with the expenditure more than IDR 3,500,000 a month.

Table 2
Smokers' Categories based on their expenses and ages

		<i>Smokers Categories</i>		
		<i>Light</i> <i>(1–10 cigarettes/day)</i>	<i>Medium</i> <i>(11– 20 cigarettes/day)</i>	<i>Heavy</i> <i>(> 20 cigarettes/day)</i>
Monthly Expenses (IDR)	< Rp 3.500.000	81%	78%	63%
	> Rp 3.500.000	19%	22%	37%
Age	< 25	31%	35%	15%
	> 25	64%	65%	85%

In addition, each category of smokers based on frequency if it compared to the age of the respondents participating in this research, as much as 31% of the light smokers were respondents with age group of 25 years on maximum, and as much as 64% were those with age more than 25 years old. For medium smokers' category, as much as 35% were male under 25 years old, and as much as 65% of them were more than 25 years old. While for heavy smokers, as much as 85% of the respondents were above 25 years old and only 15% of them who were the respondents below 25 years old.

Instrument and Measurement

To find out the respondents perception who were active smokers upon the pictorial warning at their cigarette's package, we propose the following research model.

In order to identify consumers' knowledge, awareness, and inconvenience, contained at the pictorial warning on the danger of smoking, and their behavior toward the pictorial warning, the researchers developed

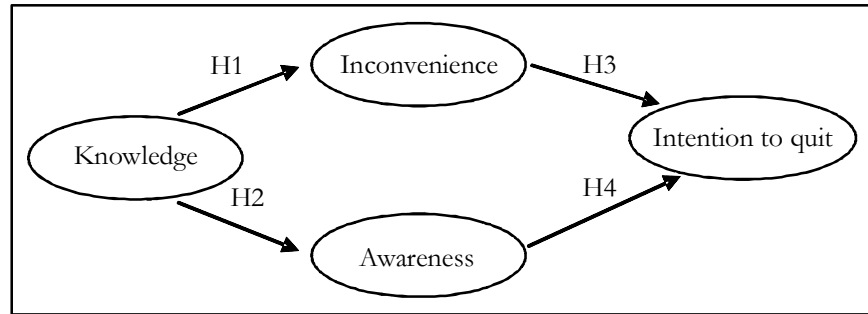


Figure 2: Proposed Model

instrument of the research in the form of questionnaire. The instrument was created by adopting some researches which was conducted by Hammond, *et. al*, (2007) and O’Hegarty *et. al*. (2006). The measurement item uses five–point likert scale anchored by strongly disagree and strongly agree.

Partial Least Square (PLS) was used to analyze the data with structural equation modeling. The problems of feasibility of solutions, factor indeterminacy and violations of the distribution assumptions which usually found on the modeling techniques structural equation Maximum Likelihood can be overcome by PLS (Wang, *et. al*, 2004).

RESULT

Measurement Model

Assessment of adequacy the measurement model could be conducted by evaluation of components loading of items, reliability, convergent validity and discriminant validity of construct (Hair, *et. al*. 2006). Convergent validity could be assessed by factor loadings, which should be more than 0.5 (Straub, 1989), composite reliabilities which should higher than 0.6 (Bagozzi and Yi, 1988), and the average variance extracted (AVE) that should be exceed 0.5 for all constructs (Fornell and Larcker, 1981). Internal reliability assessment could be scaled by Cronbach’s alpha, that should be higher than 0.7 (Hair et al., 2006). By using structural equation modeling application of PLS, we found score of factor loading, composite reliability and cronbach’s alpha shown in the following table. As shown in table 1, all items factor loading are higher than 0.5, all construct composite reliability are above 0.6, and most Cronbach Alpha exceed 0,7. It indicates that the measurement model poses a good reliability.

In addition, the constructs must have a high discriminant validity, can be demonstrated by the roots of Average Variance Extracted (AVE) for each construct higher than the correlation between these constructs with other constructs (Fornell and Locker, 1981). Results showed that the root of the Average Variance Extracted for each construct (located on the diagonal) is higher than the correlation between these constructs with other constructs as shown in the following table. It provides acceptable discriminant validity.

Structural Model

Prior to conduct hypothesis testing of proposed model using PLS, it is needed to assess colinearity, significant and relevance of structural equation, *r* square for exogenous and endogenous relationship, effect size and predictive relevance the model (Hair, *et.al*, 2006).

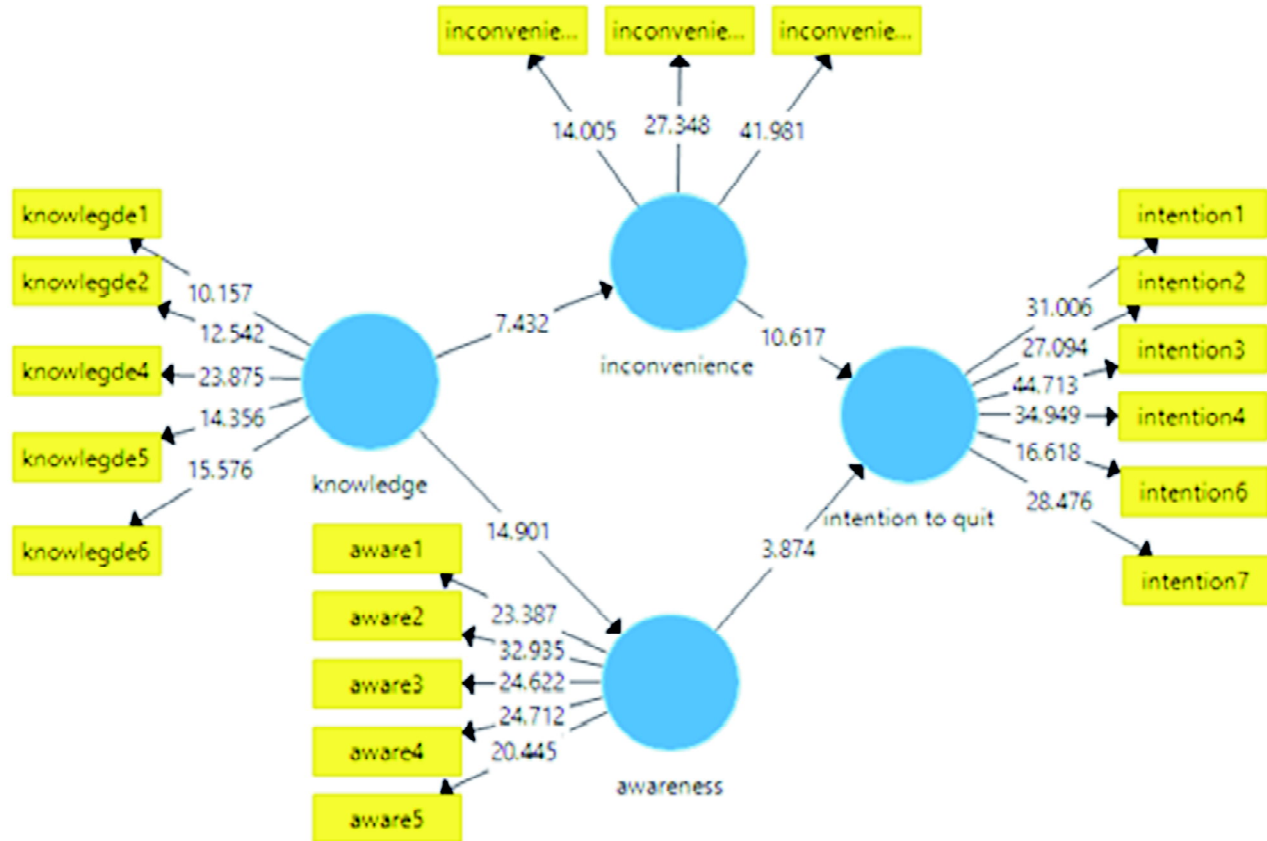
Table 2
Quality Criteria of the construct

<i>Construct and item</i>	<i>Loading</i>	<i>Composite Reliability</i>	<i>Cronbach's Alpha</i>
<i>Knowledge</i>		0.812	0.713
– Knowing the pictorial warning on cigarette packs	0.644		
– Knowing the pictorial warning variation on cigarette packs	0.687		
– Understand the messages of pictorial warnings on cigarette packs	0.759		
– Pictorial warnings on cigarette packs as major source of information about the dangers of smoking	0.646		
– Understand the information of the chemicals in each cigarette on cigarette packs	0.663		
<i>Awareness</i>		0.861	0.798
– Aware that chemical substances attached at each cigarette is really contained in each cigarette in that package	0.731		
– Aware that chemical substances content that attached at the cigarette package have bad impact toward the smokers health	0.782		
– Aware that illustration warning is the actual effect	0.736		
– Aware that illustration on pictorial warning at the cigarette package might happen to the active smokers	0.729		
– Aware that illustration at the cigarette package might happen on the passive smokers.	0.740		
<i>Inconvenience</i>		0.813	0.654
– Smoking can cause chronic diseases	0.669		
– Pictorial warnings on cigarette packs cause inconvenient feeling (disgust, fear, worry)	0.784		
– Pictorial warning at the cigarette package often cause the consideration of the danger of smoking toward the health	0.848		
<i>Intention to quit</i>		0.891	0.854
– Pictorial warnings cause reluctance when buying cigarettes	0.769		
– Pictorial warnings cause the delays to buy cigarettes	0.762		
– Pictorial warnings cause desire to reduce tobacco consumption	0.818		
– Pictorial warnings created a desire to quit	0.806		
– Have desire to stop smoking in short term period	0.665		
– Doing efforts to stop smoking due to the worries that might happen as seen at the pictorial warning	0.736		

Table 3
The correlation matrix and roots Average Variance Extracted (AVE)

	<i>Knowledge</i>	<i>Inconvenience</i>	<i>Awareness</i>	<i>Intention to quit</i>
Knowledge	0.681			
Inconvenience	0.408	0.771		
Awareness	0.587	0.475	0.744	
Intention to quit	0.233	0.540	0.409	0.761

Both VIF of knowledge with inconvenience and awareness are 1.000. Meanwhile, both VIF of inconvenience and awareness with intention are 1.292. Since all VIF are below 0.5, it indicates that there is no colinearity problem in the model (Hair *et.al.*, 2006).



Hypothesis Testing

To analyze the hypotheses, *t* test was used to determine whether they were accepted or rejected. Path analysis and *t* value can be seen in a table below.

Table 4
PLS path analysis result

Hypothesis	Hypothesis Path	Path coefficient	<i>t</i> -value	Remarks
1	Inconvenience < knowledge	0.408	7.432	Accepted
2	Awareness < knowledge	0.587	14.901	Accepted
3	Intention to quit < Inconvenience	0.447	10.617	Accepted
4	Intention to quit < Awareness	0.196	3.874	Accepted

The first hypothesis states that knowledge of the pictorial warning is positively associated to inconvenience of cigarette packaging. This hypothesis is statistically significant at α level of 0,025 with a path coefficient of 0.408 and *t* value of 7.432. Thus this hypothesis is accepted.

The second hypothesis which states knowledge of pictorial warnings positively associated with awareness of the effects of smoking is accepted with path coefficient value of 0.587 and *t* value of 14.901, which was statistically significant at α level of 0.025.

The third hypothesis which states that the inconvenience to the cigarette packaging is positively associated with a desire to quit smoking is also accepted with path coefficient value of 0.447 and *t* value of 10.617, which was statistically significant at α level of 0.025.

The fourth hypothesis stating awareness of the effects of smoking as it appears on the packaging is positively associated with a desire to quit smoking is also accepted with the path coefficient value of 0,196 and *t* value of 3.874, which is statistically significant at α level of 0.025.

Discussion

This study examine demarketing effort of Indonesian government through regulation no 109 in 2012 about the security of tobacco product that contain addictive substances which required cigarette producer to add the pictorial warning in every package of their cigarette product. The regulation seems effectively affect smoker intention to quit smoking. Consumer knowledge of the pictorial warning is positively associated to inconvenience of cigarette packaging. Moreover, knowledge of pictorial warnings positively associated with awareness of the effects of smoking. This finding support the effectiveness warning label to enhance smoker believe (Heydari *et. al.*, 2011). This study also found that the inconvenience to the cigarette packaging is positively associated with a desire to quit smoking and awareness of the effects of smoking as it appears on the packaging is positively associated with a desire to quit smoking. It support the effect of pictorial warning in influencing consumer behavior (Hammond *et.al.*, 2007) and intention to quit (Kees *et. al.* 2010, and Thrasher, *et. al.*, 2007). To sum up, pictorial warning which illustrates negative effect of tobacco is a good effort to reduce smoking prevalence.

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