

## The Effect of Health Warnings in Cigarette Packaging on Repurchase Intention: A Study on Indonesian Consumers

Dwinita Laksmidewi<sup>a\*</sup>

Leonard Surijadi Jonatan<sup>b</sup>

<sup>a,b</sup>Faculty of Economics and Business, Universitas Katolik Indonesia Atma Jaya, Jakarta, Indonesia

### Abstract

This study aims to examine the effect of health warnings on cigarette packs which are mortality-themed on repurchase intention, based on the perspective of terror management theory. This study used an experimental method with Indonesian adult smokers as participants. The results indicate that mortality warnings on cigarette packs conveyed in the form of pictures are more effective to influence the perception of health risks, compared to text warnings. The picture of deadly diseases caused by smoking is more effective than the pictures do not show the deadly disease. Perceived health risk significantly mediates the effect of mortality warning on cigarette repurchase intention. However, smoking self-esteem does not significantly moderate the effect.

### Keywords

Cigarette packaging, mortality salience, repurchase intention, terror management theory.

Received: 17 March 2016; Accepted: 28 March 2016; Published Online: 29 April 2016

DOI: 10.21776/ub.apmba.2016.004.03.3

### Introduction

Smoking does not merely negatively affect the health of smokers, but it actually provides greater negative effects for the people around them (passive smokers). Various efforts are taken by the government to reduce tobacco consumption, such as charging high taxes on tobacco products, anti-smoking campaigns, and the prohibition of smoking in public places. In Indonesia, the government considers that tobacco products have negative impacts for society and the environment, hence the consumption should be controlled;

the circulation needs to be monitored; and the government imposes high taxes on tobacco products.

The tobacco epidemic is one of the biggest public health threats in the world. World Health Organization (WHO) estimates that tobacco epidemic kills around 6 million people per year, and nearly 80% of more than 1 billion smokers worldwide live in low and middle – income countries (<http://www.who.int/mediacentre>). There are almost 600 million tobacco users in the countries of Southeast Asia, which contributes about 50% of the global

\*Corresponding author Email: [dwinita.laksmi@atmajaya.ac.id](mailto:dwinita.laksmi@atmajaya.ac.id)

burden of tobacco users (Al-Sadat et al., 2010). The number of Indonesian smokers showed an increase in recent years. Based on the results of base health research in Indonesia in 2013, Indonesian people smoking behavior tends to increase 36.3%; 64.9% of men and 2.1% of women smoke in 2013, with an average of cigarettes smoked per day of 12.3 rods which is equivalent to one pack. (Riskesdas 2013, Kementerian Kesehatan RI). Although the statistical data show that the number of tobacco processing manufacturing companies decreased, from 1,134 in 2008 to 860 in 2014 (Badan Pusat Statistik/BPS), the big tobacco companies continue to develop their business and have increasingly widespread market share. Facts about Indonesian smoking behavior demonstrate the importance of the government's priority on health aspects in tobacco industry.

As an effort to reduce the number of tobacco consumers, the Indonesian Government issues Regulation No. 19 of 2003 which provides that every person who manufactures cigarettes should include health warnings on every label in the form of text: "Smoking can cause cancer, heart attacks, impotence, pregnancy and fetus disorders". However, the form of text warnings are considered less effective to reduce the level of tobacco consumption, then the Indonesian government establishes the regulation of warnings in the form of visual (picture): PP No. 109

of 2012 that all of tobacco products in the country are required to include a warning of the dangers of smoking for health that is obligated to include images of the diseases caused by smoking on the tobacco product packaging. The regulations require the inclusion of a health warning images on the top side of the package, both in the front and the back, respectively 40% of the entire packaging. The picture of the smoking dangers warnings is now printed on each side on cigarette packaging. There are five pictures that show the adverse effects of smoking such as pictures of mouth cancer, lung cancer, throat cancer, smoking is harmful to children, and smoking kills you (see Figure 1). All the warning pictures are themed mortality.

Along with the mandatory of tobacco companies to include warning pictures on cigarette packs, a phenomenon emerges that consumers are willing to pay a higher price for cigarette packaging that the warning picture is not too scary. Cigarette manufacturers are also trying to find a way so that consumers do not stop buying cigarettes. One way is by selling cover for cigarette packs that are worth Rp 1000, -. The function of the cover itself is to cover the horrific picture of health warnings. This action indicates that from the side of manufacturer there are fears that the mortality warning pictures on cigarette packs would trigger a negative effect on consumers' repurchase behavior.



Peringatan = Warning

**Figure 1. The Picture of the Mortality Warnings on Cigarette Packaging in Indonesia**

The authors conducted a small survey of 30 smokers as preliminary study, asking them to rank the five warning pictures based on the level of their perceived mortality description. This preliminary study results show that the picture of lung cancer is ranked first as the most reminder of death, followed by throat cancer and mouth cancer in the second rank, then the picture of smokers and skull in the third, and lastly the picture of smoker with the child. These results indicate that for smokers, the picture of death reminder in the packaging, each gives a different effect. The question that arises is whether the health warning pictures have a similar impact on repurchase intention. To answer this question, we conducted a study that aims to examine how the effect of mortality warnings on cigarette packs to repurchase intention is.

According to Greenberg, Solomon and Pyszczynski, 1997), mortality salience occurs when the thoughts of death are activated unconsciously. People are trying to reduce the anxiety of death with the affirmation of their cultural worldview or

improve their self-esteem (Greenberg et al., 1997). The picture of health warnings makes an individual to move into a state which the thoughts of death are in a high accessibility and occur unconsciously, which are sometime later the thought of death will affect the individual.

Our study is based on terror management theory (Greenberg et al., 1997), which is based on the idea that people's awareness of their own death is inevitable. This knowledge creates potential extreme anxiety; named 'terror', people in a helpless condition are affected by this threat. In order to manage this pressure, people are motivated to keep the faith in the world view of their culture and to maintain positive self-esteem. We tested the effects of mortality salience on cigarette packaging picture to repurchase intention of tobacco products. Noar et al. (2015) conducted a meta-analysis about the experimental study of pictorial cigarette pack warnings, including the 37 studies were conducted in 16 different countries, with the most conducted in the USA (43%), and followed by Canada

(11%) and Germany (11%). In the Asian region, the studies conducted in Malaysia, China and Thailand, but not in Indonesia.

From the perspective of terror management theory, it can be argued that the health warning message is ineffective. When smokers are faced with the picture of death, they will defend in response to their fears by continuing smoking behavior. A study conducted by Martin and Kamins (2009) showed that participants who are exposed to the health warning message perceived health risk lower than participants exposed to the social exclusion message. How will the result be the same to Indonesian consumers? We argue that in the context of Indonesian consumers, where there are differences in culture and characters as in the previous study, thoughts of death would increase the perception of the health risks.

Previous studies showed that smoking self-esteem is capable of being the buffer for the effect of terror of death. The mortality which is made salient on cigarette packs ironically provides a positive effect on smoking attitude, if smoking self-esteem is high (Hansen, Winzeler, & Topolinski, 2010). In the context of Indonesian consumers, we consider it is necessary to consider self-esteem smoking variables into our model. Is the smoking self-esteem of Indonesian consumer able to be a buffer that can reduce the effects of the terror of death? Therefore, smoking self-esteem became a moderator variable in our model.

This study aims to assess whether the picture of health warnings on cigarette packs in Indonesia is capable to effectively lower consumers' repurchase intention. Health warnings are expected to affect the perception of health risks, which in turn affect the repurchase intention. Specifically, this study compared the

effects of warnings represented by a picture of a disease that can lead to death with the warnings represented by a picture that does not show the disease, and the text-only warning. Based on the perspective of terror management theory, this study considers whether smoking self-esteem moderates the effect of health warnings on repurchase intention.

## **Theoretical Background**

### **Terror Management Theory and Marketing**

A cultural anthropologist, Ernest Becker (1973) said in his book titled "The Denial of Death" that humans as intelligent creatures are able to understand the meaning of death. Therefore, they spend their lives and believe in the cultural elements that make them more significant and meaningful. Death creates anxiety in humans; attacking at unpredictable and random moments, it causes people to spend most of the time and energy to prevent and avoid it. According to Becker (1973), a heroic is central to human life that it goes deeper into human nature than anything else because it is based on organismic narcissism and on the child's need for self-esteem (p.7).

Based on the ideas of Ernest Becker, accompanied by a laboratory experimental study in social, cognitive, clinical and developmental psychology, the Terror Management Theory (TMT) was generated (Greenberg et al., 1997). According to TMT, humans use cognitive ability to overcome the death anxiety by building two components of cultural anxiety buffer. These two components are (1) the cultural worldview, which is a symbolic conception of reality is constructed by humans, containing the belief that life on earth is a regular, permanent and stable; (2) self-esteem, which was

obtained by meeting the standard values in the cultural worldview (Greenberg et al., 1997). Cultural worldviews are beliefs about the nature of reality that humanly created and submitted jointly by a group of individuals (Greenberg et al., 1997). Cultural worldviews act as an anxiety buffer by providing a standard value. Cultural worldviews vary across culture and individuals and can include religious values and social, political, and nationalistic and moral beliefs (Greenberg et al., 1997, Maheswaran & Agrawal, 2004). Mortality Salience occurs when thoughts of death are activated unconsciously. People try to reduce the anxiety of death by the affirmation in their cultural world view, and to improve self-esteem (Greenberg et al., 1997).

The effect of mortality salience has been widely researched in marketing, especially in consumer behavior. Perception of domestic products are more favorable under mortality salience, foreign brands are seen as less desirable (Maheswaran & Agrawal, 2004). Local news bombarded with the reports of mortality affect consumers' perceptions of products advertised within these programs (Mandel & Heine, 1999). Brands could activate mortality thoughts, which, in turn, increased personal spending intentions, and positively affect charity donations (Fransen et al., 2008). Mortality salience affected consumers express more favorable toward luxury brand, and less favorable toward non-luxury brand when they aware of the presence of others (Fransen et al., 2011). Consumers aimed to soothe their fear of mortality by seeking comfort to nostalgic products, which are a type of product that can help consumers cope with insecurity (Zhou et al., 2013). Consequences of smoking depicted in picture believed to be effective shocking tactics to change consumer behavior. Veer and Rank (2012) found in their study that

displaying warnings in shocking images encourage smokers to quit smoking and discourage nonsmokers becoming smokers. In other words the previous studies showed that the thoughts of death affect the various consumer behaviors.

### **The Effect of Mortality Salience on Perceived Health Risk**

TMT applied to the health problems in the terror health management model (Goldenberg & Arndt, 2008). The reasons behind community decisions about their own health can be explored through a model of health management terror, which has three implications. First, awareness of death led people to try to remove all thoughts of death. Second, the death consciously can lead to actions taken based on self-esteem as opposed to physical health. Third, the person's health can inhibit decision-making on behavior preference (Goldenberg & Arndt, 2008).

The individual response to health issues can be conscious responses or unconscious responses. When consciously confronted with health problems, anxiety about death makes the individual will perform proactive actions (e.g., increasing exercise) or avoidant (e.g., denying the perceived risk). Health behavior, in this case, is moderated by the perceived efficacy of the effort that he did. However, when the thought of death is unconscious, the individuals will try to alleviate anxiety about death by searching for affirmation of their value, the value of self-esteem, or from their cultural worldviews. Conscious thoughts of death led individuals to health decision, otherwise, unconscious thoughts led to unhealthy decision (Goldenberg & Arndt, 2008). A study on French consumers, graphic warnings inserted on cigarette packs were more effective opposed to text warnings (Gallopel-Morvan et al., 2009).



Messages that emphasize the negative health consequences are intended to influence the consumer's perception that the consumption of related products increases the risk of health. Mac Innis and Price (1987) said that the absence of sensory dimensions like aroma (smell), taste, sight, and touch of information makes the process of thinking less concrete and more abstract. The consequences of a product will be difficult to understand if it cannot be touched or seen. Then something abstract which cannot be seen or touched, will become more concrete if it is made visible visually, by demonstrating (visual = demonstrative manner, <http://www.websters-online-dictionary.org>). We conducted experimental research on adult smokers in Indonesia. We wanted to know whether some degree of mortality salience on cigarette packs will give a different effect on the perceived health risk.

H1a: perceived health risk will be higher, if the mortality salience in the cigarette packs is conveyed in visual form compared to text form.

H1b: perceived health risk will be higher, if the mortality salience in the cigarette packs is conveyed on picture of disease compared to non-disease.

### **The Effect of Mortality Salience on Repurchase Intention**

When mortality is made salient, people are more motivated by social pressure, rather than health risks (Martin & Kamins, 2009). Especially for young people, the meaning of death is more powerful in bringing the change of someone's behavior when young people are faced with social status, not at a loss, like the death that could not be imagined and the impact is still far away. But, there are many factors to consider such as how strong a person to the decision, the level of self-

esteem and the sense of death which has different effects on individual decisions. When a message contained death as a consequence, consumers who were committed to a worldview of drinking alcohol rejected attitude toward drinking and driving (Shehryar & Hunt, 2005). Consumers who have high levels of self-esteem are more likely to quit smoking after their get social pressure rather than considering of health risks (Martin & Kamins, 2009). If consumers have high smoking self-esteem, it would impede the effect of mortality salience messages on cigarette packs (Hansen et al., 2010).

H2: The effects of mortality salience in cigarette packs on repurchase intention are moderated by smoking self-esteem.

Previous studies showed that mortality salience on cigarette packs had main effect on perceived health risk (Martin & Kamins, 2009). We argue that the rate of mortality salience on the picture health warnings will have positive effect on the perceived health risk. The expected next condition is repurchase intention of consumers of cigarettes would decrease. Consumer intention to buy the same product appeared after consumers evaluate the products based on their experience after feeling the value and benefits of the product (Schiffman & Kanuk, 2010). A study in Taiwan showed that social norms can reduce the repurchase intention (Chang, Lee, Chien, Huang, & Chen, 2010).

H3: Mortality salience in the cigarette packs affects the repurchase intention through the mediation of the perceived health risk.

### **Main Study**

We designed an experimental study to identify the effectiveness of mortality

warnings picture on cigarette packs, in the purpose influencing consumers' repurchase intention. More specifically, this study wanted to know the influence of three kinds of warnings on cigarette packs (H1), to test the mediating role of perceived health risk (H2), and to test the moderating role of smoking self-esteem (H3).

## Method

*Design and Participants.* The experiment had three treatment conditions (mortality salience in cigarette packs: low vs. medium vs. high) between-participants design. One hundred and twenty smokers who live in Jakarta, Indonesia, participated in this study. Participants are 21-50 years old; 96% male 4% female; with the smoking period of 1 up to more than 15 years.

*Stimulus.* Stimulus experiments are 3 kinds of cigarette packages, each used for one condition. We use the real cigarette packaging with the brand name was not shown (covered), with the aim that the participants' response was not influenced by the attitude toward the brand. Based on the result of the pilot study, two different pictures of mortality warnings were chosen. We tested 5 pictures of mortality warning issued by the government in a small survey of 30 smokers, asking them to rank the five warning pictures based on the level of their perceived mortality description. Picture that induced highest mortality perception in the picture of lung cancer, and the lowest is the picture of a smoker with a child. Then, [1] In high mortality condition, we used cigarette packs with the picture of lung cancer, [2] in medium mortality condition, cigarette packs with the picture of a smoker with a child, [3] in low mortality condition, we used cigarette packs with warning that read "Smoking Kills You", without pictures.

*Procedure.* Participants participated in the experiment in groups of five to eight. Participants were told that the purpose of the study was to obtain their evaluation of health pictures. First, participants were asked to answer smoking self-esteem. Next, participants were assigned 1 of 3 kinds of cigarette packaging randomly, and were exposed warning picture on the pack for approximately 1 minute. In order to ensure that the participants' pay attention to the packaging, they are asked to write down three thoughts that comes to mind when they see the illustration. Afterwards, the participants were given a filler task that is unrelated to this study, in order to create 15-minute delay between warning exposure and dependent measures. Finally, participants were given health risk perception measures, and then repurchase intention measures and demographic questions.

*Measures.* Health risk perception was measured by four statements ( $\alpha = 0.859$ ): "Smoking is risky to your health", "smoking is risky to people around you", "smoking makes you sick", "smoking harmful for your health", adapted from Martin and Kamins (2009). Repurchase intention was measured by five statements ( $\alpha = 0.735$ ) such as: "If I want to smoke, I will buy cigarettes, I would like to buy cigarettes, after this, I'm going to buy cigarettes". Smoking self-esteem was measured by 13 items ( $\alpha = 0.909$ ) adapted from Martin and Kamins (2009), including following examples: "Smoking has become my character", "Smoking is important for my social relationships", "Smoking realizes a positive image for myself", "Smoking allows me to feel worthy". All instruments of measurement in this study are valid, with factor loading  $> 0.7$ . All items were answered on six-point Likert scales (1 = strongly disagree; 6 = strongly agree).

## Results

*Manipulation Checks.* To assess whether

the mortality warning on cigarette packs had triggered mortality, the participants were indicated mortality by six statements ( $\alpha = .805$ ): Picture/text on cigarette packs that I have just seen reminds me of: death/grave/coffin/buried/skull/stiff. We used ANOVA - Dunnett test, to compare to the control condition (text warning). Result showed that medium mortality condition has significant differences to the control condition ( $p = 0.032$ ). Furthermore, high mortality conditions have a more significant difference to the control condition ( $p = 0.000$ ) ( $M_{\text{control}}=2.9778$ ,  $M_{\text{medium}} = 3.6111$ ,  $M_{\text{high}}= 4.2222$ ), suggesting the manipulation was successful.

**Perceived Health Risk.** A one-way ANOVA was performed using the average of the four questions on perceived health risk as the dependent variable. As predicted, the main effect of mortality salience was significant ( $F=11.530$ ,  $p = 0.000$ ;  $M_{\text{control}}=3.7583$ ,  $M_{\text{medium}} =4.2250$ ,  $M_{\text{high}}= 5.0250$ ). The health risks perception difference between the medium mortality condition compared to the control condition was not significant ( $p = 0.084$ ), because the condition 1/control (text) of writing and medium condition (picture of a smoker and a child) was not too terrifying. The health risks perception difference between

the high mortality condition compared to the control condition was significant ( $p = 0.000$ ), as well as between the high mortality condition compared to the medium condition ( $p = 0.000$ ). These results support H1a and H1b. Perceived health risk will be higher, if the mortality salience in the cigarette packs is conveyed in visual form compared to text form. The result also shows that if the picture induces higher mortality condition, it will increase perceived health risk.

**Mediation and Moderation Analysis.** We performed the mediation analysis with repurchase intention as the dependent variable, mortality salience as the predictor, and the perceived health risk as the mediating variable, using the OLS regression PROCESS SPSS macro, model 5, and bootstrap analysis  $n=1000$  (Hayes, 2013; Hayes & Preacher, 2013). In model 5 macro PROCESS, we performed moderation analysis simultaneously, with the same independent variables and the dependent variables, and smoking self-esteem as moderating variable.

Table 1 show that the effect of mortality warnings on perceived health risk was significant ( $a = 1.7583$ ,  $t = 7.5125$ ,  $p = 0.0000$ ). Compared with text warning (control condition), visual mortality warning encourages higher perceived health risk.

**Table 1. The Effect Of Mortality Salience On Perceived Health Risk**

Model = 5						
Y = Rpurchase						
X = Condition						
M = HRisk						
W = SelfEst						
Sample size=120						
Outcome: HRisk						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
0.7023	0.4932	0.8217	56.4370	1.0000	58.0000	0.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	3.2667	0.1655	19.7379	0.0000	2.9354	3.5980
Condition	1.7583	0.2341	7.5125	0.0000	1.2898	2.2268



Direct effect of mortality salience to repurchase intention was not significant ( $c' = -0.7479, t = -0.8662, p = 0.3901$ ) (Table 2). There was a non-significant interaction of mortality salience and smoking self-esteem (condition  $\times$  self-esteem = 0.0753,  $t = 0.3382, p = 0.7365$ ). Spotlight approach by picking the value of self-esteem percentile to the 10th, 25th, 50th, 75th, and 90th (Hayes, 2013; Spiller et al., 2013) also shows that at all levels of self-esteem that mortality salience had no direct effect on purchase intention (Table 2). Therefore, H2 was not supported. The effects of mortality salience in cigarette packs on repurchase intention were not moderated by smoking self-esteem.

The effect of perceived health risk (HRisk) on repurchase intention (Rpurchase) was significant ( $b = -0.3267, t = -3.0184, p = 0.0038$ ) (Table 2). Indirect effect mortality salience on repurchase intention through perceived health risk was significant ( $ab = -0.5744$  95% CI (0.1233 to 1.0725) excluded zero). Direct effect mortality salience to repurchase intention was not significant, indicating that full mediation occurred (Baron & Kenny, 1986; Zhao et al., 2010). H3 was supported; mortality salience in the cigarette packs affects the repurchase intention through the mediation of the perceived health risk.

**Table 2. The Effect Of Mortality Salience To Repurchase Intention**

Outcome: Rpurchase						
Model Summary						
<b>R</b>	<b>R-sq</b>	<b>MSE</b>	<b>F</b>	<b>df1</b>	<b>df2</b>	<b>p</b>
0.3832	0.1468	0.5064	2.3667	4.0000	55.0000	0.0639
Model						
	<b>coeff</b>	<b>se</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
constant	2.8111	0.8239	3.4118	0.0012	1.1599	4.4623
HRisk	-0.3267	0.1082	-3.0184	0.0038	0.1098	0.5436
Condition	-0.7479	0.8634	-0.8662	0.3901	-2.4783	0.9824
SelfEst	0.0590	0.1629	0.3619	0.7188	-0.2675	0.3854
int_1	0.0753	0.2227	0.3382	0.7365	-0.3709	0.5215
Interactions: int_1 Condition X SelfEst						
Conditional direct effect(s) of X on Y at values of the moderator(s):						
<b>SelfEst</b>	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
2.3846	-0.5683	0.3904	-1.4556	0.1512	-1.3508	0.2141
3.1538	-0.5104	0.2853	-1.7888	0.0792	-1.0823	0.0614
3.6923	-0.4699	0.2581	-1.8205	0.0741	-0.9871	0.0474
4.4615	-0.4119	0.3088	-1.3341	0.1877	-1.0307	0.2069
4.8462	-0.3830	0.3629	-1.0553	0.2959	-1.1103	0.3443
Indirect effect of X on Y						
	<b>Effect</b>	<b>Boot SE</b>	<b>BootLLCI</b>	<b>BootULCI</b>		
HRisk	-0.5744	0.2386	0.1233	1.0725		

## Discussion

The results indicate that health warnings on cigarette packs conveyed in the form of pictures are more effective to influence the perception of health risks. Further, the results also showed that the pictures on the theme of death; in this case, the picture of diseases caused by smoking can cause death; are more effective than the pictures that do not show the deadly disease. The words: "smoking kills you" is not enough to illustrate the death. These results support the previous study that pictorial warnings were more effective than text warnings (Gallopel-Morvan et al., 2009; Noar et al., 2015). These results are not in line with previous studies, which mortality-themed warning would produce a health risk perception lower than the social-themed one (Martin & Kamins, 2009), as well as the study by Hansen et al. (2010) that attitude toward smoking becomes more positive if the warning message is mortality salience. In a study in Malaysia warnings label have a relationship with quitting interest, approximately 50% respondents had current intentions to quit (Fathelrahman et al., 2009).

Mediation test indicates that the perceived health risk significantly mediates the effects of mortality salience on repurchase intention. This can be interpreted that the mortality picture led to higher perceived health risk than text warning, then led to the lower repurchase intention. One interesting finding from this study is the participants' smoking is not based self-esteem. From the answers to the question of smoking self-esteem showed the low level smoking self-esteem (Mean = 3.2863), smoking does not allow them to feel valued by others, and smoking does not boost their positive self-image. Moderation test showed that there were no direct effects of mortality salience on repurchase intention, and smoking self-esteem does not moderate the influence.

Although not as specific as smoking self-esteem, a study in Taiwan showed that emotional reaction (cognitive experience and involvement) had a positive influence on purchase intention (Chang et al., 2010). A study on teens in Asia, including in Indonesia shows that smoking behavior in less developed areas in Indonesia is recognized more acceptable than in developed areas such as Central Java (Choe et al., 2004). Smoking behavior is found on the Indonesian teens that have no close relationship with parents, being out of school, and being married (Choe et al., 2004). In our study, smoking self-esteem is low and has no effect on smoking behavior; it is likely that all the participants are from Jakarta – a developed big city, adult, and educated. However, the influence of socio-economic factors in Indonesia is not included in the scope of our study, therefore further research is needed. In Thailand and Malaysia, although associated with the self-efficacy, higher levels of education and higher income were not associated with the intention to quit smoking (Siahpush et al., 2008).

In contrast with previous studies that used students as participants, our participants are adult smokers, most of whom are married. For adult, the death could be more imagined and the impact is not still far away. There are other factors which are not measured in this study that may affect the results, such as the level of religiosity, or views about death. In our study, we also did not consider cultural effect. Cultural worldviews vary across culture and individuals, and may include religious, social value, nationalistic beliefs, and moral codes (Geenberg et al., 1997). A study in Japan (non-Western culture) showed that Japanese in a mortality salience condition were more critical toward anti-Japan essay writer, and they indicated to prefer high over low-status

products (Heine et al., 2002). Our research conducted in Indonesia, which has a non-Western culture, in contrast to cigarette warnings in previous studies conducted in Western countries. Previous research showed that culture has an influence on the health (Lillemor et al., 2013). Indonesia is considered by Hofstede to mostly have a collectivist culture and people from the collective culture more focused on relationships with others. In the collective culture, Indonesian tends to see others as part of their own lives. People in Indonesia care about each other, they can share with others. We suspect this may affect how Indonesian cigarette consumers view about the mortality, and also affect smoking self-esteem.

Similar to our result, Thai pictorial health warning labels recently have caused a greater impact than text-only warning labels (Yong et al., 2013). After the change of the warning labels in Thailand, the awareness of smokers, and cognitive and behavioral reactions increased sharply. Warning labels make them think of health risk of smoking and made them more likely to quit smoking (Yong et al., 2013). As well as in Singapore, more than half of 115 adult respondents of outpatient clinics in Singapore indicated that graphic health warning labels reading 'Smoking causes blindness' printed on cigarette packs would be effective in discouraging them from smoking (Ng et al., 2010). Pictorial image in cigarette pack might have helped to maintain the effect of health warnings. Different from previous studies in Asia, our studies have specifically examined the effect of text and images on cigarette packs, with experimental methods that override the effect of other factors such as the effect of brand.

## Conclusions

Our study aims to test the effectiveness of health warnings on cigarette packs that

are themed mortality, which is applied in Indonesia. The results indicate that health warnings on cigarette packs conveyed in the form of pictures are more effective to influence the perception of health risks, compared to text warning (writing: "Smoking kills you"). The picture of deadly diseases caused by smoking (lung cancer) is more effective than the pictures that do not show the deadly disease (a smoker with a child). Perceived health risk, in turn, affects the repurchase intention. Warning in the form of pictures of diseases caused by smoking is more effective in reducing cigarette repurchase intention.

Our study is limited to the repurchase intention, so the effect on real smoking behavior could not be known. To determine the effect of health warnings on the real behavior, further research is needed. From the perspective of terror management theory, this study shows that the results support previous research. Participants reported that smoking was not related to their self-esteem. Smoking self-esteem in this study is not a significant moderation. Warning in the form of pictures of diseases caused by smoking (mortality) can reduce cigarette repurchase intention, because of mediation of perceived health risk, and not because of moderation of smoking self-esteem. We suspect it was due to differences in the participants; adult smokers certainly hold the value of life different from young smokers. Further research is needed to compare the effects of health warnings themed mortality on young smokers and adult smokers in non-Western countries such as Indonesia.

## Notes on Contributors

**Dwinita Laksmidewi** is a full-time lecturer of management department at Faculty of Economics and Business, Universitas Katolik Indonesia Atma

Jaya, Jakarta. She completed her doctoral degree in Management Science at Universitas Indonesia, Depok, received an undergraduate degree in Management and a magister degree in Management Science from Universitas Gadjah Mada, Yogyakarta. Her research interests lie in the area of Consumer Behavior and Social Marketing.

**Leonard Surijadi Jonatan**, M.M., graduated from Magister Management, Faculty of Economics and Business, Universitas Katolik Indonesia Atma Jaya, Jakarta.

## References

- Al-Sadat, Nabilla; Misau, A.Y.; Zariyah, Z. ; Maznah, D. & Tin Tin Su (2010). Adolescent Tobacco Use and Health in Southeast Asia. *Asia-Pacific Journal of Public Health. Supplement to 22*(3) 175S–180S.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Becker, E. (1973). *The Denial of Death*. New York: The Free Press
- Chang L-Y., Lee, Y-J, Chien, C-L., Huang, C-L, & Chen C-Y. (2010) The Influence of Consumer's Emotional Response and Social Norm on Repurchase Intention: a Case of Cigarette Repurchase in Taiwan. *The Journal of International Management Studies*, 5(2), 21-30.
- Choe, M.K.; Thapa, S.; Podhisita, C.; Raymundo, C., Lin, Hui-Sheng, & Achmad, S. (2004). The Teen Tobacco Epidemic in Asia: Indonesia, Nepal, Philippines, Taiwan, and Thailand. *Journal of Youth Studies*, 7(1) 73–87.
- Fathelrahman , A.I; Omar , M.; Awang, R.; Borland , R.; Fong , G.T.; Hammond , D., & Zain, Z. (2009). Smokers' responses toward cigarette pack warning labels in predicting quit intention, stage of change, and self-efficacy .*Nicotine & Tobacco Research*, 11(3) 248–253.
- Fransen, M.L., Fennis, B.M., Pruyn, A. T., & Das, E. (2008). Rest in peace? Brand-induced mortality salience and consumer behavior. *Journal of Business Research*, 61, 1053-1061.
- Fransen, M. L., Smeesters, D., Fennis, B. M. (2011). The role of social presence in mortality salience effects. *Journal of Business Research*, 64, 29–33.
- Gallopel-Morvan K., Gabriel, P., Gall-Ely, M. L., Rieunier, S., &Urien, B. (2009). The use of visual warnings in social marketing: The case of tobacco. *Journal of Business Research*, DOI:10.1016/j.jbusres.2009.09.012
- Goldenberg, J. L, & Arndt, J. (2008). The Implications of death for health: A terror management health model for behavioral health promotion. *Psychological Review*, 115, 1032-1053.
- Greenberg, J., Simon, L., Harmon-Jones, E., Solomon, S., Pyszczynski, T., Arndt, J., & Abend, T. (1997). Terror Management and Cognitive-Experiential Self-Theory: Evidence That Terror Management Occurs in the Experiential System. *Journal of Personality and Social Psychology*, 72(5), 1132-1146



- Greenberg, J., Solomon, S. Pyszczynski (1997). Terror management theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. *Advances in experimental social psychology*, 29, 61-139.
- Hansen, J., Winzeler, S., & Topolinski, S. (2010). When the Death Makes You Smoke: A Terror Management Perspective on the Effectiveness of Cigarette on Pack Warnings. *Journal of Experimental Social Psychology*, (46) 226-228.
- Hayes, A.F. (2013). *Introduction to mediation, moderation, and conditional process analysis. A regression-based approach*. The Guilford Press. New York.
- Heine, S. J., Harihara, M., & Niiya, Y. (2002). Terror management in Japan. *Asian Journal of Social Psychology*, 5, 187-196.
- <http://www.depkes.go.id/resources/download/general/HasilRiskesdas2013.pdf>
- <https://www.bps.go.id/linkTableDinamis/view/id/896>
- <http://www.who.int/mediacentre/factsheets>
- Lillemor, A., Djamaludin, A., Neila, R., & Trevor, A. (2013). Cultural influences upon health, affect, self-esteem and impulsiveness: An Indonesian-Swedish comparison. *International Journal of Research Studies in Psychology*, 2(3), 25-44.
- Maheswaran, D. & Agrawal, N. (2004). Motivational and Cultural Variations in Mortality Salience Effects: Contemplations on Terror Management Theory and Consumer Behavior. *Journal of Consumer Psychology*, 14(3), 213-218.
- Mandel, N., & Heine, S.J. (1999). Terror Management and Marketing: He Who Dies with the Most Toys Wins. *Advances in Consumer Research*, 26(1) 527-532.
- Martin, I. M., & Kamins, M.A. (2009). An Application of Terror Management Theory in design of social and health-related anti-smoking appeals. *Journal of Consumer Behaviour*, DOI: 10/1002/cb
- Ng, D.H.L.; Roxburgh, S.T.D.; Sanjay, S. & Au Eong, K.G. (2010). Awareness of smoking risks and attitudes towards graphic health warning labels on cigarette packs: a cross-cultural study of two populations in Singapore and Scotland. *Eye*, 24, 864-868.
- Noar, S.M., Hall, M.G., Francis, D.B., Ribisl, K.M., Jessica K. (2015). Pictorial cigarette pack warnings: a meta-analysis of experimental studies. *Tobacco Control published online. doi:10.1136/tobaccocontrol-2014-051978*
- Shehryar, O., & Hunt, D.M. (2005). A Terror Management Perspective on the Persuasiveness of Fear Appeals. *Journal of Consumer Psychology*, 15(4), 275-287.
- Siahpush, M., Borland R., Yong Hua-Hie, Kin F., & Sirirassamee B. (2008). Socio-economic variations in tobacco consumption, intention to quit and self-efficacy to quit among male smokers in Thailand and Malaysia: results from the *International Tobacco Control-South-East Asia (ITC-SEA) survey*. *Addiction*, 103 (3), 502-508.



- Spiller, S.A., Fitzsimons, G.J., & Lynch Jr., J.G. (2013). Spotlights, floodlights, and the magic number zero: Simple effects test in moderated regression. *Journal of Marketing Research*, 50, 277-288.
- Veer, E. and Rank, T. (2012), Warning! The following packet contains shocking images: The impact of mortality salience on the effectiveness of graphic cigarette warning labels. *Journal of Consumer Behaviour*, 11: 225–233. doi: 10.1002/cb.391.
- Yong, Hua-Hie; Fong, G.T.; Driezen, P.; Borland, R.; Quah, A.C.K.; Sirirassamee, B.; Hamann, S.; Omar, M. (2013). Adult Smokers' Reactions to Pictorial Health Warning Labels on Cigarette Packs in Thailand and Moderating Effects of Type of Cigarette Smoked: Findings From the International Tobacco Control Southeast Asia Survey. *Nicotine & Tobacco Research*. doi:10.1093/ntr/nts241
- Zhao, X., Lynch Jr. J.G., & Chen, Q. (2010). Reconsidering Baron and Kenny: myths and truths about mediation analysis. *Journal of Consumer Research*, 37, 197-206.
- Zhou, L., Wang, T., Zhang, Q., & Mou, Y. (2013). Consumer insecurity and preference for nostalgic products: Evidence from China. *Journal of Business Research*, 66, 2406–2411.