The Association Between Tobacco Marketing mix And Smoking Behavior Among Working Age Male Group In East Borneo, Indonesia

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ABSTRACT

Background: Indonesia have implemented various antismoking measures since the prevalence of smoking were reported highest in Indonesia (46.16%) among ASEAN. However, major studies has not been carried out to measure that effect. The objective of this study was to determine the prevalence and characteristics of smoking and the influence of tobacco marketing mix factors (price, product, place and promotion) on smoking behaviors among working age males in Indonesia.

Method: This cross sectional study was conducted in 2016. A total of 311 working age males was randomly selected from 10 sub - districts in urban areas of Samarinda, East Kalimantan, Indonesia to response a structured questionnaire. Data was transferred to STATA (Version 13, Stata Corporation, College Station TX) for analysis. The categorical data was reported as numbers and percentages. Bivariate analysis was performed to measures the estimated the association between each independent variable of interest and smoking behavior.

Result: A total of 311, prevalence of smokers was 45.6% (95% CI: 40.09% to 51.23%). There are number and percentage related tobacco marketing mix factors such as Noticed advertisement or cigarette promotion (192, 61.7%), free sample of cigarettes (11, 3.5%), cigarettes at sale prices (42, 13.5%), special discount (73, 23.5%), free gifts (197, 63.3%), clothing or other items with a cigarettes (161, 51.8%), brand or logo (cigarette) (134, 43.1%), cigarette promotion in the mall (231, 74.3%), cigarette promotion in the television (173, 55.6%), cigarette promotion in radio (73, 23.5%).

Conclusion: Tobacco marketing mix factors has two content that associated with smoking behavior such as **notices advertisement or cigarette promotion** (OR: 0.74, 95% CI: 0.46 to 1.18) and **free sample of cigarettes** was factor that associated with smoking behavior in working age males group (OR: 0.67, 95% CI: 0.39 to 1.15).

Keywords: *Tobacco Marketing Mix, Smoking Behavior, and Working Age Male Group*

Background:

The main risk factor for chronic disease is tobacco use such as cardiovascular diseases and lung cancer (WHO 2015). About 20% of global deaths were from tobacco (The Tobacco Atlas, 2014). Tobacco use causes around 6 million deaths per year (WHO, 2012), 600,000 deaths of non-smokers being exposed to second-hand smoke (170,000 deaths among childrens) (Oberg, Joakkola, et al. 2011). Tobacco smoke contains about 7,000 chemicals and hundres are toxics (CDC, 2010).

In 2013, 10 % of smokers were from ASEAN. The prevalence of smoking were highest in Indonesia (46.16%), followed by the Philippines (16.62%), Vietnam (14.11%), Myanmar (8.73%), Thailand (7.74%), Malaysia (2.90%), Cambodia (2.07%), Singapore (0.39%) and Brunei (0.04%) (The Tobacco Atlas, 2014). Prevalence of male smokers and female smokers based on their age group is 15-24 (51.7% : 0.1%), 25-44 (73.3% : 1.7%), 45-64 (72.4% : 5.8%) and 65+ (61.2% : 6.7%) and type of tobacco product is kretek tobacco (80.4%), hand-rolled tobacco (5.6%), white tobacco (3.7%), white, kretek and hand-rolled tobacco (0.3%), both kretek and hand-rolled (2.3%) and the last is both white and kretek tobacco (0.0%) (Global Adult Tobacco Survey Indonesia, 2011).

In addition, the survey in 2014 indicated that there were 35% male and 3% female smokers in Indonesia (Global youth tobacco survey, 2014). There was higher mortality related to smoking among males then females (Rebecca, Pamela, et al. 2010).

Moreover, the problem is tobacco advertisement, tobacco promotion and sponsor from Tobacco Company is very strong even though there are various antismoking activities. It is claimed that anti cigarette smoking can be effective with Mass Media Campaigns (MMCs) (Farrelly, Crankshaw, et al. 2008). Although, Since 1970 MMCs have been used for reducing population of smokers (Wakafield and Loken, 2010).

The Global Youth Tobacco Survey (2014) reported that teenagers in Indonesia, 89.3% found cigarette advertisement in bilboard, 76.6% in magazine or newspaper and 7.7% had received free cigarettes. 5 in 10 adults perceived tobacco marketing in stores where cigarette are sold. 8 in 10 adults perceived tobacco advertisement, promotions, or sporting event sponsored by cigarette (Global Adults Tobacco Survey Fact Sheet, 2011). Whereas it was much lower for the antismoking advertisement. Understanding the factors that can influencing smoking behavior such as **Tobacco Marketing Mix Factors** like price, product, place and promotion will help to reduce the burden from country as well as globe.

Research Method:

This cross sectional study was conducted in 2016. A total of 311 working age males were randomly selected from 10 sub- districts in Samarinda, East Kalimantan, Indonesia to response to a structured questionnaire. Descriptive statistics was used to analyze the smoking behavior where as simple.

Population is the set of all the individuals of interest in a particular study. The study population was working (both of government and private sector) age males group in specific age group start from 17-59 years old based on the Regulation of Minister of Home Affairs number 9, 2011 about guidelines for Identity Card that Indonesian people and foreign who have permission for stay in Indonesia that have been aged 17 years old or have been married legally. The following formulation was applied to obtain the required number of sample size:

$$n = \frac{P\ (1-P)(Z_{1-\alpha} - Z_{1-\beta})^2}{[B(1-B)(P_0 - P_1)]}\ \mathbf{X}\ \frac{1}{1-P^2}$$

Source : Hsieh Bloch ,et al, 1998.

Total sample size was 311 from working age males group in 10 sub-district in Samarinda city, East Kalimantan. This study was apply simple random sampling technique.

Questionnaire interview was used for data collection. The content of questionnaire was asses about tobacco marketing mix factors sucha as price, product, place and promotion based on the ethical consideration Khon Kaen University number (IRB00001189). Informed consent form has taken from all participants before asking the questions. Data was transferred to STATA (Version 13, Stata Corporation, College Station TX) for analysis. The categorical data was reported as a number and percentages. Odd ratio (OR) and their 95% confident interval (CI) will estimated with unconditional logistic regression by smoking behavior as an outcome. Bivariate analysis was performed to measures the effect of each variables of interest.

Result:

The total of participants in this study were 311 working age males from 10 urban subdistricts in Samarinda city, East Kalimantan Indonesia. The mean age was 26.6± 9.94 S.D. Majority of the respondents was in the productive age (20-29 years old, 53.0%). Most of them were Islam (278, 89.4%), single (207, 66.7%). 46.6% of participanst finished senior high school and 35.4% got bachelor degree. 26.4% had their own business, 24.8% were government officers, 16.4% were private emloyees, 12.2% were industrial labour and 7.0% were farmers. The median number of family of 2, minimum 1 person and maximum 15 persons. The mean of income per mont (in Rp) Rp1,924,437± Rp1,081,329 and median income per month (in Dollar) $153 (minimum $77 and maximum $306). The summarize of socio-demographic of working age males were presented in table 1 (Socio-demographic characteristics of working age males).

Table 1: Socio-demographic characteristics of working age males (n= 311)

Characteristic	Number	Percentage
Smoking		
Yes	142	45.7
No	169	54.4
Religion		
Islam	278	89.4
Christian	27	8.7
Catholic	5	1.6
Hindu	-	-
Buddha	1	0.3
Khong Hu Cu	-	-
Age (years)		
<20	65	20.90
20-29	165	53.05
30-39	34	10.93
40-49	30	9.65
50-59	17	5.47
Mean (S.D.)	26.6 (9.94)	
Median (Min: Max)	23 (17:59)	
Marital Status		
Married	96	30.9
Single	207	66.7
Divorced/separated	8	2.6
Residence		
Urban	147	47.3
Suburban	87	27.1

Rural	60	19.3
Others	17	5.5
Education attainment		
None	8	2.6
Primary school	19	6.1
Junior high school	13	4.2
Senior high school	145	46.6
Bachelor degree	110	35.4
Master degree	5	1.6
Doctoral degree	11	3.5
Occupation		
Farmer	22	7.0
Own business	82	26.4
Government official	77	24.8
Industrial labour	38	12.2
Private employee	51	16.4
Others	41	13.2
Number of family member		
≤2	28	9.0
≥ 2	283	91.0
Mean (S.D.)	1.9 (0.29)	
Median (Min: Max)	2 (1: 15)	
Income (per month in Rp)		
< **$153**	178	57.3
≥ **$153**	133	42.8
Mean (S.D.)	147 (1081329)	
Median (Min: Max)	115 (77: 306)	

Based on table 2 there are the number of Noticed advertisement or cigarette promotion (192, 61.7%), free sample of cigarettes (11, 3.5%), cigarettes at sale prices (42, 13.5%), special discount (73, 23.5%), free gifts (197, 63.3%), clothing or other items with a cigarettes (161, 51.8%), brand or logo (cigarette) (134, 43.1%), cigarette promotion in the mall (231, 74.3%), cigarette promotion in the television (173, 55.6%), cigarette promotion in radio (73, 23.5%).

Table 2: Tobacco Marketing Mix Factors (n= 311)

Factors	Number	Percentage (%)
Noticed advertisement or cigarette promotion		
Yes	192	61.7
No	119	38.3
Free sample of cigarettes		
Never	149	47.9
Seldom	89	28.6
Sometime	62	19.9
Often	11	3.5
Cigarettes at sale prices		
Never	38	12.2
Seldom	118	37.9

Sometime	113	36.3
Often	42	13.5
Special discount		
Never	36	11.6
Seldom	103	33.1
Sometime	99	31.9
Often	73	23.5
Free gifts		
Never	37	11.9
Seldom	8	2.3
Sometime	69	22.2
Often	197	63.3
Clothing or other items with a cigarette	20	6.4
Never	9	2.9
Seldom	121	38.9
Sometime	161	51.8
Often		
Brand or logo (cigarette)		
Never	16	5.1
Seldom	26	8.4
Sometime	135	43.4
Often	134	43.1
Cigarette promotions in the mall		
Never	8	2.3
Seldom	24	7.7
Sometime	48	15.4
Often	231	74.3
Cigarette promotions in the television	29	9.3
Never	52	16.7
Seldom	57	18.3
Sometime	173	55.6
Often		
Cigarette promotions in the radio		
Never	35	11.2
Seldom	104	33.4
Sometime	99	31.8
Often	73	23.5

Tobacco marketing mix factors has two content that associated with smoking behavior such as **notices advertisement or cigarette promotion** (OR: 0.74, 95% CI: 0.46 to 1.18) and **free sample of cigarettes** was be factor theat associated with smoking behavior in working age male workes (OR: 0.67, 95% CI: 0.39 to 1.15).

Table 3. Tobacco marketing mix factors associated with smoking behavior in working age group (n= 311)

Factors	Number	%Smoking	Crude OR	95% CI	p- value
Noticed advertisement or cigarette promotion					0.210
Yes	192	48.4	1		
No	119	41.2	0.74	(0.46 to 1.18)	
Free sample of cigarettes					0.150
Often	238	47.9	1		
Never	73	38.4	0.67	(0.39 to 1.15)	

Discussion:

Almost half of Indonesia working age males were smoker. The distribution of the sample population in working age males by age showed that all most half of them were in age group of 20-29 years. This is different result in compare with another study which shows that men aged 40–49 were 1.2 (95% CI: 1.1–1.4) times more likely to smoke compared with those aged 18–29 after controlling for factors such as marital status, education, employment and wealth (Hosseinpoor, A.R., et al., 2011). This might be due to the younger generations people less have income to purchase cigarette. Most of participants in this study are Islam 89.4% and it has been revealed that the 87.2% Indonesian people are Islam in 2010 (Central Bureau of Statistics Indonesia, 2010). 147 (47.3%) from 311 participants are live in urban area and (19.3%%) in the rural area.

Moreover, the result of this study found that tobacco marketing mix has association with smoking behavior by 2 variable like notices advertisement or cigarette promotion (OR: 0.74, 95% CI: 0.46 to 1.18) and free sample of cigarettes was be factor theat associated with smoking behavior in working age male workes (OR: 0.67, 95% CI: 0.39 to 1.15). According to youth survey data from the USA, POS tobacco advertising is positively associated with smoking initiation, while promotional offers (eg, multipack discounts, special prices, gift with purchase) are particularly influential towards more established smokers (Slater, Chaloupka, et al. 2007) and New smokers always increase in every year. Increasing smokers prevalence has related with the cheap price of cigarettes in Indonesia, easy to buy cigarettes by retail, cigarettes sales in every where and permissibility for sale cigarette to children under 18 years old. Until right now, increasing smokers prevalence in Indonesia from 27% (1995) menjadi 36.3% (2013) (Ministry of Health Indonesia, 2014).

Conclusion:

Tobacco marketing mix factors has two content that associated with smoking behavior such as **notices advertisement or cigarette promotion** (OR: 0.74, 95% CI: 0.46 to 1.18) and **free sample of cigarettes** was be factor theat associated with smoking behavior in working age male workes (OR: 0.67, 95% CI: 0.39 to 1.15).

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