

## The Effect of Cigarette Advertising on Smoking Behaviour of Students in Banda Aceh City, Indonesia

HERU SYAH PUTRA

*Center for Innovative Government and Society Studies, Indonesia*

RIZANNA ROSEMARY

*University of Sydney, Australia*

DENI YANUAR

*Syiah Kuala University, Indonesia*

ABDILLAH AHSAN

*Universitas Indonesia, Indonesia*

### ABSTRACT

The prevalence of student smokers has been increasing in Banda Aceh City recently. The presence of cigarette advertisements near schools is believed to be one of the causes. However, there is a lack of study for this issue. This study tries to calculate the effect of cigarette advertisements around schools on the smoking activities of students. This research is conducted in the city of Banda Aceh with a total sample of 365 students. We use the Linear Probability Model to estimate the effect by assuming that smoking behaviour is a factor of individual, household and environmental characteristics of students. The result shows that cigarette advertising has a positive and significant effect on the smoking behaviour of high school students in Banda Aceh. The presence of cigarette billboards near the school increases the probability of students' smoking behaviour by 12.4%, whereas the presence of banners causes an increase in the probability by 18.4%. It shows that 41% of the samples are smokers or had smoked before with 37% daily smokers and 59% occasional smokers. Through in-depth interviews, this study finds that having a smoker father or brother as well as friend increases the willingness of students to be smoker. Therefore, the local government should undertake a policy to ban cigarette advertisements in order to reduce the students' risk of being smokers. The government must also promote the creation of smoke-free families to reduce the possibility of increasing student smoker rate.

**Keywords:** *Effect of cigarette, student, smoking behaviour, advertisements, chronic diseases.*

### INTRODUCTION

The World Health Organization (WHO) has declared smoking a major threat to global public health. According to WHO, Non-Communicable Diseases (NCDs) or major non-communicable diseases (PTM) are the main contributors to mortality worldwide (68%) followed by infectious diseases (23%), and injuries (9%). The results showed that the main preventable PTMs, such as lung cancer, diabetes, heart disease, respiratory infections, and other chronic diseases were caused by smoking habits (World Health Organization, 2015). About 1 in 10 adults or more than 6 million people die each year from tobacco use, with 5 million cases of second-hand smokers (SHS). In addition, around 38 million global tobacco-related deaths occur in developing countries, particularly in low-middle income countries (LMIC), such as Indonesia (World Health Organization, 2015).

The number of smokers in Indonesia is the third highest in the world. With a population of 252,812,245, more than half of the population of men are smokers - adults (67%) and adolescents aged 13-15 (36.2%); there is also a large growth of female smokers every year - adults (1.9%) and adolescents (4.3%) (World Health Organization, 2015) This condition has become a burden on the health, economy, social and political state. Smokers among young people are considered the highest total deaths in the country (World Health Organization, 2015), so Indonesia faces social and demographic problems, losing potential young people in the future. In addition, the majority of smokers come from poor and low-income households with expenditures for tobacco consumption higher than other primary.

Many research results have shown various factors contributing to smoking, both among adults (Lovato, Watts, & Stead, 2011), teenagers and young adults (Duke, Lee, Kim, Watson, Arnold, Nonnemaker, & Porter, 2014; Ling, Neilands, & Glantz, 2009); and even children (Harakeh, Scholte, Vermulst, De Vries, & Engels, 2004; Wang, Ho, & Lam, 2011). Generally, the influence of peers and family is the main reason for adolescents to smoke. In addition, exposure to pro-smoking messages through the media also contributes significantly to the smoking behaviour of young groups (Bala, Strzeszynski, & Topor-Madry, 2017; Duke et al., 2014). The messages that encourage cigarette consumption are spread through electronic media - television, print media - newspapers, billboards and through new media.

Banda Aceh City, the provincial capital of Aceh, currently ranks fifth in the number of national smokers (Ministry of Health, 2013). Based on data from the Aceh Province's People's Welfare Statistics in 2016, the number of smokers in the city of Banda Aceh, with a population of 5,371,532, is 41% higher than in 2007 (Ministry of Health, 2013). Male smokers make up 27.83%, and female smokers 0.18% (BPS, 2016). The high number of smokers in the city of Banda Aceh is very surprising because it already has a smoke-free area policy. Smoking has been banned in 10 places including public areas. A no-smoking zone (*Kawasan Tanpa Rokok/KTR*) enforcement has also been carried out periodically, although it has not been evenly distributed in all places. One of the alleged causes is the number of cigarette advertisements in the corner of Banda Aceh City because it has no rules prohibiting cigarette advertising.

Previous studies show that cigarette advertisements affect students' desire to smoke (Hanewinkel, Isensee, Sargent, & Morgenstern, 2011; Ratneswaran, Steier, Reed, & Khong, 2019; Singh, Agaku, Arrazola, Marynak, Neff, Rolle, & King, 2016; Evelina & Handayani, 2018). Massive and creative advertising will increase people's acceptance of cigarettes despite the warning of the dangers of smoking (Ratneswaran et al., 2019). The longer students are exposed to advertisements, the greater the desire of a student to smoke (Singh et al., 2016). In addition to advertising in open areas, advertisements at points of sale have also been shown to increase student vulnerability (MacKintosh, Moodie, & Hastings, 2012; Pasandaran, 2018). The increasing number of student smokers due to advertising has never been researched. Therefore, this study aims to examine the impact of smoking on the behaviour of adolescent smokers in Banda Aceh.

## LITERATURE REVIEW

### *Smoking Behaviour*

A study investigating the correlation between people's relationship and smoking found that partnership commitment and transition correspond to people's smoking behaviour and their process to quit smoking (Margolis & Wright, 2016). Focusing on smokers of 50-85 years old, this study revealed that people who have a relationship with smokers have a lower probability

to quit smoking compared to those who partnered with non-smokers. Similar findings apply to partnerships among adolescents. The first national school-based survey conducted in Iran argued that social relationships among adolescent correlate to their smoking behaviour. A self-administered questionnaire was distributed to 11,966 school students in Iran between 2003 and 2004. This study showed an increase in smoking behaviour among adolescents who have a high level of friendship and relationship with smokers both at school and at home, especially among boys (Kelishadi, Ardalan, Gheiratmand, Majdzadeh, Delavari, Heshmat, Barekati, 2006).

For some people, smoking is considered a way to cope with stress due to unfavourable condition, including adolescents who are addicted to smoking. Stronks et al argued that there is a close connection between smoking and aspects of one's psychosocial (Stronks, Van De Mheen, Looman, & Mackenbach, 1997). Meanwhile, Dierker and Mermelstein (2010) suggest that there is a repetitive and reciprocal relationship between smoker identity and their smoking dependency, which is adolescents' expectation to release stress and swift emotion through smoking. Thus, the motivation and expectation to smoke among adolescents may have an impact on their smoking behaviour (Hertel & Mermelstein, 2012). During adolescence, smoking behaviour tends to be similar among friends (Mercken, Snijders, Steglich, Vartiainen, & de Vries, 2010).

Moreover, it is not only within social relationships, but there has also been a study evaluating the relationship between the frequency of watching television and the increase of smoking onset among young people. The study was carried out in the United State using the National Longitudinal Survey of Youth, Child Cohort (NLSY), and examined youth aged 10-15 years old and their television viewing habit between 1990 and 1992. Using multiple logistic regression, the study controlled for these following socio-economic and demographic factors: ethnicity, maternal education, IQ, work, household structure, and number of children, household poverty, child gender, and child aptitude test scores. The study revealed that young people who viewed television more than two hours have a greater likelihood to start smoking. Similar findings are found in studies examining the correlation of pro-smoking messages to adolescents' smoking initiation. Mass media exposure of pro smoking message in many forms of media channels is also found to have significant contribution to young group smoking behaviour (Duke et al., 2014), such as through the electronic media—television, printed media—newspapers, billboard (Luke, Esmundo, Bloom, Luke, & Louis, 2000) and through new media (Freeman, 2012).

### *Exposure to Advertising*

Many evidence has shown a significant association between tobacco advertising in any forms of media with smoking initiation and smoking intake among young people (Davis, Gilpin, Loken, Viswanath, & Wakefield, 2008), likewise in the case of Indonesia (Djutaharta & Surya, Viriya, 2003; Lian & Dorotheo, 2018; Sebayang, Rosemary, Widiatmoko, Mohamad, & Trisnantoro, 2012). Tobacco advertisement is likely to have a significant contribution to youth smoking behaviour, alongside cheap cigarette prices, a lack of knowledge and understanding of smoking hazardous, and poor regulation on tobacco control (MHI, 2004).

Meanwhile, time exposure is considered as a prominent aspect in advertising (Kotler & Armstrong, 2018). The existence of time exposure is significant in the pop-up-ads, especially online. Audiences who are interrupted with unappealing advertising will likely reduce the

persuasiveness of the ads and at the same time resulted in an adverse attitude towards the message, such as avoidance of the ads.

A previous study on interruption-based advertising found differences in the impact of ads replacement on a certain timeframe, such as at different timeslots during the day, at different days of the week, at different types of programs, and in-between programs and within-program. However, the time comparison is not valid especially in interruption-based advertising which are broadcast through online media. This is because advertisers placing advertisement on the internet (online) may not able to control the exact time by which audiences viewed the online ads. Therefore, time exposure of exposure timing should be conceptualized and studied differently between those interruption-based advertising places in mainstream media and online (Chan, Jiang, & Tan, 2010).

Furthermore, Sahni (2015) in his study investigated the temporal spacing of an advertisement, that is the probability of a consumer buying a product after being exposed to the product advertised. The study found two important aspects which are (1) customer has a high likelihood to purchase the product from the advertiser, and (2) the increase of product purchasing continues to future offered products. Sahni (2015) also found that the spacing effect has a high influence on people buying the products. The purchasing of the products is much higher if the ads are placed separately than having it in proximity. This applies if the ads are not placed during the time of the purchase session.

Moreover, Harris (2011) added that young people with high television viewing behaviour will likely experience high exposure to advertising. While this may vary from industry to industry, the study indicates that past advertising may increase audiences' exposure to the information, but may not strongly influence the current sales (Harris, 2011), because the effect of advertising has less value within a year period (Bagwell, 2007).

Marketing theory suggests various instrument through which tobacco promoting and advertising may be successful, counting, developing experimentation with/initiation of smoking, developing individuals' cigarette utilisation, bringing down the quit accomplishment rate, and alluring previous smokers to begin smoking once more (Warner, 1985).

### *The Effect of Cigarette ads on Youth Smoking Behaviour*

Cigarette advertising is one of the strategies of the cigarette industry to attract new smokers, especially youth smokers. Advertising has a high effectiveness in capturing new cigarette consumers so that the advertising strategy and promotion of cigarettes continue to be improved (Lovato et al., 2011). The position of cigarette advertising is getting stronger especially in the modern era where advertising can change a person's perception of a product. Likewise, in the cigarette industry, massive and creative advertising can change the perception of the public, especially teenagers who were initially not interested in becoming consumers of cigarettes, to want to try cigarettes (Malik, Ghafoor, Iqbal, Unzila, & Ayesha, 2014).

An important initial strategy in product marketing is to encourage non-users to try new products. Regular use may require additional strategies. Mass media image ads have been used to effectively enhance experiments, as evidenced by the Virginia Slims and Joe Camel cigarette campaigns (Pierce, Messer, James, White, Kealey, Vallone & Heaton, 2010). Product placement in films has also been proven as an effective marketing strategy. Such a tobacco industry marketing campaign is persuasive communication. Thus, the established theory has recorded a hierarchy of effects: the target audience needs to be exposed to the message; however, not all who are exposed will pay attention to the message. Those who

attend and develop emotive responses like liking messages will tend to experiment. In accordance with this theory, the nomination of favourite cigarette advertisements by smokers never predicted future experiments in a sample of young California smokers (Pierce et al., 2010).

The promotion of e-cigarettes also impacts teenage smokers. A study in the US of national e-cigarette advertising exposure and high school students find that a representative US secondary study is associated with the use of e-cigarettes and the use of tobacco by adolescents in all forms with a higher chance of use. Considering the high danger of cigarette advertisement exposure to adolescents, it is necessary to have the policy to supervise cigarette advertisements and promotions in order to prevent the use of tobacco/cigarettes among teenagers (Singh et al., 2016). Electric cigarettes are advertised as a less dangerous nicotine delivery system or as a new cigarette reduction tool. The strategy succeeded in changing the perception of smokers or potential smokers about the dangers of electronic cigarettes.

Cigarette promotion policies and tobacco control policies in Indonesia are very few compared to cigarette promotion activities, causing an increase in the number of teenage smokers in Indonesia (Achadi, Soerojo, & Barber, 2005). The cigarette industry targets the youth as advertising targets and it is proven that cigarette advertisements can influence youth smoking behaviour (Freedman, Nelson, & Feldman, 2012). Research results in Saudi Arabia found that non-smokers were more often exposed to anti-smoking advertisements, while smokers were more often exposed to cigarette advertisements. The level of exposure will continue to lead smokers to remain smokers and have difficulty quitting (Abdalla, Saeed, Abdulrahman, Abdulaziz, Al-Kaabba, Raat, 2012).

In Indonesia, where the policy banning cigarette advertisements is not firm and cigarette promotion is massive, it is necessary to examine whether novice smokers are influenced by one factor, namely the desire to smoke or influenced by other factors such as the environment and the existence of advertisements (Prabandari & Dewi, 2016). The measure for adult smokers is "smoking 100 cigarettes or more for life", while that for adolescents and teenagers is "smoking 1 or more a day in the last 30 days." Depending on the size used, the researchers may overestimate or underestimate the actual number of young adults who are at risk of developing into ordinary smokers. One study found that using adult criteria to define smokers reduced the estimated prevalence of smoking in young adults by 18% (Foldes et al., 2010).

Global Youth Tobacco Survey (GYTS) - a school-based survey was carried out three times. The first survey was conducted in Jakarta (1999-2000) with 2,000 students in grades 7-9 and the second was conducted in two cities - Bekasi and Medan (2003-2004). GYTS was recently conducted in 2014 with a total of 5,986 eligible students in grades 7-9 of which 4,317 aged 13-15 (response rate 89.5%). Regarding exposure to tobacco information through the media, the majority of students said that they had seen someone using tobacco on television, video or film (62.7%), and on billboards, in newspapers or in magazines (80%). Meanwhile, 70.1% paid attention to anti-smoking messages in the media and at sport or community events. The survey also measured students' intentions to stop smoking after being exposed to warning labels on cigarette packages in the past 30 days; and 71.3% of smokers thought about quitting smoking. The survey also showed that students had the impression that anti-smoking media messages actually tended to support tobacco advertising.

Controlling the negative effect of cigarette advertising and promotion on adult and youth smokers can be done in several ways. First, the most effective policy is a total ban on advertising and promotion of cigarettes in an area. The total ban policy has proven effective in reducing the negative impact of cigarette advertising and promotion. Second, the government must be more innovative and effective in promoting the dangers of smoking. Preventive advertising by the government must be able to attract teenagers to be more aware and concerned about the effects of smoking (Putra, Syah & Nura, 2019).

The prohibition of cigarette advertising, promotion and sponsorship is one of the pillars set out in the Framework Convention on Tobacco Control (FCTC). All cigarette advertisements, promotions and sponsors are forms of cigarette industry intervention to create conditions where tobacco use is considered normal, natural and acceptable, especially for young people (TCSC, 2018). Cigarette advertisements, promotions, and sponsorship encourage children and adolescents to start smoking, encourage smokers to continue smoking, and encourage children who have quit smoking to return to smoking. Thus, the prohibition of cigarette advertising, promotion and sponsorship is an effort to minimise the reach of the cigarette industry to children and adolescents.

In addition, the desire to consume cigarettes is not only based on knowledge of cigarettes, but a desire that arises from his psychic consumption of cigarettes caused by the acceptance of it in his environment. Therefore, education on the erroneous thinking is also very effective in reducing the impact of cigarette advertising on teenagers (Virga, 2017).

#### METHODOLOGY

The quantitative approach is used to calculate the effect of cigarette advertising on the smoking behaviour of students in Banda Aceh City. This study uses the Linear Probability Model (LPM) test which can measure the tendency of individuals to behave in a manner with cigarette advertisements. The use of the LPM model has been widely used in social science research (Rizal, 2018). The assumption built is that smoking behaviour is a factor of individual, household and environmental characteristics of students so that linear models are arranged as follows:

$$Rk_{ij} = \beta_0 + \beta_1 \text{individu}_{ij} + \beta_2 \text{household}_{ij} + \beta_3 \text{environment}_{ij} + \varepsilon_{ij}$$

The formula above is used to test the effect of individual character on students' smoking behaviour.  $\text{individu}_{ij}$  is a collection of variables that show individual characters.  $\text{household}_{ij}$  is a collection of household variables that are thought to have an influence on smoking behaviour.

Our main variable, namely the existence of cigarette advertisements, will be described by  $\text{environment}_{ij}$  which is a collection of environmental variables. If there are cigarette advertisements in the neighbourhood, it will worth 1 and if not, it will be 0. The independent variable is  $Rk$ , which is smoking or not. If yes, then it is worth 1 (yes = 1) and if it is not, worth 0 (no = 0). Data is processed using the STATA version 13 application.

The samples in this study were senior high school students who were selected from the population of equivalent high school students in Banda Aceh based on random sampling techniques. The calculation of sample size in this study uses a minimum sample size calculation formula for cross sectional research design. The minimum sample size in this study was 365 respondents. Sampling is done by cluster random sampling technique, which is a sampling technique using high school as a group or cluster.

The qualitative approach is conducted by interviewing 15 respondents. The purpose of the interview is to obtain in-depth information related to the effect of advertising on the possibility of students to become smokers.

## RESULTS AND DISCUSSION

### *Smoking behaviour of high school students in Banda Aceh City*

The number of high school student smokers in Banda Aceh is relatively high. Of the 365 students surveyed, 41 percent were smokers or had smoked before. As many as 37 percent were active smokers who smoke every day and 59 percent were only as smokers at certain times. The age when high school students in the city of Banda Aceh started smoking also varied. As many as 27 percent of students smoke at the age of 14 years and 19 percent at the age of 15 years. A surprising finding is that there are high school students who had started to recognise smoking/smoking since the age of under 10 years. As many as 4 percent started smoking at the age of eight years and there were even students who first tried smoking at the age of 5, 4 and even 2 years (see Figure 1).

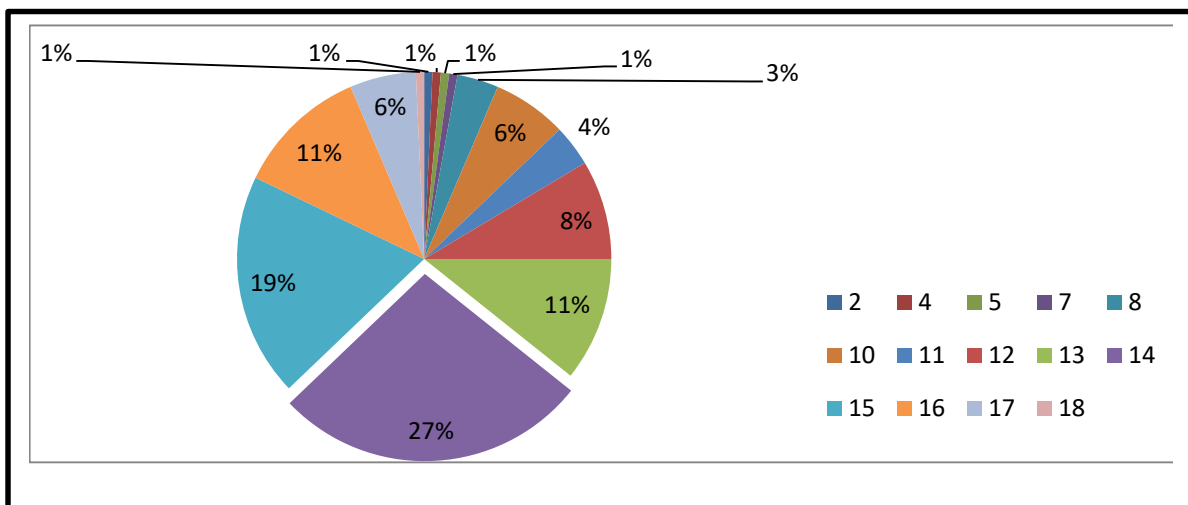


Figure 1: The First Age Being Smoker of Students in Banda Aceh City

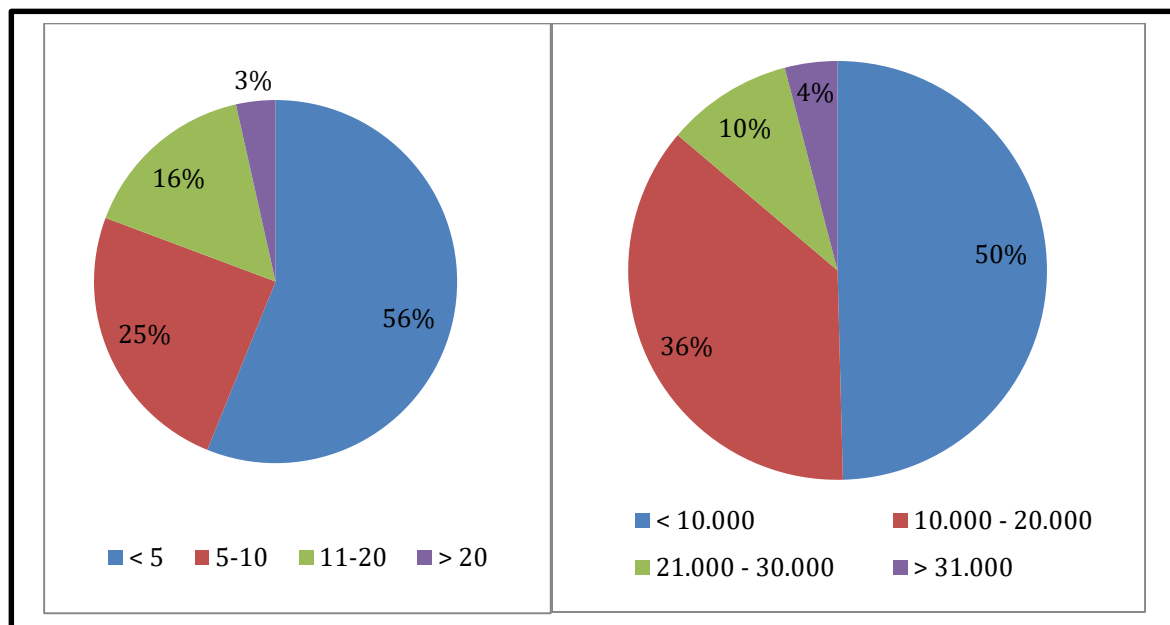


Figure 2: Cigarette Consumption Per Day (left) and Average Expenditures (IDR) for Students per Day for Cigarettes (right)

The results also showed that cigarette consumption among high school students in Banda Aceh was relatively high because there were students who smoked more than 20 cigarettes per day (see Figure 2). This finding is certainly very worrying because the consumption of cigarettes at any level has a negative impact on student health. As many as 25 percent of samples smoke 5 to 10 cigarettes per day. Many parents of high school students in Banda Aceh are smokers. 56 percent of the samples have smoker fathers and 23 percent have smoker siblings. The results of the cross table show that 91 smokers have smoker fathers and 42 smokers have non-smokers (see Table 1). Cross-data with siblings shows that 208 non-smokers have siblings who are also not smokers.

Table 1: Cross Tables of Students, Fathers and Siblings About Smoker's Status

Student	Father		Total	Siblings		Total
	Do Not Smoke	Smoke		Do Not Smoke	Smoke	
Do Not Smoke	142	90	232	208	24	232
Smoke	42	91	133	86	47	133
<b>Total</b>	<b>184</b>	<b>181</b>	<b>365</b>	<b>294</b>	<b>71</b>	<b>365</b>

### *Presence of Cigarette Advertising Near Schools*

The presence of cigarette advertisements near schools still occurs in Banda Aceh City. Cigarette advertising is not only in the form of billboards, but also banners. In addition, cigarette advertisements are also made up of shop signs. The results showed that as many as 67 percent of respondents assessed that there were cigarette billboards near the school grounds. As many as 61 percent of respondents also considered that there were cigarette advertising banners near the school. This condition becomes a cause for major concern as students can easily find cigarette advertisements near the school environment. The results of the cross table show that 89 smoking students found cigarette billboards close to their school, while 101 smoking students found cigarette advertising banners close to high school.



Table 2: Cross Table of Smoker Students and Existence of Cigarette Ads in Banda Aceh

Students	Board		Total	Banner		Total
	Cigarette Advertise			Cigarette Ad		
	No	Yes		No	Yes	
Do Not Smoke	107	125	232	98	134	232
Smoke	44	89	133	32	101	133
<b>Total</b>	<b>151</b>	<b>214</b>	<b>365</b>	<b>130</b>	<b>235</b>	<b>365</b>

The results of this study also found that the types of cigarette advertisement that the students often found are almost the same, namely billboards, advertisement posters, and banners. The results of the assessment of how students easily found cigarette advertisements indicate that it was very easy for 82 percent of them to find cigarette advertisements in the city of Banda Aceh. This result is certainly still true to the planned achievement of the Non-Smoking Area policy in Banda Aceh to limit the area of cigarette advertising.

*Students' Perception of Cigarettes and Cigarette Advertising.*

This study also looked at students' perception of cigarette advertising in Banda Aceh City. The results of this study show that students think that the appearance of cigarette advertisements can influence their decision to become smokers. It is undeniable that the increasingly attractive model of advertisement has inspired students to try to smoke. As many as 14 percent of the samples considered that the appearance of cigarette advertisements could influence the decision to smoke, and 36 percent did not know whether cigarette advertising could have an impact on the smoking behaviour of high school students.

Regarding the overall prohibition of cigarette advertisements in the city of Banda Aceh, 39 percent of the students fully agree and 41 percent of the students agree to the policy. In total, 80 percent of the students support the overall prohibition of cigarette advertisements in the city of Banda Aceh.

Another perception mapped in this study is the knowledge of the dangers of cigarettes. The results showed that 81 percent (294) of the students agreed that smoking endangered health. This suggests that students have a good knowledge about the dangers of smoking. On the contrary, some students believe that smoking has the positive impact of increasing concentration. A total of 101 students believed that smoking helped them increase concentration (see Figure 4).

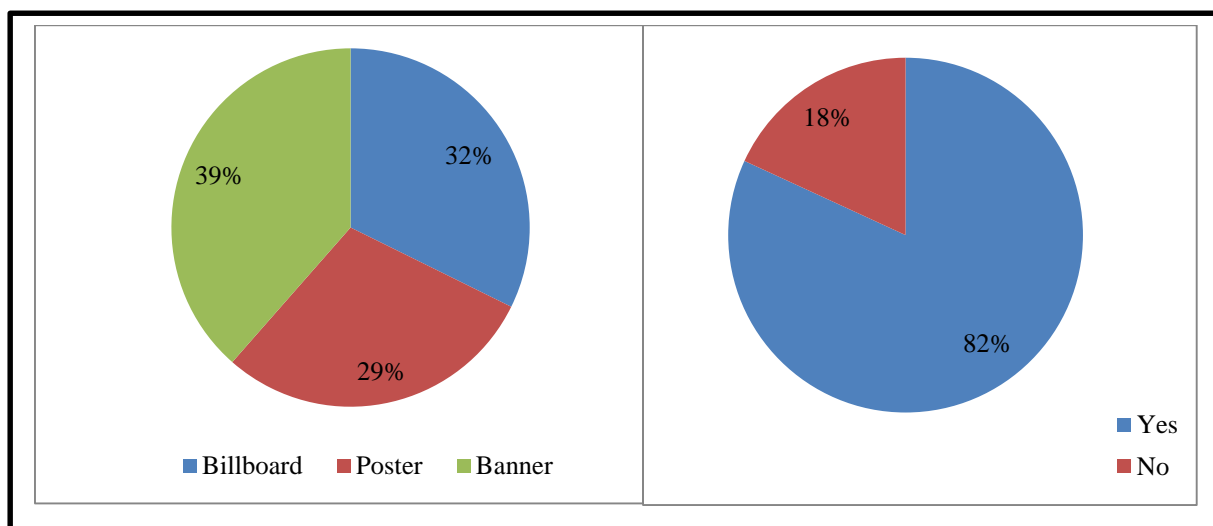


Figure 3: Cigarette Ad Types that are often found (left) and Assessment of Ease of Finding Cigarette Ads (right)

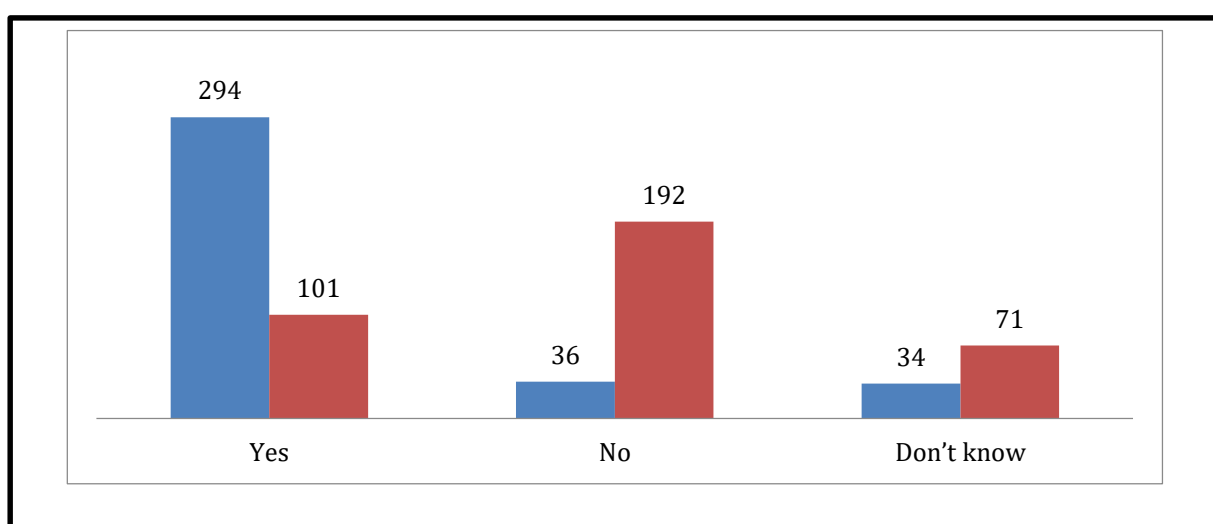


Figure 4: Smoking Increase the Risk of Other Disease (blue) and Smoking Helps Concentration (red)

### Testing the Effect of Cigarette Ads on Smoking Behaviour

Testing the effect of cigarette advertising on students' smoking behaviour in this study was carried out using a linear regression approach. Cigarette advertising becomes an independent variable and smoking becomes the dependent variable. To provide better results, this study divides cigarette advertisements into two types, namely cigarette billboards and banners.

Table 3: The Regression of The Model

Variables	Model 1	Model 2
Board Cigarette Advertise	0.124** (0.0502)	
Banner Cigarette Advertise		0.184*** (0.0498)
Constant	0.291*** (0.0371)	0.246*** (0.0379)
Observations	365	365
R-squared	0.016	0.033

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results of statistical tests show that cigarette advertising has a positive and significant effect on the smoking behaviour of high school students in Banda Aceh City. The presence of cigarette billboards near the school environment increased the probability of students smoking by 12.4 percent, whereas the presence of banners raised the probability of students smoking by 18.4 percent.

The results of this study indicate that the prevalence of smoking among high school students in Banda Aceh City is still high. As many as 41 percent of 365 students surveyed are smokers or have smoked before. Nearly 37 percent of them are active smokers or smoke every day and only 59 percent smoke at certain time. This figure is higher as compared with the smoking rate in the city of Banda Aceh. Based on BPS data (BPS, 2016), 16.33 percent of the population aged 5 years and above are daily smokers and 1.83 percent of them do not smoke every day. This figure is certainly far from the spirit of no smoking zone (KTR) policy in Banda Aceh, which is aimed at, among others, protecting students from the dangers of smoking.

Seeing the first age of smoking is also very worrying. A surprising finding shows that there are high school students who have started to recognise smoking/smoking since the age of below 10 years. As many as 4 percent started smoking at the age of eight years and even students first tried smoking at the age of 5, 4 and even 2 years. The results of in-depth interviews show that students started to recognise cigarettes from the smoking habits of parents that aroused their interest in smoking. The smoking habit of friends also encourages the desire to smoke.

The real cigarette advertisement is having a friend who is a smoker. By looking at friends who smoke, students are interested in trying to smoke (high school students in Banda Aceh City).

The results of this study also showed that student smokers saw that parents play the greatest role in removing the smoking habit of high school students. Punishment and prohibitions from parents can have a direct impact on the smoking habit of students. In addition, another approach can be made by controlling students' consumption/expenditure. The results show that the value of pocket money can affect students to smoke. The pattern of student's spending on cigarettes maps that students spend an average of 10,000 rupiah on cigarettes per day.

Even if my pocket money is reduced, it's likely that I will smoke. I smoke because the real cigarette ad is having a friend who is a smoker. By looking at friends smoking, students are interested in trying to smoke (high school students in Banda Aceh City).

The smoking behaviour of students in the city of Banda Aceh is inseparable from the presence of advertisements, both in the form of billboards, banners, and posters. It is very easy for high school students to find advertisements despite the implementation of the no smoking zone (KTR) policy in Banda Aceh City. As many as 82 percent of students assess that it is very easy to find cigarette advertisements in the city of Banda Aceh; so the level of students' exposure to cigarette advertisements is very high. The results of the tests statistically show that the presence of cigarette billboards near the school environment

increased the probability of students smoking by 12.4 percent, whereas the presence of banners raised the probability of students smoking by 18.4 percent.

The results of the research FGD found that advertisements in Banda Aceh were relatively difficult to control. Even though it has implemented no smoking zone (KTR) regulations, several advertising agencies still put up cigarette advertisements near schools and in other areas included in the no smoking zone (KTR). This is also caused by the lack of good control and supervision both by the local government and the community.

We do not yet have a KTR policy control mechanism, specifically advertising links, which involves the public. We can only intervene in the licensing process. Violations in the field still occur frequently. Like cigarette advertising, it becomes a shop sign (Representative of the Banda Aceh City Government).

The seriousness of the advertisement supervisory policy may also still be a perception in the Banda Aceh City government that cigarette advertising is a potential source of income for the region.

Cigarette advertising contributes significantly to regional income. Consistent frequency of ads every year, has a pretty good value for Banda Aceh City revenue (Representative of the Banda Aceh City Government).

The results of the study also found that the level of students' vulnerability to smoking is different from one region to another. Students in certain areas are more vulnerable to being smokers than in other areas. The highest vulnerability is found when a region has a tendency of smoking students by 51.5 percent compared to other regions, while the lowest tendency is 26.5 percent.

## CONCLUSION

The results of this study indicate that the prevalence of smoking among high school students in Banda Aceh City is still high. As many as 41 percent of 365 students are smokers or have smoked before. As many as 37 percent of them are active smokers or smoke every day and only 59 percent of them smoke at certain times. The smoking behaviour of students in the city of Banda Aceh is inseparable from the presence of advertisements, either in the form of billboards, banners, or posters. The results of the tests statistically show that the presence of cigarette billboards near the school environment increased the probability of students smoking by 12.4 percent. Whereas the presence of banners has increased the likelihood of students becoming smokers by 18.4 percent.

Cigarette advertising near the school environment must be immediately prohibited. The prohibition on cigarette advertising must be rearranged and reaffirmed, especially regarding the distance between cigarette advertisements and schools. The results of this study also show that students in the city of Banda Aceh are still exposed to cigarette advertisements which increase the likelihood of the students becoming smokers. The policy of structuring and/or prohibiting cigarette advertising must consider the fact that the region is vulnerable. Each region has different vulnerability to smokers. Therefore, areas that have a high vulnerability must really receive serious attention from the government of Banda Aceh City.

#### ACKNOWLEDGMENT

Support for this publication is provided by the Center for Islamic Economics and Business, Universitas Indonesia with funding awarded by Bloomberg Philanthropies to Johns Hopkins University. Its content is solely the responsibility of the authors and do not necessarily represent the official views of Bloomberg Philanthropies or Johns Hopkins University.

#### BIODATA

*Heru Syah Putra* is a senior researcher at the Center for Innovative Government and Society Studies. Email: heruaddaif@gmail.com

*Rizanna Rosemary* is a Ph.D Candidate, University of Sydney, Australia. Email: rizanna.rosemary@unsyiah.ac.id

*Deni Yanuar* is a lecturer at the Communication Science Department, Faculty of Social and Political Sciences, Syiah Kuala University, Banda Aceh, Indonesia. Email: deniyanuar@unsyiah.ac.id

*Abdillah Ahsan* is a lecturer at Faculty of Economics and Business, University of Indonesia, Jakarta, Indonesia. Email: ahsanov@yahoo.com

## REFERENCES

- Abdalla, A. M., Abdalla., Saeed, A. A., Abdulrahman, B. M., Al-Kaabba, A. F., ... Raat, H. (2012). Effect of tobacco advertisements on smoking habits among adolescents in Saudi Arabia. *Med. J. Cairo Univ.*, 80(2), 111-119.
- Achadi, A., Soerojo, W., & Barber, S. (2005). The relevance and prospects of advancing tobacco control in Indonesia. *Health Policy*, 72(3), 333-349. <https://doi.org/10.1016/j.healthpol.2004.09.009>
- Bagwell, K. (2007). Chapter 28 the economic analysis of advertising. *Handbook of Industrial Organization*, 3, 1701-1844. [https://doi.org/10.1016/S1573-448X\(06\)03028-7](https://doi.org/10.1016/S1573-448X(06)03028-7)
- Bala, M. M., Strzeszynski, L., & Topor-Madry, R. (2017). Mass media interventions for smoking cessation in adults. *Cochrane Database of Systematic Reviews*. <https://doi.org/10.1002/14651858.CD004704.pub4>
- BPS. (2016). Statistik Indonesia "Statistical yearbook of Indonesia 2016." Jakarta.
- Chan, J. C. F., Jiang, Z., & Tan, B. C. Y. (2010). Understanding online interruption-based advertising: Impacts of exposure timing, advertising intent, and brand image. *IEEE Transactions on Engineering Management*, 57(3), 365-379. <https://doi.org/10.1109/TEM.2009.2034255>
- Davis, R. M., Gilpin, E. A., Loken, B., Viswanath, K., & Wakefield, M. A. (2008). *The role of the media in promoting and reducing tobacco use*. USA: US. Department of Health and Human Services (National Institutes of Health). Retrieved from [https://cancercontrol.cancer.gov/brp/tcrb/monographs/19/m19\\_complete.pdf](https://cancercontrol.cancer.gov/brp/tcrb/monographs/19/m19_complete.pdf)
- Djutaharta, T., & Surya, V. H. (2003). Research on tobacco in Indonesia: An annotated bibliography and review of research on tobacco use, health effects, economics, and control efforts (WHO Tobacco Control Papers). Washington, DC: UCSF. Retrieved from <https://escholarship.org/uc/item/6fk7b01x>
- Drajem, M., & Woellert, L. (n.d.). *Clove cigarettes may prompt U.S., Indonesia dispute*. Thailand: Southeast Asia Tobacco Control Alliance (SEATCA). Retrieved from <https://seatca.org/clove-cigarettes-may-prompt-u-s-indonesia-dispute/>
- Duke, J. C., Lee, Y. O., Kim, A. E., Watson, K. A., Arnold, K. Y., Nonnemaker, J. M., & Porter, L. (2014). Exposure to electronic cigarette television advertisements among youth and young adults. *Pediatrics*, 134(1), e29-e36. <https://doi.org/10.1542/peds.2014-0269>
- Evelina, L. W., & Handayani, F. (2018). Penggunaan digital influencer dalam promosi produk (Studi kasus akun Instagram @bylizzieparra). *Warta ISKI*, 1(01), 71. <https://doi.org/10.25008/wartaiski.v1i01.10>
- Foldes, S. S., An, L. C., Rode, P., Schillo, B. A., Davern, M., Alesci, N. L., ... Marc, W. (2010). Tobacco use among young adults. *American Journal of Health Behavior*, 34(3), 309-322. <https://doi.org/https://doi.org/10.5993/AJHB.34.3.6>
- Freedman, K. S., Nelson, N. M., & Feldman, L. L. (2012). Smoking initiation among young adults in the United States and Canada, 1998-2010: A systematic review. *Preventing Chronic Disease*, 9(11). <https://doi.org/10.5888/pcd9.110037>
- Freeman, B. (2012). Reviews: New media and tobacco control. *Tobacco Control*, 21(2), 139-144. <https://doi.org/10.1136/tobaccocontrol-2011-050193>
- Hanewinkel, R., Isensee, B., Sargent, J. D., & Morgenstern, M. (2011). Cigarette advertising and teen smoking initiation. *Pediatrics*, 127(2), e271-e278. <https://doi.org/10.1542/peds.2010-2934>

- Harakeh, Z., Scholte, R. H. J., Vermulst, A. A., De Vries, H., & Engels, R. C. M. E. (2004). Parental factors and adolescents' smoking behavior: An extension of the Theory of planned behavior. *Preventive Medicine*, 39(5), 951–961. <https://doi.org/10.1016/j.ypmed.2004.03.036>
- Hertel, A. W., & Mermelstein, R. J. (2012). Smoker identity and smoking escalation among adolescents. *Health Psychology*, 31(4), 467–475. <https://doi.org/10.1037/a0028923>
- Kelishadi, R., Ardalan, G., Gheiratmand, R., Majdzadeh, R., Delavari, A., Heshmat, R., ... Barekati, H. (2006). Smoking behavior and its influencing factors in a national-representative sample of Iranian adolescents: CASPIAN study. *Preventive Medicine*, 42(6), 423–426. <https://doi.org/10.1016/j.ypmed.2006.03.001>
- Kotler, P., Armstrong, G., Ang, S. H., Leong, S. M., Tan, C. T., & Yau, O. (2018). *Principles of marketing: An Asian perspective*. England: Pearson.
- Lian, T., & Dorotheo, U. (2018). The tobacco control atlas Asian region (4th ed.). Bangkok: Southeast Asia tobacco control alliance. Retrieved from <https://seatca.org/dmdocuments/SEATCA%20Tobacco%20Control%20Atlas%20ASEAN%20Region%204th%20Ed%20Sept%202018.pdf>
- Ling, P. M., Neilands, T. B., & Glantz, S. A. (2009). Young adult smoking behavior. A national survey. *American Journal of Preventive Medicine*, 36(5), 389–394. <https://doi.org/10.1016/j.amepre.2009.01.028>
- Lovato, C., Watts, A., & Stead, L. F. (2011). Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours. *Cochrane Database of Systematic Reviews*. <https://doi.org/10.1002/14651858.cd003439.pub2>
- Luke, D., Esmundo, E., Bloom, Y., Luke, D., & Louis, S. (2000). Smoke signs: Patterns of tobacco billboard advertising in a metropolitan region. *Tobacco Control*, 9(1), 16–23.
- MacKintosh, A. M., Moodie, C., & Hastings, G. (2012). The association between point-of-sale displays and youth smoking susceptibility. *Nicotine and Tobacco Research*, 14(5), 616–620. <https://doi.org/10.1093/ntr/ntr185>
- Malik, M. E., Ghafoor, M. M., Iqbal, H. K., Unzila, & Ayesha. (2014). The impact of advertisement and consumer perception on consumer buying behavior. *International Review of Social Sciences and Humanities*, 6(2), 55–64.
- Margolis, R., & Wright, L. (2016). Better off alone than with a smoker: The influence of partner's smoking behavior in later life. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences*, 71(4), 687–697. <https://doi.org/10.1093/geronb/gbu220>
- Mercken, L., Snijders, T. A. B., Steglich, C., Vartiainen, E., & de Vries, H. (2010). Dynamics of adolescent friendship networks and smoking behavior. *Social Networks*, 32(1), 72–81. <https://doi.org/10.1016/j.socnet.2009.02.005>
- Ministry of Health Republic of Indonesia (MHI). (2004). The tobacco source book: Data to support a national tobacco control strategy. Jakarta: Author.
- Ministry of Health. (2013). Laporan riset kesehatan daerah tahun 2013.
- Pasandaran, C. C. (2018). Political advertising camouflage as news. *Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia*, 3(2). <https://doi.org/10.25008/jkiski.v3i2.239>
- Pierce, J. P., Messer, K., James, L. E., White, M. M., Kealey, S., Vallone, D. M., & Healton, C. G. (2010). Camel No. 9 cigarette-marketing campaign targeted young teenage girls. *Pediatrics*, 125(4), 619–626. <https://doi.org/10.1542/peds.2009-0607>

- Prabandari, Y. S., & Dewi, A. (2016). How do Indonesian youth perceive cigarette advertising? A cross-sectional study among Indonesian high school students. *Global Health Action*, 9(1). <https://doi.org/10.3402/gha.v9.30914>
- Putra, S. H., Amalia, R., & Nura, T. M. Q. (2019). *Inovasi kebijakan pengendalian rokok di Aceh*. Presented at Research Dissemination 2019 Local Development Agency Aceh-Indonesia, Banda Aceh.
- Ratneswaran, C., Steier, J., Reed, K., & Khong, T. K. (2019). Electronic cigarette advertising impacts adversely on smoking behaviour within a London student cohort: A cross-sectional structured survey. *Lung*, 197(5), 533–540. <https://doi.org/10.1007/s00408-019-00262-z>
- Rizal, K. (2018). *Evolving regions (The evolution of regional industries in Indonesia)*. Bartlett School of Planning, University College London.
- Sebayang, S. K., Rosemary, R., Widiatmoko, D., Mohamad, K., & Trisnantoro, L. (2012). Better to die than to leave a friend behind: Industry strategy to reach the young. *Tobacco Control*, 21(3), 370–372. <https://doi.org/10.1136/tobaccocontrol-2011-050223>
- Singh, T., Agaku, I. T., Arrazola, R. A., Marynak, K. L., Neff, L. J., Rolle, I. T., & King, B. A. (2016). Exposure to advertisements and electronic cigarette use among US middle and high school students. *Pediatrics*, 137(5). <https://doi.org/10.1542/peds.2015-4155>
- Stronks, K., Van De Mheen, H. D., Looman, C. W. N., & Mackenbach, J. P. (1997). Cultural, material, and psychosocial correlates of the socioeconomic gradient in smoking behavior among adults. *Preventive Medicine*, 26(5), 754–766. <https://doi.org/10.1006/pmed.1997.0174>
- Tobacco Control Support Centre (TCSC). (2018). *Paparan iklan, promosi, dan sponsor rokok di Indonesia*. Jakarta: Author.
- Virga, R. L. (2017). Literasi iklan rokok dan perilaku konsumtif remaja melalui pemberdayaan remaja masjid. *Profetik: Jurnal Komunikasi*, 9(2), 33. <https://doi.org/10.14421/pjk.v9i2.1201>
- Wang, M. P., Ho, S. Y., & Lam, T. H. (2011). Parental smoking, exposure to secondhand smoke at home, and smoking initiation among young children. *Nicotine and Tobacco Research*, 13(9), 827–832. <https://doi.org/10.1093/ntr/ntr083>
- Warner, K. E. (1985). Tobacco industry response to public health concern: A content analysis of cigarette ads. *Health Education Quarterly*, 12(2).
- World Health Organization (WHO). (2015). WHO report on the global tobacco epidemic, 2015: Raising taxes on tobacco. Retrieved from [https://www.who.int/tobacco/global\\_report/2015/en/](https://www.who.int/tobacco/global_report/2015/en/)