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## Association Between Cigarette Advertisement, Peer Group, Parental Education, Family Income, and Pocket Money with Smoking Behavior among Adolescents in Karanganyar District, Central Java

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### ABSTRACT

**Background:** Adolescents are susceptible to positive and negative influences from the social environment. One of the negative influences is smoking behavior. Smoking in adolescents can have deleterious effect on health and academic achievement. This study aimed to determine the association between cigarette advertisement, peer group, parental education, family income, and pocket money on smoking behavior among adolescents.

**Subjects and Method:** This was an analytic observational study using cross-sectional design. This study was carried out in Colomadu Sub district, Karanganyar District, Central Java. A sample of 100 teenagers was selected for this study. The dependent variable was smoking behavior. The independent variables were exposure to cigarette advertisement, peer group, parental education, family income, and pocket money. The data were collected by a set of questionnaire. The data were analyzed by logistic regression.

**Results:** Smoking behavior in adolescents was associated with exposure to cigarette advertisement (OR=22.58; 95% CI =2.42 to 210.69; p=0.006), peer group (OR=44.00; 95% CI =3.99 to 485.33; p=0.002), parental education (OR= 36.92; 95% CI =3.12 to 427.81; p=0.004), family income (OR=0.09; 95% CI= 0.01 to 0.97; p=0.047), and pocket money (OR=10.56; 95% CI=1.22 to 91.56; p=0.032).

**Conclusion:** Smoking behavior in adolescents was associated with exposure to cigarette advertisement, peer group, parental education, family income, and pocket money.

**Keywords:** cigarette advertisement, peer group, parental education, family income, pocket money

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### BACKGROUND

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Smoking behavior that occurs among adolescents in 2014 with a range of ages between 15 and 19 years is 50.3% (WHO, 2015). The incidence of smoking in adolescents mentioned above is due to the lack of parental control over their children, lack of supervision from the school, and the pattern of association of the teenagers themselves.

Parents with permissive parenting types have little control over their children's

behavior. Parents with this type of parenting consider that they are a source for children, not as a model for children. They enforce freedom of action, provide inconsistent discipline, do not set reasonable limits, and do not prevent children from damaging habits that have been imposed at home. Parents rarely punish children because their behavior is still acceptable. Children who come from parents with permissive parenting are often disobedient,

disrespectful, irresponsible, and generally do not obey power (Wong et al., 2002).

Adolescent smoking behavior is also influenced by several factors, including, to relieve fatigue, imitate parents who have smoking habits, the influence of relationships with peers who have smoking habits, so they want to try and want to know how the taste of cigarettes (Sulastomo, 2012).

On average, every teenager spends 1-8 cigarettes every day. The pattern of exploitation carried out by teenagers at the level of elementary and junior high school and high school education is also different. In elementary and middle school students, they usually use short and fast sucking patterns. Whereas, for high school students, they tend to use long suction patterns because they intend to enjoy the cigarettes they suction (Mulyani, 2012).

Teenager who have parents and peers with smoking behavior, will be very likely to imitate these habits. The media that broadcasts teenage idol characters who smoke cigarettes will encourage teenagers to follow it (MOH I Health Polytechnic, 2010).

Teenagers who have smoking behavior can be influenced by exposure to cigarette advertisements that are heavily aired in various media, ranging from print media to electronic media. This causes for about 75% of households in Indonesia have a budget for cigarettes (Cahyo et al., 2012).

Smoking habits in adolescents can also affect their ability in academics. Clinical studies show that nicotine buildup in the brains of young children makes them weak in the physical and will indirectly affect their motivation to learn (Prasaja, 2008; Zhao et al., 2010).

In addition to weaknesses in the academic field, smoking behavior will also cause health problems for adolescents (Armstrong, 1992).

This study aims to determine the relationship between exposure to cigarette advertisements, peers, level of parental education, parental income and availability of pocket money to adolescent smoking behavior in Colomadu District using multiple logistic regression analysis

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## **SUBJECTS AND METHOD**

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### **1. Study design**

This was an observational analytic study with a cross sectional design conducted from March to May 2017.

### **2. Population and sample**

The population in this study was all adolescents in the Colomadu District, Karanganyar Regency. The study subjects in this study were adolescent smokers in Colomadu and Karanganyar. A sample of 100 adolescents was selected for this study.

### **3. Study variables**

The dependent variable was smoking behavior. The independent variables were exposure to cigarette advertisement, peers, parental education, parental income, and pocket money.

### **4. Operational definition of variables**

The exposure to cigarette advertisements was a promotional medium used in shaping public opinion, in this case imaging of cigarette products. Peers as individual interactions in children or adolescents with the same age level and involve relatively large familiarity in their groups. The level of parental education is the final level of formal education completed by parents.

All money received by father and or mother in the form of rupiah received every month. The availability of pocket money is the amount of teenagers' pocket money that is used only for consumption when they are outside of the house. Smoking behavior in adolescents is the factors that influence a person to smoke.

## 5. Study instruments

This study used a questionnaire measuring instrument for the variables of exposure to cigarette advertisements, peers and smoking behavior. Parent education data were obtained using a checklist. Data on parental income and adolescent pocket money were collected using observation sheets. This research instrument has gone through the previous test of validity and reliability. The results of the instrument reliability test were derived using Alpha Cronbach 0.60.

## 6. Data Analysis

The effect of variable exposure to cigarette advertisements, peers, level of education, parental income and availability of pocket money on smoking behavior were analyzed using multiple logistic regression.

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## RESULTS

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### A. Characteristics of Study Subjects

#### 1. Parental education

Characteristics of study subjects on the parental education level shows that the majority of parental education was  $\geq$ senior high school (65%) and  $<$ senior high school (35%).

#### 2. Parental income

Characteristics of parental income show that the majority of parental income is the high income of the study subjects of 55 people (55%). While for low income, it amounted to 45 people (45%).

#### 3. The availability of pocket money

The characteristics of pocket money of study subjects showed that the number of adolescents with low allowance amounted to 44 people (44%), while teenagers with high allowances amounted to 56 people (56%).

#### 4. The expose to cigarette advertisement

The characteristics of exposure to cigarette advertisements explained that the majority of exposure to cigarette advertisements was

exposure to high cigarette advertising of 58 people (58%). While the exposure to cigarette advertising was low for about 48 people (48%).

#### 5. Peers

The characteristics of peer influence state that peer influence has the same percentage for low and high criteria, namely 50 people (50%) for low criteria and 50 (50%) people for high criteria.

#### 6. Smoking behavior

As many as 54 adolescents (54%) was high smoker and 46 adolescents (46%) were low smoker.

### B. Bivariate Analysis

#### 1. The relationship between cigarette advertisement exposure to smoking behavior

There was a positive relationship between high cigarette advertisement and smoking behavior. High cigarette advertisement increased smoking behaviour in adolescent (OR= 94.71;  $p < 0.001$ ).

#### 2. Relationships between peers and smoking behavior

There was a positive relationship between peers and smoking behavior (OR= 96.24;  $p < 0.001$ ).

#### 3. The relationship between parental education on smoking behavior

There was a relationship between parental education and smoking behavior. Lower parental education increased smoking behaviour in adolescent (OR= 13.65;  $p < 0.001$ ).

#### 4. The relationship between parental income and smoking behavior

There was a relationship between parental income and smoking behavior. Higher parental income increased smoking behavior in adolescent (OR= 2.40;  $p = 0.026$ ).

**5. The relationship between the pocket money and smoking behavior**

Higher pocket money increased smoking behavior in adolescent (OR= 4.4; p<0.001).

There was a relationship between pocket money and smoking behavior in adolescent.

**Table 1. Bivariate analysis of the relationship between exposure to cigarette advertisements, peers, parental education, parental income, pocket money and adolescent smoking behavior**

Variable	Smoking behavior				Total		OR	p
	Low		High		n	%		
	n	%	n	%				
<b>The exposure of cigarette ads</b>								
Low	39	84.78	3	5.56	42	42	94.71	<0.001
High	7	15.22	51	94.44	58	58		
<b>Peers</b>								
Low	43	93.48	7	12.96	50	50	96.24	<0.001
High	3	6.52	47	87.04	50	50		
<b>Parental education</b>								
Low (<SHS)	29	63.04	6	11.11	35	35	13.65	<0.001
High (≥SHS)	17	36.96	48	88.89	65	65		
<b>Parental income</b>								
Low (<Rp 1,442,000)	26	56.52	19	35.19	45	45	2.40	0.026
High (≥Rp 1,442,000)	20	43.48	35	64.81	55	55		
<b>Pocket money</b>								
Low (<Rp 10,000)	29	63.04	15	27.78	44	44	4.44	<0.001
High (≥Rp 10,000)	17	36.96	39	72.22	56	56		

**C. Multiple Logistic Regression**

Table 2 shows the results of multiple logistic regression. Table 2 shows that exposure to cigarette advertisement was associated with smoking behavior and it was statistically significant (OR= 22.58;

95% CI= 2.42 to 210.69; p= 0.006). There was a positive relationship between peers with smoking behavior and it was statistically significant (OR= 44.01; 95% CI= 3.99 to 485.33; p= 0.002).

**Table 2. The multiple logistic analysis of the relationship between exposure to cigarette advertisements, peers, parental education, parental income, pocket money with adolescent smoking behavior**

Independent Variables	OR	95% CI		p
		Lower limit	Upper limit	
High exposure of smoking	22.58	2.42	210.69	0.006
Peers	44.01	3.99	485.33	0.002
Parental education ≥SHS	36.92	3.19	427.81	0.004
Family income (≥Rp 1,442,000)	0.09	0.01	0.97	0.047
Pocket money	10.56	1.22	91.56	0.032
N observation= 100				
-2 log likelihood= 34.29				
Nagelkerke R <sup>2</sup> = 0.86%				

The Odd Ratio value of parents' education level of 36,919 means that the higher education level of parents has a 36.92 times greater likelihood of smoking behavior compared to the lower education level of parents. Wald test results showed a relationship between the level of education of parents with smoking behavior and is statistically significant (OR = 36.92; 95% CI = 3.19 to 427.81;  $p = 0.004$ ).

The odd ratio value of the parents' income level variable of 0.095 means that the higher income level of parents has the possibility of 0.095 times more likely to behave smoking compared to the lower income level of parents. Wald test results showed a relationship between the level of income of parents with smoking behavior and is statistically significant (OR = 0.095; 95% CI = 0.01 to 0.97;  $p = 0.047$ ).

The score of the Odd Ratio variable for the availability of pocket money was 10,560, it mean that the availability of a high pocket money was 10,560 times more likely to have a smoking behavior than the availability of low pocket money. Wald test results indicated that there was a relationship between the availability of pocket money and smoking behavior which was statistically significant (OR= 10.56; CI 95%= 1.22 to 91.56;  $p = 0.032$ ).

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## DISCUSSIONS

### **1. The relationship between cigarette advertisement exposure and smoking behavior**

The result of this study showed that there was a relationship between exposure to cigarette advertisement and smoking behavior and it was statistically significant (OR= 22.57; CI 95%= 2.42 to 210.69;  $p = 0.006$ ). High exposure to cigarette advertisement would increase the smoking behavior among adolescents. This result supported a study done by Trifena et al., (2011) and

Ariani (2011) which stated that there was a significant relationship between advertisement and smoking behavior among SMA N 4 students in Semarang.

Advertisement was a media campaign that was very effective in shaping public opinion, which in this case was the branding of cigarette products. Advertising was a medium to convey information to the public about a product and advertising has a function to convey information, persuade, or to remind the public of cigarette products. Cigarette advertisements could stimulate a person to start smoking, inhibit smokers who want to stop smoking or reduce their cigarettes, stimulate smokers to smoke more, and motivate the smokers to choose certain brands. Cigarette advertisements also affected the children. Because of the huge effect of cigarette advertising, various health organizations in the world have proposed restrictions on cigarette advertising. Incessant cigarette advertising in electronic media and printed media allegedly contributed to improve smoking habits among adolescents.

By looking at the advertisements on television and the mass media, adolescents began to recognize and try to smoke, because the incessant advertising of cigarettes circulating in the community along with the image formed by cigarette advertisements showed that people who smoke were successful and tough, and they could also face any obstacle.

The advantage of advertising through electronic media was the repeated display. Continuous exposure to cigarette advertisements through electronic media would cause the adolescents to become familiar with the product and would influence adolescents' perceptions and attitudes so that after they saw the advertisement, they would decide to act or not. Masculine image, glamor, full of ideas, and creativity

created by cigarette advertisements, either through slogans, stories or advertising stars idolized by adolescents would influence them to do smoking behavior. Cigarette advertisements through electronic media appeared to be quite effective compared to advertisements through printed media in terms of influencing adolescent knowledge about cigarettes.

In printed media, the adolescents could only read, see pictures and imagine, while in electronic media, the adolescents did not just read and see passive images but also see and hear. The more sensing of an object, the greater the effect of the object on the individual. Adolescents who often used electronic media became a population that was very risky to the dangers of electronic media. This was because in addition to providing a positive impact, it cannot be denied that electronic media also has a negative impact on the knowledge of adolescents, especially regarding cigarettes, because advertisements were designed to shape consumers' positive perceptions of a product or change negative images to positive ones.

## **2. The relationship between peer group and smoking behavior among adolescents**

The result of this study showed that there was a relationship between peer group and smoking behavior and it was statistically significant (OR=44.01; 95% CI= 3.99 to 485.33; p=0.002). Peer group who have high smoking behavior would affect the enhancement of smoking behavior among adolescents. This result supported a study done by Lindawati et al., (2012), and Zahroh (2006) which showed that there was a significant relationship between peer group and smoking behavior.

Mu'tadin (2002) explained that peers were a group of people who have the same age and social groups, such as schoolmates

or coworkers. Peers were a social group which often defined as all people who have similar characteristics such as similar age levels. Santrock (2001) explained that peers were children or adolescents of the same age or maturity. Lewis and Rosenblum in Samsunuwiyati (2005) stated that peers emphasized more on the similarities about behavior or psychological.

Social relationships with friends have a very important meaning for personal development. One of the most important functions of a peer group was to provide a source of information and comparisons about the world outside the family. Children or adolescents received feedback about their abilities from groups of friends. The greater the individual's trust in peers as the correct source of information, the greater the individual's chance on smoking.

The tendency of adolescents to equate behavior with peers was called conformity. Conformity occurred when individuals change their behavior in order to obey existing social norms. Conformity has increased during adolescence (Santrock, 1995). This increase in conformity was caused by more time spent by adolescents with peers than with family, so that the attitudes, talks, interests, appearance, and behavior of adolescents were more influenced by peers than family (Hurlock, 2003).

The tendency of adolescents to do conformity was due to the factors that affect it. Gender affected the adolescents to conform to their peers. Female adolescents were easier to conform to activities conducted by their peers (Fuhrmann, 1990). It was because girls need more friends who could be trusted as a source of social support (Richmond, 1992).

Lips (2005) added that the needs of emotional support made female adolescents willing to do something which was in

accordance with their peers so that they did not lose the emotional support.

### **3. The relationship between parental educational level and smoking behavior among adolescents**

The result of this study showed that there was a relationship between parental educational level and smoking behavior and it was statistically significant (OR=36.919; CI 95%= 3.18 up to 427.81;  $p=0.004$ ). This result showed that high level of parental education would affect the enhancement of smoking behavior among adolescents. This result supported a study done by Januathra (2012), Pakidi et al., (2015) which showed that there was a significant relationship between educational level and smoking behavior.

The level of education was a condition of education level which was owned by a person through formal education used by the government and authorized by the education department. Horne (2010) explained that education was a continuous process of higher adjustment for human beings who have developed physically and mentally, who were free and conscious of God, as manifested in the intellectual, emotional, and human nature of humans.

Education was guidance or assistance given by adults to the development of children to achieve maturity with the aim that the child was capable enough to carry out his/her own life's tasks without the help of others. Education was the level of formal learning conducted in a school. Highly-educated parents would teach their children to avoid self-harm actions such as smoking.

The results of this study also showed that there was a relationship between the level of education and smoking behavior. Knowledge was increased due to the increase in individual's educational level. Knowledge was important in forming

someone's actions, because knowledge was needed as a psychological drive to foster attitudes and behavior. If someone has low knowledge, then his/her attitude and behavior regarding things would also be low.

### **4. The relationship between family income and smoking behavior among adolescents**

The result of this study showed that there was a relationship between parental income and smoking behavior and it was statistically significant (OR= 0.095; CI 95%= 0.01 to 0.97;  $p= 0.047$ ). This result showed that high parental income would affect the enhancement of smoking behavior among adolescents. This result supported a study done by Trifena et al., (2011) and Ariani (2011) which showed that there was a significant relationship between family income and smoking behavior.

Wahyu (2004) stated that "income was money received by someone from a company in the form of salary, wages, rent, interest, and profits including various benefits, such as health and retirement". According to Yuliana (2007), income was all the income received by someone as a reward to his/her services in the production process. The service could be in the form of wages, interest, rent, or profit depending on the factors of production involved in the production process. Based on the definition above, it can be concluded that parental income was all income received by someone whether it was from direct involvement in the production process or not, which can be measured by money and used to fulfill mutual or individuals needs in the family for a month. High parental income would affect children's smoking behavior. With high parental income, the parents would easily give money to their children without knowing the use of the money.

### 5. The relationship between the pocket money and smoking behavior among adolescents

The result of this study showed that there was a relationship between the availability of pocket money and smoking behavior and it was statistically significant (OR= 10.56; CI 95%= 1.22 up to 91.56; p=0.032). High availability of pocket money would affect the enhancement of smoking behavior among adolescents. This result supported a study done by Zahroh et al., (2006) which showed that there was a significant relationship between the availability of pocket money and smoking behavior.

According to Manurung et al., (2004) money was the most liquid asset among all assets in the economy. An asset was said to be liquid if it was easily exchanged for other goods and services, the transaction costs were very small and the nominal value was relatively stable. According to Boediono (1985) money was paper money and coins owned by the community. This cash was called "*uang kartal*" or in English it was called currency.

According to Mankiw (2007) money was a stock of assets that could be immediately used to make transactions. The more money owned by the people, the more rich they would be.

For economists, money did not refer to all wealth but only one type of wealth. According to Mishkin (2000), money has a special meaning for economists. Economists made the difference between money in the form of currencies, checking accounts (savings) and in other forms used for transactions and wealth.

Society considered that the richer or more prosperous someone was, the more money he/she has. However, for economists, money was not part of all wealth but a form of wealth or assets used for the process of transaction. Society also

considered that money was income. However, an economist defined money (also often referred to as money supply) as something which generally accepted in the payment of goods and services or payment of debt in contrast to wealth and income.

According to Mankiw (2000), money was a stock of assets used for transactions, the quantity of money was the amount of these assets, and in a simple economy, this amount was easily measured but it was not easy in a more complex economy because a single asset was not used for all the transactions.

Based on the descriptions above, it can be concluded that money was something that was trusted, accepted, and considered valuable by the community, used for economic activities both transactions of goods and services, storage of wealth or a measure of wealth. The availability of adolescent's pocket money has an effect on smoking behavior, the high availability of pocket money owned by a person would increase smoking behavior.

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