Eduvest – Journal of Universal Studies
Volume 2 Number 1, January 2022
p- ISSN 2775-3735 e-ISSN 2775-3727

ADOLESCENT SMOKING BEHAVIOR IN INDONESIA; A LONGITUDINAL STUDY

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ARTICLE INFO

Received: **December, 26th 2021**
Revised: **January, 17th 2022**
Approved: **January, 18th 2022**

ABSTRACT

Adolescent smoking behavior in Indonesia is increasing every year. This condition is dangerous threat to the sustainability of a country. This study was aimed to analyze determinant factors related to adolescent smoking in Indonesia. The study is quantitative research with cross sectional design. This study utilized IFLS 5 data. Sample was unmarried adolescent aged 15-24 years with a total of 4,959 adolescents. Association between adolescent smoking behavior status with parental smoking habits, gender, age and residence were determined by using chi-square test. We found that the majority (93%) of adolescents were smokers who smoke a maximum of 10 cigarettes per day and most of them started smoking regularly at the age of 12 to 17 years (66%). Parental smoking habits significantly influenced adolescent smoking behavior (p=0.000; OR=1.397; 95% CI=1.173<OR<1.663). Gender and age group also affected smoking behavior in adolescents. Meanwhile, the classification of residence has no significant effect on adolescent smoking behavior (p=0.337; OR=0.920; 95% CI=0.777<OR<1.090). These findings suggested that efforts to prevent adolescent smoking behavior should be more focused on children who live with smoking parents.

KEYWORDS

Adolescents, Smoking, Behavior, Indonesia

How to cite: Radian Ilmaskal, Linda Wati, Rischa Hamdanesti, Alkafi, Helmanis Suci. (2022). Adolescent Smoking Behavior In Indonesia; A Longitudinal Study. Journal Eduvest. *Vol 2*(1): 41-47
E-ISSN: 2775-3727
Published by: https://greenpublisher.id/

INTRODUCTION

Scientifically, smoking is a dangerous behavior for yourself and others, however, many people still consume it. It was caused more than 8 million deaths and cost the world economy about US$ 1.4 trillion annually (Organization, 2021). The use of tobacco contributes to poverty with the aid of using diverting family spending from primary needs consisting of safehouse and meals to tobacco. Approximal more than 80% of the 1.3 billion tobacco smokers in the world live in low-and middle-income countries, where exposure to tobacco-related illness and death is the worst (WHO, 2021). By 2030, if trends do not change, smoking mortality will increase 2.5-fold (Lim et al., 2017).

Globally, Indonesia is the third-largest number of smokers after China and India. the number of tobacco smokers is predicted to increase by 24 million from 2015 to 2025 in Indonesia (Drope et al., 2018). Based on the Indonesian national health survey (Riskesdas) showed that the proportion of smokers from 2017-2018 increased from 23.7% to 28.8%. It is not only that the total number of smokers keeps increasing, but also the smoking behavior starts earlier. The age group with the highest smoking initiation was the 10-14 years old and followed by the 15-19 years old. Prevalence of adolescent smoking in the population aged 10-18 from 2013-2018 increased from 7.2% to 9.1% (Ministry of Health of The Republic of Indonesia, 2013). Other research, from the Global youth tobacco survey showed that 19.2% of students in Indonesia aged 13-15 years are a smoker and 57.8% of them were contaminated with tobacco smoke at their homes (WHO, Ministry of Health of The Republic of Indonesia, & CDC, 2019). Smoking behavior in adolescents is a serious health problem since it increases the risks of various diseases when they get older (Park, 2011). Finally, poor health in adolescence may present challenges to educational and occupational success, which can have lasting impacts on young people's life chances. It has an impact on the future sustainability of a country automatically.

A meta-analysis of studies in China showed that smokers were at increased risk of severity COVID 19 compared to nonsmokers (Patanavanich & Glantz, 2020). Adolescents have a relatively lower risk of being infected with COVID 19 than older people, but given the proportion of adolescents who use e-cigarettes, e-cigarette and tobacco use among adolescents is an important risk factor for COVID 19 (Gaiha, Cheng, & Halpern-Felsher, 2020).

Many factors were associated with adolescents smoking behavior. A study in Central Java, Indonesia found that smoking behavior was directly influenced by strong intention and weak perceived behavioral control and indirectly by weak exposure to cigarette advertisement and availability, preventive subjective norm, negative attitude, pocket money at least more than Rp.10.000, weak family support, and smoker peer-group (Pandayu & Murti, 2017). The adolescents smoking-related factors included peer pressure, the parents' smoking status, masculinity, and curiosity too (Fithria, Adlim, Jannah, & Tahlil, 2021). Other studies indicated that tobacco smoking among adolescents was predictor by lower socioeconomic status (Green, Stritzel, Smith, Popham, & Crosnoe, 2018)(Kuntz & Lampert, 2016). Aho et.al in Finland show that Parental daily smoking predicted daily adolescent smoking, and this association was also observed in adolescents when mothers and fathers quit smoking (Aho, Koivisto, Paavilainen, & Joronen, 2018). The previous study has discussed a lot about adolescent smoking behavior but only in a limited area and a small sample. Thus, objective the study to

analysis caused adolescent smoking behavior from nationally representative data in Indonesia.

RESEARCH METHOD

The study used secondary data from The Indonesian Family Life Survey (IFLS) wave 5. IFLS is an ongoing longitudinal survey in Indonesia. It was conducted by RAND Corp from the United States collaboration with Universitas Gadjah Mada in Indonesia. So far, 5 waves of IFLS have been conducted, namely IFLS1 in 1993, IFLS2 in 1997, IFLS3 in 2000, IFLS4 in 2007, and finally IFLS5 in 2014. 2014. IFLS 5 succeeded in interviewing 16,204 households and 50,148 individual samples. The survey was conducted between October 2014 and Augustus 2015. The survey consists of 13 provinces and 30,000 individuals. With a 90% response rate, the IFLS-5 sample was claimed to be representative of about 83% of the Indonesian population (Strauss J, Witoelar F, 2016). The data are available at https://www.rand.org/well-being/social-and-behavioral-policy/data/FLS/IFLS/ifls5.html. The sample of this study was adolescents aged 15-24 years and status not yet married with number 4.959. The Independent variable was smoking status and the dependent variable was the parents 'smoking status, sex, age, and residence. Data analyzed used univariate and bivariate.

RESULT AND DISCUSSION

The distribution of general characteristics of adolescent smoking behavior is presented in Table 1 below:

Table 1 Characteristic of adolescence smoking in Indonesia (n=4.959)

Variable	Frequency	Percentage (%)
Ever tried Smoking		
Yes	1.314	27
No	3.645	73
Smoking Status		
Smokers	1.221	93
Non smokers	93	7
Types of cigarettes		
Filter White Cigarettes	577	44
White Cigarettes without filter	23	2
Filter Kretek Cigarettes	640	49
Kretek Cigarettes without filter	13	1
Others	61	5
The age of starting smoking (years)		
< 12	45	3
12-17	865	66
> 18	404	31
Number of Cigarettes per day		
10	834	63
11-20	430	33
> 20	50	4

Based on table 1, a total of 73% of adolescents has no smoking experience and the percentage of adolescents who have smoking experience was 27%, of the total youth who have smoking experience, most of them were continuing the habit of smoking at 92.92% until the time of interview, meanwhile only 7.08% of adolescents who have quit smoking. Most adolescents smoked Kretek cigarettes filter (49%) and white cigarettes filter (42%). The distribution of adolescents in terms of age the first time smoking routinely was quite varied. Most of the respondents admitted that the age at first starting smoking routine was in the age group 12 to 17 years, namely as many as 865 adolescents (65.83%). Judging from the number of cigarettes smoked in a day, mostly teenagers was a light smoker who smokes maximum of 10 cigarettes per day (63.47%).

Table 2 Distribution Frequency of Independent Variable (n=4.959)

Variable	Frequency	Percentage (%)
Sex		
Male	2.716	55
Female	2.243	45
Aged group (year)		
15-18	2.751	55
19-24	2.208	45
Parents 'smoking status		
Smoking	3.300	67
No smoking	1.659	33
Resident		
Urban	3.299	67
Rural	1.660	33

From table 2, when viewed from the gender of the respondents, the distribution of adolescents is dominated by male adolescents, as many as 2,716 people (55%). Based on the age group, most of the respondents in the unit of analysis were in the age group 15 to 18 years (55%), and based on the smoking habits of parents shows that most of the respondents' parents have a smoking habit about 66.55%. Meanwhile, when viewed from the classification of residence, the distribution of adolescents was dominated by adolescents who live in urban areas, which are 3,299 adolescents (67%).

Variable	**Smoking Behavior**				**Total**		***P Value***	**OR (95% CI)**
	Smoker		**Non-Smoker**					
	n	**%**	**n**	**%**	**N**	**%**		
Parental smoking habits	370	22	1.289	78	1.659	100		
Smoker	948	29	2.352	71	3.300	100	0.000	1.397 (1.173-1.663)
Non-smoker								
Gender								189,456

Male	1.306	1	2.231	99	2.243	100	0.000	(106.495-
Female	12	48	1.410	52	2.716	100		337,044)
Age group (Years)								
15-18	465	17	2.286	83	2.751	100	0.000	1.159 (1.120-1.199)
19-24	853	39	1.355	61	2.208	100		
Residence								
Rural	483	29	1.177	71	1.660	100	0.337	0.920 (0.777-1.090)
Urban	835	25	2.464	75	3.299	100		

Table 3 Bivariate Analysis of Adolescent Smoking Behavior

The results of the bivariate analysis based on Table 3 showed that there was a relationship between parental smoking habits, gender, and age group with adolescent smoking behavior. The experience of living with parents who have smoking habits would increase the tendency of adolescents to become smokers by 1.397 times compared to adolescents who live with parents without smoking habits (p=0.000; OR=1.397; 95% CI=1.173-1.663). The male adolescents had a risk of smoking 189.456 times greater than female adolescents. Meanwhile, adolescents in the age group over 18 years had a risk of smoking 1,159 times greater than adolescents in the age group 18 years or less. Thus, the residence classification variable had no effect on adolescent smoking behavior (p=0.337; OR=0.920; 95% CI=0.777-1.090). This showed that there was no significant difference in smoking behavior between adolescents living in rural areas and urban areas.

Based on this study, smoking behavior is the experience of adolescents in smoking cigarettes or chewing tobacco. Several factors that influence adolescent smoking behavior such as age, sex, educational attainment, economic status, family, and close friends influence (Lim et al., 2017) (Pandayu & Murti, 2017) (Fithria et al., 2021) (Utami, 2020). The results of this study indicate that the smoking habits of parents significantly affect the smoking habits of adolescents. This is consistent with research conducted in Finland, Germany, and China (Aho et al., 2018)(Kuntz & Lampert, 2016)(Wang et al., 2019). The role of the family, especially parents, is very important in shaping the attitudes of children towards tobacco use. Commonly, children tend to imitate their parents' behavior, parents smoking habits will increase the probability for their children to become smokers. This finding is in conjunction with earlier studies in China (Wang et al., 2019).

Gender is significantly related to smoking behavior in adolescents. The proportion of smokers for male adolescents was much higher compared to female adolescents. The high risk of smoking behavior among adolescents based on gender was caused by a bad stigma if a female has a smoking habit in Indonesia. There is a relationship between gender and adolescent smoking behavior according to research conducted by Laksono and Effendi which showed that there were differences in smoking behavior between male and female adolescents (Laksono et al., 2021). However different results were obtained in the research conducted by Aho et.al in Finland found that just over one-third or 36% of all vocational school students reported smoking daily. Girls were daily smokers (37%) slightly more often than boys (36%)(Aho et al., 2018).

Adolescent age was significantly related to smoking behavior. The results of this study were in line with research conducted by Skulberg et.al in Pulau Weh, Indonesia,

which showed that there were differences in the proportion of smoking among adolescents between age groups (Skulberg, Hamid, & Vaktskjold, 2019). The researchers divided adolescents into two age groups, 14 years or less and more than 14 years of age. The higher the adolescent age group, the greater the risk of smoking in adolescents.

This study found that the classification of residence has no significant effect on smoking behavior in adolescents. The results of this study were also in line with a study in Korea that the classification of residence in rural, urban, and metropolitan cities did not affect adolescent smoking behavior (Kim et al., 2013). However, differences with the study by Skulberg found that the odds of being an active smoker were 7.4 times higher among students at the public rural school, as compared to the public school in town (Skulberg et al., 2019).

CONCLUSION

The prevalence of smoking among adults and adolescents in Indonesia is still quite high. The high prevalence of smoking among adults can affect the smoking behavior of adolescents who have lived together. The behavior of parents is an example that their children will easily imitate, including in terms of smoking habits. Researchers suggest that efforts to prevent smoking behavior in adolescents are more focused on children who live with smoking parents.

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