Original Research

Adolescent smoking behavior and its related factors in coastal area of Kendari, Indonesia

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Abstract

Background: Smoking is a behavior that does not occur spontaneously but rather evolves through a series of processes influenced by various internal and external factors. Smoking leads to a decline in health, impacting the quality of life for children in the new generation.

Objective: This study aimed to analyze the relationship between the social environment, media/advertising exposure, the role of parents, and the role of teachers in adolescent smoking behavior in the coastal area of Kendari, Indonesia

Methods: The study utilized a cross-sectional study approach. The population comprised all adolescents in the coastal area of Kendari, with a sample size of 526 students, including both male and female students. The study was conducted in April 2023. Data were collected through a questionnaire, and were analyzed using Chi-square test.

Results: The study found that a percentage of students engaged in smoking behavior. Additionally, 100% (221 individuals) of students reported being influenced by cigarette advertising, leading to smoking. Furthermore, 92.4% of students with parents in a deficient role exhibited smoking behavior, and 83.2% of students with teachers in a lacking role ended up smoking. The chi-square test yielded a ρ-value of 0.000, indicating a significant relationship between the social environment, media/advertising exposure, the role of parents, the role of teachers, and smoking behavior.

Conclusion: The study results demonstrate a significant influence of the social environment, media/advertising exposure, the role of parents, and the role of teachers on the smoking behavior of senior high school students.

Keywords: smoking behavior; adolescents; social environment; advertising; role of parents; role of teachers

Background

According to WHO, adolescents are residents in the age range of 10 to 19 years old, according to the Ministry of Health of the Republic of Indonesia regulation number 25 of 2014, adolescents are residents in the age range between 10 to 18 years old and according to the National Population and Family Planning Board (BKKBN) the age range of adolescents is 10 to 24 years old and not married (Kementerian Kesehatan Republik Indonesia, 2018). At this time, adolescents are very easily influenced by an environment and culture which is not positive that will make the risk factors trapped for unhealthy behavior, for example; smoking, drinking alcohol, drug use, premarital sex, brawl and speeding on the street. Adolescents think of themselves as tough and

mature people and teenage smokers are considered to be able to improve their self-image (Bigwanto & Soerojo, 2020; Nyorong & Siregar, 2023).

Smoking is a behavior which does not appear by itself but through a series of processes that can be learned and influenced by various factors, both internal and external (Fitriani, 2022; Hong et al., 2023). If smoking is always repeated, it becomes a habit. Smoking is a habit that we often encounter in everyday life. From a health perspective, there is no one point that agrees on the benefits contained by cigarettes. However, it is not easy to control or reduce, let alone eliminate the desire to smoke. Therefore, this smoking lifestyle becomes a health problem, at least as a risk factor that supports the occurrence of various diseases and causes the deaths (Manullang, 2022).

Smoking behavior is a behavior that is harmful to health, but there are still many people who do it, even people start smoking when they are adolescents (Beneito & Muñoz, 2022; Budin et al., 2022). Smoking behavior is a behavior that is considered very detrimental from various perspectives both for oneself and for others around it (Jones & Schüz, 2022; Slocum et al., 2022). One of the reasons why smokers are always increasing is due to the incessant cigarette advertisings circulating in society, coupled with the image formed by these cigarette advertisings so that it looks as if the person who smokes is a successful and tough person who can overcome any obstacle (Brenyah et al., 2023; Montjean et al., 2023). Smoking causes a decline in health which has an impact on the quality of children and the new generation being born (Kumar et al., 2023; Saldiva et al., 2023). The decline in the quality of the nation's next generation results in continuing ignorance and poverty from generation to generation throughout history (Isa, 2017).

One in 10 adult deaths is caused by smoking, where cigarettes kill nearly five million people every year. If this continues, it is certain that 10 million people will die from smoking annually by 2020, with 70% of cases occurring in developing countries such as Indonesia. In fact, by 2030 it is estimated that the number of deaths will reach 8 million (World Health Organization, 2012).

The percentages of smokers in Southeast Asian countries are spread across Indonesia (50.68%),

Philippines (14.28%), Vietnam (12.30%), Thailand (8.89%), Myanmar (7.32%), Malaysia (3.91%), Cambodia (1.22%), Laos (0.72%), Singapore (0.29%) and Brunei (0,06%). This makes Indonesia as the Southeast Asian country with the largest number of smokers, which is around 62 million people, and Brunei with the smallest number of smokers, which is around 72,000 people. It is estimated that this number will continue to increase considering that the average age to start smoking is decreasing, namely under 18 years old and the high number of productive young people (15 to 29 years old) in Southeast Asia, which is 160 million people (World Health Organization, 2012)

Southeast Sulawesi Province with a percentage of population aged 10 years and over who smoke every day is 22.28%. Description of smoking behavior of the population aged 10 years and over according to respondent characteristics. It can be seen that the percentage of the population who smoke every day are in the productive age group (15-19 years old). Based on report of the Primary Health Research (RISKESDAS) of 2018 about smoker data in Kendari, the percentage of the population aged 10 years and over according to smoking habits is 19.58% every day (Kementerian Kesehatan Republik Indonesia, 2018).

This study is important because there are still many findings in the field that juvenile delinquency is still rife at schools, one of them is smoking behavior. Gender is also an important factor in smoking behavior, which is more dominant in men and few women who smoke are related to a culture which does not accept women who smoke (Wirawati & Sudrajat, 2021).

Methods

Study Design
This study employed a cross sectional study design.

Samples/Participants
The study population were all students in class X and XI of senior high school in the coastal area of Kendari in 2023. Sampling was determined based on sample calculations using the slovin formula to calculate the sample size of each senior high school which represents the population, namely 526 students from SMAN 3 Kendari, SMAN 8 Kendari, and SMAN 9 Kendari. Probability sampling technique were

proportionate stratified random sampling and simple random sampling.

Instrument

The research questionnaire was developed based on the Precede Lawrence Green Model and previous studies (Isa, 2017; Saputra, 2016). The questionnaire underwent validity and reliability tests on a sample of 30 students from three senior high schools in coastal areas, to ensure its accuracy and consistency. The validity and reliability tests specifically focused on the independent variable. The results of social environment questions tests confirmed that the questionnaire was valid and reliable for use in the study (with a correlation coefficient value (r) of 0.452-0.870 > 0.361 and a Cronbach's alpha value of 0.820 > 0.60). The results of media/advertising environment questions tests confirmed that the questionnaire was valid and reliable for use in the study (with a correlation coefficient value (r) of 0.452-0.870 > 0.361 and a Cronbach's alpha value of 0.820 > 0.60). The results of role of parents questions tests confirmed that the questionnaire was valid and reliable for use in the study (with a correlation coefficient value (r) of 0.435-0.952 > 0.361 and a Cronbach's alpha value of 0.853 > 0.60). The results of role of teachers questions tests confirmed that the questionnaires were valid and reliable for use in the study (with a correlation coefficient value (r) of 0.461-0.771 > 0.361 and a Cronbach's alpha value= 0.772 > 0.60).

The questionnaire included questions regarding gender, with response options of male or female. The level of ages was divided into four categories: 15 years old, 16 years old, 17 years old, and 18 years old. Smoking behavior was divided into 2 categories, namely smoking (if the respondents smoke at least 1 cigarette per day or has smoked at least in the last 1 year) and not smoking (if the respondents have never smoked in the last 1 year).

The social environment questionnaire consisted of 9 questions. The assessment criteria were based on the Guttman scale. For each question, a score of 0 (zero) was given if the answer was no and a score of 1 (one) if the answer was yes. The measurement of the social environment was conducted using the class interval formula: Interval=Range/Category. The social environment was divided into 2 categories, namely have a risk (if the respondent's answer score was < 50% of the 10 questions scored) and do not

have a risk (if the respondent's answer score was ≥ 50% of the 10 questions scored).

The media/advertising environment questionnaire consisted of 10 questions. The assessment criteria were based on the Guttman scale. For each question, a score of 0 (zero) was given if the answer was no and a score of 1 (one) if the answer was yes. Measurement of the media/advertising environment was conducted using the class interval formula: Interval=Range/Category. The media/advertising environment was divided into 2 categories, namely have effects (if the respondent's answer score was ≥ 50% of the 10 questions scored) and do not have effects (if the respondent's answer score was <50% of the 10 questions scored).

The role of parents' questionnaire consisted of 10 questions. The assessment criteria were based on the Guttman scale. For each question, a score of 0 (zero) was given if the answer was no and a score of 1 (one) if the answer is yes. Measuring the role of parents was conducted using the class interval formula: Interval=Range/Category. The role of parents is divided into 2 categories, namely poor (if the respondent's answer score is <50% of the 10 questions scored) and good (if the respondent's answer score was ≥ 50% of the 10 questions scored).

The role of teachers' questionnaire consisted of 10 questions. The assessment criteria were based on the Guttman scale. For each question, a score of 0 (zero) was given if the answer was no and a score of 1 (one) if the answer was yes. Measuring the role of teachers was conducted using the class interval formula: Interval=Range/Category. The role of teachers was divided into 2 categories, namely less (if the respondent's answer score was <50% of the 10 questions scored) and good (if the respondent's answer score was ≥ 50% of the 10 questions scored).

Data Analysis

Data were analyzed using IBM SPSS Statistics 24 software and Epi info software. The univariate analysis using frequency and percentage. For the bivariate analysis, the Chi-square test was employed to examine the associations between different variables.

Ethical Considerations

Ethical approval was obtained from the Ethical Committee of Mandala Waluya Foundation Kendari,

University of Mandala Waluya. Each respondent had obtained appropriate informed consent prior to data collection.

Results

Based on **Table 1**, the characteristics of respondents based on age, the largest number of respondents were in the 16 years old category with 270 students (51.3%), while the fewest respondents in the 18 years old category were 52 students (9.9%). As for the gender variable, the female respondents were 79 students (15.0%), while the male respondents were 447 students (85.0%).

Table 1 Distribution of respondent characteristics based on age and gender

Variables	n	%
Ages		
15 years old	59	11.2
16 years old	270	51.3
17 years old	145	27.6
18 years old	52	9.9
Gender		
Female	79	15.0
Male	447	85.0

Based on **Table 2**, the study results showed that more adolescents in the three senior high schools in the coastal area of Kendari were in the non-smoking category, but there were still adolescents who smoke, namely SMAN 3 Kendari (33.6%), SMAN 8 Kendari (49%), and SMAN 9 Kendari 48%). As for the social environment variable, the three schools were more likely to be in the risky social environment category, namely SMAN 3 Kendari (58%), SMAN 8 Kendari (63%), and SMAN 9 Kendari (61%). For the media/advertising environment variable, the three schools were more in the category of not being affected by the media/advertising environment but there were still adolescents who were affected by cigarette advertising, namely SMAN 3 Kendari (30%), SMAN 8 Kendari (45%), and SMAN 9 Kendari 48%). For the parental role variable, at SMAN 9 Kendari there were more parents in the poor category, namely 120 people (56%), while for SMAN 3 and 9 Kendari there were more parents in the good category, namely 88 people (60%). and 94 (56%). As for the teacher role variable, for SMAN 3 and 8 Kendari more of them were in the poor teacher role category, namely 61% and 52%, while for SMAN 9 Kendari they were in the good teacher role category, namely 52%.

Table 2 Distribution of respondent based on smoking behavior, social environment, media/advertising environment, the role of parents and the role of teachers

Research variable	SMA N 3 Kendari		SMA N 8 Kendari		SMA N 9 Kendari	
	n	%	n	%	n	%
Smoking behavior						
Smoking	49	33.6	81	49.0	102	48.0
Not Smoking	97	66.4	86	51.0	111	52.0
Social environment						
Have a risk	85	58.0	105	63.0	130	61.0
Do not have a risk	61	42.0	62	37.0	83	39.0
Media/advertising environment						
Have effects	44	30.0	75	45.0	102	48.0
Do not have effects	102	70.0	92	55.0	111	52.0
The role of parents						
Less	58	40.0	73	44.0	120	56.0
Good	88	60,0	94	56.0	93	44.0
The role of teachers						
Less	89	61.0	87	52.0	103	48.0
Good	57	39.0	80	48.0	110	52.0

Based on **Table 3**, the results of the study showed that out of 320 students who had a risk of social environment, there were 72.5% (232 people) who smoke. In addition, there were 100% (221 people) of students who stated that they are influenced by cigarette advertisings and ended up smoking. The results of the study also stated that of the 251 students whose parents' role were in the less category, there were 92.4% (232 people) of students who smoke and there were 83.2% (232 students) whose teacher's roles were less and finally they smoke. Based on the results of the chi-square test,

the value obtained was ρ = 0.000 < α = 0.05 so that H0 is rejected, which means that there is a significant relationship between the social environment, media/advertising environment, the role of parents and the role of teachers and smoking behavior.

Table 3 Smoking behavior and its related factor

Research variable	Smoking Behavior				Total		p
	Smoking		Not Smoking				
	n	%	n	%	n	%	
Social environment							<0.001
Have a risk	232	72.5	88	27.5	320	100.0	
Do not have a risk	0	0	206	100	206	100.0	
Media/advertising environment							<0.001
Have effects	221	100	0	0	221	100.0	
Do not have effects	11	3.6	294	96.4	305	100.0	
The role of parents							<0.001
Less	232	92.4	19	7.6	251	100.0	
Good	0	0	275	100	275	100.0	
The role of teachers							<0.001
Less	232	83.2	47	16.8	279	100.0	
Good	0	0	247	100	247	100.0	

Discussion

These results indicate that there is a significant relationship between the social environment, advertising media environment, the role of parents, and the role of teachers with smoking behavior. The majority of students had a risk of social environment category and less teacher role category. Meanwhile, the results of the bivariate test between the media/advertising environment and smoking behavior showed that all students who were influenced by cigarette advertising ended up smoking. The majority of students who were in the less category of parental role and in the end these students behave in smoking.

In everyday life, adolescents are closer to their social environment or peers than to their parents because adolescents want friends who have the same interests, attitudes, so they do lots of activities together, in spending their free time, many adolescents have social friends. If you smoke, this can trigger the intention to imitate or just want to try. In certain groups of adolescents, smoking is a symbol of masculinity among its members, usually adolescents who do not smoke will be considered effeminate and will be shunned by their group of friends, therefore friends or groups who smoke with negative conformity and in which there are more or less smokers, sooner or later can influence a person's behavior including smoking behavior.

Friendship in adolescents' lives is considered very important, because in this group, adolescents are trying to socialize and find social values and togetherness, but in the process they will receive good and bad values which will have an impact on their social and psychological life (Isa, 2017).

The results of this study are in line with the research reported by Sulistianingsih (2010) who reported a relationship between the social environment and smoking behavior (P-Value 0.003), this is due to the impact of the social environment which is increasingly involving adolescents in smoking behavior. Negative behavior has a bad influence on smoking habits (Sulistianingsih, 2010). Smoking makes adolescents hope to get pleasure. This study is also in line with the research conducted by Maki et al. (2022) who reported that there is a relationship between peers and smoking behavior among adolescents in Gonilan Kartasura Village.

Advertising is a very effective promotional media in forming public opinion in the field of cigarettes. The experts of WHO state that cigarette advertising can stimulate someone to start smoking, can discourage smokers who want to stop smoking or reduce their smoking, can stimulate smokers to smoke more, and motivate smokers to choose certain cigarette brands. The appearance of cigarette advertisings that show the image that smokers are a symbol of masculinity often trigger the adolescents to follow the similar behavior in the advertising. The cigarette

industry also makes the adolescents role models such as athletes or artists into cigarette advertising stars to influence adolescents' perceptions of the appearance and benefits of cigarettes (Saputra, 2016). This is in line with research by Hasanah et al. (2021), that advertising displays can trigger action in the form of purchasing a product quickly and can sustain for a long time. A similar thing was also found in previous research, that based on a literature review, there were three studies that found a correlation between cigarette advertising and the behavior of trying to smoke as well as respondents' perceptions.

Family is an environment that is very influential on individual development. Apart from being a place to live for a relatively long time, this environment is also responsible for the transformation of values and norms in individuals as children. Parents who are leaders in the family environment have a big role in the transformation process (Hidayat, 2012). If parents smoke, it will be a model for their children to smoke even though parents tend to forbid their children from smoking. Children will learn from what their parents do, not what their parents say, so if their parents smoke, it is likely that their children will also smoke, even if they start doing it in secret. This is in accordance with adolescent psychosocial development which states that adolescents often try to imitate what their parents do. A child who is born into a smoking family is more likely to imitate the smoking habits of their parents, this can start with them being passive smokers who are always surrounded by a smoking family, they also inhale cigarette smoke. A child who is in the womb of a mother who has a father or mother who is a smoker, where in the fetal phase he has been exposed to cigarette smoke or nicotine which is transmitted to him through the placenta, then when he enters adolescence and into adulthood he will have a great tendency to smoke (Simarmata, 2012).

The results of this study are in line with the study about smoking behavior in adolescents: The role of parents in parenting by Yulia Rahmawati and Raudatussalamah where the results were obtained that parental parenting influences the smoking behavior of adolescents. The role of parents are an important factor in dealing with adolescents smoking behavior (Rahmawati & Raudatussalamah, 2020). This study is also in line with a study conducted from Aliyah in 2011 which states that if parents or other family members smoke, it will encourage them to become beginner smokers at the student age with the possibility of smoking 1.5 times of boys (Al-Zalabani & Kasim, 2015).

A teacher who is considered to have high ability, skill and knowledge, especially health problems, should know about the dangers of smoking. When a student sees the teacher's smoking behavior in the school environment, it is feared that there will be a perception that smoking is a right and natural behavior and even good to be imitated. Senior high school adolescents are adolescents in their early stages, where people around them can easily influence the decision to conduct a behavior (Suluh, 2019). The results of this study are in line with what was conducted by Sari (2019) who states that the efforts made by PAI teachers in preventing and treating students' smoking habits play an important role in fostering, educating, motivating in Islamic teachings. By giving lectures and admonishing students who are seen smoking in the school environment, even bringing students who smoke to face the guidance and counseling teachers to be given counseling services and calling parents to communicate students' daily lives. Teachers are role models for students at school.

Conclusion

This study found that there was a significant relationship between the social environment, advertising media environment, the role of parents, and the role of teachers with smoking behavior. The majority of students had a risk of social environment category and less teacher role category. Meanwhile, the results of the bivariate test between the media/advertising environment and smoking behavior showed that all students who were influenced by cigarette advertising ended up smoking. The majority of students who were in the less category of parental role and in the end these students behave in smoking. The findings of this study suggest that adolescents should choose a good social environment, limited access to cigarette advertising, especially among adolescents, and the education about the dangers of smoking is intensified, closed supervision from parents and teachers are very needed.

Declaration Conflicting Interest
The authors have no conflicts of interest to declare.

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