



## Correlations between adolescents' perceptions of family health tasks and adolescents' smoking behaviors in Indonesia<sup>☆</sup>



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### KEYWORDS

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### Abstract

**Objective:** This study was designed to analyze the relationships between adolescents' perceptions of the implementation of family health duties and their smoking behaviors in Depok, Indonesia.

**Methods:** A quantitative, observational, cross-sectional analysis was carried out in one urban village. The sample of 310 adolescents was selected by using the stratified random sampling technique. The instrument (questionnaire) used in this study was developed by the researcher based on a literature review to measure the family health tasks and assess the smoking behaviors with the characteristics of the respondents.

**Results:** In total, 59.4% of the respondents were smokers, and 52.6% of the families could not carry out the health tasks. A chi-squared analysis ( $p=0.043$ , odds ratio = 1.645) and multiple logistic regression analysis determined that the overall implementation of the family health tasks was most dominantly correlated with non-smoking behavior (OR = 2.627).

**Conclusion:** The families who could not implement all of the family health tasks tended to have adolescents who smoked.

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## Introduction

Adolescence is a period of one's transition to independence. During this process of achieving independence, many adolescents become involved in risky behaviors including smoking cigarettes.<sup>1</sup> Adolescent smoking behaviors can be caused by peer influences and easy access to cigarettes. However, several protective factors have been identified, including parents who enforce rules about cigarette smoking, who exhibit antismoking behavior at home.<sup>2</sup>

Adolescents who have smoked may have a degree of nicotine dependence, thus increasing their risk of smoking every day when they reach adulthood.<sup>3</sup> Smoking is also dangerous to one's health (especially teenagers) because it can cause cancer, cardiovascular diseases, lung diseases, digestion problems, mouth diseases, reproductive problems and even death.<sup>4</sup>

The results of a survey conducted among 13–15-year-old adolescents in Indonesia reported that 23.4% of the students were active smokers (42% of males and 5.5% of females). The finding exceeds the national percentage of 19.4% (35.3% of males and 3.4% of females), and approximately 58.3% of the students' parents were smokers.<sup>5</sup> The family environment tends to be a trigger for health problems among family members.<sup>6</sup> Family involvement can also protect adolescents from using substances such as tobacco.<sup>7</sup> Based on systemic observations and meta-analyses by Thomas et al.<sup>8</sup> family-based interventions are effective to prevent children and adolescents from smoking behavior. The family can play a significant role by promoting good health and reducing the health hazards of the family members.<sup>6</sup> Families can achieve these goals through the implementation of family health tasks, such as recognizing health problems, making decisions to solve these health problems, applying appropriate healthcare, modifying the health environment and utilizing the appropriate healthcare services.<sup>9</sup>

The purpose of this research was to determine the correlations between adolescents' perceptions of implementing family health tasks and their smoking behaviors in Depok, Indonesia.

## Materials and methods

### Study design, population, and sample

For this research, a quantitative, observational, analytical approach was used along with a cross-sectional survey. A total sample size of 310 adolescents from 10–19 years old living in the village of Curug (including 11 hamlets) in the Cimanggis district of Depok city were involved in this research. This sample was selected using a stratified random sampling technique. The participants were selected according to the following inclusion criteria: living with their parents, living in a permanent residence, literate and agreeing to participate in this study.

### Measuring instrument

The instrument used in this study was a questionnaire developed by the researcher based on the literature. This

questionnaire was used in a pilot study involving 30 adolescents with characteristics similar to the participants in this study. After receiving ethical approval, the questionnaire was tested for validity and reliability.

### Confounding variables

The confounding variables in this study were age, gender, allowance, and peers. Each variable was assessed based on two categories: the ages were divided into early adolescence (10–16 years old) and late adolescence (17–19 years old),<sup>10</sup> the genders were male and female,<sup>11</sup> the allowance was  $\geq 0.70$  USD or  $< 0.70$  USD per week<sup>12</sup> and the peers were divided into smokers and nonsmokers.<sup>11</sup>

### Dependent variable

The adolescent smoking behaviors were divided into two categories, smoking and non-smoking, based on the literature. The participants were categorized as 'nonsmoking' if they reported that they never tried smoking (even 1 or 2 puffs) and 'smoking' if they had ever smoked (1 or 2 puffs or more, despite having stopped smoking and still smoking while doing research). The answer choices were yes or no based on the Guttman Scale.

### Independent variables

The family health tasks were developed by the researcher based on the family nursing practice operational framework according to Maglaya.<sup>9</sup> The assessment consisted of 50 items, and a five-point scale was used, ranging from 'never' (1) to 'always' (5). The tasks were categorized as being 'able' and 'unable'<sup>13</sup> (Cronbach's  $\alpha = 0.862$ ).

### Statistical analysis

The data analysis consisted of univariate, bivariate and multivariate analyses. The univariate analysis results were shown as the frequency and percentage of each variable. The bivariate analysis employed a chi-squared test with a  $p$ -value of  $< 0.05$  to identify a correlation between the adolescents' perceptions of implementing family health tasks and their smoking behaviors. Multivariate analysis with multiple logistic regression was used to identify the variable perceptions of adolescents about family health tasks which most dominantly correlated with adolescent smoking behavior.

## Results

The results of this study showed that most of the respondents were in early adolescence (61.9%), were males (92.9%), their average weekly allowance was  $\geq 0.70$  USD (69.0%), their peers were smokers (89%), their families were unable to implement the health tasks (52.6%) and they were smokers (59.4%). Table 1 shows the characteristics of the respondents.

The variable perception of adolescents on the implementation of family health tasks that correlates with adolescent smoking behavior is the variable applying appropriate health care [ $p = 0.001$ , OR = 2.849], the utilization of health services ( $p = 0.005$ , OR = 2.014) and the total implementation of the

**Table 1** Respondents' characteristics (N = 310).

Variables	Smoker N (%)	Nonsmoker N (%)	Total N (%)
<i>Age</i>			
Early adolescence (10–16 years old)	126 (40.6)	66 (21.3)	192 (61.9)
Late adolescence (17–19 years old)	58 (18.7)	60 (19.4)	118 (38.1)
<i>Gender</i>			
Male	184 (59.4)	104 (33.5)	288 (92.9)
Female	0 (0.0)	22 (7.1)	22 (7.1)
<i>Allowance (average per week)</i>			
≥0.70 USD	144 (46.5)	70 (22.5)	214 (69.0)
<0.70 USD	40 (12.9)	56 (18.1)	96 (31.0)
<i>Peers who smoke</i>			
Yes	182 (58.7)	94 (30.3)	276 (89.0)
No	2 (0.6)	32 (10.3)	34 (11.0)
<i>Overall implementation of family health tasks</i>			
Unable	106 (34.2)	57 (18.4)	163 (52.6)
Able	78 (25.2)	69 (22.2)	147 (47.4)
Adolescent's behavior	184 (59.4)	126 (40.6)	310 (100)

**Table 2** The adolescents' perceptions of implementing family health tasks and the adolescents' smoking behaviors (N = 310).

Variables	Smoking behavior		Total N (%)	p-Value	OR (95% CI)
	Smoker N (%)	Non-smoker N (%)			
<i>Adolescents' perceptions of implementing the tasks</i>					
<i>Recognition of adolescent health problems</i>					
Unable	78 (59.1)	54 (40.9)	132 (100.0)	1.000	0.981 (0.620–1.551)
Able	106 (59.6)	72 (40.4)	178 (100.0)		
<i>Decisions to solve health problems</i>					
Unable	81 (63.8)	46 (36.2)	127 (100.0)	0.229	1.368 (0.859–2.177)
Able	103 (56.3)	80 (43.7)	183 (100.0)		
<i>Applying healthcare</i>					
Unable	98 (73.1)	36 (96.9)	134 (100.0)	0.001	2.849 (1.758–4.618)
Able	86 (48.9)	90 (51.1)	176 (100.0)		
<i>Health environment modifications</i>					
Unable	86 (56.2)	67 (43.8)	153 (100.0)	0.319	0.773 (0.491–1.217)
Able	98 (62.4)	59 (37.6)	157 (100.0)		
<i>Utilization of healthcare services</i>					
Unable	89 (69.0)	40 (31.0)	129 (100.0)	0.005	2.014 (1.254–3.234)
Able	95 (52.5)	86 (47.5)	181 (100.0)		
<i>Total implementation of family health tasks</i>					
Unable	106 (65.0)	57 (35.0)	163 (100.0)	0.043	1.645 (1.042–2.597)
Able	78 (53.1)	69 (46.9)	147 (100.0)		

OR: odds ratio, CI: confidence interval.

family health tasks ( $p=0.043$ , OR = 1645). The results are shown in [Table 2](#).

The results of the multivariate analysis revealed that after the confounding analysis, the age, gender, allowance, and peers were the confounding variables. The results of the analysis also showed that the most dominant variable was

the overall implementation of the family health tasks when compared to the other health task variables (OR = 2.627). The finding means that the families who were unable to implement the overall family health tasks were 2.627 times more likely to have adolescent smokers when compared to those families who were able to implement the overall

**Table 3** Multivariate multiple logistic regression ( $N = 310$ ).

Variable	B	<i>p</i> -Value	OR	95% CI		
Age	-1.093	0.117	0.335	0.086	-	1.312
Gender	3.028	0.008	20.648	2.229	-	191.248
Allowance	1.113	0.001	3.044	1.579	-	5.866
Peers	3.328	0.000	27.877	5.790	-	134.215
Adolescent's perception of implementing family health tasks by deciding on problem solving	-0.201	0.560	0.818	0.416	-	1.607
Adolescent's perception of implementing family health tasks by applying healthcare	0.121	0.796	1.129	0.450	-	2.836
Adolescent's perception of implementing family health tasks by utilizing healthcare services	-0.444	0.424	0.641	0.216	-	1.906
Adolescent's perception of the total implementation of family health tasks	0.966	0.134	2.627	0.743	-	9.291
<b>Constant</b>	<b>-1.870</b>	<b>0.000</b>	<b>0.154</b>			

OR: odds ratio, CI: confidence interval.

family health tasks, after controlling for the confounding variables. Table 3 shows the results of the multivariate analysis.

## Discussion

The results of this study showed that most of the adolescents who smoked were in early adolescence, were males, had higher allowances and had peers who were smokers. Besides, the results showed that more than half of the adolescents were smokers with families that were unable to carry out the family health tasks. Families play a role in the relationship between adolescents and the surrounding environment through family health task.

The adolescents' perceptions of their families' abilities to carry out the family health tasks as a whole were mostly in the low category (52.6%), which meant that most of the families with adolescents could not carry out the five family health tasks. Those families that were unable to carry out the family health tasks (52.6%) had more adolescents who smoked (34.2%) than those who did not (18.4%). These results correspond to those from the study by Priyatin et al.<sup>14</sup> which showed that the family functions were closely related to the family health tasks, specifically, the healthcare functions. Those researchers further explained that the family functions influenced the smoking behaviors of the adolescents; therefore, the families needed to implement their functions to control the adolescents.

The results of this study suggested that an adolescent's perception of the implementation of the family health tasks was significantly related to the adolescent's smoking behavior ( $p = 0.043$ ). The family health tasks included recognizing health problems, deciding to solve health problems, performing healthcare, modifying the health environment and utilizing healthcare services. Recognizing health problems means knowing the contents of cigarettes, the causes of adolescent smoking, the smoking risk factors and the signs of

adolescent smoking.<sup>9</sup> Families that recognize health problems are families that are more involved in promoting healthy behavior.<sup>15</sup>

The second task, deciding to solve health problems, describes the parents' attitudes toward adolescents smoking, the consequences of their actions and the family's decisions about the actions that have been taken.<sup>9</sup> Research by Herbert and Schiaffino<sup>16</sup> shows that adolescent smoking behavior is related to the behavior of parents. Non-smokers are more likely to have parents who are aware of and concerned about the dangers of smoking

Performing healthcare is the third task, and this focuses more on parental control over adolescents, protecting adolescents from smoking, communicating with adolescents about not smoking and providing information about the dangers of smoking.<sup>9</sup> The task corresponds to the research conducted by Wang et al.<sup>17</sup> who reported that non-smoking adolescents were the result of parents being able to carry out appropriate parenting roles using their psychological influence through their frequent communication about smoking, their knowledge of adolescent activities and their disagreement with adolescents smoking. Another study suggested that the greater the parents' level of knowledge about the activities of their teenagers, the lower the frequency of risky behaviors among adolescents, including smoking.<sup>18</sup> Parents are expected to know more about what their teenagers are doing both inside and outside the family environment,<sup>19</sup> so there is a need for environmental modification as the fourth family health task.

Modifying the health environment means maintaining the quality of the relationships, rules about smoking and applications of healthy behavior.<sup>9</sup> The modifying strategy is similar to the research conducted by Rajesh et al.<sup>9</sup> who explained that close relationships between families could protect adolescents against smoking, and contrarily, if there are conflicts within the family, they can increase the risk of adolescents smoking. Therefore, it is necessary to apply clear rules and open communication between fam-

ily members to avoid conflicts that can occur between family members.

Utilizing healthcare services is the fifth task, and this applies to knowledge of the location, benefits obtained, types of services offered and results of healthcare services.<sup>9</sup> Research by Aalsma et al.<sup>20</sup> reported that there were barriers between parents and adolescents about visiting primary healthcare centers, including the belief that healthcare visits were only needed when adolescents were physically ill.

The results of the multivariate analysis revealed that the families who were unable to carry out the family health tasks as a whole tended to have adolescent smokers 2.627 times more often than those families who were able to implement the tasks. Bomar et al.<sup>15</sup> focused on family health as the totality of the family presence between the family's internal and external environments. In this case, family health covers all of the aspects of family life, including the interactions and healthcare functions.

The results of this study were different from those obtained by Ramlah,<sup>21</sup> who reported that there was no relationship between the implementation of family health tasks and elderly neglect, but there was a relationship with family support. The finding was explained further by suggesting that the family when carrying out their health duties is still focused on the physical conditions, while the elderly need emotional support as well. The same type of study was conducted by Maimaznah,<sup>22</sup> who explained that there was no relationship between the implementation of family health tasks and the risk of diarrhea in infants.

The changes that occur during adolescence are different from those of the elderly and infants. From 11 to 17 years old, adolescents are forming their self-identities, they have confidence that they can avoid risky behaviors and they want to gain privacy.<sup>23</sup> The statement corresponds to the findings of the current study which showed that more than half of the respondents were smokers (59.4%) and 61.9% were in early adolescence (10–16 years old). Besides, adolescents also experience psychosocial changes, such as trying out various roles, measuring attraction through acceptance or rejection from the group and fulfilling the conditions set by a group of friends.<sup>24</sup> Overall, peer group acceptance is very important. The acceptance corresponds to the results of the current study, which showed that as many as 59.4% of the adolescent smokers were males and 58.7% had friends who smoked.

Guo et al.<sup>4</sup> reported that curiosity, autonomy and social acceptance in adolescence influence the early stages of smoking, while the social involvement influences the next stage of smoking. The results of the confounding variable analysis showed that the peers were the most dominant variable (OR = 27.877), followed by the gender (OR = 20.648), allowance (OR = 3.044) and age (OR = 0.335). Similar to the research conducted by Voorhees et al.,<sup>25</sup> the peer influence was one of the strongest factors related to adolescents starting to smoke. While the research conducted by Sancha-grin et al.<sup>26</sup> showed that peer relationships were predictors of smoking in adolescent boys who influenced each other (according to gender), the research conducted by Ma et al.<sup>12</sup> showed that the prevalence of adolescent smoking tended to be higher in those who received higher allowances.

According to Christensen,<sup>27</sup> the health promotion model explained that the family was in a very important

position between the adolescents and their relationships with their peers. This study found that the variable perceptions of adolescents on the implementation of the family health tasks as a whole were most dominantly related to the adolescents' smoking behaviors. This finding relates to the focus of family health as the totality of the interactions between the family's internal and external environments, in which the family while carrying out their health duties is in a position between the adolescents and their relationships with their peers or the family's external environment. Moreover, nurses can also be involved in programs to provide nursing care and carry out anticipatory guidance and counseling for families with adolescents as promotion-prevention efforts at the developmental stage.

This study did have some limitations, including the data collection procedure, which was conducted in teenage hang-outs, sports centers, and learning places; therefore, there was a predominance of male respondents. This condition created a gender gap when evaluating gender-based participation. Additionally, the assessment of the implementation of family health tasks was based on the adolescents' perceptions, which introduced bias to the results. Therefore, further research is needed to support the findings of this study.

## Conflict of interests

The authors declare no conflict of interest.

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