Retnaningsih & Tyas. *Journal of Consumer Sciences* (2025), *10*(2), 394-414
DOI: https://doi.org/10.29244/jcs.10.2.394-414

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CONSUMER BEHAVIOR | RESEARCH ARTICLE

The Influence of Risk Perception, Smoking Fatwa Knowledge, and Smoking Behavior on the Intention to Quit Smoking in Adolescents

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Article history:
Received
February 27, 2025

Revision submit
May 4, 2025
June 13, 2025
June 21, 2025
July 14, 2025
July 23, 2025

Accepted
July 28, 2025

Available online
July 31, 2025

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Abstract:
Background: The percentage of adolescent smokers is increasing; however, survey results indicate that many adolescent smokers express a desire to quit.
Purpose: This study aims to analyze the effects of risk perception, smoking fatwa knowledge, and smoking behavior on the intention to quit smoking.
Method: This cross-sectional study involved 100 Muslim adolescents aged 13-18 years who had actively smoked within the past three months. Risk perception was measured across five dimensions: functional, financial, physical, psychological, and social. Knowledge of the smoking fatwa refers to the fatwa issued by the Indonesian Ulema Council (MUI).
Findings: The results showed that the highest perceived risk was functional risk, while the lowest was social risk. Only 32% of participants were aware of the fatwa issued by the MUI. On average, participants smoked 6.3 cigarettes per day, and 81% were classified as light daily smokers. Knowledge of the fatwa and the number of cigarettes smoked daily did not affect the intention to quit smoking. Perceived social risk had a positive effect on smoking cessation intention.
Conclusions: Based on the results of the study, the factors influencing adolescents' intention to quit smoking include age, father's age, father's education, father's smoking status, social perceptions, and smoking-related expenditure.
Research implications: The findings suggest the need for a holistic approach that targets adolescents at the individual, family, and community levels. Preventive, curative, repressive, and persuasive strategies are essential to promote smoking cessation intentions and reduce smoking behavior among adolescents.

Keywords: family background, risk perception, smoking behavior, smoking cessation intention, smoking fatwa knowledge

JEL Classification: D12, D18, D24

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PUBLIC INTEREST STATEMENT

The National Narcotics Agency (BNN) (2016) states that smoking is the entrance to drug abuse, especially the type of cannabis or marijuana that is used by smoking cigarettes. More specifically, cigarettes are included in the definition of drugs, the definition of drugs includes three groups of active substances, namely Narcotics, Psychotropic Substances, and other Addictive Materials. Cigarettes belong to the group of addictive substances. Nicotine, which is one of the components of cigarettes, is a stimulant psychotropic substance. So cigarettes have the main properties of drugs, one of which is addiction or dependence.

The percentage of people who smoke in Indonesia is increasing every year. In addition to the high number of smokers, what also gets special attention is the age trend of starting smoking in Indonesia. So, the intention to quit smoking is the first step to encouraging a decrease in the number of adolescent smokers in Indonesia. This study uses the factors of individual characteristics, family characteristics, risk perception, knowledge of smoking fatwa and smoking behavior as factors influencing the intention to quit smoking among adolescents.

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1. Introduction

Smoking is still a significant problem in many countries, including Indonesia. Based on data from the Ministry of Health of the Republic of Indonesia on the Indonesian Health Survey in 2023, the prevalence of smoking in the population aged ≥10 years in the past month was 22.46%. In particular, the population aged 10-18 years in the past month had a prevalence rate of 4.6%. The Global Youth Tobacco Survey (GYTS) (2019) found that 80.8% of adolescent smokers intended to quit smoking. The efforts and desires shown by adolescent smokers reflect their intention to stop smoking behavior. Intention is generally a strong predictor of explaining various behaviors, as it reflects an individual's willingness to initiate action (Ajzen, 2005). According to Chinwong et al. (2018), awareness of the health risks associated with smoking can influence an individual's decision to quit. Lin et al. (2021) also found that risk perception regarding smoking is closely related to smoking cessation intentions. Smoking is a major risk factor for various serious illnesses, including cardiovascular disease, cancer, and respiratory disorders. It also significantly impacts psychological and social health, increasing the risk of stress and depression, and impairing daily social interactions (Alifiana et al., 2023; Aprilla et al., 2019; Fadillah et al., 2023; Juliansyah & Rizal, 2018; Yanti et al., 2021).

Smoking cessation intention is influenced by risk perception (Prasetyo, 2016). It is also influenced by knowledge, attitudes, the role of teachers, and other supporting factors (Winoto et al., 2018). The Global Adult Tobacco Survey (GATS) (2021) reported that 85.7% of individuals believe that being an active smoker or being exposed to cigarette smoke can cause serious illness. However, this awareness is not reflected in lower smoking rates. Akmal et al. (2017) also found that smoking cessation intention in adolescents is related to knowledge, attitudes, subjective norms, and perceived behavioral control.

Consumers with greater knowledge are better at making decisions, more effective and accurate in processing information, and improved information recall. Winoto et al. (2018) found the knowledge, attitude, and teacher factors in the school environment influence adolescents' interest in quitting smoking. Another study showed that smokers who intend to quit smoking tend to be more religious than those who do not (Myung et al., 2012). Additionally, smoking behavior influences an individual's intention to quit smoking. Non-daily and light daily smokers are more likely to intend to quit smoking than moderate to heavy daily smokers (Savoy et al., 2014). Similarly, Myung et al. (2012) found that smokers who consume fewer cigarettes tend to have a stronger intention to quit than those who smoke more.

In addition to the risk perception factor and the alarming pattern of smoking behavior, it is important to consider that smoking has been declared *haram* by the Indonesian Ulema Council (MUI). This ruling was stated in the Smoking Fatwa Decision issued on January 31, 2009. The fatwa was later supported by the Muhammadiyah Tarjih and Tajdid Assembly through Decision No. 6/SM/MTT/III/2010 concerning the prohibition of smoking (Majlis Tarjih & Tajdid Pimpinan Pusat Muhammadiyah, 2010). In its decision, the Muhammadiyah Tarjih and Tajdid Assembly outlined several reasons why smoking is forbidden, including the absence of any *Sharia* basis for tobacco in the Qur'an and Hadith. Smoking is also considered harmful to the health of both smokers and those exposed to passive smokers. Thus, the fatwa declares smoking haram as it contradicts the purpose of *sharia* and causes significant *mudharat*. Although there are differing opinions regarding the legal status of smoking, the MUI has rules it *haram* when practiced in public places, by children, and by pregnant women. This is especially relevant given that Indonesia has a Muslim-majority population. In Islam, *haram* refers to acts considered sinful if committed; thus, Muslims are encouraged to refrain from smoking and to cease smoking behavior.

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Despite the associated risks and the smoking fatwa, smoking prevalence in Indonesia remains high and continues to increase annually. This research is necessary to address these issues by analyzing adolescents' intention to quit smoking. Previous studies on adolescents' interest in smoking cessation have mainly focused on factors such as health warnings on cigarette packaging, persuasive messages, preferences, and knowledge of smoking-related dangers (Ramdani & Novianti, 2023; Nurfaradila, 2021; Sibarani & Perbawaningsih, 2018). As a novelty, this research examines additional factors that may influence adolescents' intention to quit smoking, including adolescents and family characteristics, risk perceptions related to smoking, knowledge of the smoking fatwa, and smoking behavior. In addition, fatwas in Muslim-majority countries should serve as guidelines that influence the smoking behavior of Muslims. Research by Annisa et al. (2023) found a relationship between smoking behavior and smoking-related knowledge in high school students. As an additional novelty, this study also examines the influence of knowledge about the smoking fatwa on adolescents' intention to quit smoking. The objectives of this study are as follows: 1) to analyze the effect of individual characteristics on smoking cessation intention, 2) to analyze the effect of family characteristics on smoking cessation intention, 3) to analyze the effect of risk perception on smoking cessation intention, 4) to analyze the effect of smoking fatwa knowledge on smoking cessation intention, and 5) to analyze the effect of smoking behavior on smoking cessation intention.

2. Literature Review

2.1 Theory of Planned Behavior

According to the theory of planned behavior, the intention to act is a strong predictor of the actual behavior (Ajzen, 2005). In this concept, an individual's behavioral intention is based on expected outcomes, shaped by existing norms, and the ability to anticipate potential difficulties. In social cognitive theory and health-related social psychology, intention is a key factor in understanding individual motivations for health behavior, action, and behavioral change (Norman & Conner, 2005). According to the theory of planned behavior, intention is influenced by three key components: attitude toward the behavior, subjective norm, and perceived behavioral control (Ajzen, 2005). Attitude toward a behavior is determined by individual beliefs about the potential outcomes of the behavior, known as behavioral beliefs. A subjective norm is an individual's perception of the expectations of significant others. Perceived behavioral control reflects an individual's belief about the ease or difficulty of performing certain behaviors.

2.2 Relationship between Individual Characteristic and Smoking Cessation Intention

Previous research has shown that gender, age, and stress levels affect smoking behavior among college students (Suwarningsih et al., 2023). Nurfaradila (2021) reported that most adolescents smoke between 1 and 10 cigarettes per day. This study analyzes explicitly the effect of individual characteristics on adolescents' intention to quit smoking. The individual characteristics examined include gender, age, and allowance, which affect interest in quitting smoking. Women tend to quit smoking than men, and this is associated with higher success rates in smoking cessation (Sadarang, 2021). Financial conditions are also a significant factor, as noted by Reskiaddin and Supriyati (2021), influencing both the decision to smoke and to quit. Their findings indicated that individuals smoke because they can afford cigarettes with their own money, and they quit smoking upon realizing that spending on cigarettes exceeds daily essential needs, particularly food.

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H1: Individual characteristic significantly influence smoking cessation intention

2.3 Relationship between Family Characteristic and Smoking Cessation Intention

Tsoh et al. (2011) identified both individual and family actors as being related to smokers' intention to quit, emphasizing that family involvement is a key strategy to increase smoking cessation intention. Reskiaddin and Supriyati (2021) also found that social factors influence smoking behavior and noted that social support serves as a moderating variable in the smoking cessation process. Similarly, Atmodjo et al. (2018) also noted that social support and family income can indirectly affect smoking cessation success.

H2: Family characteristics significantly influence smoking cessation intention

2.4 Relationship between Risk Perception and Smoking Cessation Intention

Perception is the process of receiving information through the five senses, which requires attention before the information can be interpreted (Candra et al., 2017). Peter and Olson (2012) define perceived risk as the undesirable and unexpected consequences consumers seek to avoid when using a product. Perceived risk is also described as a subjective evaluation of potential harm associated with consuming a product (Salzberger & Cano, 2017). Previous studies have shown that risk perception influences an individual's intention to quit smoking (Mathur & Singh, 2015). Another study found that subjective norms, as a component of risk perception, affect smoking cessation success (Atmodjo et al., 2017). Additionally, belief in the harmful effects of secondhand smoke has also been shown to influence smoking cessation intention (Madewell, 2018).

H3: Risk perception significantly influences smoking cessation intention

2.5 Relationship between Smoking Fatwa Knowledge and Smoking Cessation Intention

MUI established smoking behavior as *haram* through a fatwa. MUI specifically discussed the smoking law during an *ijtima'* session in Padang Panjang, West Sumatra, on January 24-26, 2009 (MUI, 2009). The decision was formalized during the Dictum of the Smoking Fatwa Decision, issued on January 31, 2009. Although differing opinions on the smoking law remain, MUI declared that smoking is *haram* when conducted in public places, by children, and by pregnant women. This is important to consider, given that Indonesia has a Muslim-majority population. In Islam, *haram* refers to actions that are sinful if committed; therefore, Muslims are expected to refrain from smoking. Religious law is one of the factors that may influence individuals to quit smoking, as several scholarly fatwas declare smoking to be *haram* (Reskiaddin & Supriyati, 2021).

H4: Smoking fatwa knowledge significantly influences smoking cessation intention

2.6 Relationship between Smoking Behavior and Smoking Cessation Intention

The negative impacts of smoking are highlighted in data from the Ministry of Health of the Republic of Indonesia (2019), which reported that Rp5.9 trillion of healthcare funds from the Health Social Security Organizing Agency (BPJS) were spent on treating smoking-related illnesses, most commonly chronic obstructive pulmonary disease. Research by Atmodjo et al. (2015) also found that smoking duration and ease of access to cigarettes influence an individual’s success in quitting smoking.

H5: Smoking behavior knowledge significantly influences smoking cessation intention

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3. Conceptual Framework

Risk perception, smoking fatwa knowledge, and smoking behavior are believed to be associated with individual and family characteristics. Individual characteristics may influence variations in risk perception, smoking fatwa knowledge, and smoking behavior. Gender, age, and allowance are among the individual factors examined in relation to their impact on risk perception, smoking fatwa knowledge, smoking behavior, and smoking cessation intention. Research by Juliansyah and Rizal (2018) found a significant relationship between age, education, and adolescent smoking behavior. Age is believed to influence social interaction patterns, which may shape an individual's way of thinking, knowledge, perceptions, and smoking behavior. In addition, research in China by Wang et al. (2018) found that individuals with higher levels of education were less likely to smoke. Siahpush et al. (2018) mentioned that high cigarette consumption leads to higher expenditure, financial pressure, and reduced funds for household food needs.

When an individual has a perception of risk and knowledge of the smoking fatwa, these factors should inform their behavioral decisions. Previous research found a significant relationship between knowledge and smoking behavior (Juliansyah & Rizal, 2018). Therefore, risk perception and knowledge of the smoking fatwa are believed to shape smoking behavior and influence the intention to quit. Somantri (2020) found that students' knowledge and risk perceptions significantly affected smoking behavior. When a behavior is formed, individuals are expected to evaluate it while still considering the influencing factors. In the context of smoking, the decision to continue or quit can be assessed through smoking cessation intention. Rosita et al. (2012) found that the success of quitting smoking is influenced by smoking frequency and adolescents' cessation intentions. Another study reported a significant relationship between smoking cessation intentions and knowledge, attitudes, subjective norms, and perceptions of behavioral control (Akmal et al., 2017). Attitudes, subjective norms, and perceptions also significantly affect smoking cessation intentions (Aderita et al., 2023). Intention serves as a link between one's present state and future behavior and can be viewed as a plan to achieve behavioral goals.

Based on this description, it can be hypothesized that various factors influence an active smoker's intention to quit, including personal factors such as gender, age, amount of allowance, and source of allowance, as well as family-related factors such as parental age, length of parental education, and parental smoking status. These individual and family characteristics can directly influence smoking cessation intention or indirectly through other factors formed in smokers, such as risk perception, smoking fatwa knowledge, and smoking behavior. Risk perception and knowledge of smoking fatwas are also believed to shape a person's smoking behavior and serve as important considerations in forming the intention to quit smoking.

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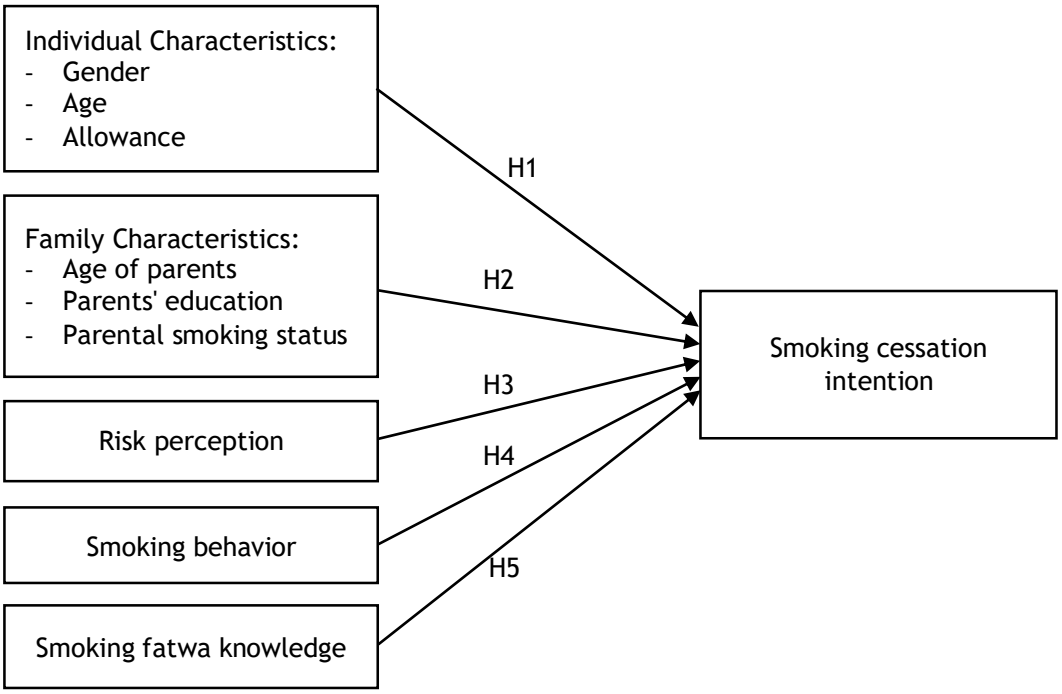

Figure 1. Effect of individual characteristics, family characteristics, risk perception, smoking behavior, and smoking fatwa knowledge on smoking cessation intention

Based on the picture above, it can be concluded that:
H1: Individual characteristic significantly influences smoking cessation intention.
H2: Family characteristic significantly influences smoking cessation intention.
H3: Risk perception significantly influences smoking cessation intention.
H4: Smoking behavior significantly influences smoking cessation intention.
H5: Smoking fatwa knowledge significantly influences smoking cessation intention.

4. Methods

4.1 Research Design

This study employed a survey method with a cross-sectional study design, which involves observing the research object at a single point in time. The study was conducted in the Bogor area, West Java Province. Bogor was purposively selected as a representative area due to West Java being the second-highest province in Indonesia in terms of the number of smokers (Ministry of Health of the Republic of Indonesia, 2023). The specific sampling areas included Dramaga, Caringin, Ciampea, Ciomas, Cisarua, West Bogor, Central Bogor, North Bogor, and Bogor City. Data were collected in locations such as city parks, stations, terminals, shopping centers, schools, and residential areas, where teenage smokers are commonly found.

4.2 Sampling

The study sample consisted of adolescent smokers aged 10-18 years, Muslim, and actively smoking during the last three months. The age range was determined based on data regarding the youngest age at which adolescents start smoking, with the upper limit aligned with Government Regulation Number 109 of 2012, which prohibits the sale of cigarettes to children under 18 years of age. The sample was selected using convenience sampling with a total of 100 respondents. This number was based on Sugiyono (2019), who stated that the minimum number of participants in a simple experimental study should be 10 to 20 times the number of research variables. The data

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collected were primary data, obtained through direct interviews using a pre-tested questionnaire.

4.3 Measurement

Measurement of characteristics, smoking behavior, and smoking cessation intention refers to the Global Youth Tobacco Survey (2019) questionnaire, which was modified to suit the needs of the study. Smoking behavior variables include the number of cigarettes consumed, frequency of smoking, spending on cigarettes, reasons for starting and continuing to smoke, age of smoking initiation, smoking time, smoking location, and source of cigarettes. Perceived risk in this study refers to the negative impact perceived by respondents as a result of smoking behavior, including functional, financial, physical, psychological, and social risks. Risk perception measurement was developed from Mahon and Cowan's (2004) research risk perception questionnaire, with modifications made to the topic, language, and dimensions to align with this study. The reliability test of the risk perception instrument yielded a Cronbach's alpha value of 0.876.

Knowledge about the smoking fatwa in this study refers to respondents' understanding of the MUI's smoking fatwa, including its content, the date it was issued, and the groups for whom smoking was declared *haram*. This knowledge was measured using questions developed by the researcher based on the MUI smoking fatwa decision. The questions were open-ended and justified as true or false according to the MUI fatwa. Furthermore, the intention to quit smoking refers to respondents' desire to quit the behavior or habit of smoking. This was measured with the question: "Do you currently have the intention to quit smoking?" with answer options of 1 = Yes and 0 = No. The researcher developed the question referring to the MUI smoking fatwa decision.

Table 1. Operational definitions of risk perception, smoking fatwa knowledge, and smoking behavior on the intention to quit smoking in adolescents

Variables	Operational Definitions	Indicators
Risk perception (Mahon & Cowan, 2004)	Risk perception is the negative impact felt by the sample as a result of smoking behavior, including functional, financial, physical, psychological, and social risks.	1) Functional risk 2) Financial risk 3) Physical risk 4) Psychological risk Social risk
Smoking behavior (The Global Youth Tobacco Survey, 2019)	Smoking behavior is a pattern consisting of the number of cigarettes smoked, smoking frequency, expenditure on cigarettes, reasons for starting smoking, reasons for continuing smoking, age at which smoking began, tobacco time, location of smoking, and origin of cigarettes.	1) Number of cigarettes 2) Frequency of smoking 3) Expenditure on cigarettes 4) Reasons for starting smoking 5) Reasons for continuing smoking 6) Age when first started smoking 7) Usual time for smoking 8) Usual location for smoking 9) Source of cigarettes

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Table 1. Operational definitions of risk perception, smoking fatwa knowledge, and smoking behavior on the intention to quit smoking in adolescents (Continue)

Variables	Operational Definitions	Indicators
Smoking fatwa knowledge (MUI, 2009)	Knowledge of fatwas on smoking is exemplary knowledge about the MUI's fatwas on smoking, including the fatwas that have been issued, when they were issued, and the groups that have been declared haram.	1) The fatwa that was issued 2) The time the fatwa was issued 3) The group that was declared haram
Smoking cessation intention (The Global Youth Tobacco Survey, 2019)	The intention to quit smoking is the desire to stop the behavior or habit of smoking.	1) The intention to quit smoking 2) Efforts made to quit smoking

4.4 Data Collection

The primary data collected in this study included sample characteristics (gender, age, allowance, and source of allowance); family characteristics (father's age, mother's age, father's years of education, mother's years of education, father's smoking status, and mother's smoking status); risk perception (functional risk, financial risk, physical risk, psychological risk, and social risk); knowledge of the smoking fatwa (fatwa issued, time data issuance, and the group for whom the fatwa was issued); smoking behavior (number of cigarettes, frequency of smoking, expenditure on cigarettes, reasons for starting and continuing to smoke, age at first smoking, usual time of smoking, usual location of smoking, and source of cigarettes), and smoking cessation intention. Data were collected through direct interviews using a questionnaire.

4.5 Data Analysis

The risk perception variable was scored on a scale of 1 to 5, while the smoking fatwa knowledge variable was scored 1 for correct responses and 0 for incorrect ones. The total score for each variable was then summed and converted into an index. The risk perception index was categorized into four levels: very low (score<25), low (25≤ score <50), high (50≤ score <75), and very high (score≥75) using the index formula. The smoking fatwa knowledge index was divided into three categories based on quartiles: low (score<33), medium (33≤ score ≤66), and high (score>66). In addition, based on the number of cigarettes smoked, respondents were classified into three groups: non-daily smokers (those who do not smoke regularly), light daily smokers (1-10 cigarettes per day), and moderate to heavy daily smokers (11 or more cigarettes per day) (Boulos et al., 2009). This study employed both descriptive and inferential analyses. The inferential analysis included correlation tests and binary logistic regression tests. The correlation test was used to determine the strength of the relationship between variables (Jabnabillah & Margina, 2022). Binary logistic regression is a regression model used for qualitative independent variables with two categories (binary outcome) based on Amida and Sitorus (2021). All independent variables in this research were converted into binary form for the logistic regression test.

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5. Findings

5.1 Individual Characteristics and Family Characteristics

The study involved 100 Muslim adolescents who had smoked actively in the past three months. Of the total sample, 4% were female and 96% were male. The majority of the samples were in middle adolescence (16-18 years), while 31% were in early adolescence (13-15 years). The average age was 15.8 years, with the youngest respondent aged 13 and the oldest respondent aged 18 years. The largest proportion of monthly allowance was IDR500.000-999.000 each month (41%), with an average allowance of IDR811.200 IDR1,000,000 each month. The lowest monthly allowance was IDR150,000, and the highest was IDR1,950,000.

All samples in this study received allowance from their parents, with 22% earning additional allowance. 74% of the respondents' fathers and mothers were in middle adulthood (ages 41-60). The average age of fathers was 48.6 years, and mothers were 43.8 years. The average years of education were 12.6 years for fathers and 11.2 years for mothers. Fathers' smoking status was predominantly active smokers (67%), whereas mothers' smoking status was predominantly never-smokers (92%). 4% of respondents had both parents who were active smokers, while 16% had both parents who had never smoked.

5.2 Risk Perception

The average risk perception score among the respondents was 51.84 and was categorized as high. A total of 48% of the respondents fell into the high-risk category, 6% into very high, 45% into low, and 1% into very low. The lowest risk perception score was 22.62, and the highest was 85.71. Only the functional and physical risk perception dimensions had high average scores (≥50), while the financial, psychological, and social risk dimensions were categorized as low (<50). The distribution of risk perception scores by dimension is presented in Table 2.

Table 2. Statistics of risk perception scores by dimension

Dimensions of risk perception	Average	SD	Min	Max
Functional risk	64.05	19.82	20.00	100.00
Financial risk	49.50	19.31	0.00	100.00
Physical risk	56.25	19.46	0.00	100.00
Psychological risk	47.55	16.34	25.00	85.00
Social risk	41.00	17.14	18.75	100.00

5.3 Smoking Fatwa Knowledge

A total of 68% of respondents (score <33) had low knowledge of the MUI smoking fatwa. Meanwhile, 26% had moderate knowledge (33 ≤ scores ≤ 66), and only 6% had high knowledge (scores > 66). The average knowledge score regarding the smoking fatwa was only 13.00, categorized as low. The lowest score was 0.00, and the highest was 100.00. Among the aspects assessed, knowledge about the fatwa issued by MUI had the highest percentage of correct responses (32%). However, only 4% correctly identified when the fatwa came into effect, and just 3% correctly identified the groups for whom smoking was declared *haram*. These results indicate that overall knowledge of the smoking fatwa among respondents remains very limited.

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5.4 Smoking Behavior

The respondents in this study were classified into three categories: 81% were light daily smokers, 17% moderate to heavy daily smokers, and 2% non-daily smokers. On average, respondents smoked 6.3 cigarettes per day, with the minimum being less than one cigarette per day and the maximum 20 cigarettes per day. The average smoking frequency was up to three times per day. Most respondents (93%) smoked 1–5 times per day, 5% smoked more than five times per day, and 2% smoked less than once per day. The minimum smoking frequency was less than once per day, while the maximum reached ten times per day. Regarding cigarette expenditure, most respondents (64%) spent between IDR 100,000 and 399,000 per month. The average monthly cigarette expenditure was IDR 302,130, with the lowest being IDR 15,000 and the highest being IDR 900,000.

5.5 Intention to Quit Smoking

70% of respondents in this study expressed an intention to quit smoking, while the remaining 30% reported having no such intention. The primary reasons cited for intending to quit included concerns about personal health, the perception that cigarettes are a waste of money, and consideration for others around them. Among the 30% who did not intend to quit, some stated they currently feel comfortable and still enjoy smoking. Others believed they would quit later in life, such as when they are older or have a family. A few respondents were unsure why they continued to smoke and had no specific reason for their lack of intention to quit.

5.6 Relationship between Individual Characteristics, Family Characteristics, Risk Perception, Smoking Fatwa Knowledge, and Smoking Behavior

Correlation analysis showed a negative relationship between the allowance and the father's education with risk perception, indicating that higher father's allowance and education were associated with lower risk perception. The mother's smoking status showed a negative relationship with the number of cigarettes smoked daily, indicating that respondents with mothers who smoke tended to smoke more than those whose mothers did not. Allowance and mother's education were positively correlated with smoking frequency, suggesting that the higher allowance and mother's education were associated with more frequent smoking. Age, allowance, father's age, and mother's education were positively correlated with cigarette expenditure, indicating that increases in these variables corresponded with higher spending on cigarettes. No significant relationship was found between individual or family characteristics and knowledge of the smoking fatwa. The correlation coefficients of each variable are presented in Table 3 below.

Table 3. The correlation coefficient between Individual characteristics, family characteristics, risk perception, smoking fatwa knowledge, number of cigarettes, frequency of smoking, and expenditure on cigarettes

Variables	Risk perception	Smoking fatwa knowledge	Number of cigarettes (cigarettes /day)	Smoking frequency (times/day)	Expenditure on cigarettes (IDR/month)
Individual characteristics					
Gender (1=male; 2=female)	0.031	-0.037	-0.084	-0.047	-0.002
Sample age (yo)	-0.059	-0.092	0.147	0.113	0.290**
Allowance (Rp/month)	-0.223*	0.120	0.092	0.249*	0.358**

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Table 3. The correlation coefficient between Individual characteristics, family characteristics, risk perception, smoking fatwa knowledge, number of cigarettes, frequency of smoking, and expenditure on cigarettes (Continue)

Variables	Risk perception	Smoking fatwa knowledge	Number of cigarettes (cigarettes /day)	Smoking frequency (times/day)	Expenditure on cigarettes (IDR/month)
Family characteristics					
Father's age (yo)	-0.115	0.017	0.067	0.091	0.212*
Mother's age (yo)	-0.186	0.076	-0.067	0.051	0.138
Father's education (year)	-0.221*	0.070	-0.074	0.168	0.075
Mother's education (year)	-0.181	0.043	0.074	0.237*	0.197*
Father's smoking status	-0.100	-0.119	0.050	0.131	-0.049
Mother's smoking status	0.174	-0.087	0.201*	0.096	0.126

Notes: *significant at p<0.05; **significant at p<0.01

5.7 The Effect of Individual Characteristics, Family Characteristics, Risk Perception, Smoking Fatwa Knowledge, and Smoking Behavior on Smoking Cessation Intention

The binary logistic regression model tested twenty independent variables. Maternal age was excluded due to strong multicollinearity with paternal age. The model yielded a Nagelkerke R-squared value of 0.432, indicating that the independent variables explained 43.2 % of the variance in the dependent variable, while the remaining 56.8% is influenced by other variables not examined in this study.

The effect test revealed that sample age and father's education had a negative impact on smoking cessation intention. Early adolescent respondents (13-15 years) were 6.593 times more likely to have the intention to quit smoking than middle adolescents (16-18 years). Respondents whose fathers had primary to secondary education (<13 years) were 0.251 times more likely to intend to quit smoking compared to those whose fathers had tertiary education (≥13 years). In contrast, father's age, father's smoking status, perceived social risk, and cigarette expenditure had a positive effect on smoking cessation intention. Respondents with middle-aged fathers (41-60 years) were 10.146 times more likely to have the intention to quit smoking compared to those with young or old fathers (≤40 or >60 years).

Respondents whose fathers had quit smoking or never smoked were 4.436 times more likely to have the intention to quit smoking compared to those whose fathers were active smokers. Respondents with a high social risk perception score (≥50) were 3.734 times more likely to intend to quit smoking than those with a low score (<50). Respondents who spent ≥IDR 400,000 per month on cigarettes were 8.057 times more likely to have the intention to quit smoking compared to those who spent less than IDR 400,000 per month. Based on the findings, general variables did not affect adolescents' intention to quit smoking. However, specific indicators in each variable, such as adolescent age, father's age, father's smoking status, father's education, social perception, and cigarette expenditure, were found to affect smoking cessation intention. Table 4 shows the results of the binary logistic regression test.

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Table 4. Binary logistic regression test results of factors affecting intention to quit smoking

Variables	Intention to quit smoking		
	B	Sig	Exp(B)
Constant	-0.205	0.940	0.815
Gender (0=female; 1=male)	-0.768	0.617	0.464
Age (0=early adolescence; 1=mid-adolescence)	-1.886	0.026**	6.593
Allowance (0=<IDR999.000/month; 1=≥ IDR999.000/month)	0.133	0.860	1.142
Father's age (0=young adults; 1=middle-aged)	2.317	0.005***	10.146
Father's education (0=primary-secondary, 1=higher education)	-1.384	0.097*	0.251
Mother's education (0=primary-secondary, 1=higher education)	-0.717	0.358	0.488
Father's smoking status (0=active smokers; 1= never smoked and have quit smoking)	1.490	0.064*	4.436
Mother's smoking status (0=active smokers; 1= never smoked and have quit smoking)	0.329	0.831	1.390
Perceived functional risk (0=low; 1=high)	0.410	0.568	1.507
Financial risk perception (0=low; 1=high)	0.522	0.464	1.686
Physical risk perception (0=low; 1=high)	1.105	0.107	3.020
Psychological risk perception (0=low; 1=high)	0.609	0.468	1.839
Social risk perception (0=low; 1=high)	1.317	0.095*	3.734
Total risk perception (0=low; 1=high)	-0.356	0.743	0.701
Knowledge of the fatwa stipulated (0=doesn't know, 1=knows)	-1.118	0.108	0.327
Knowledge of when the fatwa was issued (0=doesn't know, 1=knows)	-0.671	0.618	0.511
Knowledge of the group for which a haram fatwa was issued (0=doesn't know, 1=knows)	-0.790	0.650	0.454
Number of cigarettes (0=light (<11 cigarettes/day), 1=moderate-heavy ((≥11 cigarettes/day))	-0.872	0.415	0.418
Frequency of smoking (0=<4times/day; 1=≥4times/day)	-0.529	0.585	0.589
Expenditure on cigarettes (0=<IDR400.000/month; 1=≥IDR400.000/month)	2.087	0.062*	8.057
Sig		0.014	
Nagelkerke R Square		0.432	

Notes: *significant at p<0.1; **significant at p<0.05; ***significant at p<0.01

6. Discussion

6.1 The Effect of Individual Characteristics on Smoking Cessation Intention

Some studies have shown that gender does not always influence a person's intention to quit smoking (Aryanpur et al., 2016; Dhumal et al., 2014; Driezen et al., 2016; Feng et al., 2010). This contrasts with the findings of Savoy et al. (2014), who reported that gender influences smoking cessation intention. In this study, age showed a negative influence on smoking cessation intention, consistent with the findings of Parashar et al. (2017), which indicate that younger smokers tend to have more intention to quit. Savoy et al. (2014) also found that age influences smoking cessation intention. However, this contrasts with other studies that reported no relationship between age and the intention to quit smoking (Aryanpur et al., 2016; Dhumal et al., 2014; Driezen et al., 2016; Feng et al., 2010). Sample age was also associated with cigarette expenditure. Age,

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knowledge, and perceptions can influence individual behavior (Sholihat & Djamaludin, 2019). Older respondents tended to spend more on cigarettes, likely due to the positive correlation between age and monthly allowance. The older the sample's age, the higher the monthly allowance. The older the respondent, the greater the allowance, which in turn increases the amount of money available for purchasing cigarettes. This finding aligns with the research of Al Mutanafisa (2021), which found that income can influence purchasing behavior.

This study found that allowance was not associated with smoking cessation intentions and had no effect on these intentions. This finding is consistent with previous studies that reported no relationship between allowance and smoking cessation intention (Dawood et al., 2016; Dhumal et al., 2014; Feng et al., 2010; Parashar et al., 2017; Savoy et al., 2014; Soulakova et al., 2017). However, it contrasts with Lund's (2015) study, which found that allowance was related to smoking cessation intention. Research by Afina and Retnaningsih (2018) also found a significant positive relationship between allowance, attitude, and frequency of food consumption. In this study, allowance showed a negative relationship with risk perception, indicating that respondents with higher allowance tended not to perceive financial risk from smoking.

6.2 The Effect of Family Characteristic on Smoking Cessation Intention

Father's age had a positive effect on smoking cessation intention. Respondents with middle-aged fathers (41-60 years) were 10.146 times more likely to have an intention to quit smoking than those with young or older fathers (≤40 or >60 years). According to Erikson's psychosocial development theory, middle adulthood corresponds to the stage of generativity vs. stagnation, a period when parents actively engage in educating their children and begin thinking about passing on (generativity) the positive aspects of their lives to the next generation (Boeree, 2006). Another finding related to paternal education showed that respondents whose fathers had primary to secondary education (<13 years) were 0.251 times more likely to have the intention to quit smoking than those whose fathers had higher education levels (≥13 years). Father's education was also negatively associated with risk perception; higher paternal education corresponded with lower perceived risk. This may be related to the father's occupation and, subsequently, his ability to provide an allowance. However, in this study, several respondents admitted that their smoking behavior was unknown to their parents.

The father's smoking status positively affected the respondents' smoking cessation intention, whereas the mother's smoking status had no significant effect. Social relationships can influence an individual either positively or negatively, including decisions to start, continue, or quit smoking (Thomeer et al., 2019). However, this result differs from McGee et al. (2015), who found no relationship between a father's smoking status and children's intention to quit smoking. However, children of smoking parents are more likely to smoke, particularly in lower socioeconomic groups. Similarly, Parashar et al. (2017) found no effect of parental smoking status on children's smoking cessation intention. McGee et al. (2015) stated that parents who smoke should communicate their expectations to their children to stop smoking or show disapproval of children's smoking behavior, as this has been shown to reduce children's likelihood of initiating smoking and increase their intention to quit.

6.3 The Effect of Risk Perception on Smoking Cessation Intention

In this study, financial and physical risk perception were positively correlated with the intention to quit smoking. This indicates that the higher the perceived financial and physical risk, the higher the tendency of respondents to intend to quit smoking. In the

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effect test, social risk perception was the only variable that positively influenced smoking cessation intention. Previous research has also shown that risk perception positively affects smoking cessation intention (Cooper et al., 2010; Prasetyo, 2016; Schnoll et al., 2011). Lin and Sloan (2015) even stated that risk perception has the most significant influence on smoking cessation plans in the next six months. Smokers who experience social disadvantage tend to have more confidence to quit smoking than those who do not (Guillaumier et al., 2016). In addition, several studies have noted that some smokers are social smokers who smoke more often in social settings than alone (Song & Ling, 2011). These social smokers are more likely to have the intention to quit (Song & Ling, 2011). In this study, most respondents reported that they usually smoked with friends, making social interactions the most common smoking context.

6.4 The Effect of Smoking Behavior on Smoking Cessation Intention

Based on research results, respondents with cigarette expenditures of ≥IDR400,000/month were 8.057 times more likely to have the intention to quit smoking compared to those with expenditures <IDR400,000/month. Napitupulu et al. (2020) found that most of the 72 study respondents intended to quit smoking, with influencing factors including attitudes, subjective norms, and perceived behavioral control. Previous research found that smoking expenditure, number of cigarettes consumed per day, smoking intensity, and knowledge related to the dangers of smoking have a significant effect on smoking cessation motivation (Larasati et al., 2018).

6.5 The Effect of Smoking Fatwa Knowledge on Smoking Cessation Intention

Knowledge of the smoking fatwa and every aspect in this study was not associated with smoking cessation intention and had no significant effect on it. This may be due to the respondent's limited knowledge of the MUI smoking fatwa (Byron et al., 2015). Hussain et al. (2019) found that smoking behavior was highest among non-religious groups. Octarina et al. (2019) found that religiosity influences attitude toward behavior. Among Malaysian Muslims, religiosity is associated with smoking cessation intentions, and perceptions of the religious prohibition on smoking positively influence efforts to quit (Yong et al., 2009). Byron et al. (2015), who examined the effect of the smoking fatwa in Bogor, Indonesia, stated that some smokers felt the fatwa influenced their smoking behavior. Smokers who intended to quit smoking were generally more religious than those who did not (Myung et al., 2012). The limited influence of the fatwa on smoking habits may be due to its non-binding nature, as compliance is a personal choice. Moreover, some smokers perceive religious institutions as lacking credibility on this issue, as many religious leaders themselves smoke (Byron et al., 2015).

Research by Mulyani (2015) showed that 62.81% of adolescent smokers regretted smoking, citing health, financial, and addictive reasons. The Global Youth Tobacco Survey (2019) recorded that 80.8% of adolescent smokers expressed a desire to quit smoking. Adolescent smokers often experience internal conflict, as they are aware of the negative effects of smoking and regret their behavior, but feel unable to stop due to addiction. Some smokers continue smoking despite this awareness (Cahyo et al., 2012). Common efforts to reduce smoking include eating candy or limiting the number of cigarettes smoked per day. Reducing cigarette consumption before attempting to quit may increase the likelihood of success (Feng et al., 2010). Some also try to avoid socializing with friends who smoke, though these efforts often fail, as they tend to relapse when reunited with those friends. The main barriers to quitting are both internal, such as experiencing a bitter or unpleasant taste in the mouth, and external, such as peer pressure to smoke (Cahyo et al., 2012). In this study, the majority of participants expressed a desire to quit smoking, and many had attempted to do so in the previous six months. However, most

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acknowledged that quitting was challenging due to nicotine addiction. Moreover, their social environment did not discourage smoking; instead, it often reinforced the habit. However, subjective norms and perceived behavioral control continue to influence smoking cessation intentions (Nugroho et al., 2018).

6.6 Managerial Implications

The the study found that the most influential factors on smoking cessation intention include individual age, father's age and education, father's smoking status, social perceptions, and the amount spent on smoking. Based on these findings, the government can support various primary healthcare programs by taking into account these identified characteristics. Given that adolescent age, father's education, smoking status, and father's age influence individuals' intention to quit smoking, it is essential to promote awareness of the dangers of smoking and introduce smoking cessation programs targeting these groups. The standards and competencies of healthcare facilities should be strengthened by increasing promotional and preventive activities across various social strata. Schools and universities, as primary environments for adolescents, should foster conditions that promote awareness and encourage smoking cessation among active adolescent smokers.

6.7 Theoretical Contribution

This study applies the theory of planned behavior, which identifies three main factors influencing individual behavior: attitudes, subjective norms, and perceived behavioral control. Attitude in this theory refers to an individual's evaluation of the benefits and drawbacks of quitting smoking, which can enhance adolescents' intention to quit. Subjective norms, perceptions of how significant others view smoking behavior, also serve as a motivating factor for adolescents to either continue or quit smoking. In this study, the father's smoking status and social perceptions influence adolescents' smoking cessation intention. Fathers, as the closest environment to adolescents, provide examples that can encourage the intention to quit smoking. Previous research found that individuals tend to choose to smoke if they feel that smoking behavior is accepted or even encouraged by their social group (Kaswara et al., 2023; Silalahi & Fransiska, 2019). Furthermore, the perceived behavior control factor refers to an individual's beliefs in their ability to control smoking habits. In this study, smoking frequency and cigarette expenditure serve as indicators of behavioral control. The results showed that cigarette expenditure significantly influences adolescents' intention to quit smoking.

6.8 Limitations

The limitation of this study is that respondents were selected using accidental sampling, which limits the generalizability of the findings to the broader population. Education was also not measured, despite the sample being of school age, thereby preventing analysis of its relationship or influence on the intention to quit smoking. Another weakness is the limited diversity in respondent characteristics, such as gender and economic status, which could have been inferred from the amount of allowance. Regarding the variable of knowledge of smoking fatwa, future studies are encouraged to further explore respondents' perceptions or attitudes towards the fatwa.

7. Conclusions

The samples ranged in age from 13 to 18 years, with an average age of 15.8 years, and more than half started smoking between the ages of 10 and 12. The average monthly allowance was IDR 811,200. Most fathers were active smokers, while very few mothers smoked. Functional risk was the most perceived risk perception dimension, with a mean

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score of 64.05, while social risk was the least perceived, with a mean score of 41.00. Only a small proportion of the samples were aware of the smoking fatwa issued by MUI. The majority were light daily smokers, with an average consumption of 6.3 cigarettes per day and an average smoking frequency of three times per day. The average monthly expenditure on cigarettes was IDR 302,130. Most participants reported initiating smoking out of curiosity and tended to smoke when with friends.

Most respondents intended to quit smoking, and more than half had attempted to do so in the past six months. A negative association was found between the father's and mother's education and smoking cessation intention. Total risk perception, as well as financial and physical risk perception, were positively associated with smoking cessation intention. Sample age and father's education negatively influenced smoking cessation intention, with early adolescence and low to medium paternal education increasing the likelihood of intending to quit. Conversely, paternal age, paternal smoking status, perceived social risk, and cigarette expenditure positively influenced smoking cessation intention. Samples with middle-aged fathers, fathers who had never smoked or had quit smoking, high social risk perception, and cigarette expenditures exceeding IDR 400,000/month were more likely to express an intention to quit smoking.

8. Recommendation

Father's characteristics, including age, education, and father's smoking status, influence the intention to quit smoking. Children tend to imitate adults, and parents serve as role models. Therefore, parents must provide positive examples and communicate good expectations. Perceived social risk also positively influences the adolescents' intention to quit smoking, highlighting the community's important role as a form of social control. Communities must be actively concerned with adolescent behavior. The limited number of adolescents aware of the MUI smoking fatwa indicates the need for broader dissemination by religious leaders. Moreover, religious figures should serve as role models within the community.

Citation information
Cite this article as: Retnaningsih, & Tyas, Ayuning. (2025). The influence of risk perception, smoking fatwa knowledge, and smoking behavior on smoking intention to quit smoking in adolescents. *Journal of Consumer Sciences, 10*(2), 394-414. https://doi.org/10.29244/jcs.10.2.394-414.

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