

# Factors Affecting Smoking Cessation Among Adolescents

## *An Application of Theory of Planned Behavior*

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**Abstract:** Smoking has become one of the biggest problems facing adolescents. The Theory of Planned Behavior is widely applied to predict and support behavior changes. Despite this, there is no sufficient study that considers the factors influencing smoking cessation among adolescents. The purpose of this study was to investigate attitudes, subjective norms, perception and self-efficacy relevant to smoking cessation through an application of the Theory of Planned Behavior. This study design used a cross-sectional approach. A total of 139 school-going adolescents completed a questionnaire to measure attitudes, subjective norms, perception, self-efficacy and intention for smoking cessation. Data were analyzed by using the statistical test Spearman rho. The study showed that attitudes, subjective norms, perception and self-efficacy are significantly important regarding intention of smoking cessation ( $p = 0.000$ ). Smoking cessation by adolescents is affected by multiple factors. In addition, understanding an application of the Theory of Planned Behavior helps adolescents quit smoking effectively. Further research should involve the various influencing factors such as social environment and attitudinal cognitions.

## 1 BACKGROUND

Smoking is a major phenomenon facing adolescents that can be caused by stress, intrafamilial linkage, perceptions of cigarettes and smoking by parents or friends. In addition, smoking habits in adolescents are not only the gateway to all kinds of substance abuse but also cause various health problems (Park, 2011).

Worldwide, adolescents account for up to 30% of smokers (Komalasari and Helmi, 2000). Indonesia has a tendency towards an increasing number of smokers, especially in adolescents. Based on data from Riskesdas (2013), the Ministry of Health indicated that the percentage of Indonesian smokers over the age of 15 continued to increase from 2007 to 2013 from 34.2% to 36.3%. In 2014 smokers aged 16-19 years reached 20.5% (Moh, 2016).

The intention to quit smoking in school-going adolescents is an important subject to examine. Providing information about the dangerous effects of smoking is not effective in making people quit smoking (Moan and Rise, 2005). The theory is that explaining the formation of intention to quit smoking and also the self-regulation process involves converting the intentions into actions (Jones *et al.*, 2001).

The Theory of Planned Behavior (TPB) was proposed by Icek Ajzen to predict a person's intention to engage in behavior at a particular time and place. The theory confirms that the intentions of individual behavior are shaped by attitudes to one's behavior, norms, and control of perceived behavior, which indicate the individual perception that leads others in the social environment to expect to behave in a particular way (Ajzen, 2005; Armitage and Conner, 2001).

Attitudes towards behavior are defined as individual positive or negative evaluations of specific behaviors. It is established through an assessment of one's beliefs about the consequences of behavior and an evaluation of the desires of these consequences (Ajzen, 2012). Attitudes, subjective norms and self-efficacy simultaneously affect the intention. Each individual has a level of self-efficacy or judgment against their own ability to do different things (Bandura, 1986).

Previous study has found support for assumption in predicting smoking reduction among adolescents (Moan and Rise, 2005). Obviously, there is no sufficient study that considers the factors related to the TPB construct on smoking cessation among school-going adolescents in Indonesia specifically.

This study is to investigate attitudes, subjective norms, perception and self-efficacy relevant to smoking cessation through an application of the Theory of Planned Behavior among adolescents at Senior High School in Lamongan City, Indonesia. The findings of this study can be used as guidelines to develop an intention to quit smoking in adolescents.

## 2 METHODS

This research used a descriptive correlational research design with a cross-sectional approach. The sample size was 139 students. The sampling technique used in this research is convenience sampling. The independent variables in this research are attitudes, subjective norms, perception, and self-efficacy. The dependent variable in this study is the intention to quit smoking.

An attitude questionnaire was developed based on the concept of the Notoadmodjo theory (2014). This scale is made to measure attitudes in adolescents who intend to quit smoking. A subjective questionnaire comprises questions based on the concept of the theory from Ajzen (2005), a perceptual questionnaire is based on theoretical concepts from Soenaryo (2004) and a self-efficacy questionnaire contains questions based on the concept of a theory from Alwisol (2009). The intention of quitting smoking contains questions based on the theoretical concepts of Ajzen (2005). Each questionnaire contains 10 statements. The scoring method on this gauge uses a Likert scale with answers ranging from 1 to 4, that is, 4 to strongly agree, 3 to agree, 2 to disagree, and 1 for strongly disagree.

The validity test showed that all questionnaires were valid. While the reliability test results in all questionnaires stated that they were very reliable.

This research was conducted at Private Senior High School in Lamongan, Indonesia. Each data set will be measured using a Spearman Rank Correlation statistic test that sets a significance value at  $\alpha \leq 0,05$ . This study has been approved for ethical clearance from the Faculty of Nursing Universitas Airlangga (No. 504-KEPK).

## 3 RESULTS

Table 1 shows the characteristics of respondents' age who were 14-19 years old. Overall, the results show that the attitudes, subjective norms, perception and

self-efficacy were in fair categories. Based on Table 2 most of the male adolescents have a fair attitude (59%) to quitting smoking. Furthermore, in the subjective norms aspect, most respondents also have a fair score (61.9%) and indicated they are less able to appreciate parents' advice to stop smoking. Adolescents who have good perception of stopping smoking can be self-directed to health and are able to save money pocket (17.3%). While the fair category showed that adolescents have less perception of the dangers of smoking (58.3%). The aspect of self-efficacy showed that 53.96 of respondents were in the fair category and that indicated they are less able to cope with stress.

The last aspect was the intention of smoking cessation showing that most respondents (55.4%) have a fair intention to quit smoking. Then, are respondents with less perception who do not care

Table 1: The characteristic of respondents.

Respondent's age	f	Percentage (%)
14	2	1.44
15	17	12.23
16	56	40.29
17	48	34.53
18	13	9.35
19	3	2.16
Total	139	100

Table 2: Attitudes, subjective norms, perception and self-efficacy of respondents.

Variable	Category	F	Percentage (%)
Attitude	Good	31	22.30
	Fair	82	59.00
	Poor	26	18.70
Total			100.00
Subjective norm	Good	25	18.00
	Fair	86	61.90
	Poor	28	20.10
Total			100.00
Perception	Good	24	17.30
	Fair	81	58.30
	Poor	34	24.40
Total			100.00
Self-efficacy	Good	32	23.02
	Fair	75	53.96
	Poor	32	23.02
Total			100.00
Intentions of smoking cessation	Good	32	23.03
	Fair	77	55.40
	Poor	30	21.58
Total			100.00

Table 3: The analysis of attitudes and intention of smoking cessation.

Attitude	Intention of smoking cessation			Total (%)
	Good	Fair	Poor	
Good	14	17	1	32
	(10.07)	(12.23)	(0.72)	(23.02)
Fair	17	51	13	81
	(12.23)	(36.7)	(9.35)	(58.28)
Poor	1	9	16	26
	0.72%	(6.47)	(11.51)	(18.7)
Total	32	77	30	139
Uji statistik Spearman p = 0,000 r= 0.468				

Table 4: The analysis of subjective norms and intention of smoking cessation.

Attitude	Intention of smoking cessation			Total (%)
	Good	Fair	Poor	
Good	14	11	0	25
	(10.07)	(7.91)	(0.00)	(17.98)
Fair	15	58	13	86
	(10.79)	(41.37)	(9.35)	(61.87)
Poor	3	8	17	28
	(2.36)	(5.76)	(12.23)	(20.15)
Total	32	77	30	139
Uji statistik Spearman p = 0,000 r= 0.489				

Table 5: The analysis of perception and intention of smoking cessation.

Attitude	Intention of smoking cessation			Total (%)
	Good	Fair	Poor	
Good	14	8	2	24
	(10.07)	(5.76)	(11.43)	(17.26)
Fair	15	57	9	86
	(10.79)	(41.01)	(6.48)	(58.28)
Poor	3	12	19	28
	(2.16)	(8.63)	(13.67)	(24.46)
Total	32	77	30	139
Uji statistik Spearman p = 0,000 r= 0.471				

about the dangers of smoking and also do not care about their health with a percentage of 24.4%.

Based on Table 3, it was found that adolescents have fair attitude and intention to stop smoking (36.7%). Meanwhile, the others have less attitude but have the intention to stop smoking in the poor category (11.51%). Table 4 showed that most adolescents for subjective norms have good intention to quit smoking in the fair category (12.23%). Meanwhile, adolescents who have subjective norms have sufficient intention to quit smoking in the poor category (41.73%).

Table 5 found that most adolescents have good perception of the intention to quit smoking in the good category (10.07%). Meanwhile, adolescents

who have perceptions have enough intention to stop smoking in the fair category (41.01%), for adolescents who have less perception of the intention to stop smoking in the poor category (13.67%).

## 4 DISCUSSION

Attitudes are individual positive or negative evaluations of certain objects, persons, institutions, behaviors or interests arising upon belief in the results obtained from certain behaviors (Ajzen, 2005). The results of the study show that most adolescents have the attitude to quit smoking in enough categories, but they still feel inferior and feel annoyed if they do not smoke.

Attitudes are defined as favorable or unfavorable feelings towards an object. From questionnaire results based on attitude parameters in adolescents, it was found that most respondents (82) have a value with enough scoring categories.

In the questionnaire statements number 2 gained the most answers 'agree', indicating that the majority of adolescents remain confident despite quitting smoking. And the questionnaire statement number 10 obtained the most answers 'agree' indicating that concentration in adolescents was disturbed when quitting smoking. The results of this study were supported by Komalasari and Helmi's, (2000) research on the factors causing smoking behavior in adolescents. They stated that the concentration of teenagers is disturbed if they stop smoking and they will experience stress, dizziness, drowsiness and mouth bitterness. Researchers argue that the attitude of adolescents who have the intention to quit smoking is sufficient, said to be enough because they can still feel confident if not smoking. Subjective norm is a person's perception of social pressure to engage in behaviors that can be considered important for doing cessation (intention to stop smoking) and the extent of the individual intending to comply with such suggestions and prohibitions (Ajzen, 1988).

The authors argue that the subjective norms of adolescents who have an intention to quit smoking indicate a sufficient category of subjective norms in adolescents. This shows that adolescents have concern for the environment, and for teachers' and parents' advice.

Supported by the results obtained most adolescents have enough perception to quit smoking. Perception is the experience of objects, events or relationships acquired with concluding information and interpreted messages. In other words, perception

is a process that involves the entry of messages or information into the brain (Grace, 2011)

Researchers argue that the perception of adolescents who have the intention to quit smoking indicate that it is sufficient. This shows that adolescents have enough frequency to be able to overcome the symptoms of quitting smoking and also have a good perception to maintain health and fitness. Based on the results of this study most adolescents have enough intention to quit smoking.

Self-efficacy is a person's belief that they are capable of performing certain behaviors or achieving a particular purpose or regarding their ability to carry out and organize the series of tasks in their life (Bandura, 1995). Self-efficacy is influenced by the culture, gender, nature of the task at hand, the status or role of the individual in the family and information about self-efficacy (Bandura, 1986). Mood can also influence self-assessment efficacy. A positive mood helps improve self-efficacy rather than a negative mood. For example, people with mood disorders such as depression or anxiety have low self-efficacy. The results of this study found that most adolescents have enough intention to stop smoking. This indicates that respondents have a moderate desire to quit smoking. The intention to quit smoking is a strong desire from within a person to stop smoking and stop consciously (Sandek and Astuti, 2007).

The intention to quit smoking can also be influenced by the norms that exist in the environment of adolescent smokers. One such norm is school rules that do not allow students to smoke in the school environment, but the norm still cannot stop students from smoking on the sidelines of learning activities at school because during break time the students go out to buy food and drinks at stalls outside school.

Analysis of the relationship between attitude and intention to stop smoking in adolescents showed a strong correlation between attitude and the intention to stop smoking in adolescents. The relationship is in moderate strength, where most teenagers have sufficient attitude and the level of intention to quit smoking in a category as well. The relationship can also be seen based on the level of attitude, that is the attitude to receiving (receiving), attitude to responding (responding), respecting (valuing) and responsible attitude (responsibility).

Every individual has an attitude where it reflects all forms of behavior that arise, including taking a stand on the decision to quit smoking. Attitudes towards an attitude object will be accompanied by tendency or interaction acts in accordance with attitudes towards the object of that attitude (Gerungan and Gerungan, 2000).

Based on the results of the above research the researcher argues that adolescents who have good attitude tend to have the intention to quit smoking the good and sufficient category. Adolescents who have enough attitude have the intention to quit smoking in the enough category and adolescents who have less attitude have intention to stop smoking in the enough category. This shows that attitude is an aspect that affects the intention to quit smoking. A positive attitude to quit smoking and the belief that quitting smoking will make smokers much better, healthier and live longer is associated with a greater intention to quit smoking (Komalasari and Helmi, 2000).

This research suggests enough attitudes in adolescents among others, about self-confidence despite quitting smoking. This is in line with the intention to quit smoking in adolescents that shows considerable results as well. Analysis of the relationship between subjective norms with the intention to stop smoking in adolescents in SMK PGRI Sukodadi showed a moderate correlation between them. The relationship is of moderate strength, where most teenagers have sufficient subjective norms and the level of intention to quit smoking in the appropriate category as well. The relationship can also be seen based on normative beliefs and motivation to comply (individual motivation to meet expectations)

This research is in line with the Devitarani study (2015) which states that the subjective norm variable is related to smoking cessation behavior, i.e. parents, close friends, playmates, non-smoking close friends and parents who have quit smoking. Belief on subjective norms is formed based on invitations, suggestions, and advice. The process of the emergence of the beliefs of individual smokers shows that the demands and expectations of parents can be different from the belief in the demands and expectations of friends. The relationship of subjective norms with the intention to stop smoking shows the greater value of subjective norms will strengthen the intention to quit smoking. Also, the smaller the value of subjective norms the weaker the intention to stop smoking. According to Ajzen (2005), in the Theory of Planned Behavior one of the factors that influence the intention to quit smoking is normative belief. This concept has the same meaning as the subjective norm, which is the acceptance or rejection of a person to the behavior embodied in a person.

Based on the results of the above study the researcher believes that adolescents who have good subjective norms tend to have the intention to quit smoking in either category, subjective norms enough with enough category. Whereas teenagers who have

subjective norms less have the intention to stop smoking in the category less. This shows that there is a significant relationship between subjective norms with the intention to stop smoking in adolescents.

This research finds enough subjective norms in adolescents in SMK PGRI Sukodadi, among others, about the belief in being punished when smoking in school and also the belief that smoking will have a negative impact. This is in line with the intention to stop smoking in teenagers who showed results as well.

The analysis of perception relationships with the intention to stop smoking in adolescents showed a moderate correlation between perception and the intention to stop smoking. The relationship is of moderate strength, where most teenagers have sufficient perception and the level of intention to quit smoking in a category as well.

This research is in line with Rahmi's (2009) research on the role of attitudes, subjective norms and perceived behavioral control (PBC) on the intention to stop smoking in smoker students in syarif hidayatullah Jakarta. It shows that perception is the variable that has the most effect in influencing intention to stop smoking. Behavioral control is the control of the extent to which a person is able to perform certain behaviors. Individuals do not form the intention to conduct a behavior unless they feel confident of have the ability to display the behavior.

Based on the results of the above study the researcher argues that adolescents who have good perceptions tend to have the intention to quit smoking in either category, sufficient perception with sufficient category whereas adolescents who have perceptions lack the intention to stop smoking in the category less. This research finds that enough perception in adolescents about belief if not smoking have benefit themselves and others. This is in line with the intention of quitting smoking in adolescents that shows considerable results as well.

Analysis of the relationship between self-efficacy and the intention to stop smoking in adolescents shows a moderate correlation between them. The relationship is of moderate strength, whereas some of the vicarious experiences of adolescents have sufficient self-efficacy and the level of intention to quit smoking in a sufficient category as well. Several factors influence self-efficacy; that is experience of success (mastery experiences), experience of others, social persuasion, and physiological and emotional state.

Based on the results of the above study the researcher argues that adolescents who have good self-efficacy tend to have the intention to quit

smoking in either category, self-efficacy enough with enough category. Whereas teenagers who have less self-efficacy have the intention to stop smoking in the less category. Self-efficacy refers to one's self-beliefs about their ability to carry out and organize the series of tasks in their life (Bandura, 1995). Self-efficacy is influenced by the culture, gender, nature of the tasks encountered, the status or role of the individual in the family and information about self-efficacy (Bandura 1997). Individuals need self-efficacy to remain competent and effective in dealing with stressful situations (Schwarzer et al., 1997). Individuals face factor inhibitors with alternatives that strengthen self-efficacy, so have the confidence that strengthens the courage to implement the intention to quit smoking. Self-efficacy also means believing oneself to be successful. Individuals with high self-efficacy have a commitment to solving problems and will not give up when they realize the strategy being used is not working (Reivich and Shatté, 2002). Individuals with high self-efficacy will effectively face challenges, have full trust with self-ability, quickly face problems and be able to rise from failure.

## 5 CONCLUSIONS

Smoking cessation by adolescents is affected by multiple factors. In addition, understanding an application of Theory of Planned Behavior helps adolescents quit smoking effectively. Further research should involve the various influencing factors such as social environment and attitudinal cognitions.

## REFERENCES

- Ajzen, I. (2005) 'The Theory of Planned Behavior'. [Online] Available at: <https://pdfs.semanticscholar.org/6256/ca4853f44ab9acb98f91f0d7848c54185ca7.pdf> (Accessed: 17 May 2018).
- Armitage, C. J. and Conner, M. (2001) 'Efficacy of the Theory of Planned Behaviour: a meta-analytic review.', *The British Journal of Social Psychology*, 40(Pt 4), pp. 471-99. [Online] Available at: <http://www.ncbi.nlm.nih.gov/pubmed/11795063> (Accessed: 13 March 2018).
- Bandura, A. (1986) *Self-efficacy: the exercise of control*. [Online] Available at: [https://books.google.co.id/books/about/Self\\_Efficacy.html?id=eJ-PN9g\\_o-EC&redir\\_esc=y](https://books.google.co.id/books/about/Self_Efficacy.html?id=eJ-PN9g_o-EC&redir_esc=y) (Accessed: 17 May 2018).
- Gerungan, W. A. and Gerungan, W. A. (2000) 'Psikologi

- sosial / W.A. Gerungan', *I. PSIKOLOGI SOSIAL, Psikologi sosial / W.A. Gerungan*. Universitas Negeri Malang, 2000(2000), pp. 1–99. doi: 2000.
- Jones, F. *et al.* (2001) 'From knowledge to action regulation: Modeling the cognitive prerequisites of sun screen use in Australian and UK samples', *Psychology & Health*. Taylor & Francis Group , 16(2), pp. 191–206. doi: 10.1080/08870440108405499.
- Komalasari, D. and Helmi, A. F. (no date) 'Faktor-Faktor Penyebab Perilaku Merokok Pada Remaja'. [Online] Available at: [http://avin.staff.ugm.ac.id/data/jurnal/perilakumerokok\\_avin.pdf](http://avin.staff.ugm.ac.id/data/jurnal/perilakumerokok_avin.pdf) (Accessed: 17 May 2018).
- Moan, I. S. and Rise, J. (2005) 'Quitting Smoking: Applying an Extended Version of the Theory of Planned Behavior to Predict Intention and Behavior', *Journal of Applied Biobehavioral Research*, 10(1), pp. 39–68.
- Park, S.-H. (2011) 'Smoking and adolescent health.', *Korean Journal of Pediatrics*. Korean Pediatric Society, 54(10), pp. 401–4. doi: 10.3345/kjp.2011.54.10.401.
- Risikesdas (2013). Riset Kesehatan Dasar 2013. Badan Penelitian dan Pengembangan, Kementerian Kesehatan Republik Indonesia.
- Sandek, R. and Astuti, K. (no date) 'Hubungan Antara Sikap Terhadap Perilaku Merokok Dan Kontrol Diri Dengan Intensi Berhenti Merokok'. [Online] Available at: <https://andigayo.files.wordpress.com/2012/12/februari-2007-kamsih-astuti.pdf> (Accessed: 18 May 2018).

