Factors influencing smoking behavior and intensity of santri in Asrama Perguruan Islam (API) Islamic boarding school, Tegalrejo, Magelang, Central Java, Indonesia

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ABSTRACT

Introduction: Tabaco related death is estimated at 6 million people worldwide and it is portrayed to increase to 8 million in 2030. In ASEAN alone, there were approximately 121 million adult smokers in 2013, in which 50% of them were Indonesian. In Indonesia, it is illegal to sell cigarettes to people under 18 years old, but this regulation has weak field implementation and the number of under-age smokers is considerably high in Indonesia. Therefore, this study aimed to analyse the effects of knowledge and perception with smoking intention and behaviour among santris at Asrama Perguruan Islam (API) Islamic boarding school.

Methods: A mix method study with sequential explanatory approach was conducted API Islamic boarding school in two phases namely qualitatively and quantitatively. 380 santris were enrolled in this study with interviewees for quantitative study was divided into three groups: santri who < 17 years old, santri who > 17 years old, and housekeepers.

Results: The results showed that the knowledge significantly affected the smoking behaviour while had no influence toward smoking intention. On the other hand, no significant association was observed between perceptions with smoking intention while it significantly affected the smoking behaviour.

Conclusion: It can be concluded that knowledge and perception were importance factors that influence smoking behaviour but had no effects toward smoking intention.

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INTRODUCTION

Health promotion is one of the main pillars of public health. Health promotion programs that are supported by public health sciences have huge potential to improve health levels, reducing the risk of disease, improve the welfare of individuals, families, organizations and communities.[1]

Smoking is one of the preventable causes of some of the debilitating chronic disease such as lung cancer, chronic obstructive pulmonary disease, and coronary heart disease etc.[2] Despite the lowering trend in the global number of smoker, in some areas, the statistic tends to be unfavourable.[3] The most concerning problem regarding smoking behaviour is the tendency of smoking among children. This problem appears to be more prominent in developing countries where lack of education, infrequent health promotion program, and insufficient funding promote the development of such trend.[3]

According to Directorate General of Islamic Education of Ministry of Religion, there were 21,521 Islamic boarding schools in Indonesia in 2008/2009 with a total of 7,636,938 santris. In Magelang, there are 173 Islamic boarding schools with a total 24,946 in which 9,796 were female and 15,150 male.[4] According to Central Bureau of Statistics of Central Java in 2014, there were 262 Islamic boarding schools with a total 37,327 santri.[2] One of the known Islamic boarding schools in Central Java is male Islamic Boarding School Asrama Perguruan Islam (API) Tegalrejo, Magelang which has 5200 santris. The santris in this school aged between 10-30 years old and most of them are smokers.

Therefore, this study aimed to evaluate the factors that influence the smoking behaviour and intention among santris in Islamic Boarding School API Tegalrejo which were important for developing the necessary regulation and intervention to prevent or reduce smoking tendency among them.

METHODS

This study used a Sequential Explanatory Mixed Method approach by combining qualitative and quantitative methods.[5] The first phase of this

study was conducted using quantitative approach while the second phase used qualitative one. The combination was devised to answer the research questions by providing calculated analysis as well as arguments from involved personnel.

The interrelationships between analysed variables are described in the figure below (Figure 1). The knowledge (X1) and perception (X2) was regarded as exogenous variables while behaviour (Y2) was considered as latent endogenous variable. Meanwhile, intention (Y1) was considered as bridging variable between exogenous and endogenous variables.

The quantitative data was gathered by using questionnaire that contained separate sections for smoking behavior, intention, perception and knowledge. All of the data were compiled and analyzed statistically using Amos 20.0 software. The quantitative analysis was used as the basis for the qualitative approach that was conducted afterwards.

The qualitative data was gathered by in-depth interview. The interview was conducted in three groups of subjects, namely: santri < 17 years old, santri > 17 years old, school guardian and also the religious leaders. As a whole, this study enrolled 380 santris from the API Islamic Boarding School.

RESULTS

Confirmatory Factor Analysis (CFA)

The analysis of knowledge, perception, intention and behaviour were conducted separately and each

Table 1 Description of each sub-variable components of every variable

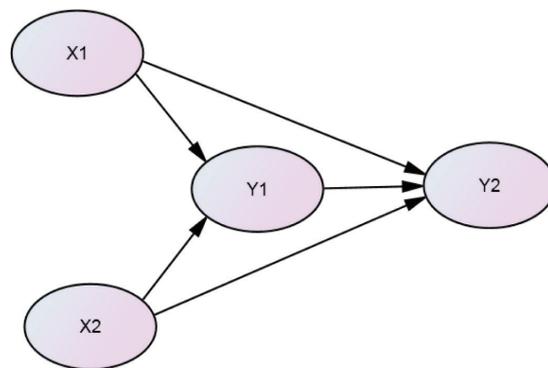| Variable	Description
Knowledge	
X1.1	Understanding
X1.2	Risk Factors
X1.3	Smoking-Free Area
Perception	
X2.1	Self-perception
X2.2	Environmental Perception
X2.3	Cultural Perception
Intention	
Y1.1	Confidence in Attitude
Y1.2	Subjective Norms
Y1.3	Behavioral Control
Behavior	
Y2.1	Psichological
Y2.2	Biological
Y2.3	Personality

Figure 1 The interrelationship between variables in this study. X1: Knowledge; X2: Perception; Y1: Intention; Y2: Behaviour
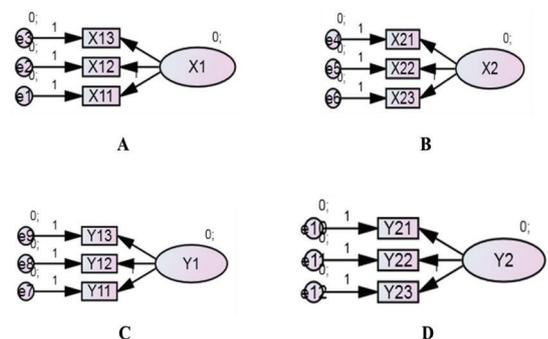

Figure 2 The model of intra-variable Confirmatory Factor Analysis (CFA) for Knowledge (A), Perception (B), Intention (C), and Behavior (D)
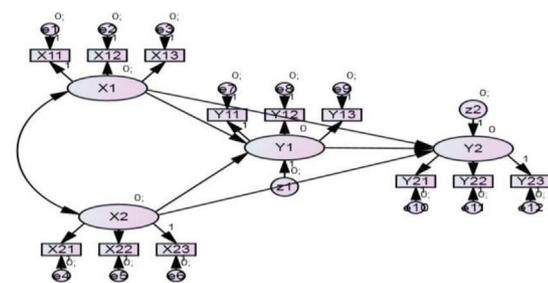

Figure 3 *Structural equation model* of all analyzed variables and their interrelationship

comprised of 3 subcategories which are showed in Table 1. According to the analysis in each variable, all of the sub-variables showed significant association which were shown by their p-value Table 2.

The analysis showed that the indicators could represent the latent factors within the environment. According to the analysis, the models of interaction were constructed as shown in Figure 2.

Structural Equation Modeling Analysis

The next step after CFA was constructing the interrelated structural model that connected all variable-specific models. This model was aimed to

Table 2 The result of intra-variable analysis using Amos 20.0

Interrelated sub-variables	S.E	C.R	P
Knowledge			
X11 <- X1			
X12 <- X1	0.193	3.318	***
X13 <- X1	0.206	0.736	***
Perception			
X21 <- X2			
X22 <- X2	0.004	252.0	***
X23 <- X2	0.010	100.6	***
Intention			
Y11 <- Y1			
Y12 <- Y1	0.096	8.142	***
Y13 <- Y1	0.206	9.042	***
Behavior			
Y21 <- Y2			
Y22 <- Y2	0.029	28.638	***
Y23 <- Y2	0.036	25.313	***

Table 3 Goodness of Fit Index Full Model

Goodness of Fit Index	Cut of value	Result	Interpretation
CFI	> 0.90	0.933	Good
TLI	>0.90	0.907	Good
NFI	>0.90	0.923	Good

Tabel 4 Causality analysis of the relationship between each variable

Causality	S.E	C.R	P
Y1 <- X1	0.11	-1.47	0.14
Y1 <- X2	0.03	0.17	0.86
Y2 <- X2	0.08	2.17	0.03
Y2 <- Y1	0.14	2.08	0.03
Y2 <- X1	0.29	-4.38	0.00

provide an overall view of the relationship between the analyzed variables. The model was constructed using Amos 20.0 and depicted in Figure 3.

Fitness Analysis of the Model

The interrelationship model was then analysed statistically in order to assess its applicability. In order to be considered as a fit model, the interrelationship model is needed to fulfil at least one of eight criteria of fitness analysis.[6] Table 6 shows the criteria that fulfilled by our model. According to the analysis, the model can be regarded as fit and proper model.

Causality test

Finally, the causality relationships between each variable were analyzed statistically in order to draw a valid and quantitative conclusion as a basis for the descriptive study. According to Table 4, it appears that the knowledge and perception aspect was significantly affects smoking behavior while both of them had no significant effect on Intention. In addition, Intention seemed to also directly affect smoking behavior.

Qualitative Approach

According to the interview from several interviewees, it appeared that some santris known and understands about the danger and risk of smoking toward themselves or to the others. However, they keep smoking because they perceived that smoking could prevent sleepiness and enhance their concentration when studying. This fact is in accordance with the result of the quantitative analysis which showed a significant effect of perception toward smoking behavior among santris.

One of the quotes from the interviewees is as follow

> "........kebanyakan daerah-daerah itu Wonosobo, Temanggung anak-anak yang kecil itu sudah merokok, SD itu sudah boleh merokok dari orang tuanya, jadi kalau kepondok itu sudah konsumen........ (santri >17 thn merokok)"

> "…. In most of the regions in Wonosobo, even the children are smoking. The parents even allow the elementary students to smoke, therefore, in Islamic Boarding School, they already become consument….. (A santri > 17 years old, Smoker)"

DISCUSSION

Smoking behavior among children was one of the most prominent factors according to the interview. Even after entering the Boarding School, they still kept the smoking behavior despite a clear regulation that prohibits smoking among santris. Therefore, it is not surprising if the number of smokers among santris was also high. Most of the santris were not started smoking after they enrolled but they already had such behavior beforehand, possibly since their childhood. Because of the long term nature of their smoking behavior, it is very difficult to change it even in the presence of clear regulation. The authors note that the santris, who were smokers, tended to came from Temanggung, Wonosobo and Banjarnegara which are tobacco producing areas and have relatively cold climate. It also appeared that some parents even give cigarettes to santri

as a provision when they backed to the school. Therefore, it appear that smoking behavior in this case is the result of modeling behavior from observing the others as described by Albert Bandura in his Social Cognitive Theory.[7]

Internally, there was also a negative factor that promotes smoking behavior among the santris. The santri tend to have an easy access toward cigarettes with cheap price inside the school. This fact is in accordance to the PROCEED theory established by Lawrence Green that stated a healthy behavior is influenced by itself and external factors in which the easiness of access or the availability of facility for easy access could promote smoking behavior among santri.[8] This description is in line with the result of quantitative analysis in which the level of knowledge and perception could not affect the smoking intention among santris, but influence the smoking behavior. Also, in line with structural equation model, the knowledge and perception could directly affect smoking behavior due to the external factors that support it.

Regarding the external factor, it seemed that it is quite essential to be intervened in order to supports smoking prevention program in Islamic boarding school. One of the most prominent external factors is the availability of cigarettes in every cooperation stores in the boarding school that provide an easy access for the santri. The other external contributing factor is the leniency of the smoking regulation within the school in which, the punishments are considered as not severe by santri. Therefore, the regulation itself could not deter the santri from engaging smoking behavior.

CONCLUSION

According to the analysis, it can be concluded that the knowledge and perception significantly affect smoking behavior but have no effect toward smoking intention. However, the intention itself significantly related to the smoking behavior. The factors that promote smoking behavior among santris were easy access to cigarettes, parental tolerance of smoking, early age smoking behavior, and leniency of the regulation.

CONFLICT OF INTEREST

Authors declared that there is no conflict of interest regarding the publication of this article.

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This study was self-funded without any contribution from third party source.

AUTHOR CONTRIBUTION

All authors contributed equally in the writing of this article.

ETHIC APPROVAL

This study had been ethically approved by ethical committee of Universitas Gadjah Mada with letter number KE/FK/0357/EC/2018

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