

THE EFFECT OF SELF-EFFICACY FOR SMOKING-REFUSAL PROGRAM IN JUNIOR HIGH SCHOOL MALES, BENGKULU, INDONESIA

Tita Septi Handayani^{1,2*}, Susheewa Wichaikull³, Wannaporn Boonpleng⁴

¹ Kasetsart University, Bangkok 10900, Thailand

² Dehasen Health Science College (STIKesDehasen), Bengkulu, Indonesia

³ Boromarajonani College of Nursing Nopparat Vajira, Bangkok 10230, Thailand

⁴ Boromarajonani College of Nursing Changwat Nonthaburi, Nonthaburi 11000, Thailand

ABSTRACT:

Background: Adolescence is a susceptible phase for involvement in high risk behaviors including smoking. Self-efficacy to refuse smoking is an important factor for adolescents in controlling developing smoking behavior.

Methods: This study aimed to modify a program to refuse smoking based on self-efficacy by Bandura and to evaluate the effect among male students aged 13–14 years old who attended 7th grade junior high school in Bengkulu, Indonesia. A quasi experimental study with two groups, pre-test and post-test design, was employed. The 5 weeks smoking prevention program based on self-efficacy theory was implemented with 50 seventh grade students in the intervention group. Fifty students in control group received standard curriculum. A self-report questionnaire was used for data collection. Paired t-test and independent t-test were used for data analysis.

Results: The results showed that there was significant difference of self-efficacy for refusal smoking in the intervention group ($p < .001$); self-efficacy to refuse smoking score improved significantly after intervention. Besides that, the significant difference of self-efficacy for refusal smoking also found between the intervention group and comparison group ($p < .001$). The participants in the intervention group had higher score in self-efficacy to refuse smoking than did participants in the control group. Thus, the self-efficacy for refusal smoking program had a positive effect to improve adolescents' self-efficacy to refuse smoking.

Conclusion: The self-efficacy for refusal smoking program could be recommended to prevent smoking in early adolescence.

Keywords: Self-efficacy, Smoking-refusal program, Junior high school males, Indonesia

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INTRODUCTION

Adolescence is a vulnerable period for people to comply with smoking. Many countries worldwide are facing the problem with smoking in adolescents. Smoking cigarettes may cause serious effects on the daily lives of adolescents. Effect of beginning and long term smoking very early in life, such as poor athletic performance, nicotine addiction, lung cancer and impaired lung efficiency [1]. Smokers who fail to quit before reaching the age of 35 have a 50% chance of dying by smoking-related diseases [2].

Smoking could also lead adolescents to other high risk behaviors like the temptation to use drugs or other dangerous substances such as alcohol and marijuana [3]. Besides, mental health problems such as depression is more common in adolescents who smoke [4].

Indonesia is the fifth highest country of smoker number in the world [5]. The data from the Basic Health Research [6] showed that daily regular smoker started smoking since the age 10–14 years old with representing 0.5%. In particular area, Bengkulu, the number of adolescent smoker increase every year. In 2007, the percentage of daily regular smoker among 15 to 24 year olds increased

* Correspondence to: Tita Septi Handayani

E-mail: handayani_tita@yahoo.co.id

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to 31.3%. It was the highest percentage of group with smoking if compared to other age-groups. Data in 2010 showed that the prevalence of adolescent smoking in Bengkulu increased to 22.4% in groups of age 10 -14 years old if compared to the previous percentage in 2007 which only 10.9% [7].

Smoking among adolescents is possibly caused by many factors making them a high-risk group. Some adolescents were influenced by their role models such as parents, siblings, or friends [8-10]. Moreover cigarette advertisement, misperception to the myth of smoking, positive attitude toward smoking and less self-efficacy to refuse smoking may also lead adolescents to try smoking cigarette [11-13]. The low self-efficacy to refuse smoking has become the most influencing factor in predicting smoking behavior among adolescent [14].

Self-efficacy was considered as one of the important factors in controlling a person's action [15]. Self-efficacy theory explains how a person has confidence in performing a specific task. Previous research has found that several programs could promote self-efficacy to refuse smoking among adolescents, including knowledge related to cigarettes and its harmful ingredients, and the negative health effects of smoking; discussion, decision making skill and smoking refusal skill [16, 17]. Some studies also tried to involve the factors related to the surrounding environment to help adolescents to boost their efficacy, including social support, success experience, the role of peers, interaction in the sharing session, promoting peers involvement and reflection [18, 19].

Previous research [16] has found that several factors could promote self-efficacy to refuse smoking among adolescents, and knowledge related to cigarettes including its harmful ingredients, the negative health effects of smoking to the smokers and passive smokers would enhance the understanding among adolescents. It may give them reason for themselves to garner confidence to refuse smoking. Another study deployed discussion sessions, decision making skill and refusal skill to develop skill in refusing smoking [17]. Some studies also tried to involve the factors relating to the surrounding environment to help adolescents to boost their efficacy, including social support, success experience, the role of peers, interaction in the sharing session, promoting peers involvement and reflection [18, 19]. Generally, active learning activity in class and outdoor class activity could be effective in promoting self-efficacy among adolescents, but still further research study is required in order to find other effective methods which could be applied.

The school curriculum in Indonesia has not included lessons on smoking as its standardized part, every school has incorporated materials about cigarettes in some subjects taught at school, such as Islam education subject, sport and physical activity, Biology, Moral, and Economics but there are still some weaknesses of the program: one - the learning frequency is relatively short and two - the program only provides very little information about cigarette smoking. Thus, when they are out of the school environment and are less likely to encounter the legislation of the smoking ban; they would easily be motivated to smoke again. So that, the prevention programs in schools may give the opportunity to student to improve and strengthen students' ability to refuse smoking.

The purpose of this study was to determine the effects of self-efficacy for smoking refusal program which include sharing experience, knowledge related smoking, decision making skill, stress management, smoking refusal skill, inspiring seminar project group and appreciation from the school's representative.

METHODOLOGY

A quasi-experiment with two group pre and post-test design was used to evaluate the effectiveness of the program intervention. The population of this study was the students aged 13 - 14 years old who were studying in 7th grade in public junior high school, Bengkulu City, Indonesia. The inclusion criteria for selected school were: 1) the school is not the best or the lowest rank in the particular area, and 2) the school implement smoke free-zone regulation in school. Six schools were selected as inclusion criteria requirement. From the six schools, two schools were selected to include in the study. To avoid contamination of intervention, researcher randomly selected two schools that were geographic distance in location. The two schools have similar characteristic of environment such as they has small shop near the school which can sell cigarette freely to student and the location of each junior high school were close to a senior high school. Two schools were selected, one school as intervention group and the other school as comparison group.

The sample size was calculated by using the power analysis for two independent t-tests. The α for the test was set at .05 to achieve power of .80 and the effect size was 0.5. From calculation, the sample size was 51 participants for each group. To anticipate the withdrawal, the number of samples was increased by 10 %, so the final number of participants was 54 in each group.

The inclusion criteria for the samples selection were: 1) Male, 2) Had willingness to participate, 3) Able to properly read and write as well, and 4) Had permission from the parents or guardians to join in the program. To selected participants, at the beginning, researcher explain the objective of the study to seventh grade male students. Then, the researcher gave the information sheet and informed consent form for parents to the students. They had three days to read and make sure they understand the details of the program and data collection before signing. After three days, the researcher collected and checked form to determine the eligible participants. After the parents or guardians gave the permission, researcher gave the information sheet and assent form to the adolescents. When they decided to take part in the study; researcher asked them to fill demographic data and depression screening test. Students with depression condition were excluded. Other students who did not have a chance to participate will received the same program after study conducted. The researcher selected fifty students in each school and matched pair across two groups with.

The measurement tools used for data collection were: 1) Demographic data questionnaire (DDQ), 2) The Beck Depression Inventory-II (BDI-II) Indonesian version, and 3) Self-efficacy scale for adolescent smoking.

Demographic data questionnaire (DDQ) was developed by the researcher. The questions include age, elementary nation exam test score, highest education attainment of parent, marital status of parent, parent's smoking status, sibling smoking status, and friend smoking status. The Beck depression Inventory-II (BDI) in the Indonesia version was adopted from Ginting, et al. [20] used to screen for depression. This instrument is a 4-likert scale, which it consists of 21 items. Each item is rated on a 4-point scale ranging from 0 to 3. The internal consistency reliability of 30 adolescents was .91. Last, the self-efficacy scale for adolescent smoking by Lawrence [21] is an instrument with a 6-points Likert scale. The 34 items are answered as follow: "1" = I am very sure I would smoke, "2" = I would smoke most Likely, "3" = I would probably smoke, "4" = I probably would not smoke, most Likely "5" = I would not smoke, and "6" = I am very sure I would not smoke. In this study, self-efficacy scale was translated into Indonesia language and tried out with 30 students who had same criteria with the sample study. The reliability test score based on Cronbach alpha was .89.

Data collection

After obtaining approval from Ethics Review Board Committee for Research Involving Human Research Subjects, Boromarajonani College of Nursing Nopparat Vajira (COA No. 44/2014), a formal letter was sent to the Board for Nation Unity and People's Protection (BNUPP) of Bengkulu Province and Director of Nation Education Department City of Bengkulu. After received permission, the researcher contacted the selected schools and explain the purpose and process of the study. The researcher provided clear information about the study and the information sheet, consent and assent forms for participants and their parents or guardians. Then, the participants filled self-administered questionnaires in demographic and depression screening test.

After selection process, participants in the comparison group received school education related to smoking prevention on a regular basis who provided by schools' teacher. Participants in the intervention group received the self-efficacy for refusal smoking program consisting of 8 activities within 5 weeks. Times of activities were set by the schools' recommendation in order to avoid disturbing participant's study times. Data was carried out from first week of August to second week of September 2014.

Description of the self-efficacy for refusal smoking program

The self-efficacy for refuse smoking program was modified by the researcher based on four sources of self-efficacy based on the self-efficacy theory by Bandura [14] including in enactive mastery experience, vicarious experience, psychological and affective state, and verbal persuasion. The main objective of this program is to provide education about the hazard of smoking to health both for smokers and second-hand smokers. In addition, also provide training to increase the participant's ability in cope with stress, communication techniques, smoking refusal skills, and expertise in making the right decision. Participants were also asked to make a program in applying the techniques refuse cigarettes. Moreover, the program also aims to look at the social roles, such as the closest person and environment to motivate participants in refuse cigarettes. The intervention was made up of eight session with each activity approximately about one hour, implemented over 4 weeks in class room setting and outdoor setting. The title of activity were: (1) "Sharing experience/brainstorming" (discussion and brainstorm participant's self-knowledge and

Table 1 Demographic characteristics between intervention and comparison groups (n = 50)

Personal characteristics	Number (%)		<i>p-value</i>
	Intervention group	Comparison group	
Age (years)			
13	40 (80.0)	39 (78.0)	.806
14	10 (20.0)	11 (22.0)	
Elementary national exam test score			
Moderate level (8.00-7.10)	23 (46.0)	24 (48.0)	.707
Deficient level (7.00-6.10)	27 (54.0)	26 (52.0)	
Father education level			
Junior high school and less	17 (34.0)	14 (28.0)	.517
Senior high school and higher	33 (66.0)	36 (72.0)	
Mother education level			
Junior high school and less	13 (26.0)	15 (30.0)	.656
Senior high school and higher	37 (74.0)	35 (70.0)	
Live with who			
Living with father and mother	43 (86.0)	40 (80.0)	.424
Living with relatives	7 (14.0)	10 (20.0)	
Father smoking status			
Yes	38 (76.0)	40 (80.0)	.629
No	12 (24.0)	10 (20.0)	
Mother smoking status			
Yes	1 (2.0)	3 (6.0)	.558
No	49 (98.0)	47 (94.0)	
Sibling smoking status			
Yes	14 (28.0)	18 (36.0)	.391
No	36 (72.0)	32 (64.0)	
Best friend smoking status			
Yes	12 (24.0)	23 (46.0)	.021
No	38 (76.0)	27 (54.0)	

self-experience about smoking), (2) “Knowledge about smoking” (ingredients of cigarettes, short-term effects of smoking on body and health, long-term effects of smoking on body and health, increasing awareness about consequence of smoking to passive smokers or second-hand smokers and understanding of myth and fact about smoking), (3) “Stress management for teenager” (stress management and lesson about stress, emotion experience, psychological stressor, strategies to handle stress situation, created positive mood and reduced stress in daily), (4) “Assertive communication and smoking refusal skill” (Training and role play to refuse cigarette offered by watching the video), (5) “Inspiring seminar” (Sharing experience related coping mechanism to deal with smoking behavior, enhancing awareness and motivate to refuse cigarette), (6) “Decision making skills” (Knowledge to make decision related to smoking behavior and practice decision making skill in group), (7) “Project group” (creating group activity to perform refusal cigarette message), (8) “Appreciation from school” (awarding positive feedback and support from school).

Activity carried out by the method of

participant-centered learning, simulation and interactive. Activities created so fun and relaxed but still in accordance with the content to be conveyed. It is intended to attract participant in each activity. Three research assistants was recruited to help each activities in the program. The research assistants came from outside school and did not have relationship to the school or had a power to influence the participants in this study. They received one day workshop about the self-efficacy for refusal smoking program. The responsibilities of the research assistants were to help the researcher during the intervention for collecting questionnaire, and they were facilitators for the students in group discussion activity, and prepared the equipment for the activity.

Statistical analysis

Demographic characteristic between groups was analyzing using frequency, percentage, mean ($\bar{x}$), and chi-square. Characteristic difference between the two groups was tested using chi-square. Before the data analyzed, the score of self-efficacy in refuse smoking was checked the normality by used kolmogorof smirnov. The mean difference of self-efficacy to refuse smoking between groups in

Table 2 Comparison of self-efficacy score between before and after intervention at intervention group (n=50) and comparison group (n=50)

Groups	Overall Self-efficacy		Emotion Self-efficacy		Friend influence Self-efficacy		Social opportunity Self-efficacy	
	Before	After	Before	After	Before	After	Before	After
Intervention group								
$\bar{x}$	101.88	181.52	29.14	48.16	26.88	47.54	31.56	59.08
(SD)	(4.715)	(15.401)	(1.917)	(4.795)	(1.891)	(6.238)	(2.215)	(4.125)
T	-35.518		-25.671		-21.866		-45.193	
<i>p-value</i>	.0001		.0001		.0001		.0001	
Comparison group								
$\bar{x}$	111.60	122.24	29.12	32.14	29.26	32.14	36.54	40.64
(SD)	(13.381)	(13.274)	(4.566)	(4.440)	(4.566)	(4.440)	(4.413)	(4.466)
T	-18.338		-5.557		-5.577		-8.713	
<i>p-value</i>	.0001		.0001		.0001		.0001	

Table 3 Comparison of self-efficacy score between intervention group (n=50) and comparison group (n=50) at after intervention

self-efficacy component	N	Mean	S.D	T	p-value
Emotion					
Comparison group	50	2.14	1.508	-22.726	.0001
Intervention group	50	7.60	1.678		
Friend Influence					
Comparison group	50	2.88	1.189	-25.303	.0001
Intervention group	50	9.02	1.237		
Social Opportunity					
Comparison group	50	3.34	1.520	-21.409	.0001
Intervention group	50	9.86	1.525		

before and after intervention was analyzed by using independent t-test. The paired t-test was used to measure the difference of self-efficacy to refuse smoking before and after intervention within group. All the data were analyzed by using the Statistical Package for Social Sciences Window software (SPSS; licensed for Kasetsart University). To compare the self-efficacy within group was using the averages of total scores in each subscales. The comparison between groups was using the averages of the individual changes. This is applied to reduce the bias of the result because the number of friend smoking status in both groups were imbalance.

RESULTS

During the study period, four students in the intervention group dropped out because they needed to join in sport training program. Therefore, 50 students remained in the intervention group. In comparison group, the outliers were detected and deleted. Thus, 50 students remained in final analysis.

According to Table 1, there was no significant difference in most adolescents' characteristics except best friend smoking status. The comparison group had significant higher number of best friend

smoking than intervention group. Best friend are those who were close friends, meet frequently, often playing and doing the same activity and have an interest in nearly the same thing. This indicated that the students improved self-efficacy was related to the self-efficacy for refusal smoking program.

Table 2, the score before the intervention, for smoking refusal self-efficacy for friend influence and social opportunity in comparison group was significantly higher than intervention group ($p < .001$) while the smoking refusal self-efficacy score for emotion was not significant difference between the intervention and comparison groups. After intervention, smoking refusal self-efficacy score in all subscales for the intervention group was significantly higher than the comparison group ($p < .001$). The increasing score of self-efficacy after intervention was higher in intervention group if it compare to the increasing of self-efficacy's score after intervention in the comparison group. It can conclude that the students who attended the self-efficacy for refusal smoking program had higher self-efficacy to refuse smoking than those did not attend the program.

Table 3, the result showed that the averages score of individual changes in subscales emotion,

friend influence and social opportunity between two groups after intervention had significantly higher ($p < .001$) in intervention group if compare with comparison group. This indicated that the students improved self-efficacy was related to the self-efficacy for refusal smoking program. Friend smoking status between both groups has imbalance in number. It can lead to the bias result. To reduce the bias, the averages of the individual changes score in every subscales should be compared between intervention group and comparison group.

DISCUSSION

The finding shows the participants in the intervention group had a higher score in self-efficacy after obtaining the self-efficacy for refusal smoking program. According to Caprara et al. [22] adolescents with high self-efficacy had ability to refuse risky behaviors such as cigarette smoking. This could be explained by the self-efficacy theory by Bandura [15] which mentioned that self-efficacy was influenced by previous experience, the model, physical and psychological conditions and supports from the surrounding environment [12]. Therefore, according to the program within this study, it provides all factors related to the self-efficacy model by Bandura [15].

As part of enactive mastery experience, knowledge is an important component in assisting a person to successfully practice a behavior [15]. Providing knowledge related to harmful ingredients of cigarettes, short and long term effects of cigarettes, and also the myths and facts related smoking to the intervention group can enhance their knowledge, awareness and understanding about smoking. This finding is consistent with previous research that showed that knowledge and self-efficacy have a positive relationship which means that if someone has good knowledge, he/she will be more likely to have a higher self-efficacy [23]. Knowledge of cigarettes is one of the forces that provide self-knowledge to the participants about the right reasons and better understanding about smoking in order to refuse cigarettes. Decision making skills give experience to participants in determining the appropriate decision, based on advantage considerations, the risks and consequences that will be covered when dealing with the situations where smoke is offered. This is consistent with previous studies that stated that participants who are knowledgeable about the dangers of a risky behavior tend to be more confident in rejecting risky behavior [24]. Adolescents who have high self-efficacy to refuse cigarettes are generally able to make the right decisions in the face of situations of an offer to smoke.

In promoting the psychological and affective state, the participant in the intervention group have a high self-efficacy in the refusal at smoking including when faced with emotional conditions and cigarette offered from a friend. The ability to control the psychological condition, by stress management could improve self-efficacy in showing the expected behavior [25, 26]. With regard to the positive effect of stress management on increasing self-efficacy, it is also supported by another study that stated a person who has a low self-efficacy to refused smoking could be due to stress conditions [27].

In relation to vicarious experience, the role model shared his experiences and strategies to resist smoking in terms of the local culture. Other role models also shared the experience of negative effects in the form of illness due to smoking habits. The finding showed that, the participants in the intervention group had higher smoking refusal skills and lead to higher self-efficacy to refuse smoking as a result. The self-efficacy in refuse smoking related to the ability of adolescents in refusal skills [14]. The role model apparently is a key figure in developing self-efficacy belief in early adolescents [28]. Adolescents have a higher confidence to comply with a specific task when they see an achievement in the same task from their role model. In other words, this study which has a construction of self-efficacy sources can inspire adolescents to refuse a cigarette as a result.

The group activity encourages participants to work together and support each other to finish the task in promoting verbal persuasion. As the result of the group project participants got a reward of appreciation from the school. The support from friends, who have the same task, and the appreciation from school provide a source (environment and the school support) which could strengthen participants in refusing smoking. The finding showed that participant in the intervention group have higher self-efficacy in refusing smoking when they have a greater support from others who belief in their ability to have good self-efficacy. By the provided intervention in school-based abstinence to improving strategies for preventing early onset of high risk behavior, the support from the environment such as family and school could influence the adolescents' self-efficacy for refusing that behavior [29].

The comparison group also has a higher self-efficacy for refusal smoking, but it was not greater than the intervention group. This can be explained by while the intervention group obtained the intervention from this study; the comparison group also usually had a common program with regard to

the health and self-care. The comparison group obtained the common knowledge from the school and health campaigns from other media. According to self-efficacy theory, verbal persuasions may be obtained from those who are more influence to the adolescent in refusal smoking. This can be explained by environmental influences on adolescents, particularly in boys, are very important. The desire to get awards and recognition for their ability can make them have self-pride and motivate them to do some another thing that can bring a greater award. Previous studies showed the relationship between self-efficacy and social support, which can influence each other [30, 31]. The legislation of smoking bans in schools and health promotion for smoking prevention helps to improve self-efficacy in adolescents smoking refusal. However, the real appreciation in the form of awards and feedback from the school representatives to a student could promote and demonstrate the behavior of smoking refusal. This is because it gives a distinct impression on the students who perform positive behaviors such as refusal to smoke that they are doing in accordance with the demands of the social norms.

This study has some limitations some confounding factors that cannot be controlled by the researcher which affects the increasing of self-efficacy in the comparison group, such us media, prevention banned by government or other environment factors. Other limitation is the characteristics of participants in two groups could not be fully matched in final, and it is could influence or affect the results of the study.

RECOMMENDATION

The results in this study showed that self-efficacy theory by Bandura can be a guide in developing a program which had an effect on the self-efficacy to refuse smoking through emotional, peers influence and social opportunity in male adolescents in grade 7th in Bengkulu. This suggested the advantage of a program on improving the self-efficacy among adolescents. However, these adolescents should have ongoing monitoring of their self-efficacy in order to determine the sustainable benefits of the program.

According to the result of this study, it is suggested that health care providers especially those who are responsible in schools may provide the self-efficacy in refusal smoking program based on self-efficacy theory to promote the four source of self-efficacy. This program can also be recommended as a companion program on tobacco control in clean and healthy behavior program (PHBS) in public health.

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