

ORIGINAL ARTICLE

The Effect of Empowerment Using Digital Media on Self-efficacy Among Adolescent Smokers

*Wini Hadiyani^{1,3}, Indah Furiyani², Nisha Nambia³, Faridah binti Mohd Said³

¹ Department of Community of Nursing, Study Program of Bachelor Nursing, Sekolah Tinggi Ilmu Keperawatan PPNI Jabar, 40173, Bandung, Indonesia

² Study Program of Bachelor Nursing, Sekolah Tinggi Ilmu Keperawatan PPNI Jabar, 40173, Bandung, Indonesia

³ Faculty of Nursing Lincoln University College, 47301, Petaling Jaya, Selangor Malaysia

ABSTRACT

Introduction: Smoking behavior among adolescents in Indonesia has increased yearly, so it must be considered because it impacts their health. Self-efficacy can be used as a driving force that arises from within adolescents to decide smoking behavior. Adolescent empowerment can improve skills in adolescents so that they are expected to have self-efficacy. The use of digital media can create a forum for the rapid development of communication skills, identity exploration, and adolescent creativity. This study determined the effect of empowerment using digital media on self-efficacy among adolescent smokers. **Methods:** This research has used the Quasi Experiment method with two groups of pre-post test design and used purposive sampling technique with a total of 60 respondents divided into an intervention group and a control group with each group of 30 people. **Results:** This study showed a significant difference in self-efficacy scores between the control and intervention groups with a p-value of 0.000 ($p < \alpha$ 0.05). **Conclusion:** This study shows that empowerment with digital media influences increasing self-efficacy in adolescent smokers.

Keywords: Adolescent, Smoking, Self-efficacy, Empowerment, Media_digital

Corresponding Author:

Wini Hadiyani, M. Kep
Email: dontologi@gmail.com
Tel: +62 8122443830

INTRODUCTION

Smoking is one of the leading causes of death [1]. Smoking behavior is not only developing among adults but also developing among adolescents. The phenomenon in Indonesia of teenagers smoking is increasing. The prevalence of smoking increases by 1.9% to 9.1% at a range of 10-18 years (Kemenkes RI, 2018), and based on a report from the Global Youth Tobacco survey (GTYS) in 2019, 19.2% of students currently use tobacco products, 18.8% of students currently smoke tobacco, and 19.2% of students smoke cigarettes [2]. According to information (2018), West Java is one of the provinces with the highest smoking prevalence in Indonesia, 32.7%. Based on Risdas data (2018), the frequency of smoking

every day is more significant in men, namely 51.70% compared to women (2.07%). The proportion of the population who smokes aged more than ten years in West Java Province is 27.12 %, while the data in the city of Bandung showed that the first time people smoked was at the age of 10-14 years teenagers as much as 8.78% and for those aged 15-19 years (49.40%) [3]. The younger the smoker's age, the greater the possibility of death from cardiovascular disease caused by the negative impact of smoking behavior [2].

Smoking harms health, especially in adolescents who are experiencing growth and development. In addition to the physical effects of tobacco use, it is proven to affect emotional states. Smoking is a risk factor for many chronic diseases such as coronary heart disease, stroke, cancer. [4]. However, Impulsive behavior and depression in adolescent smokers are higher than in non-smokers [5]. Adolescents tend to be indifferent to the impact of smoking because they think smoking can build their existence in the

association; therefore, they choose to smoke [6].

Social behaviors, such as smoking, invoke self-image concerns via perceived image attributes (e.g., "cool") of the prototypical person who engages in the behaviors. For the time being, Indonesian adolescents have believed that smoking will make them feel more recognized by their peers, feel confident, and even think smoking can reduce stress [7]. There are also internal and external factors that cause teenagers to smoke. Internal factors are teenagers who want to be accepted by the group, want to show their identity, and want to know the taste of cigarettes. External factors are the family environment that smokes, the invitation of school friends to smoke, and the community environment that smokes. Smoking causes teenagers to smoke [8]. Self-efficacy is a supporting factor influencing adolescents' intention to quit smoking [9], [10].

Self-efficacy is a person's belief in achieving a goal and overcoming an obstacle [11]. Building an individual's belief in his ability to quit smoking requires the role of self-efficacy [12]. Smoking behavior will not occur if adolescents have high self-efficacy, and vice versa if adolescents have low self-efficacy, it will influence them to smoke. Self-efficacy will be high if a person has a high assessment of himself to control their health. They will have self-efficacy to stop smoking in internal situations, such as refraining from smoking when feeling anxious, nervous, and depressed because they know that smoking cannot solve the problem [13]. Self-efficacy in adolescents to stop smoking can be increased through empowerment because empowerment can increase self-confidence to increase self-efficacy [14].

Empowerment is the process of becoming empowered or the process of gaining strength or ability [15]. Empowerment is the most critical concept in health promotion because empowerment helps the individual achieve the ability to change [16]. The Centers for Disease Control and Prevention (CDC-P) recognizes that involving youth is one of the best practices in health promotion and education [17]. Empowerment is an important key that needs to be emphasized in smoking prevention programs to help adolescents become supporters of tobacco control [16]. Empowerment in adolescents for tobacco control will make them a source, not a collection of problems. When adolescents are allowed to participate, they will develop a stable and positive identity. Adolescents will make them more confident and in control and have higher self-esteem and efficacy not to smoke [14]. Empowerment in adolescents can reduce their vulnerability to tobacco and have a positive impact on smoking prevention [17].

Tobacco control in adolescents can use adolescent empowerment methods to increase self-efficacy and cause adolescents to stop smoking [18]. One way to empower adolescents can be by using digital media, namely producing anti-smoking videos. The form of digital media itself is a variety of tools and other applications with internet support for communication, interaction, and collaboration. Some examples of its forms are social networks (facebook, twitter, Instagram), online newspapers (kompas.com, newspapers.tempo.co, republica.co.id, tribunnews.com) and messaging applications (Whatsapp, Facebook Messenger, Line, Wechat) [19]. Image, sound, and video are data that can be processed in digital form which can be used as data in binary form so that the data can be stored in digital data storage and processed in computational programs [20]. Digital media can empower teenagers because of the many potential advantages of digital media, namely as an active educational tool in smoking prevention because video production serves as an attractive delivery model for school-age groups [21]. The use of digital media can create a forum for the rapid development of communication skills, identity exploration, and adolescent creativity [22].

MATERIALS AND METHODS

Empowerment is an intervention by empowering adolescents by using digital media to change smoking behavior in adolescents. The digital media in this study is video education media, and whatsapp group. Self-efficacy referred to in this study is adolescents who believe that they are able to take an action to achieve the desired result, namely to stop smoke.

Samples

The sampling technique in this study used purposive sampling. Estimates for the sample size were calculated via G-Power Software version 3.1.9.4 using the f-test, ANCOVA : fixed effects, main effects and interactions. Assuming two tails, $\alpha = 0.05$, Effects size : 0.4, power level : 0.8. The number of samples in this study was 60 respondents, namely 30 people for each group. The sampling technique in this study used purposive sampling. The participants in this study were adolescent aged 15 to 19 years, male, having smartphone, being active on social media and smoker from several schools in Bandung city, Indonesia.

This research is a quantitative research using a quasi-experimental design. This study uses a two-group pre-post test design concept. There was a group that was given intervention and a control group that was not given an intervention. The study was conducted in Bandung, West Java, Indonesia, for one month. The instrument in this study is the Smoking Self Efficacy Questionnaire-12 (SEQ-12) developed [23].

Data Collection

The research was conducted for eight meetings in two weeks, there are two meetings with flexible meeting times, and the duration of each meeting is 40-60 minutes. Meetings were held virtually, and group sessions consisted of 4 to 6 respondents for each meeting, using WhatsApp video calls and WhatsApp groups. In this study, there are several educational media, namely material in the form of power points, modules, posters, and educational videos, to ensure that each group gets the same information. The intervention included three stages of empowerment. The awareness stage (researchers made adolescents aware by showing several pictures of someone affected by smoking, and adolescents were asked to mention the adverse effects seen in people with smoking behavior). Capacity building was the second stage (researchers provided health education through educational videos containing cigarettes and the dangers of smoking). The third stage was the empowerment stage (researchers divided the respondents into six groups, then the respondents were given the task of making an anti-smoking video before making the video, they read and searched for the material first and determined the theme of the video).

Statistical analysis

Descriptive analysis to describe demographic data and self-efficacy description of adolescent smokers before and after empowerment with digital media. The difference in pre and post scores in the intervention and control groups was carried out by paired t-test and the difference in scores between

the intervention and control groups was carried out by the ANCOVA test.

ETHICAL CLEARANCE

The approval and ethical clearance from Nursing School of PPNI west Java was attained upon commencement of the study No.III/045/KEPK/STIKEP/PPNI/JABAR/2021.

RESULTS

Demographic data on the characteristics of smoking adolescents

The characteristics of respondents in this study were based on age, class, first-time smoking, and the number of cigarettes consumed in a day. The following is a comparison of demographic data on the characteristics of respondents between the intervention group and the control group. The average age of the respondents is 16.90 (SD = 0.877), and the minimum age in the intervention and control groups is 16 years, while the maximum age is 18 years. All respondents in this study were male (100%), most of the respondents were in class X and XI (35%), and as many as (56.7%) of respondents smoked for the first time in junior high school, and most of the respondents smoked 1- 10 sticks per day of (88.3%). The independent t-test and chi-square analysis showed no significant differences between the two groups regarding age, class, the first time the respondent smoked, and the number of cigarettes consumed in a day.

Table I : The Characteristics of Respondents

Variable	Total (n= 60) %	intervention (n = 30) %	control, (n = 30) %	p-value
Age (Mean ± SD) Min =16 Max =18	16.90 ± 0.877	16.73 ± 0.868	17.07 ± 0.868	0.143
grade				0.505
X	21 (35)	12 (40)	9 (30)	
XI	21 (35)	11 (36.7)	10 (33.3)	
XII	18 (30)	7 (23.3)	11 (36.7)	
First smoking				1.000
Elementary School	12 (20)	6 (20)	6 (20)	
Junior high school	34 (56.7)	17 (56.7)	17 (56.7)	
Senior High school	14 (23.3)	7 (23.3)	7 (23.3)	
the number of cigarettes consumed in a day				0.896
1-10	53 (88.3)	27 (90)	26 (86.7)	
11-20	5 (8.3)	2 (6.7)	3 (10)	
>20	2 (3.3)	1 (3.3)	1 (3.3)	

Tabel II : Description of Self-efficacy among Adolescent Smokers

Variable	Range Min-Max Total	Total (N=60) Mean ± SD	Range M in-Max Intervention	intervention (n=30) Mean ± SD	Range Min-Max Kontrol	Control (n=30) Mean ± SD
<i>self-efficacy</i>						
Pre-test	12 – 42	27.28 ± 6.750	13 – 40	27.27 ± 6.612	12 – 42	27.30 ± 6.998
Post-test	12 – 57	31.87 ± 9.890	23 – 57	36.80 ± 9.785	12 – 42	26.93 ± 7.273
internal stimuli						
Pre-test	6 – 24	14.32 ± 3.851	6 – 24	14.47 ± 4.058	6 – 22	14.17 ± 3.696
Post-test	6 – 30	16.98 ± 5.589	12 – 30	20.37 ± 4.774	6 – 23	13.60 ± 4.132
external stimuli						
Pre-test	6 – 21	12.97 ± 4.113	6 – 20	12.80 ± 3.800	6 – 21	13.13 ± 4.462
Post-test	6 – 30	14.88 ± 5.276	8 – 30	16.43 ± 5.894	6 – 20	13.33 ± 4.113

Tabel III : Differences in Self-efficacy Scores Before and After Being Given Intervention

Variable	Pre-test (Mean±SD)	Post-test (Mean±SD)	t	Mean difference	p-value
<i>Self-efficacy</i>					
intervention	27.27 ± 6.612	36.80 ± 9.785	7.396	9.533	0.000
control	27.30 ± 6.998	26.93 ± 7.273	-1.009	-0.367	0.321
Domain Skor					
Internal stimuli					
intervention	14.47 ± 4.058	20.37 ± 4.774	8.566	5.900	0.000
control	14.17 ± 3.696	13.60 ± 4.132	-1.925	-0.567	0.064
External stimuli					
intervention	12.80 ± 3.800	16.43 ± 5.894	4.343	3.633	0.000
control	13.33 ± 4.113	13.13 ± 4.462	0.972	0.200	0.339

Tabel IV : The Effect of Empowerment with The Use of Digital Media on Self-Efficacy among Adolescent smokers (n=60)

Source	Type III Sum of Square	df	Mean Square	F	Sig.
Corrected Model	4210.858 ^a	2	2105.429	76.925	0.000
Intercept	62.058	1	62.058	2.267	0.138
Pre-test	2750.592	1	2750.592	100.498	0.000
Group	1470.255	1	1470.255	53.718	0.000
Error	1560.075	57	27.370		
Total	66700.000	60			
Corrected Total	5770.933	59			

Self efficacy in adolescent smokers

Overview of self-efficacy in adolescent smokers, which can be seen from the average results of the pre-test using the Smoking Self Efficacy Questionnaire –12, which consists of two domains, included internal stimuli and external stimuli with a total of 12 question items. The table above shows the two groups' average value and standard deviation, which is a change. After being given treatment on the internal stimuli domain, the intervention group saw an increase in the score to 20.37 (SD = 4.774), while in the control group, there was a decrease in the score to 13.60 (SD = 4.132). In the domain of external stimuli, increase in the intervention group from the average value of 12.80 (SD = 3.800) to 16.43 (SD = 5.894). There was also a change in the control group's 13.13 (SD = 4.462) score to 13.33 (SD = 4.113).

The intervention group, the self-efficacy value before and after being given the empowerment intervention with digital media increased significantly from 27.27 (SD = 6,612) to 36.80 (SD = 9,785) with t value = 7,396 and p-value = 0.000. While in the control group, there was no significant increase with a p-value of 0.321. Furthermore, the internal stimuli domain score showed that there was a significant increase in the intervention group, from 14.47 (SD = 4.058) to 20.37 (SD = 4.774) with p-value = 0.000, the external stimuli domain from 12.80 (SD = 3.800) to 16.43 (SD = 5.894) with a p-value of 0.000.

Self efficacy after empowerment with digital media

The ANCOVA statistical test shows differences in self-efficacy scores after empowerment interventions with digital media are carried out. The self-efficacy score of adolescent smokers in the intervention group showed a significant difference compared to the control group who did not receive treatment with a p-value = 0.000 (p < 0.05). The results of hypothesis testing show that

H0 is rejected and Ha is accepted, which means that there is a significant difference between self-efficacy scores before and after being given an empowerment intervention with digital media on adolescent self-efficacy in the intervention group and the control group.

DISCUSSION

Self-Efficacy among Adolescents Smoker

Based on the study results, self-efficacy in adolescent smokers was lower before the intervention was given. This study aligns with Laili's research (2018) which states that adolescents with low self-efficacy tend to have high smoking behavior. The cause of adolescents having low self-efficacy is due to low-performance accomplishments or achievements that have been achieved in the past, low vicarious experience, or learning experiences from others. The figures observed by adolescents who are equal to themselves experience failure, self-efficacy will decrease, and self-efficacy will decrease. Efficacy is influenced by emotional arousal or emotional states. Intense emotions, fear, anxiety, and stress can reduce self-efficacy, so if the ability to control adolescents' emotions is low, the adolescents will be higher for smoking (10). Low self-efficacy in adolescents will make adolescents not want to stop smoking, and self-efficacy is a factor supporting adolescent coping mechanisms not to smoke [9], [24]. Self-efficacy in adolescents can be increased with empowerment because empowerment makes adolescents more active, provides opportunities to learn skills and assumes a responsibility to participate in meaningful social and community affairs. Empowerment enables adolescents to build self-confidence, have high self-esteem, and have self-efficacy [14].

Some internal stimuli (such as depression, stress, and anger) can influence adolescents to smoke, but

awareness to control healthy behavior can control the desire to smoke[13]. Someone realizes that smoking behavior is not an excellent solution to a problem, so there will be a belief not to smoke in the internal situation they are experiencing. They will look for other ways besides smoking to solve the problem. Adolescents will be more easily influenced by the surrounding environment and peers to carry out risky behaviors such as smoking[12].

The effect of adolescent empowerment using digital media on adolescent smokers

This study also showed a significant increase in internal stimuli and external stimuli domains in the intervention group. The results of the ANCOVA analysis also concluded that empowerment by using digital media, which involved youth in making anti-smoking videos, had a significant effect on increasing the self-efficacy of adolescent smokers, as indicated by a p-value of 0.000 ($p < 0.05$). Empowerment in adolescents will have a positive impact on smoking prevention [25]. The results showed a significant effect of giving empowerment with digital media on self-efficacy in adolescent smokers. adolescent who produce videos about smoking can increase their efficacy and reduce their desire to smoke [16]. The use of digital media can create a forum for the rapid development of communication skills, exploration of adolescent identity, and creativity (20). Digital media can empower adolescents because of the many potential advantages, namely as an active educational tool in smoking prevention because video production serves as an attractive delivery model for school-age groups [26].

In this study, respondents went through three stages of empowerment, namely the first stage of awareness. Researchers first awakened adolescents by asking adolescents to provide opinions about people's conditions with smoking behavior. Researchers also made teenagers aware of the adverse effects of smoking behavior by showing some pictures of someone who has been affected by smoking behavior; it can make teenagers aware that smoking can have a real negative impact on health. Tobacco control campaign through photo stories by displaying photos of the impact of smoking on active and passive smokers distributed through social media can be more easily understood by young people and the public that smoking is also dangerous for passive smokers. Capacity building is the second stage that will enable adolescents to increase their knowledge about the content of cigarettes and the dangers of smoking using educational videos. The use of digital media such as video in learning will be more effective than using conventional media [27]. Empowerment at the capacity stage by providing education about the dangers of smoking can increase perceptions of smoking, and increasing these perceptions strengthens awareness to act [28].

Next is the empowerment stage, which is to empower adolescents by involving them in producing anti-smoking videos. Before making videos, the researchers provide modules and posters about the dangers of smoking and recommendations on the Indonesian Ministry of Health website for respondents to find and read the material first as material or content in the video will be made. Next, the adolescents discussed determining the theme in the video, and they started to produce videos according to the theme they had determined. After going through the stages of empowerment, the self-efficacy of adolescent smokers increased significantly, so it can be concluded that the provision of empowerment with digital media affects increasing self-efficacy in adolescents to stop smoking.

CONCLUSION

Adolescents must possess Self-efficacy to control emotions and solve problems so that adolescents can break away from bad habits such as smoking. Adolescents will be able to deal with situations such as internal stimuli and external stimuli without smoking behavior. Self-efficacy can be increased through the empowerment of adolescents. This study shows that empowerment with digital media affects increasing self-efficacy in adolescent smokers.

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