

School-Based Education on Prevention of Smoking Behavior in Adolescents

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ABSTRACT

This school-based education program for adolescents in Bontokassi was performed due to the high frequency of active adolescent smokers in this village. Who performed the education activity by giving counseling through lectures, movie demonstrations, group discussions, and question and answer sessions. The intervention was performed in Junior High School Students (SMPN) 3 South Galesong and Senior High School Students (SMAN) 13 Takalar, involving 26 and 17 participants. The participants were given an evaluation sheet for pre and post-test to examine their knowledge and attitude changes after the intervention and increased knowledge score for SMPN 3 students from 6.29 to 12.53. Meanwhile, for SMAN 13 students, there was an increased score from 12.18 to 16.06. Similar to the knowledge score, there was an increase in attitude scores post counseling for SMPN 3 and SMAN 13 students (from 5.00 to 5.85 and from 5.12 to 5.88, respectively). It is concluded that school-based intervention to prevent and control smoking behavior among adolescents is needed.

KEYWORDS

Attitude;
Counseling;
Junior High School Students;
Knowledge;
Senior High School Students



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1. Introduction

Indonesia is the third-largest country in cigarette consumption [1][2]. Smoking habit in Indonesian society is one of the health problems [3]. Premature deaths from tobacco usually occur 15 years before life expectancy is reached [4][5]. Generally, tobacco-related diseases take a long time (15-20 years) after smoking begins, so the epidemic of tobacco-related diseases and the number of deaths in the future will continue to increase [6][7].

In recent years, the number of people who have a smoking habit has increased in terms of age and gender [8][9][10]. The Central Statistics Agency (BPS) recorded that the population aged five years and over who smoked reached 23.21% in 2020 [10][11][12]. This figure decreased compared to the previous year, which reached 23.44% [13]. If viewed by region, the percentage of people aged five years and over who smoke in rural areas is higher than in urban areas. 24.36% of the population aged five years and over smoked in rural areas in 2020 [14], [15]. Meanwhile, in urban areas, 22.30% of the population aged five years and over smoked last year [16]–[18].

Tobacco use is a global problem that causes death worldwide [19]–[23]. Smoking is a risk factor for six of eight causes of premature death, namely ischemic heart disease, cerebrovascular disease, lower respiratory tract infections, chronic obstructive pulmonary disease, tuberculosis, and cancer of the trachea, bronchi, and lungs [24]–[26]. Research on the population aged 18–35 years in Surabaya revealed that smoking behavior is the highest determinant of hypertension [27][28].

People who develop smoking behavior in their teens also have an increased risk of cardiovascular disease, respiratory disease, and cancer [29]–[32]. They are more likely to experiment with alcohol and other drugs [33]–[36]. Most adult smokers today start using tobacco in their teens even though becoming

a smoker has started since childhood. The high rate of starting smoking in adolescents may be due to adolescents who tend to be prone to negative influences.

Counseling related to the dangers of smoking for teenagers is one of the non-physical interventions that we carry out in accordance with the problems found in Bontokassi Village in Field Learning Experience/Pengalaman Belajar Lapangan (PBL) II. Education related to smoking is often inserted in counseling related to Clean and Healthy Life Behavior (PHBS). Not smoking is one indicator of PHBS. Healthy living behavior is one of the important roles and has a positive effect on the realization of public health status. Most of the people in Bontokassi Village are smokers. Age is not a barrier for the people of Bontokassi Village to smoke; even a nine-year-old child has become an active smoker. The younger the child becomes an active smoker, the more likely it is to become an adult smoker. From these problems, this community service contributes to providing counseling not to smoke in the village.

2. Method

This activity is one of the student work programs of PBL II, Faculty of Public Health, Hasanuddin University. The implementation of the activity begins with holding an initial seminar that aims to socialize student work programs, including educational activities to prevent smoking behavior for teenagers, which will be carried out in two schools, namely SMPN 3 South Galesong and SMAN 13 Takalar. The initial seminar was held on Friday, January 7, 2022, at the village office of Bontokassi Village, South Galesong District, Takalar Regency and was attended by village officials, community leaders, posyandu (Integrated Healthcare Center) cadres and health cadres and the community of Bontokassi Village.

1. Preparation

Preparation for educational activities begins with conducting an initial survey of the location of the activity on January 10, 2022. On January 11, 2022, an initial submission is made to the schools that are the targets of educational activities by submitting an application for permission to conduct counseling in the two schools. The preparation stage is then continued by compiling and preparing educational materials. The materials cover active smokers and passive smokers, the dangers of smoking to health, harmful substances contained in cigarettes, factors that influence smoking habits, and how to stop smoking habits. The material was obtained from various reliable literature [37]. Most of the materials and media used were obtained from the website of the Directorate of Health Promotion and Community Empowerment of the Ministry of Health of the Republic of Indonesia.

2. Implementation of Pre-Test, Education and Post-Test

Carried out educational activities to prevent smoking behavior for adolescents for 2 days from January 14-15, 2022. The activity was held at SMPN 3 South Galesong on January 14, 2022 and was attended by 26 male students. Then on January 15, 2022 at SMAN 13 Takalar with 17 participants consisting of a combination of male and female students.

At the beginning of the activity, participants filled out a pre-test questionnaire first. The questionnaire contains questions about knowledge and attitudes towards smoking behavior. This educational activity uses 2 methods: the lecture method using presentation slides and playing an emotional demonstration video about the dangers of smoking, which is displayed through an LCD projector with a duration of 3 minutes. After the presentation of the material, discussions and questions and answers were held.

Evaluation of the implementation of educational activities is carried out after the provision of material is complete. Evaluation was carried out by administering a post-test questionnaire. The post-test questions are the same as the pre-test questions. The pre-test and post-test measurements were intended to measure the differences in participants' knowledge and attitudes before and after receiving education. The results of the pre-test and post-test were inputted and then analyzed using SPSS to compare differences in knowledge and attitudes related to smoking behavior in students at SMPN 3 South Galesong and SMAN 13 Takalar [38].

One of the most relevant theories in the prevention of smoking behavior is the Theory of Planned Behavior (TPB) [39]. In the adolescent age group, TPB is effective in predicting smoking intention and behavior. TPB states that 3 determinants, namely: 1. influence preferences and behavior. Attitudes where there is an assessment of something that is favorable and unfavorable, 2. Subjective norms which are

perceived social pressures to take and not take action, and 3. Perception of self-control where the perception of ease and difficulty in doing something.

3. Results and Discussion

1. Results

This education was conducted based on real problems that occurred in Bontokassi Village. Teenagers are the main target of counseling because the number of active smokers is very worrying, so counseling is one of our interventions during PBL II. Adolescence is a very decisive period because at this time children experience major changes in their psychological and physical aspects. Emotional and behavioral problems can have a negative impact on growth and development and daily life. Psychological changes can cause confusion and cause adolescents to deviate from social rules and norms in society easily.

Knowledge is one of the factors that influence adolescent smoking behavior. Education on the dangers of smoking behavior for adolescents aims to increase knowledge and change adolescent attitudes regarding smoking behavior and health in Bontokassi Village. What carried out this education in two different schools, namely SMPN 3 South Galesong and SMAN 13 Takalar shown in Figure 1. The figure shows that the education was held for 2 days, January 14-15, 2022. The implementation was at SMPN 3 South Galesong on January 14, 2022, while the implementation was at SMAN 13 Takalar on January 15, 2022.



Fig. 1. Counseling on the Dangers of Smoking at SMPN 3 South Galesong

Participants there were 26 male students from grade 8. The activity was opened by Sitti Nailah Rustam as moderator. After the opening, a pre-test was filled in to measure the knowledge and attitudes of participants before education. After that, the material was given by Mohammad Fuad. The material includes a description of active and passive smokers, the dangers of smoking to health, harmful substances contained in cigarettes, factors that influence smoking habits, and how to stop smoking. After giving the material using the lecture method, a short video related to the dangers of smoking is shown in Figure 2. The figure shows that during the educational process, the presenter asked several questions to the participants regarding the material given. This is intended so that participants do not merely listen to the presenters, but there is a two-way discussion between the presenters and participants. Every question answered correctly by students is given an appreciation. After the presentation of the material, a discussion session was opened to provide opportunities for students to ask questions. After the discussion session, participants filled out a post-test containing inquiries related to the counseling material given. At the end of the activity, a group photo was taken with the participants to capture the moment. This counseling activity on the dangers of smoking behavior for teenagers at SMPN 3 South Galesong has been published in Fajar Pendidikan media online.

The education mechanism for preventing smoking behavior for adolescents conducted at SMAN 13 Takalar is no different from that undertaken at SMPN 3 South Galesong. There were 17 participants

consisting of men and women. The activity began with an introduction by Siti Nailah Rustam as moderator and an explanation of the education that would be conducted. After that, participants were given material related to active smokers and passive smokers, the dangers of smoking to health, harmful substances contained in cigarettes, factors that influence smoking habits, and how to stop smoking which Mohammad Fuad explained.



Fig. 2. Counseling on the Dangers of Smoking at SMAN 13 Takalar

During the presentation of the material, participants were very enthusiastic in answering the questions posed by the presenters. After that, a short video was played regarding the dangers of smoking while explaining the contents of the video. After the presentation of the material and the video screening, participants enthusiastically asked questions to satisfy their curiosity. Unlike students in junior high school, students in high school have a higher interest. Middle school students tend to be shy to ask questions, unlike high school students who are more concerned with eliminating their interests than thinking about their ego. After the discussion session, participants were given a post-test to measure differences in knowledge and attitudes before and after education. This counseling activity on the dangers of smoking behavior for teenagers at SMAN 13 Takalar has been published in Fajar Pendidikan media online. Characteristics of students SMPN 3 South Galesong and SMAN 13 Takalar can be seen in the following Table 1.

Table 1. Characteristics of Participants.

Category	SMPN 3	SMAN 13
Gender		
Male	26	2
Female	0	15
Grade		
2	26	17
Total	26	17

Differences in knowledge and attitude scores before and after education on smoking prevention behavior for adolescents at SMPN 3 South Galesong and SMAN 13 Takalar can be seen in table 2 and table 3.

Table 2. Differences in Knowledge Scores Before and After Education on Smoking Prevention at SMPN 3 South Galesong.

Knowledge Score	n	Min	Max	Mean ± SD	p-Value
Before	26	4	9	6.29 ± 1.649	0.000
After	26	9	19	12.53 ± 2.672	

Table 2 shows that there is an increase in the average knowledge of students at SMPN 3 South Galesong Bontokassi Village before and after education from 6.29 to 12.53. Based on the results of the Wilcoxon test, obtained a p-value of 0.000 (<0.05). This shows that smoking prevention education increases the knowledge of adolescents at SMPN 3 South Galesong.

Table 3. Differences in Knowledge Scores Before and After Education on Smoking Prevention at SMAN 13 Takalar

Knowledge Score	n	Min	Max	Mean ± SD	p-Value
Before	17	10	15	12.18 ± 1.667	0.000
After	17	13	20	16.06 ± 1.819	

Table 3 shows that there was an increase in the average knowledge of students at SMAN 13 Takalar, Bontokassi Village before and after education from 12.18 to 16.06. Based on the results of the Wilcoxon test, obtained a p-value of 0.000 (<0.05). This shows that smoking prevention education increases the knowledge of adolescents at SMAN 13 Takalar.

Table 4. Differences in Attitude Scores Before and After Education on Smoking Prevention at SMPN 3 Galesong Selatan

Knowledge Score	n	Min	Max	Mean ± SD	p-Value
Before	26	4	6	5.00 ± 0.693	0.000
After	26	5	6	5.85 ± 0.368	

Table 4 showed that there was an increase in the attitude score of the participants before and after the education activities for preventing smoking behavior in junior high school adolescents from 5.00 to 5.85. Based on the results of the Wilcoxon test analysis, obtained p-value 0.000 (<0.05). This shows that smoking prevention education improves adolescent attitudes at SMPN 3 South Galesong.

Table 5 shows that there was an increase in the participant's attitude score before and after the smoking behavior prevention education activity for high school teenagers from 5.12 to 5.88. Based on the results of the Wilcoxon test analysis, obtained a p-value of 0.001 (<0.05). This shows that smoking prevention education improves adolescent attitudes at SMAN 13 Takalar.

Table 5. Differences in Attitude Scores Before and After Education on Smoking Prevention at SMAN 13 Takalar

Knowledge Score	n	Min	Max	Mean ± SD	p-Value
Before	17	4	6	5.12 ± 0.697	0.001
After	17	5	6	5.88 ± 0.332	

2. Discussion

Based on the Indonesian Ministry of Health, around 80% of the total smokers in Indonesia are under 19 years old. The age group of 15-19 years is the largest. They were followed in second place by 10-14 years of age group. Children and adolescents are very vulnerable to the adverse effects of cigarettes and even a few cases of cigarettes that cause death. The results of interviews with the Bontokassi Health Center and the community in the village revealed that Bontokassi Village is one of the villages in the South Galesong District which has a huge number of active smokers. Adults and teenagers becoming active smokers has become a natural thing. Even children aged 9 years have become active smokers.

Based on data from the Basic Health Research (Riskesmas), there was an increase in smoking prevalence in the population aged 10 years, from 28.8% in 2013 to 29.3% in 2018. This shows that smoking is a health problem for adults and is also increasingly prevalent among children and adolescents. The study results obtained in Bontokassi Village showed that of the 43 participants, about 10% of the participants were active smokers. In fact, most the active smokers are junior high school students.

Counseling is carried out, namely educating students' abilities by carrying out teaching techniques or practices to increase awareness of values into healthy behavior. The results of the education obtained are

seen from the average knowledge and attitudes that have been advanced to increase participants' awareness of the dangers of smoking and how to deal with them.

From the counseling activities carried out, the results obtained are by the objectives of the counseling activities, namely to increase knowledge and awareness among adolescents at SMPN 3 South Galesong and SMAN 13 Takalar in order to know the dangers of smoking and provide enlightenment to teenagers who are already smoking to stop consuming cigarette. The knowledge included as the pre-test and post-test includes substances contained in cigarettes, the dangers of smoking and diseases caused by smoking. The attitudes included include attitudes toward the behavior of people who smoke.

It is known that the average knowledge score of participants at SMPN 3 South Galesong before the counseling intervention related to smoking prevention and control for adolescents was 6.29, while the average knowledge score after the counseling intervention related to smoking prevention and control for adolescents was 12.53. The statistical analysis results obtained a probability value (p-value) of 0.000. This means that at the 95% confidence level ($\alpha = 0.05$) with a p-value < 0.05 , it can be concluded that there are differences in adolescent knowledge before and after the counseling intervention on the Prevention and Control of Smoking for Teens in SMPN 3 South Galesong.

Likewise, the average knowledge score of participants at SMAN 13 Takalar before the Counseling intervention related to the Prevention and Control of Smoking for Adolescents was 12.18. Then, the average knowledge score after the intervention increased to 16.06. This shows that there is an increase in the average knowledge score of participants before and after counseling related to smoking prevention and control for adolescents at SMAN 13 Takalar. Based on the results of the Wilcoxon test, it can be seen that the p-value < 0.05 . This shows that there is a change in knowledge before and after counseling related to the dangers of smoking for adolescents at SMAN 13 Takalar, Bontokassi Village.

Education conducted explained that there was a significant effect between before and after the implementation of counseling interventions about adolescent knowledge about the dangers of smoking. This study is also in line with the theory put forward research which states that there is a significant difference in knowledge about the dangers of smoking before and after giving health education, because with health education about the risks of smoking students previously did not understand the dangers of tobacco. Slowly, students' knowledge opens to the danger signs that arise after they smoke.

Based on the results of the education on the distribution of participants based on participant attitudes, it was found that the average attitude score of participants at SMPN 3 South Galesong before the counseling intervention related to the prevention and control of smoking for adolescents was 5.0, with a maximum number of 6 and a minimum number of 4. While the average results the average attitude score after the counseling intervention related to smoking prevention and control for adolescents is 5.85 with a maximum number of 6 and a minimum number of 5. This indicates a change in participants' attitudes before and after the intervention.

The results of education related to the attitudes of participants at SMAN 13 Takalar found that the average score of participants' attitudes before the counseling intervention related to smoking prevention and control for adolescents was 5.12, with a maximum number of 6 and a minimum number of 4. Meanwhile, the average results the average attitude score of participants after the intervention increased to 5.88, with a maximum number of 6 and a minimum number of 5. These results indicate that there is a change in participants' attitudes before and after the intervention.

A proven conclusion is that counseling can help in raising awareness among smokers about the implications of smoking and can further increase their motivation to quit smoking [40]. Another conclusion states that to focus on smoking habits is done by intensifying counseling and education activities to foster social support [41]. Future research needs to be explored in educational programs and interventions for adolescents involving parents and wider use of mass media [42]. Another education that is considered effective is the application of school-based smoking prevention [43]. However, a systematic review is needed that explores smoking prevention programs in schools because basically the evidence for the effectiveness of interventions provides mixed results [44].

Counseling related to the prevention and control of smoking for adolescents conducted by Bontokassi Village affects adolescent knowledge regarding the dangers of smoking for health. The existence of differences in the value of knowledge and attitudes obtained can mean that the attitude of adolescents

after receiving counseling has reached the level that adolescents are willing to accept the given stimulus. This is in line with the research that there is a relationship between the level of knowledge about the dangers of smoking for health and the act of smoking, and there is a relationship between attitudes about the risks of smoking to health and the act of smoking [45] [46].

4. Conclusion

School-based adolescent smoking behavior prevention education was carried out at SMPN 3 South Galesong and SMAN 13 Takalar. The pre-test and post-test results showed that in each school, there was an increase in the knowledge and attitudes of participants before and after the implementation of counseling activities to prevent smoking behavior for adolescents.

Acknowledgment

Acknowledgments are conveyed to the principal and teachers at SMPN 3 South Galesong and SMAN 13 Takalar, permitted to carry out the activity, and to students who have participated in this activity.

Author Contribution

Authors MF, MR, SNR, EES, WH, ITAS, and FA contributed to conception or design of the work. Authors MF, SNR, EES, WH, ITAS, and FA performed the work with supervised from MR. Authors MF, ATA, SNR, EES, WH, ITAS, and FA wrote the manuscript with support from MR, NN, and SS. Authors ATA, MR, NN, and SS critically revised the manuscript. Authors MR, NN, and SS gave final approval.

Funding

Special thanks to the internal funder for community service from the Universitas Hasanuddin.

Conflict of Interest

The authors declare no conflict of interest.

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