

## Multilevel Intervention Program Goes to School Camba' Rokok for School Based Smoking Prevention

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### ABSTRACT

**Background:** The earlier age people start smoking will have the potential to become long-term smokers. One way that can be done to overcome this problem is through program intervention such as promotive preventive program that is focused on addressing the problem of smoking is urgently needed. In the City of Palopo in 2017 smokers of elementary school children reached 15.27%, people who broke the rules by smoking in schools reached 44.27% and 36.64% of students had been exposed to outdoor cigarette advertisements. **Purpose:** This study aims to assess the program goes to school camba' rokok in multilevel interventions at the student and school level to increase self-efficacy and skills in school-based smoking prevention. **Methods:** The population in this study was state junior high school and senior high school in Palopo city. This research is a quasi-experimental study, with a Solomon four group design. The samples in this study were 131 students who were randomly determined at SMAN 2 Palopo, SMAN 4 Palopo, SMPN 5 Palopo and SMPN 8 Palopo using simple cluster random sampling tests. Data analysis using STATA for statistical analysis using statistical tests with Wilcoxon, Mann-Whitney and Kruskal-Wallis at the significance level  $p$  value  $<0.05$ . **Results:** Posttest scores in the four groups, there was a significant difference in the effect of program interventions going to school camba' rokok on self-efficacy with a  $p$  value of 0.0001, skills with a  $p$  value of 0.0012. **Conclusion:** There is an increase in students' self-efficacy and skills through a multilevel intervention program going to school camba' rokok in Palopo City.

**Keywords:** multilevel interventions, Camba' rokok, self efficacy, skills, school based prevention

### INTRODUCTION

Smoking behavior is a serious problem in society and risks causing various kinds of diseases in humans. The negative impact caused by smoking behavior kills approximately 6 million people every year. More than 600,000 of the victims are passive smokers who are around smokers and inhale cigarette smoke indirectly (WHO, 2011). In the last 10 years, the proportion of smokers in Indonesia has increased in number and decreased the age increase. According to FCTC data (2015), Indonesia ranks the highest with the most smokers in ASEAN (Indonesia 62.3 million people, Philippines 17.3 million people, and Vietnam 15.3 million people). Still from FCTC data (2015) (FCTC, 2015), Indonesia is the country with the most youth smokers aged 13-15 years (Indonesia 41%, Malaysia 30.9%, Thailand 20.1%), and Indonesia is

the country with the most children exposed to smoking, Indonesia 78.1%, Vietnam 71.2%, and Thailand 67.6%. GYTS 2014 data shows there are 20.3% of school-aged children have consumed cigarettes (GYTS, 2014).

The number of passive smokers in Indonesia is 96 million, consist of 54% women and 56% toddlers aged 0-4 years (FCTC, 2015). In fact, it was found that more than 30% of children in Indonesia had started smoking before the age of 10 years (GYTS, 2014). Likewise, the results of a survey conducted by KPA in 2012, showed that 99.6% of children had been exposed to cigarette advertising via television, 92% exposed to cigarette advertisements outside the building, and 76.2% exposed to cigarette advertisements in newspapers or magazines (FCTC, 2015).

Based on the results of research conducted by Cahyo, it is known that the

starting age for smoking is 7-15 years. This shows that in general they have been exposed to smoking since elementary school. Students who start smoking at a younger are more likely to become heavy smokers and smoke regularly than students who start smoking at an older. This thing can make the risk of suffering from disease (Cahyo, Wigati and Shaluhiyah, 2012). According to the Ministry of Health (Ministry of Health, 2013), in South Sulawesi Province there are 22.8% of smokers every day and occasional smokers were 4.2%. Smokers aged 10-14 years who smoked every day were 0.5% and occasional smokers were 0.9%, while smokers aged 15-19 years who smoked every day were 11.2% and occasional smokers were 7.1%. According to Health Riskesdas data, (2018) the number of smoking behavior among teenagers has increased by 1.9%. Based on research conducted by Amanah 2017, it shows that there are male elementary school students in Palopo City who smoke or reach 15.27, people who break the rules by smoking at school reach 44.27% and 36.64% of students have been exposed to outdoor cigarette advertising (Amanah and Prabandari).

According to Iva's research, it shows that knowledge and attitudes greatly influence the smoking behavior of junior high school students in Palopo City, so an intervention program is needed to overcome this problem (Mukrimah et al., 2017). Apart from that, in Palopo Town in 2017 elementary school children smokers reached 15.27%, people who broke the rules by smoking at school reached 44.27% and 36.64% of students had been exposed to outdoor cigarette advertising (Amanah and Prabandari, no date) Tobacco control programs use approaches that combine education, clinical, regulatory, economic and social strategies to achieve high levels of impact in society (NACCHO, 2015). Besides that, the results of Dobbins' research (Dobbins et al., 2008) show that school-based tobacco use prevention program interventions are effective in reducing smoking prevalence, reducing smoking initiation and smoking intentions, at least in the short term. The results of Crone's research (Crone et al., 2011) show that school prevention programs are effective in preventing smoking.

## METHODS

This research is a quasi-experimental research, with a Solomon in group design.

**Tabel 1.** Solomon four group design

Group	Pretest	Treatment	Posttest
Experiment Group A	O1	x	O2
Control Group B	O3	-	O4
Experiment Group C	-	x	O5
Experiment Group D	-	-	O6

(Campbell and Stanley, 1967; Creswell, 2016)

The sample in this research was 131 students at SMAN 2 Palopo as the control group, SMAN 4 Palopo as the experiment group, SMPN 5 Palopo as the control group and SMPN 8 Palopo as the experiment group at the Junior High School level. Data analysis used STATA for statistical analysis with Wilcoxon to test groups A and B, Mann-Whitney to test groups C and D and Kruskal-Wallis for posttest groups A, B, C, D.

### The Program of Goes to School Camba' Rokok

The program of Goes to School Camba' Rokok is a preventive promotional program to provide education and skills to students about the dangers and impacts of smoking on health as well as how to refuse to smoke when offered or invited to smoke. The word "camba" was adopted from the local term of Palopo children and teenagers in expressing hatred and friendly rejection. This program also provides recommendations for appropriate regulations for handling school-based smoking problems based on the results of assessments at each school.

#### a. Preventive methods for students:

In the implementation of Goes to School Camba' Rokok, it is divided into 5 sessions in 1 day and using several methods in conveying information including:

1. Session 1 (counseling with question and answer lectures), the facilitator delivers material about the dangers and impacts of smoking on health, giving students the opportunity to ask questions related to the material that has been presented.

2. Session 2 (video screening), the facilitator shows a video related to the impact of cigarette smoke on the human body.
  3. Session 3 (honest and dare quiz), the facilitator gives students the opportunity as volunteer and come forward, then the facilitator asks questions that must be answered honestly by the students concerned, such as: Have you ever smoked or not? and the reasons, how do they feel when someone smokes, and how to refuse the invitation to smoke, give an explanation of what should be done and then give directions or solutions. In this session too, students are voluntarily asked to do a role play on how to refuse offer/offer smoking according to what was taught in the previous session.
  4. Session 4, in the final session, students are invited to *camba'* (hate or reject) cigarettes and voice enthusiastically "*Kami Camba' Rokok*".
- b. Intervention methods for the school:
1. Carrying out an assessment of the regulatory conditions that have been implemented by the school
  2. Carry out assessments and observations of students and school residents
  3. Develop and formulate recommendations for effective school-based regulations
  4. Giving recommendation the results of the formulation to the school for implementation.
  5. Carrying out evaluations of the results that was implemented by the school

independently as a determining factor for other factors, including self-efficacy and skills. It focuses on people's ability to change and build environments that suit their own goals. Social cognitive theory emphasizes observational learning as an educational process. The intervention carried out by the school is through the Deputy Principal and Teacher by providing an analysis of the impact and urgency of early smoking prevention as well as providing recommendations for implementing the program of *Goes to School Camba' Rokok* independently in each of their schools in accordance with the distributed program modules. This is manifested by the school starting to prioritize the marketing of smoking prevention information in schools.

**Multilevel Intervention of the Goes to School Camba' Rokok Program to Increase Self-Efficacy for School-Based Smoking Prevention**

Comparison of the mean values of the self-efficacy variable and the complete statistical analysis results are presented in tables 2 and 3.

**Table 2.** Comparison of means and results of respondents' self-efficacy tests in pretest and posttest groups A and B

	Eksp. A (N = 31)		Kon. B (N = 24)	
	Mean	P	Mean	p
Pretest	24,29	0,000*	21,70	0,785
Posttest	31,93		22,62	

Description: \*) meaningful

Table 2 shows that the mean pretest score in control group B was 21.70 and in the posttest was 22.62. Based on the results of analysis using the Wilcoxon statistical test, the p value obtained was 0.785 which was greater than 0.05. This shows that there was no significant increase in self-efficacy, whereas in experiment group A, the posttest self-efficacy score after receiving the program increased with the difference in mean score between pretest and posttest, namely 37.64. The average posttest score was 31.93 and the pretest average was 24.29. Based on the results of the analysis using the Wilcoxon statistical test, the p value was 0.000 or smaller than 0.05. This shows that there is a statistically significant increase in student self-efficacy.

**RESULTS AND DISCUSSION**

According to Bandura (2005), social cognitive theory describes human behavior as an interaction between personal factors, behavioral factors and environmental factors which mutually influence each other and each operates

**Table 3.** Comparison of means and results of respondents' self-efficacy tests in group C and D posttests

	Group	N	Mean	p
Posttest	Exp. C	49	29,55	0,019*
	Kon. D	27	28,48	

Description: \*) meaningful

Table 3 shows that the research results in the group without a pretest, namely experiment group C and control group D, obtained a difference in the mean posttest self-efficacy score with a difference of 1.07. The mean self-efficacy score in experiment group C was 29.55, while in the control group D the mean self-efficacy score was 28.48. The results of the analysis using the Mann-Whitney statistical test showed that there was a statistically significant difference in self-efficacy between experiment group C and control group D with a p value of 0.019 which was smaller than 0.05. In the

research results, the two experiment groups showed that there were differences between the control and experiment groups, this shows that those who received the intervention had higher posttest scores than the group who did not receive the intervention and statistically this had a significant meaning.

In the research results, the posttest score increased in the experimental group with a pretest, while in the control group with a pretest, namely control group B, also experienced an increase in the posttest score. This shows that apart from the experimental group, giving a pretest to respondents can also influence the results of the posttest scores. Furthermore, the Kruskal-Wallis statistical test was carried out showing a comparison of the influence of the four research groups as in table 4.

**Table 4.** Comparison of differences in the influence of program provision on respondents' self-efficacy scores in the posttest of the four groups

	Exp. A (N = 31)		Kon. B (N = 24)		Exp. C (N = 49)		Kon. D (N = 27)		p
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Posttest	31,93	0,24	22,62	5,96	29,55	3,92	28,48	2,94	0.0001*

Description: \*) meaningful

Table 4 shows that experiment group A, which was given the program before the posttest, and experiment group C, which received the program before the posttest, obtained higher self-efficacy scores compared to the control group. The mean posttest score in experiment group A was 31.93, in control group B was 22.62, in experiment group C was 29.55 and in control group D was 28.48. Based on the results of the analysis of posttest self-efficacy scores using the Kruskal-Wallis statistical test, it was found that there were significant differences in the effect of providing the program on the four groups at all different levels with a p value of 0.001 less than 0.05. This research is in line with research conducted by Flay (2009), which states that school-based smoking prevention programs can reduce the incidence of smoking through self-efficacy. In line with research by Dobbins et al. (2008), which shows strong evidence that school-based tobacco use prevention program interventions are effective in reducing smoking prevalence, reducing smoking initiation and smoking

intentions, at least in the short term. Increasing self-efficacy is also an effort to prevent smoking in children (Lepore, Collins and Sosnowski, 2019), as well as the role of self-efficacy in changing behavior (Strecher et al., 1986). Other research also explains that if a person's self-efficacy is high they will refuse to smoke, while people who have low self-efficacy will be more interested in smoking (Haryati et al., 2016).

#### Multilevel Intervention of the Goes to School Camba' Rokok Program to Improve Skills for School-Based Smoking Prevention

Comparison of the mean values of the skill variables and the complete statistical analysis results are presented in Tables 5 and 6.

**Table 5.** Comparison of the means and skills test results of respondents in the pretest and posttest for groups A and B

	Eksp. A (N = 31)		Kon. B (N = 24)	
	Mean	P	Mean	p
Pretest	29,13	0,000*	29,75	0,383
Posttest	34,93		30,25	

Description: \*) meaningful



Table 5 shows that the mean score of pretest in control group B is 29.75 and the posttest score is 30.25. Based on the results of the analysis using the Wilcoxon statistical test, the p value obtained was 0.383 which was greater than 0.05. This means that there was no significant increase in skills, whereas in experimental group A the posttest skills score after being given the program increased with the difference in mean score between pretest and posttest, namely 5.8. The average posttest score is 34.93 and the pretest average is 29.13. Based on the results of the analysis using the Wilcoxon statistical test, it was found that the p value was 0.000, which was smaller than 0.05. This means that there is a statistically significant increase in students' skills in refusing cigarettes before receiving the program compared to students' skills in refusing cigarettes after receiving the program.

**Comparison of the mean and skills test results of respondents in posttest groups C and D**

The results of the skills test show that the research results in the group without a pretest, namely the experiment group C and the control group D, obtained a difference in the mean posttest skills score with a difference of 1.54. The mean skill score in the experiment group C was 34.28, while in the control group D the mean skill score was 32.74. The results of the analysis using the Mann-Whitney statistical test showed that there was no statistically significant difference in cigarette refusal skills between experiment group C and control group D with a p value of 0.060 greater than 0.05. The results of the research in the experimental group with a pretest showed a high posttest value for their refusal skills, whereas in the experimental group without a pretest, it showed a low posttest value for their cigarette refusal skills, this could also caused by their perception which affected their skills (Bektas et al., 2014).

**Table 6.** Comparison of differences in the influence of program provision on respondents' skill scores in the posttest of the four groups

	Eksp. A (N = 31)		Kon. B (N = 24)		Eksp. C (N = 49)		Kon. D (N = 27)		p
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Posttest	34,93	0,24	30,25	6,80	34,28	1,36	32,74	3,13	0.0012*

Description: \*) meaningful

An increase in posttest scores occurred in the experiment group, both with and without a pretest, while in the control group with a pretest, namely control group B, also experienced an increase in posttest scores. This shows that apart from the experiment group, giving a pretest to respondents can also influence the results of the research group's posttest scores. Furthermore, the Kruskal-Wallis statistical test was carried out showing a comparison of the influence of the four research groups as in table 6. This also applies to the program implemented which has an impact on skills (Brown et al. al., 2007).

Based on table 6, it is known that experiment group A which was given the program before the posttest and experimental group C who received the program before the posttest showed higher student refusal skill scores compared to the control group. The

average posttest score in experiment group A was 34.93, in control group B was 30.25, in experiment group C was 34.28 and control group D was 32.74. From the results of the analysis of posttest skills scores at all levels using the Kruskal-Wallis statistical test, it was found that there was a significant difference in the effect of providing the program on the four groups with a p value of 0.0012 less than 0.05, this is in line with the research of Brown et al. (2007) which states that learning can improve refusal skills not to smoke, as well as research conducted by Widiarti & Pratiwi (2013) which shows that training applied to students can increase the ability to refuse friends' invitations to smoke. Torre et al. (2005) which states that in general school-based smoking prevention program interventions are effective, as implemented in the program in this research, students who received the smoking program went to

school had higher self-efficacy and smoking refusal skills compared to students who did not receive the program (control). This was indicated by the result of interview with students and deputy principals who said that there were still teachers and male staff who still smoked in the office and school environment. This really influences students because they become examples for students at school. Apart from that, schools are still lacking in implementing written appeals in the form of information media about the prohibition of smoking and the dangers of smoking to health.

## CONCLUSION

Based on the result of this research conducted in Palopo Town, it can be concluded that there is an increase in student self-efficacy and skills through the multilevel intervention of Goes to School Camba' Rokok program for school-based smoking prevention in Palopo Town. The Goes to School Camba' Rokok program can be applied to the school setting. However, it still needs to be improved in the aspect of school regulation.

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