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Effect of School Community Empowerment Model towards Handwashing Implementation among Elementary School Students in Dayeuhkolot Subdistrict

Pengaruh Model Pemberdayaan Komunitas Sekolah terhadap Penerapan Mencuci Tangan di Kalangan Siswa Sekolah Dasar di Kecamatan Dayeuhkolot

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Abstract

Handwashing behavior in Indonesia remains a problem. The cause is associated with a lack of awareness in handwashing with soap. This study aimed to determine the effect of the school community empowerment model on handwashing implementation among elementary school students in Dayeuhkolot Subdistrict, Bandung District. This study used quasi experimental design with pre-test and post-test, and descriptive and inferential analyses. Samples consisted of 24 teachers, 377 students at 4th – 6th grade and 24 school-children from the little doctors program. The approach method in this study used integrated school health efforts (combined model of fit for school and selected school health effort) consisting of six stages. Instruments were knowledge questionnaires, observations and checklist sheets. Handwashing with soap was evaluated for three months. Results found that the score of little doctors in the good category increased in skill of handwashing with soap from 0% to 100%, the skill among the students who were not little doctors improved in good category from 0% to 87.5%. School community empowerment affects handwashing behavior among elementary school students.

Keywords: Elementary school students, empowerment method, handwashing with soap

Abstrak

Perilaku mencuci tangan dengan sabun di Indonesia masih menjadi masalah. Penyebabnya dikaitkan dengan kurangnya kesadaran dalam mencuci tangan pakai sabun. Penelitian ini bertujuan untuk mengetahui pengaruh pemberdayaan komunitas sekolah terhadap penerapan mencuci tangan di kalangan siswa sekolah dasar di Kecamatan Dayeuhkolot, Kabupaten Bandung. Penelitian ini menggunakan desain quasi eksperimental dengan *pretest* dan *posttest* serta melakukan analisis deskriptif dan inferensial. Sampel terdiri dari 24 guru, 377 siswa di kelas 4-6, dan 24 dokter kecil. Metode pendekatan dalam penelitian ini menggunakan usaha kesehatan sekolah terpadu (gabungan model *fit for school* dan UKS terpilih), yang terdiri dari enam tahap. Instrumen terdiri dari kuesioner pengetahuan, lembar observasi, dan lembar *checklist*. Cuci tangan pakai sabun dievaluasi selama tiga bulan. Hasil menemukan bahwa terdapat peningkatan skor dalam kategori baik untuk keterampilan cuci tangan pakai sabun dokter kecil dari 0% sampai 100% dan keterampilan mencuci tangan pakai sabun pada siswa meningkat dalam kategori baik dari 0% menjadi 87,5%. Pemberdayaan komunitas sekolah memengaruhi perilaku mencuci tangan di kalangan siswa SD.

Kata kunci: Siswa sekolah dasar, metode pemberdayaan, mencuci tangan pakai sabun

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Introduction

One of the factor contributing to the low achievement of health indicators is inadequate health promotion and community development in the field of health. This is evidence by public behaviors do not support healthy hygienic community, such as handwashing with soap. Basic Health Research has shown that the biggest cause of death of infants and children in Indonesia was diarrheal diseases (9%).[1] The incidence of diarrhea in Indonesia increases every year. In 2005, as many as 5,051 people suffered from diarrhea, then increased to 10,980 people in 2006.[2] National prevalence of proper handwashing be- havior was 23.2%. Proper handwashing with soap could reduce the risk of diarrheal diseases by 42% to 47%.[3] West Java is one of the provinces with a diarrhea prevalence that is higher than the national prevalence, as well as a prevalence of handwashing that is lower than the national prevalence.

A risk factor that contributes to handwashing behavior is poor knowledge and practice. A study found that knowledge and practice among elementary school students was poor.[4] This study showed that government needed to conduct sustainable promotion of hygienic and healthy behaviors at elementary schools. Health problems among the students can be caused by multifactors that affect on a health level.

The health level is not only determined by health services, but also by behavioral factors which are the dominant factor. Diarrhea is often suffered by those affected by flood as the efforts in flood prevention are more concerned with providing physical building flood control, but less concerned with health problems that can be caused by flood, such as diarrhea. The environmental risk for diarrheal disease is compounded by the low handwashing rates among children, meaning they are at a higher risk.

Household behavior is strongly influenced by social order, such as school order. Handwashing with soap habits need to be formed at schools. Handwashing with soap at elementary school level is important since the students are the future generation and the largest age group in compulsory education. People at that age are very adaptable to new healthy living habits, the life expectancy is still long, and they are in a period of growth and development. However, this age group is prone to various diseases, such as diarrhea and worm infection. The state of health of school children will affect academic achievement. If a child is ill, it will disrupt his or her academic achievement. Schools are public institutions that are well-organized. Their human resources can affect positive change to children's health-related behaviors. Health education with school children is a very effective method to change behavior and lifestyle in general. Educational institutions are considered strategic place to promote school health, and also an effective place where students can be taught about the impactsof healthy and unhealthy behaviors. Targeting school-children is additionally advantageous because the children may positively influence their families.

Dayeuhkolot Subdistrict is one of the areas in Bandung District which is most often affected by floods. The interview with the Head of Dayeuhkolot Subdistrict determined that Dayeuhkolot area is affected by the floods every year causing almost all schools in the area to be flooded. Children often swim in the floodwater. Based on interviews with the education officer of Dayeuhkolot, many diseases arose after the flood, such as diarrhea which became one of the top 10 diseases in the clinic. Principals and teachers in charge of the school health effort at some elementary schools in Dayeuhkolot said that many students were absent (20-30%) during the flood due to illness (one of the reasons for absenteeism was diarrhea). Of the 40 children interviewed, 100% of the children did not know about handwashing with soap. Also observations determined that many children were swimming around schools and homes during the floods.

A possible method to increase awareness and behavior of people in handling the impact of floods is to involve the school community in the areas of health and education. In the field of children's education, there needs to be optimization of knowledge and skills to inculcate the habits of handwashing with soap at an early age. The health sector needs continuous efforts to educate the public on the im- portance of handwashing with soap by way of strengthening the understanding of handwashing with soap at primary school age with comprehensive education.

Implementation of handwashing with soap at elementary schools can be done through a school health effort. School health effort is one way to improve the health of students as early as possible. To improve the behavior patterns of children in implementing handwashing with soap in their daily life at school, an empowerment program is needed, in this case to involve the participation of the little doctors. Several studies showed that peer education was effective in improving a person's behavior. A Study on handwashing patterns was conducted among school children in the State Elementary School of Dayeuhkolot VII and X Dayeuhkolot in 2014, but it did not involve the participation of little doctors and local authorities.[5] The continuity of handwashing behaviors was less than was desired. By involving the little doctors and support of the local government, it would be expected that the pattern of handwashing with soap in school children would decline less over time.

A previous study showed that the educational information communication model could improve knowledge, attitude and practices.[6] However, it needed support from

the government and local health agencies through guidance and supervision.[4,6] Therefore, a comprehensive approach involving participation of the school community was needed to improve handwashing behavior among students.

An Integrated school health effort program was expected to reduce the incidence of diarrheal diseases and improve the nutritional status of children. An integrated school health effort is a model which is a combination of the model fit for school with selected school health efforts which in this case is the handwashing with soap. School health efforts fit for school models were tested on elementary school students in the Philippines, showing that the model was successful in reducing the incidence of diseases from intestinal worms, diarrhea and improvement of the nutritional status of school children.[7] Empowerment through little doctors using a model of Integrated school health effort is expected to increase healthy behavior of the school community, which ultimately will reduce the incidence of diarrheal infections. Thus, this study aims to determine the effect of school community empowerment towards handwashing implementation among elementary school students in Dayeuhkolot Subdistrict.

Method

The study design was quasi-experimental with pretest and post-test to examine the effect of methods of empowering little doctor school communities toward handwashing with soap implementation among elementary school students. The study was conducted at State Elementary Schools of BojongAsih, Pasawahan, Cangkuang, and Leuwi Bandung in Dayehkolot Subdistrict, Bandung District. The study was conducted from April to November 2015. Populations in this study were 24 teachers, 24 little doctors, and 377 elementary school students in the 4th – 6th grade, because they had been given the material about personal hygiene at the fourth grade and higher. The sample was recruited using a purposive sampling technique that involved all populations of the subject consisting of all students from the fourth to the sixth grade. Before the intervention, all samples were informed and agreed to join the study. The instrument used in this study consisted of a questionnaire to measure knowledge of handwashing with soap, observation sheets to measure handwashing with soap skills, and checklist sheet to assess patterns of handwashing with soap.

Methods of empowering the school community were all facilitation efforts to improve the knowledge and ability of the public schools, so that they were able to identify, plan and perform problem resolutions by utilizing local potential, including facilities and sources of financing. This method consisted of six stages. In stage 1 a workshop was conducted with the policy holders both of the district, village, health agency, education agency, and the principal. At this stage, socialization with policy maker officials (Head of Dayeuhkolot Village, Head of Pasawahan Village, Head of Cangkuang Village, Head of Leuwi Bandung Village, Headmaster of Bojong Asih State Elementary School, Headmaster of Pasawahan State Elementary School, Headmaster of Cangkuang State Elementary School, Headmaster of Leuwi Bandung State Elementary School) was conducted as handwashing with soap programs at schools could be a necessity. In stage 2, tools and posters were designed for schools to improve handwashing patterns. Stage 3 was handwashing with soap education and demonstration for teachers. At this stage, counseling and demonstration of handwashing with soap were performed for all teachers. Delivery was frequently with lectures and many questions were asked. Videos and live demonstrations were also used. Stage 4 was election and training of little doctors using teaching, videos, and live demonstration methods. At this stage, little doctors taught and trained handwashing with soap. Stage 5 was handwashing with soap education and demonstration delivered by little doctors to all students in the fourth to the sixth grade using a question and answer session, videos, and live demonstrations and was accompanied by a researcher and teacher. Stage 6 was evaluation. In this stage, all activities were evaluated.

Data collection methods included providing all teachers, students and little doctors with questionnaires about their knowledge of handwashing with soap before and after the intervention counseling on handwashing with soap. To determine handwashing with soap skill, all little doctors and students were required to practice the way they performed handwashing and were assessed using an observation sheet. Pattern of handwashing with soap was evaluated using a checklist sheet for three months.

This study gained permission from Bandung District Government, Bandung District Health Office, Bandung District Education Office and four elementary schools. Data analysis consisted of descriptive analysis for univariate data and inferential analysis for bivariate data. In the descriptive analysis of univariate data, frequency and percentage were used, while bivariate data was analyzed using a t-test. This study also conducted multivariate analysis to investigate the mean difference among the students for three months. However, data in the study did not satisfy the assumption, thus the analysis was changed from RM-ANOVA to Friedman's test.

Results

It was found that there was increased healthy handwashing with soap behaviors after intervention, as com-

pared to before intervention, for both little doctors and students (Table 1).

Based on Table 1, 24 little doctor respondents (100%) had a bad skill of handwashing with soap before intervention. After the intervention, there was an increasing skill of handwashing with soap in which all 24 respondents (100%) had a good skill of handwashing with soap. Student responses, showed that, before the intervention, all of the students (377 students) had a bad skill of handwashing with soap. After intervention, little doctors and teachers increased in skill. 330 people (87.5%) respondents had a good knowledge of handwashing with soap. The table below showed the effect of empowering the little doctors regarding handwashing with soap.

Table 2 showed that there were differences in mean skill of handwashing with soap before and after the intervention on the little doctors, also there were differences in mean skill of handwashing with soap before and after the intervention by teachers and little doctors to students (p value = 0.001). The effect of empowering the little doctors on handwashing with soap pattern after three interventions can be seen in the Table 2.

According to Table 3, all 377 students (100%) did not perform handwashing with soap at school before the intervention. After the intervention, there was an increasing trend of handwashing with soap in month 1, in which most students, 356 students (94.4%), had a good handwashing with soap pattern. All students (100%) handwashing with soap pattern was good when evaluated in months 2 and 3.

Table 4 showed that there was a significant difference of handwashing pattern among students between each of intervention month 0 month 1, month 2 and month 3. However, further analysis is required to determine the difference between groups.

To determine the difference between two tests, post hoc analysis was conducted as shown in Table 5. According to Table 5, there was a significant difference between pretest and posttest month 1, pretest and posttest month 2, pretest and posttest month 3, posttest month 1 and posttest month 2, posttest month 1 and posttestmonth 3, but there was no difference between posttest month 2 and posttest month 3.

Discussion

Based on results, the skill of health cadres increased after the educational intervention. They said understanding of handwashing with soap after intervention given, so that it could perform the skill of handwashing with soap properly. Education could increase understanding and skill of handwashing with soap. The intervention increased the skill among little doctors and students. Students poorly in handwashing skill. However, in general, the skill of little doctors and students had a significant value before and after intervention. This was in line with a study conducted by Solehati,[5] which found that education raised the skills of elementary school students. The handwashing with soap skills that they learned could then be taught to the students. This would strengthen the atmosphere and make the learning process more fun. In this case knowledge transfer would be aided by the rapport that little doctors would have with the students. Teachers and little doctors may create peer pressure that would make students want to implement handwashing with soap every day. In addition to peer pressure causing students to be more motivated to implement the hand-

Table 1. Handwashing with Soap Skill Distribution of Respondents

Respondent	Category	Before Intervention		After Intervention	
		n	%	n	%
Little doctor	Bad	24	100	0	0
	Good	0	0	24	100
Total		**24**	**100**	**24**	**100**
Student	Bad	377	100	47	12.5
	Good	0	0	330	87.5
Total		**377**	**100**	**377**	**100**

Table 2. The Mean Difference of Handwashing with Soap Skill Before and After Intervention

Respondent	Category	Mean	SD	p Value
Little doctor	Before intervention	38.75	10.75	0.001
	After intervention	96.67	4.81	
Student	Before intervention	39.28	11.40	0.001
	After intervention	86.34	6.94	

Notes: SD = Standard Deviation

Table 3. Frequency Distribution of Handwashing with Soap Patterns of Students

Handwashing with Soap Pattern	Before Intervention				After Intervention											
					Month 1				Month 2				Month 3			
	Undone		Done		Undone		Done		Undone		Done		Undone		Done	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
	377	100	0	0	21	5.6	356	94.4	0	0	377	100	0	0	377	100

washing with soap, posters on the wall of classes may encourage handwashing also. A study by Amalia suggested that images had a key role in the increased retention and understanding that can be gained from poster type materials.[8] Thus handwashing with soap pattern after the intervention showed significantly better results.

The results of this study esults showed that training was significantly different between pre-test and post-test both for handwashing with soap skill and pattern (p value < 0.05). The study determined that training, counseling or other forms of knowledge renewal are necessary for school cadres to maintain their effectiveness in handwashing with soap. Their understanding and skills with handwashing with soap could be implemented into everyday life, and it could influence others to implement handwashing with soap. Thus a healthy lifestyle can be created by handwashing with soap. This is in line with a study conducted in Argentina, which revealed that education about handwashing and handwashing policies could significantly improve handwashing.[9] Health promotion carried out by little doctors as part of the school community could change the pattern of handwashing students because they are directly involved every day and can remind and encourage students to implement handwashing with soap over a long period. Promotional programs of health could change behavior and could be more effective if performed repeatedly over a longer duration.[10] Promotion of handwashing with soap is important as a study showed that millions of lives could be saved due to a decreased prevalence of diarrhea.[10]

Coordination from various parties, such as health centers, education offices, village offices, district governments, health offices, and district heads are indispensable. Therefore, any written rules are necessary to be made by the local district head to apply handwashing with soap as a program at schools. A study found that promotional programs of handwashing with soap reduced students' absenteeism due to diarrhea.[11] Similarly, programs could improve the health of children worldwide.

In addition, there should be a directive from the government that encourages health cadres at schools to perform properly and continuously. School cadres as the spearheads of basic services atschools become important when the implementation of handwashing with soap can run well. Therefore, it considers the support of knowledge, skills and operations from the clinic as well as supporting policies and operations of the local government. Support from various parties in the implementation of handwashing with soap is very important because factors that influence handwashing behavior include support in the form of facility availability, social norms, encouragement and admonishment, as well as education and information.[12] It is expected to establish a cooperation between parties, so that illnesses such as infectious diarrhea can be reduced by handwashing with soap which is being used as a health pattern in everyday life.

Handwashing behavior in the future can decrease the risk factors of morbidity and mortality among students. The handwashing with soap pattern in everyday life is important because it has been proven to reduce the occurrence of diarrhea. The risk of diarrheal diseases could be reduced by 42% to 47% with proper handwashing with soap.[10] This is in line with a study conducted on children in Bangladesh which showed that handwashing can reduce the risk of diarrhea among children.[13-15]

Conclusion

This study finds that the empowerment of the school cadre community as health workers (little doctors) can improve the handwashing behavior of students. Beside the continuous evaluation of the local health center to make patterns of handwashing with soap at schools.

Recommendation

School community empowerment programs are necessary to improve student handwashing with soap patterns. In addition, specific funds need to be allocated for the provision of facilities and handwashing with soap activities at schools (the needs of agreement between the policy holders from the Health Agency and Education Agency of Bandung District. There is a need for media that encourages handwashing with soap, to be performing daily. Succesful programs can be used as a powerful model for other school.

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Table 4. The Mean Difference of Handwashing with Soap Patterns on Students

Respondent	Category	Mean	SD	p Value
Student	Before intervention	0.00	0.00	0.001
	After intervention (month 1)	0.94	0.23	
	After intervention (month2)	1.00	0.00	
	After intervention (month 3)	1.00	0.00	

Table 5. Post Hoc Analysis of Handwashing Patterns on Students

Variable	Pre-Post 1	Pre-Post 2	Pre-Post 3	Post 1 - Post 2	Post 1 - Post 3	Post 2- Post 3
Z	-18.868(a)	-19.416(a)	-19.416(a)	-4.583(a)	-4.583(a)	,000(a)
P value	0.0001	0.0001	0.0001	0.0001	0.0001	1.000

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