

ORIGINAL ARTICLE

Proper hand washing practices among elementary school students in Selat sub-district, Indonesia

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Received: 10 May 2011 revised: 18 August 2011 accepted: 13 September 2011

Online available: August 2012

Abstract

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J Pub. Health Dev. 2012; 10(2): 3-20

Even though proper hand washing is the most effective and easiest way to prevent many diseases, unfortunately many people do not practice hand washing correctly. The worldwide Global Hand Washing Day campaign which targets school children as the most effective agents for behavior change is both evidence of this problem and an attempt to address it. This study considers the implications of this practical policy for local government, health professionals and other stakeholders concerned with improving school-based hygiene intervention programs.

This paper describes a cross-sectional descriptive study about hand washing practice, the prevalence of proper hand washing, and related factors among sixth grade of elementary students in Selat sub-district, Indonesia. A self administered questionnaire was administered to 274 students at seven schools randomly selected by proportion to size from five villages. Data were analyzed using descriptive statistics, Chi square tests, and multiple logistic regression to explore associations between the various study factors (i.e. socio-demographic characteristics, attitudes, subjective norms, perceived control, and availability of facilities).

Nine combinations of hand washing emerged from this study which combined washing hands by using water and soap with two critical events: before eating and after visiting the toilet. Only 40.5% of the respondents washed their hands properly. Availability of clean water (Adj OR = 4.24, 95% CI = 1.92-9.35) and soap (Adj OR = 5.55, 95% CI = 2.36-13.08) at hand washing stands were found to be significant predictors of proper hand washing, when adjusted with other factors.

This study demonstrates that the prevalence of proper hand washing was very low among the school students. Hand washing promotion should be more effective in schools and better facilities need to be more widely available to improve the prevalence of proper hand washing by students.

Keywords: proper hand washing, elementary school students

Introduction

One of the Millennium Development Goals is to reduce mortality rates by 66% in children under five by 2015. Children around the world, especially in developing countries, face serious problems due to diseases and death. According to a World Health Organization report in 2009, the leading causes of death of children under five years worldwide were acute respiratory infections and diarrhea¹. In Indonesia, in 2008, pneumonia and diarrhea respectively accounted for 3.8% and 3.5% of all deaths².

Diarrhea and upper respiratory infections are also commonly transmitted in the school environment. In 2005, 84% of all children of elementary school age were enrolled in primary school³, and the potential is high for subsequent transmission of diseases from students to the wider community. Students may also have to be absent because of illness, and miss learning opportunities, or even drop out of school.

Many studies have found that hand washing with soap is the most effective, easiest and most inexpensive way to prevent many diseases, including diarrhea and upper respiratory infections⁴⁻⁵. Unfortunately, most people do not wash their hands properly and correctly in their daily lives. The prevalence of hand washing with soap in developing countries is still low, ranging from 0 to 20%⁶. National Basic Health Research in Indonesia

in 2007 reported that only 23.2% of the total population had correct hand washing habits, i.e., done with soap before having meals and after defecating⁷. Research by Lopez et al. in Colombia showed that only 33.6% of primary students “always” or “very often” washed their hands with soap and clean water before eating and after using a toilet⁸. Vivas et al. suggested that hand washing with soap was rare, but can be automated, habitual and established during childhood⁹.

The Global Hand Washing Day is a campaign held annually on October 15th, to transform the theory of hand washing with soap into an automatic behavior in homes, schools and communities worldwide¹⁰. In Indonesia, this annual campaign was first held in 2008¹¹. It targets school children because they are the most effective agents for behavior change. School children are usually enthusiastic and open to new ideas. Late childhood and early adolescence (aged 6-15) are critical periods for building skills and positive habits¹². Encouraging millions of school children to develop proper hand washing behavior will lead them to continue behavior into adulthood, and will contribute to two of the Millennium Development Goals : education and health¹³.

Selat sub-district is the most densely populated in Kapuas district, Indonesia, and contains 26.6% of district's total population. In 2009, it had the highest incidence

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of diarrhea in Kapuas, about 40 per 1000. The proportion of diarrhea cases in children under five was also the highest; 40.1% of all diarrhea cases were among children under five in Kapuas. It also has the largest number of public elementary schools (19.5% of all public elementary schools), and the most elementary school students in Kapuas (25% of all elementary school students)¹⁴. Thus, the potential for transmission of diseases between students and also to the community is high.

It may therefore be important to study the hand washing practices and related factors among elementary students in the Selat sub-district. Hitherto, there has been no such study in this sub-district. This will, therefore, be the first study and may be used as baseline data for further policy action and initiatives by local government,

health professionals, and other stakeholders, for school-based hygiene intervention programs in areas with similar characteristics. It may also generate information useful to the Global Hand Washing Day campaign in Kapuas district for reducing morbidity caused by diarrhea and pneumonia through washing hands with soap.

Methods

In this study, hand washing practice was divided into three categories: proper, less proper and not proper hand washing practice. A conceptual framework was derived from the theory of Planned Behaviour and Integrated Behaviour Model¹⁵⁻¹⁶. Table 1 shows both independent and dependent variables, and operational definitions of the variables studied.

Table 1 The summary of independent and dependent variables

Independent Variables	Definitions
Socio-demographic	
Gender	is gender of the students who are male (boy) or female (girl)
Religion	is student's religion such as Islam, Christian/Protestant, Catholic, or other
Ethnicity	is student's ethnic group such as Banjarnese, Dayaknese, Javanese, or other
Parental occupation	is occupation of father, such as government worker (civil servant, police, etc), non-government worker (merchant, farmer, etc) and unemployed
Role at home in helping parents	is role of students helping parents at home such as preparing food, taking care of younger siblings, none or other.
Attitude	is students' belief that performing proper hand washing is good or bad due to positive or negative outcomes, classified into positive, neutral and negative attitude.
Subjective norms	is students' beliefs about the expectations of others (parents, teachers, friends) in performing proper hand washing, and their motivation to live up to others' expectations, classified into positive, neutral and negative subjective norms.
Perceived control	is students' perceptions about how easy or difficult it is to perform proper hand washing, classified into high and low perceived control.
Availability of proper hand washing facilities	is the availability of facilities related to proper hand washing at school, such as clean water, soap and hand washing stand. Availability of those facilities was classified into available and not available.
Dependent variables: hand washing practice	Definitions
Proper hand washing	is hand washing using clean water and soap, which is done at both critical points : before eating and after using the toilet.
Less proper hand washing	is hand washing using water only and water and soap before eating or after visiting the toilet; or using water only in both situations
Not proper hand washing	is not washing hands before eating or after visiting the toilet. If students do not wash hands at all at either critical time, it is also not proper washing hands.

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The field data was collected in Selat sub-district, Indonesia, between January 19th and February 1st, 2011. Five out of 16 villages were selected. There were 23 public elementary schools in these five villages, with 645 sixth-grade students. Since the data collected was categorical data, and the total population was known, based on a 95% confidence interval or 5% acceptable error, the estimated sample size was 234 students, including an extra 10% to compensate for information loss from incomplete data. From those 23 schools, seven schools were selected randomly based on proportion, since each village had a different number of schools. This study selected grade 6 students because reading and comprehension capability at this level enables them to complete the questionnaire. All sixth-grade students from the selected schools were involved in this study, therefore the total number of respondents for data collection was 274 students. All students participated after the main researcher explained the Research Project Summary Statement and Informed Consent approved by the Mahidol University Ethics Committee (COA. No 2010/130.2712). Permission was obtained from the Kapuas District Educational Office, the district health office, and the principals of the relevant schools.

The questionnaire consisted of 39 questions and was divided into six parts

- (1) socio-demographic characteristics;
- (2) hand washing practice at school; (3) attitude towards proper hand washing; (4) subjective norms regarding proper hand washing; (5) perceived control of proper hand washing; (6) availability of proper hand washing facilities at school.

The socio-demographic part covered gender, religion, ethnicity, parental occupation and role at home in helping parents. The role at home focused on helping parents to prepare food, since it was related to hand washing.

Data for hand washing practice were obtained from two main questions about hand washing at school at the two critical times; before eating and after visiting a toilet; and three possible practices: using water and soap, water only, or not washing hands. The possible combinations of hand washing practice were scored to differentiate the best from the worst practices. The total score was calculated by using the formula: Total score = (score for hand washing before eating) + (score for hand washing after visiting the toilet). Washing hands using water and soap scored 3, water only 2, not washing hands 1. After scoring, the hand washing practices were then grouped into three groups : proper, less proper, and not proper for Chi square analysis. For further analysis using multiple logistic regression, those final three groups became two big groups only : proper and

not proper hand washing practice (the less proper and not proper group were merged).

The attitude part consisted of five questions, each was scored on a 3-point scale (1=disagree, 2=neutral, 3=agree), and cumulative attitude was considered positive ($> 75^{\text{th}}$ percentile), neutral ($25^{\text{th}} \leq \text{total score} \leq 75^{\text{th}}$ percentile), or negative ($< 25^{\text{th}}$ percentile). Subjective norm consisted of 8 questions; questions were scored on a 3-point scale, and the total score was positive ($\geq 75^{\text{th}}$ percentile), neutral ($25^{\text{th}} < \text{total score} < 75^{\text{th}}$ percentile), or negative ($\leq 25^{\text{th}}$ percentile). The perceived control section consisted of six questions, and the cumulative score was classified into high ($>$ median) and low (\leq median) levels. Availability of proper hand washing facilities was categorized as available or not available. There were some additional questions about source of knowledge, activities at school as related to hand washing, and reasons for not washing hands.

A pre-test was conducted twice using 33 and 32 students, respectively at school not included in the main study. This school had similar characteristics to school in the study. The final reliability test result was 0.47 (attitude), 0.71 (subjective norms), and 0.62 (perceived control). The data collected was processed and analyzed using Epidata version 3.2 and Minitab version 14. Due to inconsistent answers, 16 filled questionnaires were excluded, which left 258 for analysis.

Results

Less than half of the respondents (46.5%) were girls; 56.6% were 11 years old (average 11.5 years); 85.2% were Muslim; 58.4% were Dayaknese; 24.0% had a role at home only in helping parents prepare food, and 65.0% had parents who were non-government workers (see Table 3). Around two-third of the respondents (67.9%) had neutral attitudes toward hand washing and also rated neutral for subjective norm (41.1%) and low perceived control (50.4%). Two-thirds (65.9%) of them answered that clean water was available at hand washing stands; 68.5% stated that soap was available at the stands, and 73.7% declared that hand washing stands were available at schools.

There were nine possible combinations of hand washing practice at the two critical times, before eating and after visiting the toilet. Table 2 shows that 40.5% of the respondents washed hands properly in both situations, and this was the largest group. The second largest group (23.7%) comprised respondents who washed hands using water only in both situations. The third largest group (15.2%) comprised respondents who did not wash hands before eating, but washed hands using water only after visiting a toilet. The worst style of hand washing (not washing hands in either critical situation) was practiced by 7.0% of the respondents.

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Parents were the most frequent human source of information about hand washing (91.86%), followed by health workers (50.0%), teachers (34.9%) and friends (2.3%). The reasons for not washing hands were

forgetfulness (81.8%), followed by laziness (13.2%), lack of time (4.3%), lack of interest (0.8%), lack of clean water 7.8%, and lack of soap 8.9%.

Table 2 Hand washing practices at schools

Group No	Before eating		After visiting toilet	Categories	n	%
1	Water and soap	+	Water and soap	Proper	104	40.5
2	Water and soap	+	Water only	Less Proper	11	4.3
3	Water only	+	Water and soap	Less Proper	9	3.5
4	Not wash hands	+	Water and soap	Not Proper	7	2.7
5	Water only	+	Water only	Less Proper	61	23.7
6	Water and soap	+	Not wash hands	Not Proper	5	1.9
7	Water only	+	Not wash hands	Not Proper	3	1.2
8	Not wash hands	+	Water only	Not Proper	39	15.2
9	Not wash hands	+	Not wash hands	Not Proper	18	7.0
					Total	257
						100.0

None of the socio-demographic characteristics were significantly associated with hand washing practices (Table 3). However, girls were more likely to wash hands properly than boys (Crude OR = 1.37). Proper hand washing was more frequent among Muslim students (41.7%) than non-Muslim students (35.1%). Regarding ethnicity, 43.0% of non-Dayaknese students washed their hands properly as compared to 38.9% of Dayaknese students. Students with parents who were government workers (42.7%) washed hands properly more than students with parents who were non-government workers (39.5%). Students with roles only in preparing food at home (24.0%) washed hands properly less often than those who did not have this role (76.0%).

Attitude, perceived control, availability of clean water and soap at hand washing stands, and having hand washing stands at schools were significantly associated with hand washing. Students with positive attitudes were nearly six times more likely to wash hands properly than students with negative attitudes. Students with high perceived control were about three times more likely to wash hands properly than those with low perceived control. When clean water and soap were available at hand washing stands, students were about eight times more likely to wash hands properly. Respondents also washed hands properly (55.0%) more when hand washing stands were available.

Table 3 Association between independent variables and hand washing practice

Variables	n (%)	Hand washing practice ^a			Crude OR	95% CI	p-value
		Not Proper (%)	Less Proper (%)	Proper (%)			
Gender							
Boy	138	29.7	33.3	37.0	1.00	0.83-2.26	0.467
Girl	119	26.1	29.4	44.5	1.37		
Religion							
Islam	218	26.6	31.7	41.7	1.32	0.64-2.74	0.548
Other than Islam	37	35.1	29.8	35.1	1.00		
Ethnicity							
Dayaknese	149	30.2	30.9	38.9	0.85	0.51-1.40	0.576
Non Dayaknese	107	24.3	32.7	43.0	1.00		
Parental occupation							
Gov. worker	89	34.8	22.5	42.7	1.15	0.68-1.94	0.058
Non gov. worker	167	24.6	35.9	39.5	1.00		
Role at home : prepare food only							
Yes	62	25.8	41.9	32.3	0.63	0.34-1.15	0.116
No	195	28.7	28.2	43.1	1.00		
Attitude							
Positive	54	16.7	20.4	62.9	5.95	2.06-17.21	0.001*
Neutral	170	32.4	32.4	35.2	1.91	0.73-4.99	
Negative	27	25.9	51.9	22.2	1.00		
Subjective norms							
Positive	66	22.7	34.9	42.4	1.42	0.73-2.76	0.293
Neutral	106	24.5	31.1	44.4	1.54	0.85-2.77	
Negative	85	36.5	29.4	34.1	1.00		
Perceived control							
High	127	17.3	28.4	54.3	3.23	1.92-5.44	<0.001*
Low	130	38.5	34.6	26.9	1.00		
Availability of clean water at HW stand							
Yes	169	21.9	23.7		7.57	3.83-14.94	<0.001*
No	88	39.8	46.6	13.6	1.00		
Availability of soap at HW stand							
Yes	175	22.3	24.0	35.7	8.36	4.05-17.25	<0.001*
No	82	40.2	47.6	12.2	1.00		

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Table 3 Association between independent variables and hand washing practice (Cont.)

Variables	n (%)	Hand washing practice ^a			Crude OR	95% CI	p-value
		Not Proper (%)	Less Proper (%)	Proper (%)			
Availability of HW stand							
Yes	189	20.6	24.3	55.0	b		<0.001*
No	68	48.5	51.5	0.0	b		

HW = Hand washing

* Significant at $\alpha = 0.05$

^a The two categories “Less Proper” and “Not Proper” hand washing are the reference

^b OR could not be calculated due to insufficient sample size

Table 4 shows that when those significant variables in Table 3 and gender (as suspected variable) were analysed by multiple logistic regression, when clean water was available at hand washing stands, the respondents were four times more likely to wash their hands properly. Similarly, when soap was available at hand washing stands, the respondents were about six times more

likely to wash their hands properly. Those variables were significant as predictors for proper hand washing, adjusted with other variables (p value = < 0.001 respectively). Students with positive attitudes were twice as likely to wash their hands properly, but it was not significant as a predictor for proper hand washing (p value = 0.057) when adjusted with other variables.

Table 4 Multiple logistic regression of factors associated with proper hand washing practice

Factors	Proper hand washing ^c			
	Adjusted	OR	95% CI	p-value
Gender				
Female		1.42	0.78-2.57	0.254
Male		1.00		
Attitude				
Positive		2.10	0.98-4.51	0.057
Negative & Neutral		1.00		
Perceived control				
High		1.53	0.81-2.88	0.186
Low		1.00		
Availability of clean water at hand-washing stand				
Yes		4.24	1.92-9.35	<0.001*
No		1.00		
Availability of soap at hand washing stand				
Yes		5.55	2.36-13.08	<0.001*
No		1.00		

* Significant at $\alpha = 0.05$

^c The two categories “Less Proper” and “Not Proper” hand washing are the reference

Discussion

In the study of Lopez et al. in Colombia, in which a self-completed anonymous questionnaire was administered to 2042 eighth-grade students, 33.6% of respondents practiced proper hand washing behavior, which was defined as washing hands “always” or “very often” with soap and clean water before eating and after using the toilet⁸. The proportion of proper hand washing in the present study was higher than in Colombia, perhaps because that study used different and stricter criteria. The present study did not use “always” or “very often” as criteria. The finding in this study was also different from a study of adolescents in Turkey by Yalcin, which found that 42.4% washed their hands properly, which was defined as washing hands for 20 seconds or more, using water and soap when and hand washing frequency scores were above 20 (hand washing in six situations such as after using the toilet, before eating, after eating, entering the home, cleaning the house, and after sneezing/coughing)¹⁷.

The second most common practice in this study was washing hands using water only at both critical times. This was done by nearly a quarter (23.7%) of all respondents. A study in Ethiopia by Vivas found that 63.8% of school children washed hands using water only¹⁸. Another study by Soerachman in Indonesia revealed that 8.9%

of adolescent students had never or rarely used soap when washing their hands in the previous 30 days¹⁹. A baseline study of a large intervention in hand washing behavior in rural Bangladesh published in 2008 also found that the respondents who had households with children under the age of 5, generally only rinsed their hands with water at both critical times²⁰. Worldwide, washing hands with water only is commonly practiced¹⁰.

The third most common hand washing practice (15.2%) was not washing hands before eating, but washing hands using water only after visiting the toilet. A behavior study about hand washing with soap in Peru in 2004 by mothers and children aged 5-11 years also suggested that the automatic reaction to the odor or appearance of feces motivated hand washing after toilet use more than the knowledge of the importance of hand washing before eating²¹. Tran’s study in the Pacific also found that students washed hands after using the toilet more often than before eating²².

The worst hand washing practice was the fourth most frequent (7.0%), and involved respondents who did not wash their hands at all at either critical moment. Soerachman’s study for the Indonesia Global School-Based Health Survey (GSHS) in 2007 among adolescents aged 13-15 years revealed that 2.6% of them never or rarely

washed hands after using the toilet; and 4.3% had also never or rarely washed their hands before eating in the previous 30 days¹⁹.

The respondents self-reported about their hand washing habits. Since this study used respondents' answers to the questionnaire, it is possible to assume that in reality the students who did not wash hands at all in at either critical time might be higher than 7.0%. A study in Kenya found that out of roughly 4,900 children who responded, more than half reported washing their hands in school on the previous day. However, in the observation of almost 1,000 children using the toilet, less than a quarter were observed to actually wash their hands after doing so²³. A study in Bangladesh about hand washing behavior in 2008 suggests that the study subjects washed their hands less frequently than they claimed. Therefore, these findings demonstrate that asking people about their hand washing behavior may not provide an accurate assessment²⁰. Further study to observe the students' actual hand washing practice is recommended.

The most common excuse for not washing hands was forgetfulness (81.8%). During data collection, it was observed that only one of the seven schools had reminders about healthy behavior in the class. Schools should be more concerned about this and display appropriate reminders, so that students will

always remember to wash their hands properly. According to the Global Hand Washing Day campaign, children are the targets of the campaign, since they are likely to be the most effective agents for behavior change. The elementary school period is the most opportune time for development. Teaching children at a young age means that they are better able to understand and will form enduring positive attitudes lasting into adulthood, and can become effective agents for behavioral change in families and communities.

This present study also reveals that parents (91.9%) were the most frequently cited as persons who reminded respondents about proper hand washing, followed by health workers (50.0%), and then teachers (34.9%). These findings are quite similar to those by Lopez et al. study, which found that the most often cited sources of information about hygiene and hand washing were parents (88.5%), followed by school (66.7%), and then the media (56.8%)⁸.

In the present study, teachers were only mentioned by one-third of the respondents compared to two-thirds in Lopez et al. (two thirds of respondents). This means teachers were less influential in promoting proper hand washing than health workers, since most of the respondents (85.3%) answered that the activities at schools which related to hand washing came from health education by health workers, and only a

little more than one-third (34.9%) said it was by teachers. On the basis of this present study, therefore, teachers should be more involved in promoting proper hand washing at schools, since they are close to and interact with students' learning activities there.

Regarding attitude toward proper hand washing, it was found that attitude was significantly associated but not significant as a predictor for proper hand washing when adjusted with other variables. This is different from the study by Lopez et al., which found that respondents with positive attitudes were 2.1 times more likely to have positive intentions when adjusted with other predictors⁸. According to the Theory of Planned Behavior, a person's intentions are the best predictor of behavior, and one of three direct determinants of an individual's behavioral intention is attitude toward performing a particular behavior. The stronger one's beliefs that performing a behavior will lead to positive outcomes and prevent negative outcomes, the more favorable one's attitude will be towards performing the behavior in question¹⁵⁻¹⁶. In this study, students with positive attitudes may have had positive intentions, and this would have pushed them toward positive behavior. Therefore, respondents with positive attitudes regarding proper hand washing will have positive intentions, and finally they may be expected to act in this positive way.

Regarding subjective norms, Lopez et al., found that neutral and positive subjective norms for hand washing were weakly but significantly associated with positive intentions (Adj. OR = 1.4, 95% CI = 1.1-1.8)⁸. In this study, the proportion of respondents with positive and neutral subjective norms who washed hands properly were nearly equal in number. Respondents with neutral subjective norms (44.4%) washed their hands properly only a little more often than those with positive subjective norms (42.4%). There was no significant association between subjective norms and hand washing in this study.

Regarding perceived control, Lopez et al. found that a high level of perceived control over hand washing behaviour was strongly associated (Adj. OR = 6.0; 95% CI = 4.8, 7.5) with positive intentions towards proper hand washing⁸. According to the Theory of Planned Behaviour, a person with a high level of perceived control is more likely to act on that intention, even in the face of obstacles and setbacks, than a person who has a low level of perceived control. It should be noted that perceived behavioural control could also have a direct influence on behaviour. This is the case if individuals so strongly believe themselves to be unable to perform the behaviour that they do not even consider doing so¹⁶. Therefore, the findings in this

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study could be interpreted as means that students with high perceived control had high intentions to do proper hand washing so they were more likely to wash their hands properly. The higher the perceived control, the more likely it is that respondents will wash their hands properly. Based on the Chi-square test, perceived control was significantly associated with proper hand washing. However, in this present study high perceived control was not significant as a predictor for proper hand washing when adjusted with other variables.

Regarding availability of facilities, this study found that the availability of clean water and soap at hand washing stands at schools had a significant association with hand washing. When adjusted with other variables, students were four times more likely to wash their hands properly if they could find clean water there; students were nearly six times more likely to wash their hands properly when soap was available at hand washing stands. Lopez et al. found that students who reported regular availability of soap and clean water were almost three times more likely to consistently wash their hands before eating and after using the toilet⁸. A study about the impact and sustainability of WASH (Water, Sanitation, and Hygiene) in school research in Kenya and Kerala found that children washed their hands more often after

using the toilet when there were more water taps and when there was water in or near the toilet²³. This study reveals that when facilities are available, students are also able to wash hands properly. These findings are consistent with the Theory of Planned Behaviour and Integrated Behaviour Model. It should be realized, however, that individuals, given a positive intention, must also be able to perform the behaviour. This means that a person must have the necessary skills and that there should be no major environmental constraints preventing behavioural performance¹⁵⁻¹⁶.

This study has several limitations. It was not based on direct observation or practical intervention but on respondents' answers to a questionnaire. The definition of proper hand washing in this study was not based on the strict criteria from Central Control Disease and Prevention, which is washing for 20 seconds rubbing soap and using a towel or toilet paper²⁴, and did not include the frequency term "always" for hand washing. This study was confined only to the particular and specific geographical setting and the population under study. Therefore, the results of this study may not represent the general situation in Selat sub-district, Indonesia.

Future research about the prevalence of proper hand washing and related factors should be undertaken using a better sampling technique in order to be more representative of the relevant population. Observational study should be conducted to observe the actual/real practice regarding hand washing at schools. Qualitative research is needed both to understand better proper hand washing at schools and to construct an appropriate questionnaire. Prior study should be conducted also to construct a hand washing index for better statistical analysis of hand washing.

Recommendations

Based on findings in this study, health promotion regarding proper hand washing should be led by teachers together with and supervised by health workers, in order to impress on the students that this positive habit is easy to do and has positive outcomes. This can be implemented by using various creative ideas for health promotion at schools such as reminders, cues and motivators for proper hand washing in many places within the schools.

The facilities related to proper hand washing such as clean water, soap and hand washing stands should be more available in certain places in schools such as in the classroom, canteen and toilets, to enable and encourage students to wash

their hands properly at any time, and so that it will be easy for teachers to act as role models in promoting proper hand washing at schools.

These findings can be used as basic information for the Global Hand Washing Campaign in Kapuas district by local government, health professionals, and other stakeholders in order to encourage people to wash their hands properly at home, in schools and communities by using school children as catalysts for behavioural change.

Acknowledgements

The authors would like to express their sincere gratitude to all principals of elementary schools; the Selat, Melati, Pulau Telo Community Health Centers; and the Head of the Kapuas District Health Office and Educational Office for their cooperation.

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