
Elimination of Breeding Places at School As a control of DHF in Semarang

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ELIMINATION OF BREEDING PLACES AT SCHOOL AS A CONTROL OF DHF IN SEMARANG

PEMBERANTASAN SARANG NYAMUK UNTUK PENGENDALIAN DBD SEKOLAH DI SEMARANG

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Abstrak

Semarang merupakan kota endemis DBD dengan angka kesakitan dan kematian DBD tinggi. Insidens kumulatif DBD pada anak tahun 2011-2012 sebesar 97,66 dan 112,2 per 100.000 penduduk. Desain studi cross sectional dilakukan untuk menggambarkan factor yang berhubungan dengan PSN (Pemberantasan Sarang Nyamuk) pada masyarakat sekolah di Semarang. Sampel penelitian adalah seluruh warga sekolah sebanyak 499 orang yang terdiri dari murid, guru, staf administrasi, dan tukang bersih-bersih/tukang kebun sekolah. Sebagian besar warga sekolah memiliki kebiasaan PSN baik (58%), pengetahuan PSN dan DBD baik (53%), memiliki sikap PSN positif (64%). Terdapat korelasi signifikan antara latar belakang pendidikan ($p=0,015$), pengetahuan PSN ($p=0,000$), sikap PSN ($p=0,000$), terpapar informasi PSN ($p=0,009$) dengan kebiasaan PSN baik. Seseorang dengan latar pendidikan tinggi diestimasi sebesar 1,6 kali (95% CI: 1,11 – 2,34) melakukan PSN baik dibandingkan pendidikan rendah. Seseorang dengan pengetahuan PSN baik diestimasi 10 kali melakukan PSN (95% CI: 6,57 – 15,13). Semakin positif sikap PSN maka 2,2 kali akan melakukan PSN baik (95% CI: 1,54 – 3,25). Seseorang yang terpapar informasi PSN memiliki kemungkinan 2,2 kali melakukan PSN dengan baik. Disarankan untuk meningkatkan promosi kesehatan di bidang PSN DBD pada warga sekolah karena dengan mengoptimalkan fungsi UKS (Unit Kesehatan Sekolah) seperti pengaktifan dokter kecil dan anak pemantau jentik.

Kata Kunci: DBD, PSN, perilaku
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INTRODUCTION

Semarang is one of DHF endemic city with high morbidity and mortality. The incidence cumulative DHF in children 2011-2012 were 97.66 and 112.2 per 100,000 populations respectively (WHO, 2013). The high proportion of DHF patients in school age children due to school is potential place for DHF transmission in which school community or society came from

various places/area so that an exchange of several type of dengue virus might happen (WHO, 2013). It might also relate with the mosquito as vector of DHF that bites in the morning around 9 am – 10 am when most of children are in school. The research conducted earlier showed that 32.3% transmission of DHF happened in school (Suskamdani, 1997). Besides that, there are several items that can be used as breeding place which

commonly found in school such as water closet, bathroom, vase, plastic, drum, etc. In order to cut off the DHF transmission, elimination of breeding places or well known as *Pemberantasan Sarang Nyamuk (PSN)* is conducted nationally. School as potential places for DHF transmission which also conducted *PSN* will need involvement and participation from teacher, student, administration officer, school guard and janitor. The aim of the research is to describe practice of elimination breeding places in school society as a control of DHF, especially in Semarang.

METHODS RESEARCH

A cross sectional study was conducted to describe and explore related factors of *PSN* (Elimination of breeding places) of school society in Semarang. The population of the study was all members of school society/community in 10 sub districts in Semarang consist of school age students, teachers, staff, school caretaker and school's janitor. Minimum sample size with $\alpha=5\%$, power of test = 90%, P2 (proportion good behavior among those who had

bad attitude) = 0.6 (Wicaksono, 2006) were calculated as many as 499 subject. Sampling techniques were cluster sampling for the sub districts (10 from 16 sub districts) and purposive sampling for the subject. For each sub districts, 5 schools were randomly chosen that consists of 2 high schools, 2 junior high schools, 1 elementary school so that total there were 50 schools. Ten subjects were purposively selected from each school. Students as subject were in 5th and 6th grade of elementary school or 1st and 2nd grade of high and junior high school. Subjects interviewed using a questionnaire.

RESULTS AND DISCUSSION

The youngest age of subjects was 10 years, the oldest was 59 years old, and most of subject is 14 years old. The proportion male and female are almost equal, most of them have higher educational background, most of them are students (47%), teacher, administration, school guard, janitor are 34%, 5%, 3% and 11% respectively (Table 1). All subjects exposed with information about DHF and 89% were exposed with the

information about elimination breeding places (Table 1).

Most of subject did 3M very well (table 3) such as clean the bath up (94%), close the water reservoir (86%), and buried garbage (84%). In researcher opinion, efforts to socialize or promote health especially in preventing DHF went well and influenced community to do so.

However, there are practice of elimination breeding places that still rarely such as replace the bird's drink in cage (46%) and having fish in water reservoir (40%). It might happen because information about elimination breeding places more intense on 3M than other PSN/elimination breeding places.

Table 1. Characteristics of subject

Characteristics of subject	n	%
Age		
Working age (> 18 years old)	261	52
School age (6-18 years old)	238	48
Sex		
Male	221	44
Female	278	56
Educational background		
Higher education (high school, bachelor)	323	65
Lower education (no educational background, elementary, junior high school)	176	35
Occupation		
Janitor	57	11
School security/guard	13	3
Administration	24	5
Teacher	169	34
Student	236	47
Exposed with information about DHF		
Exposed	499	100
Not exposed	0	0
Exposed with information about Elimination Breeding places information		
Exposed	445	89
Not exposed	54	11

Table 2. Knowledge, Attitude, and Practice towards Elimination Breeding Places

Variables*)	N	%
Knowledge		
Good (≥ 22)	265	53
Bad (< 31)	234	47
Attitude		
Positive (≥ 31)	319	64
Negative (< 31)	180	36
Practice		
Good (≥ 6)	290	58
Bad (< 6)	209	42

*) using median as cut of point

Table 3. Practice of subjects on Elimination of Breeding Places

No	Practice	Doing it	
		N	%
1	Clean the bath up	469	94
2	Close the water reservoir	429	86
3	Buried the can, glass, plastic	418	84
4	Keep the used tire, close the drum	267	54
5	Clean the air tunnel	306	61
6	Collect or burn the garbage	279	56
7	Replace the water in vase regularly	264	53
8	Replace the bird's drink in cage	237	47
9	Have fish as a pet	201	40
10	Using larvacide (abate)	311	62

More than half school society has a good practice conducted *PSN* (Table 2). It was related with knowledge, attitude and information exposure about DHF and *PSN*/elimination breeding places (Table 5). Green (1991) said that there were 3 factors influenced practice such as predispose, enable and reinforcement factor. Every health practice might see as function of three collective influenced factors. Knowledge and attitude are predisposing factors which also antecedent factors of practice as a based motivation of practice. Person with good knowledge on DHF and *PSN* and also has a positive attitude towards *PSN* will have more intense to conduct *PSN* as a DHF prevention.

In communication or persuasive model, change of knowledge and attitude is a pre condition of the change of health

practice and other practices Health believes model assumed that health practice is a function of both of knowledge and attitude. In this model specifically confirm that a perception of person about vulnerability and miracle of medicine may influence person's decision in his or her health practice. Practice in health believe model are determined by whether person (1) believe that he or she vulnerable in specific health problem; (2) take seriously of health problem; (3) believes the effectively of medicine and prevention efforts ; (4) not expensive; (5) take a suggestion to do health practice. Practice can be strengthening with the availability of DHF and *PSN* information from health worker, family, newspaper, television, etc (Table 4). Karr in Notoatmodjo (2005) said that the component of practice determinant is accessebility of

information related in practice that person will take.

Pemberantasan Sarang Nyamuk (PSN) that conducted regularly and continually will decrease the number of larvae in breeding places, which also means that it can be cut off the DHF transmission so that there will be decrease in DHF incidence. Wicaksono (2006) found the relation of practice in *PSN-DBD* with container index in household.

The age of subject is slightly similar between working age (more

than 18 years old) with school age children (6-18 years old) and female and male (Table 1). There is no differences in proportion of good practice between working age and school age ($p = 0.216$) and female and male ($p=0.592$), which also means there is no relationship between age and *PSN* practice (Table 5). It is similar with the research results by Agustiani (2005) and Wicaksono (2006). It might happen due to availability of information generally in all age and sex.

Table 4. Source information about DHF and PSN/Elimination Breeding Places

No	Source Information	About DHF		About PSN/EBP	
		N	%	n	%
1	Health Officer	330	66	329	66
2	Community leader (Sub district, village, neighborhood)	193	61	220	44
3	Cadre/activist (posyandu, dasawisma)	146	29	165	33
4	Closeness people (family, friend, neighbor)	300	60	241	48
5	Electronic Media (TV, radio, film)	411	82	378	76
6	Print Media (newspaper, magazines, brochure, etc)	347	70	302	61

Table 5. Relation of independent variables with practice of PSN

Variables	Practice on PSN				Total		OR (95% CI)	p value
	Good		Not good		N	%		
	n	%	N	%	N	%		
Age							1,273	0,216
Working age	159	61	102	39	261	100	(0,891-1,818)	
School age	131	55	107	45	238	100		
Sex							0,892	0,592
Male	125	57	96	43	221	100	(0,624-1,275)	
Female	165	59	113	41	278	100		

Variables	Practice on <i>PSN</i>				Total		OR (95% CI)	p value
	Good		Not good					
	n	%	N	%	N	%		
Educational background							9,971	0,000
Higher education (high school, bachelor)	217	82	48	18	265	100	(6,568-15,135)	
Lower education (no educational background, elementary, junior high school)	73	31	161	69	234	100		
Attitude							2,240	0,000
Positive (≥ 31)	208	65	111	35	319	100	(1,542-3,252)	
Negative (< 31)	82	46	98	54	180	100		
Exposed <i>PSN</i> information							2,202	0,009
Exposed	268	60	177	40	445	100	(1,239-3,914)	
Not exposed	22	41	32	59	54	100		

Most of subject had lower education background (65%) (Table 1) and subject with higher education background did good *PSN* (62%) with $p = 0,015$ (Table 5). It means that there was a relationship between education backgrounds with *PSN* practice. Subject with higher education background did good *PSN* practice 1.6 times more than subject with lower education background (OR: 1,611, 95% CI 1,111-2,335) (Table 5). Liliweri (2007) stated that person's knowledge is determined by educational background. Higher education background's of person than easier person to give an explanation of information and easier to understand the health messages how to prevent DHF with *PSN*. Rambey (2003) found

the relationship between educations with *PSN* practice. Hayani et al (2004) stated that training on teacher about DHF and *PSN* gives a positive influence in *PSN* DHF in school and area around school so that decrease larvae index in school and environment surrounding it and improve *ABJ* (*Angka Bebas Jentik*). Sofiyani (2007) said that student under supervision had 38 times conducted *3M* in school rather than student with no supervision.

Most of subject had good practice in *PSN* (82%) and p value was 0.000 with OR 9,971 (95% CI 6,568-15,135), it means there is a relationship between knowledge and *PSN* practice and person with good knowledge 10 times conducted good

PSN. It is similar with research from Rambey (2003), Agustiani (2005) and Wicaksono (2006) which stated a significant relationship between knowledge and *PSN*. Knowledge influence practice (Green, 1991) and practice based on knowledge will sustainable rather than practice with no knowledge (Notoatmojo, 2003). It is recommended to give *PSN* materials in school subject.

Positive attitudes towards *PSN* and also had good practice in *PSN* higher (65%) than negative attitudes with p value 0.00 and OR 2,240 (95% CI 1,542-3,252). It means that person with positive attitudes did good *PSN* 2.2 times than person with negative attitudes. Rambey (2003), Agustiani (2005) and Wicaksono (2006) also stated significant relationship between attitudes and practice. Relationship between attitudes with practice is still debatable especially in psychology area. Most of practice was not based on attitudes (Sears, 1992). Green (1991) stated in some level, attitudes may be determine, as a component, or result of practice.

Subject exposed with *PSN* information likely 2.2 times to conduct good *PSN* (p = 0.009, OR 2,202, 95%

CI 1,239-3,914). Mutmainah et al (1997) stated that media influence individually. Mass media has an effect in cognitive changing (receiving information), affective changing (mood or attitudes changing) and behavioral changing (practice changing). In cognitive level, mass media involved in delivered knowledge, skill, and positive values. Atkin in Mutmainah (1997) concluded that mass media may influence in affective orientation but the effect not as much as cognitive orientation. Giving in information about *PSN* hopefully can improve knowledge, attitude and health practice individually or community as a target, which is in the study was school society based on awareness and willingness of person in charge to conduct elimination of breeding place/*PSN*.

CONCLUSION

1. Most of subject did good practice in *PSN* (58%), good knowledge in DHF and *PSN* (53%) and positive attitudes toward *PSN* (64%).
2. Subject in working age (52%), female (56%), and has higher education background (65%).

Subjects were students (47%), teacher (34%), administration officer (5%), school guard (3%), and janitor (11%). All subject already exposed with DHF information and 89% were exposed with PSN information. Most source information was electronic media, print media, and health worker.

3. Education related with PSN practice where subject with higher education background has 1.6 times to conducted good practice in PSN than subject with lower education background.
4. Knowledge related with PSN practice and subject with good knowledge 10 times conducted good practice in PSN than subject with less knowledge.
5. Attitudes related with PSN where subject with positive attitudes toward PSN 2.2 times to conduct good practice in PSN than subject with negative attitudes.
6. Exposed PSN information related with PSN practice where subject with PSN exposed 2.2 times than subject with no exposed about PSN information

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