Indonesian Journal of Global Health Research
Volume 1 Number 1, November 2019, pp. 13 - 20
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

HEALTHCARE WORKERS KNOWLEDGE, ATTITUDE, AND AVAILABILITY OF FACILITIES TOWARD COMPLIANCE HAND HYGIENE

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ABSTRACT

Failure to perform good hand hygiene is considered as an major cause of Healthcare Associated Infections (HAIs). From the WHO data, compliance rate of nurses hand hygiene activity at the United States is about 50%, Australia 65% while in Indonesia 47%. This study aims to determine healthcare workers knowledge, attitude, and availability of facilities toward that affect hand hygiene compliance. This research method is analytical descriptive with cross-sectional approach. The object of data collection is an healthcare workers (nurse, doctor, and pharmacy) at General Hospitalin West Java as many as 51 samples. Sample selection using stratified sampling method with research instrument in the form of questionnaire and observation sheet about knowledge and attitude to hand hygiene adopted from WHO. The results of this study that obtained in the group of nurse were 48.6% doing imperfect hand hygiene and group of doctor respectively 80.0% and pharmacy were 100.0%. In terms of nurses knowledge about hand hygiene is 59.5%, doctor80.0% and pharmacy 50.0%. In terms of attitudes about the implementation of hand hygiene, the nurses group is 48.6%, doctors respectively 40% and pharmacy 50.00% have a positive attitude. In terms of facilities is 40.5% nurses stated available, doctors 20% and pharmacy 0.00%. There was a significant relationship between hand hygiene with knowledge (p = 0,019), attitude (0.004) and hand hygiene facility (p = 0.040).

Keywords: attitude, hand hygiene, health care, knowledge

First Received	Revised	Accepted
31 October 2019	07 November 2019	22 November 2019
Final Proof Received		**Published**
25 November 2019		30 November 2019

How to cite (in APA style)
Noprianty, R,. Thahara, G, K, D. (2019). Healthcare workers knowledge, attitude, and availability of facilities toward compliance hand hygiene. *Indonesian Journal of Global Health Research, 1(1), 13-20.*

INTRODUCTION

Healthcare associated Infections (HAIs) has been an health problem worldwide. HAIs can cause serious illness, increase hospitalization day, reducing hospital image or health services, also may result in lawsuits (Kementerian Kesehatan RI, 2011).In 2009, CDC's study of the incidence of HAIs in the United States in 2011 was recorded at 721,800 incidents. While the British health agency noted that there are more than 4 million European citizens affected by HAIs and about 37,000 people died from the infection.(John M. Boyce, M.D; Didier Pittet, 2002).

The role of all parties is certainly needed in overcoming this HAIs problem,including nurses, doctors and college students. Quality of service by health personnel can be measured by using clinical quality indicators, one of which is the implementation of care that ensures patient safety, one of which compliance with hand hygiene (Kementrian Kesehatan RI, 2017a). Several studies suggest that failure to perform

proper hand hygiene is regarded as the leading cause of nosocomial infections (HAIs) and the spread of multi-resistant microorganisms in health facilities and has been recognized as an important contributor to the outbreak(Commission, 2009).

Implementation of hand hygiene itself has not received serious attention in various hospitals in Indonesia, failure in the implementation of hand washing is triggered by the limitations of hand hygiene facilities, such as sinks, paper towels, hand dryers and antiseptic fluids. But when there are facilities, the next obstacle is the lack of awareness of health workers to perform hand hygiene procedures. It is a challenge for hospital infection control teams to promote hand hygiene programs. As per the WHO guidelines, the Ministry of Health establishes the principle of "six step" handwashing and "five moments"(John M. Boyce, M.D; Didier Pittet, 2002)(Kementrian Kesehatan RI, 2017b).

In 2009, WHO's study of stated by the level of nurse compliance in hand hygiene in the United States is about 50% and in Australia it is still around 65%. Nationally, hand hygiene compliance rate was 47%(Elaziz & Bakr, 2009). While hand hygiene compliance rate at Hospital X in West Javacompliance of health worker was only about 70.35% in April 2017. The findings at Hospital X in West Java in the implementation of hygiene compliance of health personnel hand were not maximized. Implementation figures of hand hygiene each month has not reached 100% of the target. Compliance rate of hand hygiene atconsultant physician equal to 69,78% while resident doctor equal to 61,28% andnurse compliance rate in carrying out hand cleanliness equal to 79,99%.

All healthcare workers agree that hand hygiene is of critical importance because effective hand hygiene practices has long been recognized as the most important way to reduce the transmission of pathogens in health care settings. Many studies, however, have shown that adherence to hand hygiene recommendations remains poor, and improvement efforts frequently lack sustainability. All health care organizations and settings monitor health care workers' adherence to hand hygiene recommendations (Aledeilah et al., 2018). This lack of adherence has led to improvement initiatives by the WHO and The Joint Commission's issuance of National Patient Safety Goal 7,10 which calls for health care organizations to follow the CDC hand hygiene guidelines. (Commission, 2009).

METHOD

The type of research used is quantitative research. The research design used is analytical descriptive research with cross-sectional approach. This cross-sectional study combined observations with a survey using WHOS's hand hygiene using the principles of 5 true and 6 moment. The observational study was conducted to investigate actual practices among nurses, doctors and pharmacys. The observation involved two wards with 3 shift (morning, afternoon and night shift). The population studied were nurses, doctors and pharmacys who served in General Hospital X in West Java that as many as 145 health workers scattered in 2 inpatient rooms. The sample calculation using Slovin formula with standard error of 10% to get 51 sample consisting of 37 nurses, 10 doctors and 4pharmacys.Sampling technique using *stratified random sampling* method. This study used observation ceklist and questionnaire from WHO's hand hygiene. A structured observation checklist was developed and piloted specifically for this study. The

observation was conducted in two inpatient wards. Observation duration lasted full shift with work sampling methods. For one hour for each of the included health care workers.

A questionnaire from WHO to determine the level of knowledge, attitudes and hand hygiene facilities of health workers on compliance of hand hygiene and observation sheet to assess the implementation of hand hygiene and hand hygiene facilities availability using the principles of 5 true and 6 moment. A score of ≥ than 85% was obedient and < 85% not obedient. Knowledge was assessed using WHO's hand hygiene questionnaire for health care workers. This performa of 47 questions includes multiple choice and "yes" or "no" questions. A score of more than 76% - 100% was considered good, 56-75% moderate, and less than <56% was taken as poor. Attitude and practice were assessed using another self-structured questionnaire which consists of 20 questions.Respondents were given the option to select on a 1- to 6-point scale between strongly agree and strongly disagree. A score of 0 was given for negative attitudes and practices. 1 point was given for each correct response to positive attitudes and good practices so that maximum score for attitude.

Hand hygiene facilities was assessed using WHO's hand hygiene questionnaire for health care workers. This performa of 18 questions includes multiple choice "not available", "not appropriate" and "appropriate". A score of appropriate 19 – 36, not appropriate 1 – 18, and not available 0. Analysis of univariate data will get the result of frequency distribution of knowledge, attitude and availability of handwashing facilities for health worker. Bivariate test is then done by connecting the three factors with the implementation of hand hygiene by using statistical test for normality data with *Kolmogorov - Smirnov*. Statistical significance was set for all test at p<0.05 using Chi-Square.

RESULTS

Table 1.
Observed Hand Hygiene Obedience by Health Care Worker (n=51)

Five moment	Hand Hygiene	Health care workers					
		Nurse (n=37)		Doctor (n=10)		Pharmacy (n=4)	
		f	%	f	%	f	%
Before touching a patient	Obedience	9	24.3	1	10.0	0	0
	Not obedience	28	75.7	9	90.0	4	100
Before clean/aseptic procedures	Obedience	7	18.9	1	10.0	1	25.0
	Not obedience	30	81.1	9	90.0	3	75.0
After body fluid exposure/risk	Obedience	14	37.8	3	30.0	0	0
	Not obedience	23	62.2	7	70.0	4	100
After touching a patient	Obedience	16	43.2	1	10.0	1	25.0
	Not obedience	21	56.8	9	90.0	3	75.0
After touching patientsurroundings	Obedience	18	48.6	2	20.0	1	25.0
	Not obedience	19	51.4	8	80.0	3	75.0

From Table 2, it is known that the highest knowledge percentage for good category is nurse (27.0%), for the highest enough category is doctor (80.00%) and for category less

is pharmacy (25.00%). The percentage of positive attitude for the highest hand hiegine is nurse (48.6%) while the highest negative attitude percentage is doctor (60.0%). While the availability of facilities hiegiene hand that argue not available complete the highest percentage is pharmacy (75.0%). While the opinion that facilities hiegiene hand available with the highest complete is nurse (40.5%).

Table 2.
Factors Affecting Hand Hygiene Obedience by Health Care Worker (n=51)

Factors affecting hand hygiene	Category	Health care workers					
		Nurse (n=37)		Doctor (n=10)		Pharmacy (n=4)	
		f	%	f	%	f	%
Knowledge	Less	5	13.5	2	20.0	1	25.0
	Enough	22	59.5	8	80.0	2	50.0
	Good	10	27.0	0	00.0	1	25.0
Attitude	Negative	19	51.4	6	60.0	2	50.0
	Positive	18	48.6	4	40.0	2	50.0
Hand hygiene facilities	Not available	8	21.6	3	30.0	3	75.0
	Not appropriate	14	37.8	5	50.0	1	25.0
	Appropriate	15	40.5	2	20.0	0	00.0

Table 3.
Factors Associated with Hand Hygiene Obedience by Health Care Worker (n=51)

Factors affecting hand hygiene	Category	Hand hygiene obedient				P value
		Not obedience		Obedience		
		f	%	f	%	
Knowledge	Less	8	15.7	0	0.0	0.019
	Enough	18	35.3	14	27.5	
	Good	4	7.8	7	13.7	
Attitude	Negative	21	41.2	6	11.8	0.004
	Positive	9	17.6	15	29.4	
Hand hygiene facilities	Not available	11	21.6	3	5.9	0.040
	Not appropriate	13	25.5	7	13.7	
	Appropriate	6	11.8	11	21.6	

From Table 3, it is known that there is a relationship between knowledge, attitude and hand hygiene facilities with hand hygiene practices with p-value values of 0.019, 0.004 and 0.040.

DISCUSSION

1. Description of the level of knowledge about hand hygiene with hand hygieneexcecution

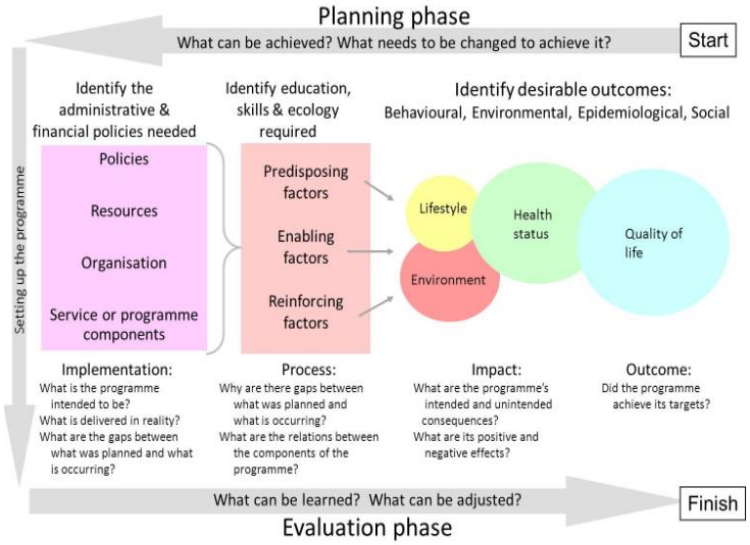
From the research result, the level of knowledge of health worker shows that the highest level of knowledge of the nurse is the knowledge with good category that is 27%, the doctor with the highest percentage is knowledge with enough category that is 80% and pharmacy with enough category (50%).

In one developmental study,education is an attempt to develop personality and abilities in and out of school and lasts a lifetime (Kadek Herna Rikayanti, 2014). Education affects the learning process, the higher a person's education the easier the person is to receive information. With higher education then someone will tend to get information, either from other people or from mass media. The more information that attained, the more knowledge gained about health (Gusti Made Geria Jelantik, 2015). Knowledge can be increased by attending seminars or training. If healthcare workers have not attended training on prevention of cross-infection, it can be a reason for health workers not to wash their hands properly. In house training activities or monthly meetings were not attended by some participants (Rahayu, Noprianty, & Sugesti, 2017).

2. Description of the attitude about hand hygiene with hand hygiene

The results showed that the attitude of the group of pharmacy respondents with the highest percentage was the positive attitude that is 50% and the highest percentage of the group of doctor were the negative attitude of 60%. In general, the majority of all health worker show a negative attitude towards hand hygiene. Specific beliefs and perceptions are found in a doctor who has an impact on the lack of adherence to best practice. While other health workers consider doctors as role models, doctors often do not see themselves as such. In addition, doctors appear to be more skeptical than other professionals about hand hygiene practices.(Othman & Jonker, 2018)

The behavior of a person or society about health is determined by knowledge, attitudes, beliefs, traditions, etc. from the person or society concerned. In addition, the availability of facilities, attitudes, and behavior of health workers to health will also support and strengthen the formation of behavior. (Shinde & Mohite, 2014). Attitude health care workers can change. One of them is to always promote the importance of hand hygiene and create a culture of hand washing in hospitals which will then get an award so that health workers will get used to washing hands 5 steps 6 moments. A study bySong and colleagues showed that when hand hygiene compliance increased from poor (<60%)to excellent (90%), each level of improvement was associated with a 24% reduction in the risk of MRSA acquisition (World Health Organization, 2009).



Picture 1.
The Factors that Affects Human Behavior (Green & Ottoson, 2006)

3. Description of supporting facilities for hand hygiene implementation

The results of this study indicate that each group of respondents has the availability of hand hygiene support facilities with each percentage of nurse respondents group of 89.47%, respondent group consultant doctor 82.35%, and respondent group of resident doctors amounted to 84%. Standard of hygiene facilities with water and soap is the available of sinks, soap, tissues, standard operational procedures on hand hygiene (posters). (Ningsih, Noprianty, & Somantri, 2017).

4. Relation of health personnel knowledge level about hand hygiene with hand hygiene implementation

The result of the research shows that there is a correlation between the level of knowledge with the implementation of hand hygiene on health worker with p value 0,019. The results of this study are in line with the Green Precede Model theory in 2014, Notoatmodjo's study of that a person's or society's behavior on health is determined by knowledge, attitudes, beliefs, traditions, etc. from the person or society concerned. (Green & Ottoson, 2006) The higher the level of a person's understanding of the instruction will be the more obedient someone runs the instruction. (Kudavidnange, Gunasekara, & Hapuarachchi, 2011).

Joint Commision International (2009) and World Health Organization (2014) state that based on the interview data to the respondents, it is known that for hand hygiene with 5 steps and 6 moments have been socialized by the quality team Hospital to every health worker. Ranging from the ways, impacts, benefits of handwashing for patients, patients' families and health workers. (Ugwu et al., 2019). Each shift operands are also always reminded of hand hygiene so that the knowledge of health workers is good. Therefore the incidence of nosocomial infections can also be suppressed because all already understand the benefits of maintaining hand hygiene. (Kementrian Kesehatan RI, 2017b).

5. Relationship of health personnel attitude about hand hygiene with hand hygiene implementation

In the study, the results showed the degree of compliance with hand hygiene protocols by general health care workers including their knowledgeis 1.6 (0.7-3.7)with univariate odds ratio (95% CI) and 1.6 (0.6 – 4.3) with multivariate odds ratio (95% CI) (Othman & Jonker, 2018). Attitude is a readiness or willingness to act and not an exercise of a particular motive. Attitudes are not yet an action (open reaction) or activity, but are predisposing behaviors (actions), or closed reactions (Shinde & Mohite, 2014). (Othman & Jonker, 2018)Attitudes are still a closed response to a stimulus, so sometimes the responses received do not match the activities performed by the respondents.(Boyce & Didier Pittet, 2002), (World Health Organization, 2009).

6. Relation of hand hygiene facility availability with hand hygiene implementation

Result of research indicate there is relation between availability of hand hygiene facility with hand hygiene implementation to health worker with p value 0,04. Availability of hand hygiene facilities will improve compliance in hand hygiene practices. Limited access to the sink affects the decrease of compliance in hand washing with water and soap. (Othman & Jonker, 2018). This is in line with the reality in the field. Health officials say that if the hygiene facilities are complete, then they will do hand washing.

This is because health workers are aware that maintaining hand hygiene can protect them from transmission of infection. They want always available tissue or hand dryers. (Shinde & Mohite, 2014), (World Health Organization, 2009)

CONCLUSION

This study reported that there was a significant correlation between knowledge, attitude, and facilitieshand hygiene in hospital. It showed that observation 5 moments for hand hygiene almost not obedience was statistically significantly for all health care workers.Conclusively hand washing was higher after patient contact than before contact.

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