



## Analysis Of Factors Influencing Health Workers Implementing Hand Hygiene At Peulumat Community Health Center, South Aceh

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**Abstract.** Nurses' compliance in carrying out hand hygiene is very important because infection and disease transmission can be caused by health workers who are not compliant in carrying out hand hygiene every time they carry out health service actions. Health workers' compliance in carrying out hand hygiene both before and after carrying out procedures for providing health services can be a problem that must be considered due to various factors that are closely related to compliance in carrying it out. This research was conducted to analyze factors related to health workers' compliance in implementing hand hygiene at the Peulumat Health Center, South Aceh. The design used is descriptive correlation with a cross sectional approach. The total sample was 80 health workers. Data was obtained by interview using a questionnaire. There is an influence on attitudes with results ( $p$  0.003) and length of service ( $p$  0.002) the availability of hand hygiene facilities ( $p$  0.000) which influences the compliance of health workers in implementing hand hygiene at the Peulumat Health Center in South Aceh. Based on statistical tests, it was found that factors that can influence the health of workers in carrying out hand hygiene consist of attitude, length of service, availability of facilities for carrying out hand hygiene. The implication for recommended services is that supervision and motivation of health workers need to be increased to carry out hand hygiene in accordance with recommendations. The research implication is that it is hoped that there will be research with a larger sample size, involving other people as researchers and using video.

**Keywords:** Hygiene, Compliance, Infection, Health

### 1. INTRODUCTION

Washing hands is one of the efforts to break the chain of disease transmission. Washing hands with water alone is common but has proven to be ineffective compared to washing hands with water and soap (handwash). This is done with the intention that the remaining dirt, viruses and germs do not accumulate on the hands. In addition to washing hands with water and soap, washing hands is also done by using 60% or 70% alcohol liquid (handscrub). Washing hands with soap is also one of the procedures before and after taking action as an effort to spread infection to both patients and health workers (1).

Hand hygiene is an indicator of patient safety quality. According to the Centers for Disease Control and Prevention (CDC), washing hands with soap and water has benefits including: (1) more effective in killing germs on hands, (2) safe for children, (3) preventing antibiotic resistance (2).

According to WHO data in the world, health workers' compliance in washing their hands is generally around 40%, this figure varies widely from 5% to 81%. Studies in the United States show that the level of health workers' compliance in washing their hands is

still around 50% and in Australia it is still 65%, while the national prevalence of hand washing behavior is 23% (3). Health workers are one of the factors in the transmission of various pathogenic bacterial infections that occur through the hands. Research conducted in 40 hospitals showed that health workers' compliance in carrying out hand hygiene before and after meeting patients varied between 24% and 89% with an average of 56.6% (2). Another study also stated that the average compliance of health workers in Indonesia in carrying out hand hygiene is 20-40%. Studies in other countries also show that compliance of health workers in washing their hands is still relatively low, such as in the United States at around 50% and Australia at around 65% (3).

The Community Health Center is a health service unit that strives for public and individual health in its working area and emphasizes promotive and preventive efforts. Of course, the Community Health Center also carries out its functions in curative and rehabilitative actions (5).

In improving the quality of service in the Health Center, it is necessary to have a Standard Operating Procedure (SOP) on hand hygiene in carrying out medical actions on patients. In improving the performance of an effective and efficient hospital, it is necessary to have a technical, administrative and procedural SOP as a guideline in implementing hospital performance (8).

Compliance of health workers in implementing hand hygiene is very important because nosocomial infections can be caused by health workers who do not comply with implementing hand hygiene every time they perform health services. Therefore, hand hygiene in accordance with SOP must be applied by every health worker who will carry out activities and after performing health services on patients. The worst impact is that health workers can transmit diseases from one patient to another so that it can increase the number of nosocomial infections and have an impact on the length of hospitalization and high hospital costs (11).

Peulumat Health Center is one of the integrated health service providers in South Aceh Regency which has outpatient and inpatient facilities. Based on data collection conducted by the author in April 2023 at the Peulumat Health Center, it was found that out of 80 health workers consisting of 4 general practitioners, 1 dentist, 2 nurses, 4 D-IV Nursing, 21 DIII Nursing, 2 DIII Dental Nursing, 26 DIII Midwifery, 5 D-IV Midwifery, 1 pharmacist, 3 pharmacist assistants, 11 S1 Public Health, 2 Sanitarians/Environmental Health, 3 D-III Nutrition, 1 S1 Nutrition, 1 Laboratory Technician, who are tasked with providing services at the Health Center.

After conducting an initial survey of all health workers at the Peulumat Health Center, among them there are still health workers who lack awareness of health workers in carrying out, implementing and paying attention to the impact of health workers' actions in carrying out hand hygiene in accordance with the specified SOP, so that it can be detrimental to themselves and patients. Compliance of health workers in carrying out hand hygiene both before and after carrying out service procedures is also a problem that must be considered, some of the health workers who still do not understand and know about the hand hygiene actions that have been determined in the Health Center SOP include health workers who have just entered the Health Center work area. In addition, there is also limited adequate hand hygiene facilities and infrastructure at the Health Center, such as the lack of clean water, the lack of sink facilities which only number 4 sinks, and the distance is too far, namely  $\geq 6$  meters from the officer's room, in addition there has never been a regulation on imposing sanctions on health workers who are not disciplined in implementing the hand hygiene SOP. This causes the attitude and actions of health workers who ignore hand hygiene.

## 2. LITERATURE REVIEW

### Previous Research Review

**Table 1.** Based on the results of previous research, it can be explained as follows

No.	Researcher (Year)	Title	Findings
1.	Neila Fauzia, Rahmawati (2018)	The influence of individual factors on health worker compliance in implementing hand hygiene	There is an influence of individual factors on compliance in implementing Hand Hygiene (p value = 0.002) (25)
2.	Yuni Pundar, Maria and Angela (2019)	Analysis of Factors Affecting Nurses' Compliance in Carrying Out Hand Hygiene According to SPO in the Kelimutu and Cempaka Rooms of Prof. Dr. WZ Johannes Kupang Regional Hospital	Proving that Only the length of service factor has an influence on health workers' compliance in carrying out hand hygiene, where the P-value obtained was $0.033 < \alpha = 0.05$ (7).

3.	Elsa, Ridwan (2020)	Analysis of factors that affect hand washing compliance among health workers	There is a significant relationship between age and years of work and hand washing compliance at a p value <0.01 (4).
4.	Ria Anugrahwati and Nuraini Hakim (2019)	Nurses' Compliance in Carrying Out Hand Hygiene Before and After Performing Actions in the Inpatient Room of Cut Meutia Hospital, Langsa, Aceh.	There is a significant relationship between age and years of work and hand washing compliance at a p value <0.01 (10).
5.	Nurahmani, Asriwati and Anto (2019)	Nurses' compliance in carrying out hand hygiene before and after carrying out procedures	There is a relationship between knowledge and attitude with nurses' hand hygiene compliance at a p value <0.05 (24).
6.	Ratnasari Dulakhir.(2016)	Factors Related to Inpatient Nurse Compliance in Implementing Hand Hygiene at Anna Medika Hospital, Bekasi City	There is a significant relationship between age and years of work and hand washing compliance at a p value <0.05 (33).
7.	Nadiya, Princess. A(2021)	Factors Related to Work Discipline of Nurses in the Inpatient Room of DR. Drs. M. Hatta Brain Hospital Bukittinggi	Statistical tests prove that motivation (p value 0.0001), leadership (p value 0.015), and non-financial incentives (p value 0.002) have a significant relationship with work discipline. While compliance (p value 1.000) has no relationship with work discipline. There is a significant relationship between motivation, leadership, and non-financial incentives with work discipline. And there is no relationship between compliance and work discipline. Suggestions for hospitals to be able to evaluate nurse performance (5).

### 3. METHODS

#### Types of research

The design of this study is an analytical survey with a cross-sectional design where the independent and dependent variables will be collected at the same time. This type of research is a study using a descriptive analytical design with the aim of analyzing factors that influence health workers to carry out hand hygiene at the Peulumat Aceh Selatan Health Center. This research will be conducted at the Peulumat Health Center located on Jalan Tengku Peulumat, Tengah Peulumat, East Labuhan Haji, South Aceh Regency. The time of this research was carried out in August 2023. The population in this study were all health workers working at the Peulumat Health Center, totaling 80 people.

### 4. RESULTS

#### Respondent Characteristics

Respondent characteristics include age, gender, education, length of service and having attended training on hand hygiene, as follows:

##### a. Age

The frequency distribution of respondents' ages at the Peulumat Health Center can be seen in Table 1 as follows:

**Table 2.** Frequency Distribution of Respondents' Age at Peulumat Health Center, South Aceh

Age	Frequency (f)	Percentage (%)
20-30 years	36	45.0
31-45 years	44	55.0
<b>Total</b>	<b>80</b>	<b>100.0</b>

Based on Table 1, it can be seen that the majority of respondents were aged between 20 and 30 years, as many as 36 people (45%) and those aged between 31 and 45 years, as many as 44 people (55%).

##### b. Gender

The frequency distribution of respondents' gender at the Peulumat Health Center, South Aceh can be seen in table 4.2 below:

**Table 3.** Frequency Distribution of Respondents' Gender at Peulumat Health Center, South Aceh

Gender	Frequency (f)	Percentage (%)
Man	24	30.0
Woman	56	70.0
<b>Total</b>	<b>80</b>	<b>100.0</b>

Based on Table 2, it can be seen that the majority of respondents were female, 56 people (70%) and male, 24 people (30%).

**c. Level of education**

The frequency distribution of respondents' education levels at the Peulumat Health Center, South Aceh can be seen in Table 3 as follows:

**Table 4.** Frequency Distribution of Respondents' Education Level at Peulumat Health Center, South Aceh

Level of education	Frequency (f)	Percentage (%)
D3	54	67.5
D4	5	6.2
S1/Profession	21	26.3
<b>Total</b>	<b>80</b>	<b>100.0</b>

Based on Table 3, it can be seen that the majority of respondents had a Diploma III education, as many as 54 people (67.5%), Diploma 4 education, as many as 5 people (6.2%) and S1/Professional education, as many as 21 people (26.3%).

**d. Have attended training**

The frequency distribution of respondents who have attended training on hand hygiene at the Peulumat Health Center, South Aceh, is seen in Table 4 below:

**Table 5.** Frequency Distribution of Respondents Who Have Attended Training at the Peulumat Health Center, South Aceh

Have attended training	Frequency (f)	Percentage (%)
Once	47	58.8
Never	33	41.2
<b>Total</b>	<b>80</b>	<b>100.0</b>

Based on Table 4, it can be seen that the majority of respondents who had attended training on hand hygiene were 47 people (58.8%) and those who had never attended training were 33 people (41.2%).

Three candidate variables that can enter the multivariate stage are attitude variables, length of service, facilities *Hand Hygiene*. Selection bivariate using simple logistic regression test. The results of the selection can be seen in the table below.

**Table 6.** Selection of Variables as Candidate Models in Multiple Logistic Regression Tests Based on Bivariate Analysis

Variables	p value	Information
Attitude	0.003	Candidate
Years of service	0.002	Candidate
Hand Hygiene Facilities	0,000	Candidate

Based on the 5 above, it can be seen that all variables are candidate models in the logistic regression test where the p value <0.25. The results of the logistic regression analysis can be seen in the following table:

**Table 7.** Results of the First Stage of Logistic Regression Analysis

Variables	B	Wald	P value	OR	9% CL	
					Min	Max
Attitude	2,96 7	21,536	0,000	19,425	5,549	67,99 7
Years of service	0.59 5	3,091	0.080	1,812	0.934	3,517
Availability of hand hygiene facilities	3,16 5	22,312	0.119	22,224	9,215	3,514

**Table 8.** Results of the Second Stage of Logistic Regression Analysis

Variables	B	Wald	P value	OR	9% CL	
					Min	Max
Attitude	2,96 7	21,53 6	0,000	19,425	5,549	67,99 7

From the multivariate analysis, it turns out that the variable that is significantly related to health worker compliance is one variable, namely the attitude variable, which is an internal factor of health workers with a P value of  $0.00 < 0.05$ . This means that health workers who have a negative attitude towards hand hygiene will be less compliant in carrying out hand hygiene compared to health workers who have a good attitude towards hand hygiene.

From the results of the analysis of the two variables, it can be concluded that the factor that most influences health workers' compliance in carrying out hand hygiene is the attitude factor (internal) in Peulumat Health Center, South Aceh.

In this chapter we will discuss interpretation and discussion related to the research and compare the results of this study with previous studies and theories that support or contradict the new findings. The discussion will begin with the interpretation and discussion of the results of the study on compliance with hand hygiene and other independent variables. In another section, the results of the bivariate analysis between the dependent and independent variables and the results of the multivariate analysis will be discussed. The final section of this chapter will discuss the implications of the study for health services, health education and health research as well as recommendations for future research.

## **5. DISCUSSION**

### **The Influence of Attitudes on Health Workers' Compliance in Implementing Hand Hygiene**

The results of the study showed that as many as 52 health workers (65%) respondents had a good attitude and as many as 38 health workers (35%) had a poor attitude. This shows that the positive attitude of health workers towards the implementation of hand hygiene greatly determines their compliance in implementing it.

The results of the study indicate that there is an influence between the attitude of health workers and the compliance of health workers in implementing hand hygiene at the Peulumat Health Center, South Aceh. In this study, it was found that most health workers have a good attitude in implementing hand hygiene, but there are still some who are not compliant in doing it and there are also some health workers who are still not compliant in carrying out hand hygiene and in health workers who have poor attitudes, there are also some health workers who are compliant in carrying out hand hygiene. According to research conducted by Umboh, et al. (2017), attitude is one of the factors that greatly influences behavior towards compliance in implementing hand hygiene.

The results of this study are in line with research conducted by Amalia, et al. (2016) which showed that there was a meaningful relationship between attitude and compliance in implementing hand hygiene. Attitudes can be followed by emotions that arise when carrying out a particular action and the environment in which the action is carried out. The influence of attitudes can be positive and negative. This shows that a person's attitude towards a situation can be described in the form of behavior displayed (30).

Attitude is a closed response to a given object. Attitude can be seen directly, but can only be interpreted from closed behavior. Changes in attitude can be influenced by information received and owned by a particular individual, views or assessments of an object and a person's experience (27).

The researcher's assumption is that the health workers who are respondents in this study have a positive and good attitude in implementing hand hygiene as has been determined. In addition, good knowledge of health workers will influence good attitudes for health workers, especially in implementing hand hygiene and make health workers more obedient in implementing it around their workplace and patient environment.



### **The Influence of Work Period Factors on Health Workers' Compliance in Carrying Out Hand Hygiene**

The results of this study indicate that length of service has an influence on health workers' compliance in carrying out Hand Hygiene, this is proven by the P-value of  $0.002 < \alpha = 0.05$ .

Work period or length of work is an individual experience that will determine growth in work and position. The longer a person works, the higher the level of achievement will be, high achievement is obtained from good behavior. A person who has worked for a long time has broader insight and has more experience in his role in shaping the behavior of health workers (11).

From the results of the study, 80 respondents were obtained, 41 people with a work period of  $<5$  years and those who worked  $>5$  years, from the results of this study, the most obedient in carrying out Hand Hygiene are health workers with a work period of  $>5$  years. The researcher's assumption is that this is due to the many experiences that have been passed by health workers who teach the importance of compliance in carrying out Hand Hygiene will have a major impact on health workers. The level of compliance of health workers who have a work period of  $>5$  years has certainly been exposed to information and is experienced in implementing the rules regarding the implementation of Hand Hygiene at the Peulumat Health Center compared to health workers with a work period of  $<5$  years who are still new, still ignoring and not used to implementing regulations or procedures in implementing Hand Hygiene.

### **The Influence of Availability of Hand Hygiene Facilities on Compliance of Health Workers in Implementing Hand Hygiene**

The results of the study showed that the availability of facilities to perform hand hygiene for health workers working in the Peulumat Health Center environment, most health workers stated that there were facilities to perform hand hygiene as many as 48 people (60%). The results of the analysis of the relationship between the availability of facilities and compliance of health workers in implementing hand hygiene showed that more respondents stated that the facilities supported and it was seen that their level of compliance in performing hand hygiene was also compliant.

The results of the study showed that the significance value using the chi square test showed a relationship between the availability of hand hygiene facilities and health worker compliance in implementing hand hygiene. In line with Notoatmodjo's theory that hand hygiene facilities (facilities and infrastructure) are anything that can be used to prevent

disease transmission. To increase compliance in implementing hand hygiene, a multidimensional technique is needed. The approach taken includes changing the system by providing alcohol-based handrub in addition to washbasins and antiseptic soap at every health worker point in hospitals and other medical places (27).

The results of this study are in line with Gea, et al. (2018) who stated that the availability of facilities can affect the compliance of Health Workers in carrying out hand hygiene. Thus, support from the health center is needed in providing proper and adequate hand hygiene facilities in order to create health workers who are compliant in carrying it out. The availability of facilities is needed to support the occurrence of compliant behavior.

Hand hygiene facilities are everything that can be used to prevent the risk of infection transmission. Facilities that need to be considered include sinks, smooth running water, antiseptic soap and handrub. Supporting hand hygiene facilities will encourage compliance of health workers in implementing hand hygiene so that health workers can work optimally, so the provision of facilities needed by health workers needs to be considered by hospital management (27).

The researcher's assumption that the availability of adequate facilities in carrying out hand hygiene in the Puskesmas environment is very much needed. This is what supports the compliance of officers in implementing it according to the rules, recommendations and provisions that have been set by the Puskesmas. The hand hygiene facilities available at the Peulumat Puskesmas are still lacking, but health workers at the Puskesmas have the initiative to carry out hand hygiene with the facilities provided by the Puskesmas as well as possible.

## **6. CONCLUSION**

This study analyzes the factors that influence the compliance of health workers at the Peulumat Health Center, South Aceh. The results of the study can be concluded as follows:

- a. There is an influence of the attitude and compliance of health workers in implementing hand hygiene ( $P = 0.003$ ;  $\alpha \leq 0.05$ ).
- b. There is an influence of length of service and compliance of health workers in implementing hand hygiene ( $P = 0.002$ ;  $\alpha \leq 0.05$ ).
- c. There is an influence of the availability of hand hygiene facilities and compliance of health workers in implementing hand hygiene ( $P = 0.000$ ;  $\alpha \leq 0.05$ ).

- d. The internal factor that most influences compliance with hand hygiene is the attitude factor ( $P = 0.000$ ;  $\alpha \leq 0.05$ ).

As a suggestion from the results of this study are:

- a. For Health Services

Researchers recommend that superiors in authority increase supervision of the implementation of hand hygiene and continuously motivate health workers through health education so that internalization of attitudes is formed which is manifested in the form of obedience in carrying out hand hygiene practices.

- b. For Health Centers

The results of this study can be used as a basis for research by conducting research replications in other health service areas in Indonesia, such as in hospitals or in community service areas by involving data collectors outside the researcher or using video to reduce potential bias and by increase the number of samples.

- c. For the Faculty of Public Health Helvita

The results of this study are expected to be a basic material as input and reference in the development of science and to increase research, especially for the Masters of Public Health study program, Health Administration and Policy (AKK) Study Interest, Faculty of Public Health, Helvetia Health Institute, in order to continue to improve compliance in implementing hand hygiene in health service facilities.

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