

# The Relationship between Knowledge with Attitudes and Behaviors about Hand Washing using Soap in Prevention of Covid-19 in Community in Kupang City

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## ABSTRACT

**Introduction:** Washing hands with soap is one of the efforts to prevent transmission of COVID-19, but there has been no research on the relationship between knowledge with attitudes and behavior about washing hands with soap in preventing COVID-19 in the community in Kupang City. Study was done to know the relationship between knowledge with attitudes and behavior about washing hands with soap in the prevention of COVID-19 in people in Kupang City.

**Material and method:** This type of research was an observational analytic study with a cross-sectional approach, carried out on the general public in the city of Kupang aged 17-45 years by filling in a validated online questionnaire; data collection was taken in September and October 2020. The sampling technique in this study using non-probability sampling that is the combination of consecutive and snowball sampling with a sample size of 210 respondents based on inclusion and exclusion criteria. The analysis used in this research was univariate analysis in the form of frequency distribution tables and bivariate analysis using the Spearman rank test.

**Result:** In the data analysis, it was found that the people of Kupang City had a high knowledge of washing hands with soap in the prevention of COVID-19 by 94.3%, while for their attitudes it was found that the people of Kupang City had a positive attitude of 82.9% and for their preventive behavior it was found to be good at 47.6%. The results of the bivariate analysis test showed a significant relationship between knowledge and attitude with a value of  $p = 0,000$  ( $p < 0.05$ ) and there was also a significant relationship between knowledge and preventive behavior with a value of  $p = 0.026$  ( $p < 0.05$ ).

**Conclusion:** There is a significant relationship between knowledge with attitudes and behavior about washing hands with soap in preventing COVID-19 in people in Kupang City.

**Keywords:** Knowledge, Attitudes, Behavior, Hand Washing, COVID-19.

COVID-19.<sup>2</sup> According to data from the Ministry of Health of the Republic of Indonesia (Kemenkes RI) up to June 2, 2020, the total number of confirmed cases was 27.549 people, who recovered 7.935 people and who died 1.663 people.<sup>3</sup> The number of coronavirus sufferers in East Nusa Tenggara (NTT) until 2 June 2020 were 97 cases with the most cases, namely Regency Sikka as many as 27 people, Kupang City as many as 16 people, and West Manggarai Regency as many as 12 people. Overall, 14 people were confirmed cured in NTT and 1 person died.<sup>4</sup>

World health organization (WHO) recommends ways to protect yourself from the spread of COVID-19, washing hands with soap, or cleaning your hands using alcohol is one of them.<sup>5</sup> The COVID-19 virus generally spreads through droplets and transmission contact by touching contaminated people or objects, so that the hands can spread the virus to other surfaces of the face including the mouth, nose, and eyes. Washing hands with soap or using alcohol can kill viruses that perhaps is at hand so it can break off the spread of the virus,<sup>12</sup> it is expected to everyone to adopt the habit of washing hands with soap, but in reality according to the 2018 Basic Health Research (Rikesdas) data, the proportion of correct hand washing behavior among people aged >10 years in the province, NTT is in the lowest order, which is 20,4%.<sup>11</sup> This data shows that not all people in NTT have the proper and correct behavior of washing their hands with soap.

Desiyanto's research (2013) shows that washing hands with an antiseptic cleanser will reduce the number of germs. In that study, researchers compared the number of germs on hands using running water, soap, 51% alcohol-containing antiseptics, 60% alcohol-containing antiseptics, and not

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## INTRODUCTION

Coronavirus disease (COVID-19) is caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The World Health Organization (WHO) confirmed COVID-19 as a public health emergency of international concern (PHEIC) in January 2020 because of the rapid spread between countries and it can cause death.<sup>1</sup>

The total number of COVID-19 cases in the world up to 2 June 2020 was 6.194.533 people, 376.320 people died from COVID-19 and 2.695.829 people recovered from

washing hands. The results showed that washing hands with soap and using an antiseptic containing 60% alcohol can significantly reduce the number of germs on the hands.<sup>6</sup>

Azam (2016) research on the relationship between knowledge and attitudes towards washing hands with soap in junior high school students and shows the results that there is a significant relationship between knowledge and the behavior of washing hands with soap.<sup>7</sup> Azam's research is in line with the research of So et al (2004) regarding the level of knowledge and prevention behavior in the elderly during the SARS outbreak in Hong Kong. So et al's research showed that elderly people who had a history of formal education had better knowledge about preventive behavior for SARS, then So et al's study found that in prevention behavior there were 55.4% of subjects washing their hands after sneezing or coughing, 58.6% of washing their hands after handling contaminated surfaces and 68.8% washing hands with soap.<sup>8</sup> According to research Wong and Wilson (2005) regarding the behavior of washing hands in medical students at the time of SARS in Hong Kong, found a significant increase in the form of an increase in hand washing behavior before examining patients by 28.1% and an increase in hand washing behavior after examining patients by 27.5%.<sup>9</sup> Further research conducted by Hayward et al also shows that washing hands with soap can reduce the risk of contracting COVID-19 by approximately 35%.

Reports about the prevention and control of COVID-19 infection are quite adequate in various mass media, one of which is on the COVID-19 website of the Indonesian Ministry of Health, where there are many promotional media on COVID-19 prevention and health information is available to the public, but it is not known how much public knowledge is, as well as people attitudes and behavior regarding the prevention of COVID-19, especially in Kupang City. Based on the explanation above and data, researchers are interested in researching the relationship between knowledge and attitudes and behavior about washing hands with soap to prevent COVID-19 in Kupang City.

## MATERIAL AND METHODS

This research was conducted in Kupang city via online using google form application. The time of the research is in September - October 2020

This research was a type of observational analytic study with a cross-sectional approach, which is a study to find the relationship of a variable.

This study aimed to determine the relationship between knowledge and attitudes and behavior about washing hands with soap in preventing COVID-19 in people in Kupang City.

The sampling technique in this study used non-probability sampling, which is a combination of consecutive and snowball sampling with a sample size of 210 respondents based on inclusion and exclusion criteria. The analysis used was univariate in the form of frequency distribution tables and bivariate analysis using the spearman test.

The independent variable is knowledge about washing hands

with soap in preventing COVID-19 in people in Kupang City and the dependent variable is the attitude and behavior of washing hands with soap in preventing COVID-19 in people in Kupang City.

## RESULT

Based on Table 1, it shows that the majority of respondents were aged 17- 25 years in total of 186 people (88,6%), most of them were female respondents which amounts to 143 people (68,1%), most of the respondents with the latest education were 166 people (79%). And the occupations of the most respondents were students, in total of 148 people (70,5%) and more than half were unmarried which amounts to 199 people (94,8%).

Based on Table 2, it shows respondents with high knowledge of 198 people (94,3%) are the most respondents, 10 people with moderate knowledge (4,8%) and the least knowledgeable respondents are those with low knowledge of 2 people (1%). Based on Table 2, the number of respondents who have positive attitudes about washing hands with soap in preventing COVID-19 is 174 people (82,9%), while the negative attitudes are 36 people (17,1%).

Based on Table 2, the number of respondents who have good behavior about washing hands with soap in preventing COVID-19 is 100 people (47,6%), respondents with sufficient behavior are 79 people (37,6%), and bad behavior

Category	Amount (N)	Percentage (%)
Age (years)		
17-25 years	186	88,6
26-35 years	20	9,5
36-45 years	4	1,9
Gender		
Male	67	31,9
Women	143	68,1
Last education		
Junior High	1	0,5
Senior High	166	79
Diploma-S1	42	20
S2 / S3	1	0,5
Status		
Married	11	5,2
Single	199	94,8
Profession		
Student / i	148	70,5
entrepreneur	27	12,9
Employees /	12	5,7
PNS	1	0,5
Housewife	12	5,7
Does not work	10	4,8
Not filling		
Districts		
Alak	15	7,5
Kota lama	17	8,5
Kota raja	34	16,9
Kelapa Lima	45	22,4
Maulafa	45	22,4
Oebobo	45	22,4

**Table-1:** Characteristics of Respondents

is 31 people (14,8%).

Based on Table 3, the availability of hand washing facilities in the places visited by the respondents showed that 51,5% were available to hand washing facilities, 43,3% of

Category	Amount (N)	Percentage (%)
Knowledge		
High	198	94,3
Moderate	10	4,8
Low	2	1
Attitude		
Positive	174	82,9
Negative	36	17,1
Behavior		
Good	100	47,6
Enough	79	37,6
Not good	31	14,8

**Table-2:** Knowledge about washing hands with soap in preventing COVID-19

Respondent's answer	Amount (N)	Percentage (%)
Yes	108	51,5
Sometimes	91	43,3
Don't pay attention	2	1,0
Not	9	4,3

**Table-3:** Availability of hand washing facilities with soap in places visited by respondents

respondents chose occasionally and 1,0% of respondents did not pay attention and 4,3% of respondents admitted that there were no facilities for washing hands with soap in the places visited by the respondents.

In the prevention of COVID-19, the main goal is to realize preventive behavior in the community, one of which is the behavior of washing hands with soap, therefore this data is also presented in the distribution table of respondent characteristics based on behavior.

Based on Table 4, the characteristics of respondents towards behavior include age, gender, the latest education, and occupation. Most respondents who have good behavior are at the age of 17-25 years at 39,0%. Most of the female respondents had good behavior, amounting to 32,9%.

Based on the data, the majority of respondents with the latest education are senior high who have good behavior by 36,7% and most of the respondents work as students with good behavior at 32,2%.

Based on Table 5, respondents who have high knowledge with positive attitudes about washing hands with soap in the prevention of COVID-19 are the most respondents with 170 people (81,0%) and respondents who have high knowledge with negative attitudes are 28 people (13,3%), respondents with moderate knowledge with positive attitudes amounted to 3 people (1,4%) and respondents with moderate knowledge with negative attitudes were 7 people

Category	Behavior					
	Not good	%	Enough	%	Good	%
Age (years)						
17-25 years	29	13,8	75	35,7	82	39,0
26-35 years	2	1,0	2	1,0	16	7,6
36-45 years	0	0,0	2	1,0	2	1,0
Gender						
Male	14	6,7	22	10,5	31	14,8
Women	17	8,1	57	27,1	69	32,9
Last education						
Junior High	0	0,0	0	0,0	1	0,5
Senior High	20	9,5	69	32,9	77	36,7
Diploma-S1	10	4,8	10	4,8	22	10,5
S2 / S3	1	0,5	0	0,0	0	0,0
Profession						
Student / i	20	9,5	59	28,1	69	32,9
Entrepreneur	4	1,9	6	2,9	17	8,1
Employees / PNS	1	0,5	4	1,9	7	3,3
Housewife	0	0,0	1	0,5	0	0,0
Does not work	4	1,9	5	2,4	3	1,4
Not filling	2	1,0	4	1,9	4	1,9

**Table-4:** Characteristics of respondents based on behavior

Knowledge	Attitude				Total	(%)	P
	Negative	(%)	Positive	(%)			
Low	1	0,5	1	0,5	2	1,0	0,000
Moderate	7	3,3	3	1,4	10	4,8	
High	28	13,3	170	81,0	198	94,3	
Total	36	17,1	174	82,9	210	100,0	

Spearman's test, \* p < 0,05

**Table-5:** Bivariate analysis of knowledge with the attitude of washing hands with soap in preventing COVID-19

Knowledge	Behavior						Total	(%)	P
	Not good	(%)	Enough	(%)	Good	(%)			
Low	0	0,0	1	0,5	1	0,5	2	1,0	0,026
Moderate	5	2,4	3	1,4	2	1,0	10	4,8	
High	26	12,4	75	35,7	97	46,2	198	94,3	
Total	31	14,8	79	37,6	100	47,6	210	100,0	

Spearman's test, \* p <0,05

**Table-6:** Bivariate analysis of knowledge on the behavior of washing hands with soap in preventing COVID-19

(3,3%), while respondents who had low knowledge with positive and negative attitudes were the most a little that is 1 person (0,5%).

This study uses the Spearman correlation analysis test which is presented in a cross table row and column. Based on the test conducted, it was obtained that the value of  $p = 0,000$ , where the value of  $p < 0,05$ , then  $H_0$  was rejected, so it can be concluded that "there is a relationship between knowledge and attitudes about washing hands with soap in the prevention of COVID-19 in the community in Kupang City".

Based on Table 6, the majority of respondents who have high knowledge with good behavior about washing hands with soap in preventing COVID-19 are 97 people (46.2%) and the second number of respondents who have high knowledge with sufficient behavior unfavorable behavior did not exist in this study (0.0%).

This study uses the Spearman correlation analysis test which is presented in a cross table row and column. Based on the test conducted, it was obtained that the value of  $p = 0.026$  where the value of  $p < 0.05$ , then  $H_0$  was rejected, so it can be concluded that "there is a significant relationship between knowledge and attitudes about washing hands with soap in the prevention of COVID-19 in the community in Kupang City".

## DISCUSSION

### Distribution of respondent characteristics

Based on the results of the analysis of the characteristics of respondents in Table 1, it was found that the most filling questionnaires were teenagers and adults, namely 17-25 years of 88.6%, this is because these respondents were included in the research criteria and respondents were able to access the internet and know the use of applications for filling questionnaires online. According to the survey data on the use of technology and communication (ICT) in 2017 in Indonesia, the use of the internet by individuals shows that most individuals are in their productive age, this is in line with the results obtained by researchers.

Internet use also has differences in interests based on gender. Based on Table 1, the largest number of respondents who filled out the questionnaire were female, 68.1%. According to the Ministry of Women's Empowerment and Child Protection with the Central Statistics Agency (Kemeneq PP & PA, BPS, 2018), men use the internet to find information in the form of news, sports and weather, while women search for information on the internet about health, religion, and use

the internet for email.

Based on the latest education, the status and occupation of the respondents who filled out the most questionnaires were respondents with the latest senior high education with unmarried status and student jobs. The distribution of the online questionnaire was also divided into 6 sub-districts in Kupang City, so it can be seen that the results of the respondents who filled out the questionnaires were not distributed the same in each sub-district. In Alak sub-districts that filled out the questionnaire by 7.5%, Kota Lama sub-district was 8.5%, Kota Raja sub-district was 16.9%, and Kelapa Lima, Maulafa, Oebobo sub-districts had the same percentage of 22.4%. The spread is not evenly distributed in all districts because the research was conducted online, so anyone who gets the link can access it.

Based on Table 2, it shows that more than half of the respondents have high knowledge of 94.3%, a positive attitude of 82.9%, and good behavior of 47.6% regarding washing hands with soap in preventing COVID-19, the results of this study are in line with the research Al-Hanawi, et al (2020) in Saudi Arabia regarding their knowledge, attitudes, and behavior regarding COVID-19 during the pandemic shows that the Saudi Arabian population has high knowledge, an optimistic attitude, and good behavior.<sup>14</sup> Triyanto, et al (2020) research is also in line with this study where most respondents have good knowledge of 81.5%, a positive attitude of 77% and the behavior of washing hands with soap and water is very good at 84.5%.<sup>15</sup>

### The relationship between knowledge and attitudes about washing hands with soap in preventing COVID-19 in people in Kupang City.

The results of the bivariate analysis showed that there was a significant relationship between knowledge and attitudes of washing hands with soap in preventing COVID-19 in the people of Kupang City with a  $p$  value  $< 0,05$ . The same research that can support the results of this study is research conducted by Saefi, et al (2020), there was a significant relationship between knowledge and attitudes in preventing COVID-19 in undergraduate students in Indonesia with a  $p$ -value = 0.000 where the  $p$ -value was smaller from 0.05.<sup>19</sup> Usman's research (2020) also assessed the knowledge and attitudes of health students about preventing COVID-19 in Indonesia, it was found that most students had good knowledge of 51.35% as well as attitudes, it was found that students with good attitudes were 46.39%.<sup>20,21</sup>

Good knowledge can make an impulse towards a positive attitude, bad knowledge can lead to the opposite. This can



happen because the formation of attitudes does not happen automatically, the formation always takes place in human interaction and relation to certain objects. Social interaction in groups or outside the group can change attitudes or form new attitudes. Interactions outside the group are interactions with the fruits of human culture that reach them through communication media, such as newspapers, radio, television, the internet, and books.

Bad knowledge can occur because the same information is not accessible, this is in line with the Information and Communication Technology Use Survey data (2017) in Indonesia which shows that internet usage in rural areas is 32,50% while urban areas are 61,83%, as for other factors such as illiteracy and the large number of elderly who live in rural areas are at risk of having bad knowledge in preventing COVID-19.

### **The relationship between knowledge and behavior about washing hands with soap in preventing COVID-19 in the community in Kupang City**

The results of the bivariate analysis showed that there was a significant relationship between knowledge and the behavior of washing hands with soap in preventing COVID-19 in the people of Kupang City with a p-value <0,05. Research in line that can support the results of this study is research conducted by Saefi et al (2020), there is a significant relationship between knowledge and behavior in the prevention of COVID-19 in undergraduate students in Indonesia with a p-value = 0.000 where the p-value is smaller than 0.05. Research conducted by Purnamasari, et al (2020) assessed the level of knowledge and behavior of the people of Wonoso Regency about COVID-19, the results showed that the local community had high knowledge of 90% and good behavior of 95,8% in preventing COVID -19, one of them washing hands with soap.

Human behavior is the result of all kinds of experiences and human interactions with the environment which are manifested in the form of knowledge, attitudes, and actions. This behavior is a response or reaction of an individual to stimuli originating from outside or from within himself.<sup>16</sup> The factors affecting health protocols are the availability of facilities that encourage behavior, the presence or absence of sanctions, the incidence of COVID-19 in the neighborhood, and the impact of work on the implementation of health protocols.<sup>17</sup>

According to data from the Central Bureau of Statistics (2020) regarding the implementation of the health protocol for washing hands with soap in Indonesia, according to location, it was found that as many as 82.56% in workplaces applied washing hands with soap, in shopping places, 77.68% applied washing hands with soap, Likewise with places of worship as much as 75.23% and public services 80.76% apply washing hands with soap, while in traditional markets or street vendors 51.41% apply washing hands with soap, from a percentage of data from the Central Statistics Agency that most Indonesians have implemented health protocols according to the location or place visited by the

community. The application of health protocols is related to the availability of facilities.

Based on Table 4, the characteristics of respondents towards behavior, it is found that most respondents are at the age of 17-25 years with good behavior at 39,0%, moderate behavior by 35.7%, and poor behavior by 13.8%. Positive behavior that can be given by the community in preventing the transmission of COVID-19 is compliance with health protocols.<sup>16</sup> According to data from the Central Bureau of Statistics (2020) regarding the level of compliance of respondents in implementing health protocols in September 2020 according to age, 66.0% of respondents were found 17-30-year-olds often wash their hands with soap, especially when outside the home.

Based on the data, it shows that not all Indonesian people have implemented health protocols but most people have started to adjust the implementation of health protocols in pandemic conditions, based on the data in Table 4 shows there is 1 respondent with the latest S2 / S3 education who has less behavior regarding washing hands with soap in prevention of COVID-19, and there is also 1 respondent with the last junior high school education but good behavior towards the prevention of COVID-19 this can occur due to various factors, not apply health protocols according to a survey conducted by the Central Bureau of Statistics on community behavior during the pandemic, many respondents thought that there was no sanction for not implementing health protocols and lack of awareness was the word most often used for reasons of not implementing other health protocols. Good COVID-19 prevention behavior can be obtained if the community has good knowledge too. The use of social media, education from regulatory agencies, and official state websites can influence public understanding of COVID-19 prevention. This also requires monitoring and evaluation of various parties so that there are no additional cases in the community

### **Research limitations**

1. This research was conducted online and disseminated through various social media platforms so that anyone can fill in if they get a link and know how to fill it in. Based on the characteristics of respondents, namely age, researchers are less reaching the sample aged 36-45 years.
2. This research is subjective because it does not interact with or directly interview respondents.
3. Other factors in preventing COVID-19 such as wearing masks and maintaining distance were not studied in this study.

### **CONCLUSION**

Based on research results regarding the relationship between knowledge and attitudes and behavior of washing hands with soap in the prevention of COVID- 19 in Kupang City can be drawn as follows: 1. Level knowledge of washing hands with soap in preventing COVID-19 in the community in Kupang City is categorized as high at 94,3%. 2. Attitude washing hands with soap in the prevention of COVID-19

in the community in Kupang City was obtained by many people with a positive attitude of 82,9%. 3. The behavior of washing hands with soap in preventing COVID-19 in the community in Kupang City is categorized as follows, namely 47,6% of people with good behavior, 37,6% of people with good behavior, and 14,8% of poor behavior. 4. There is a relationship between the level of knowledge and attitudes about washing hands with soap in the prevention of COVID-19 in the community in Kupang City with a value of  $p = 0,000$  ( $<0,05$ ). 5. There is a relationship between the level of knowledge and behavior about washing hands with soap in the prevention of COVID-19 in the community in Kupang City with a  $p$ -value of  $= 0,026$  ( $<0,05$ ).

### Suggestion

1. For researchers: It is expected to research other factors that influence the spread of COVID-19 such as the use of masks and the application of physical distancing.
2. For the Health Office: Conducting and increasing guidance on prevention and community impacts by not implementing health protocols.
3. For the Community: Implement proper and correct health protocols to reduce transmission or increase the number of COVID-19.

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