

# The Relationship of Knowledge About COVID-19 and Compliance With Hand Washing With Soap in Primary School-Age Children

<sup>1\*</sup>Rachmawaty D. Hunawa, <sup>1</sup>Dea Aprilya A. Mano, <sup>2</sup>Suwarly Mobiliu, <sup>1</sup>Nirwanto K. Rahim,  
<sup>1</sup>Ita Sulistiani Basir, <sup>3</sup>Suwardha Yunus

<sup>1</sup>Program Studi Ilmu Keperawatan, Universitas Negeri Gorontalo

<sup>2</sup>Program Studi Ilmu Keperawatan, Poltekkes Kemenkes Gorontalo

<sup>3</sup>Stikes Graha Edukasi Makassar

Korespondensi: [Rachmawaty@ung.ac.id](mailto:Rachmawaty@ung.ac.id)

**Abstract:** CoVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). One part of the body that can transmit it is the hands. Washing hands with soap is one way to prevent the transmission of Covid-19. This study aims to determine the relationship between Covid-19 knowledge and hand washing using soap in elementary school-aged children at MIM Unggulan of Gorontalo City. This research is quantitative research with a cross sectional approach. The population are 167 elementary school students in grades 4 and 5. The total samples are 118 respondents using the Proportionate Stratified Random Sampling. The results showed that 88 respondents (74.6%) had good knowledge about Covid-19, 28 respondents (23.7%) had adequate knowledge, and two respondents (1.7%) had poor knowledge. In addition, respondents with good compliance with hand washing using soap were 85 respondents (72.0%), fair compliance were 32 respondents (27.1%), and one respondent with poor compliance (0.8%). It obtained p-Value = 0.000 ( $\alpha < 0.005$ ), which means that there is a relationship between Covid-19 knowledge and hand washing using soap compliance in elementary school-aged children at the MIM Unggulan of Gorontalo City.

**Keyword:** Career Path, Job Satisfaction, Inpatient Room.

## INTRODUCTION

Until now the world is still faced with health problems caused by the Corona virus. Coronavirus disease 2019 (COVID-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). 2 types of Coronavirus are known to cause illnesses that can produce severe symptoms, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). Several signs and symptoms arise if someone is infected with this virus, namely symptoms of acute respiratory tract disorders such as fever, cough, and shortness of breath. The average incubation period is 5 – 6 days; the longest is around 14 days. In severe cases of Covid-19, it can cause pneumonia, acute respiratory syndrome, kidney failure, and can also cause the sufferer to die. On December 31, 2019, the WHO China Country Office reported a case of pneumonia that occurred in the city of Wuhan, Hubei Province, China. On January 7, 2020, health workers in China identified the virus as a new type of Coronavirus. On January 30, 2020, WHO designated the event as a World Disturbing Public Health Emergency (PHEIC), and on March 11, 2020, WHO designated Covid-19 as a pandemic (1).

During the pandemic period, this virus experienced mutations. This process produces new variants with different phenotypes, transmission patterns, and virulence. WHO groups these variants into 3 large groups, namely Variants of Interest (Vol), Variants Under Monitoring (Vum), and Variants of Concern (Voc). Variants of Interest (Vol) have phenotypic changes that impact transmission patterns, virulence, and antigenicity. On September 22, 2021, WHO designated the Lambda variant (Pongo Nomenclature: C.37), which was first detected in December 2020 in Peru, and the Mu variant (Pongo Nomenclature: B.1.621), which was first detected in January 2021 in Colombia as Vol. while Vum, a variant with phenotypic changes

but further information regarding increased transmission, impact on morbidity and mortality, and virulence is not yet known. Meanwhile, VoC, a variant with a phenotype that negatively impacts disease prognosis and increases transmission and virulence, is more significant than Vol(2).

Every day, the number of people who test positive for infection continues to increase. According to data from the Covid-19 Handling Task Force on October 24, 2021, the number of Covid-19 sufferers in Indonesia was 4,254,443 who tested positive. Based on analysis of individual data from the Indonesian Ministry of Health (2021), in June-July, there were 351,336 confirmed positive cases of COVID-19 in children and 101,012 for children aged 7-12 years. The latest data, according to the Indonesian Ministry of Health, on January 28, 2022, the total of all sufferers who tested positive was 4,319,175, and 144,268 cases died. Based on data from the Gorontalo Provincial Health Office on January 25, 2022, the number of COVID sufferers was 11,857 positive cases, 6 patients are being treated, and of this number, 12% of sufferers are aged 6-12 years.

Meanwhile, data from the Gorontalo City Health Office on February 7, 2022, showed that 4,459 people tested positive, and 16 were active cases. Of this number, the most significant number of cases was in the southern city, with around 993 positive cases and 8 active cases. The data on school-age children who have tested positive for COVID-19 is 32 students, some of whom are studying at MIM Unggulan, Gorontalo City. Washing your hands using soap and clean running water or with alcohol can reduce the risk of exposure to diseases in elementary school age children caused by various things, especially during the Covid-19 outbreak. However, because knowledge about preventing the spread of COVID-19 still needs to be higher among elementary school-age children, this has resulted in non-compliance with washing hands using soap. One effort to break the chain of spread of Covid-19 is by washing your hands. In this case, it requires good understanding and knowledge from the entire community, one of which is children. Knowledge about COVID-19 is essential, which can influence children's behavior to prevent disease transmission and increase the number of COVID-19 cases (3).

However, research conducted by Nugroho in 2022 showed that elementary school age children's compliance was high at the start of the pandemic only. Compliance with washing hands using soap is influenced by various factors such as knowledge, motivation, perception, and belief in efforts to control and prevent disease. Sumartini in Zuhroidah et al. (2021) stated that a person's compliance will increase in line with that person's knowledge. Based on initial observations made by researchers on February 21, 2022, at MIM Unggulan located in Kec. Central City of Gorontalo City. The results of the interview obtained from one of the teachers were that washing hands with soap for students at the school had been carried out well, but only at the start of offline learning activities, and at this time, it was starting not to be carried out well. The school provides facilities in sinks at various points, including in front of the entrance gate, in front of the teacher's room, in front of the administration room, and front of the principal's room. Students at the school also bring hand sanitizer (4).

The results of interviews conducted with 11 students at MIM Unggulan Gorontalo City 6 said they knew about COVID-19 and one way to prevent it was washing hands in 6 steps. This student said he washed his hands before and after activities (eating, studying, crafts, and other activities). Meanwhile, 5 students must learn about COVID-19 and the 6 steps for washing hands. These students also often need to carry out the 6 hand washing steps. Based on this background, researchers want to research the relationship between knowledge of COVID-19 and compliance with washing hands with soap in elementary school-age children.

## METHODS

This research is descriptive with a quantitative approach and cross research design sectional. Data collection: primary data was obtained by direct collection consisting of numbers. There are 118 students in grades 4 and 5 of elementary school. This research was conducted at MIM Unggulan Gorontalo City from August to September 2023.

## RESULT AND DISCUSSION

### Result

#### *Respondent Characteristics*

Table 1. Characteristics Respondent

Variable	n(118)	100%
10 years	64	54.2%
11 years old	54	45.8%
Type Sex:		
Man	47	39.8%
Woman	71	60.2%
Class:		
4th grade	59	50%
Grade 5	59	50%

*Source : Data Primary, Year 2023*

Table 1. Results analysis obtained that the majority of respondents aged 10 years were 64 respondents (54.2%), while respondents aged 11 years were 54 respondents (45.8%). Most respondents were female, 71 respondents (60.2%), while male respondents were 47 (39.8%). Apart from that, the number of respondents in class 4 and class 5 was the same, namely 59 respondents (50%) each.

#### *Analysis Univariate*

Table 2. Frequency Distribution of Elementary School Students' Covid-19 Knowledge in the Leading MIM Gorontalo City Variable

Variable	n(118)	100%
Work Satisfaction		
Good	88	74.6%
Enough	28	23.7%
Not enough	2	1.7%

*Source : Data Primary, Year 2023*

Results analysis obtained that the majority of respondents had good knowledge, namely 88 respondents (74.6%), while respondents with sufficient knowledge were 28 respondents (23.7%), and respondents with insufficient knowledge were 2 respondents (1.7%).

Table 3. Distribution of Handwashing Compliance for Elementary School Students in the Leading MIM Gorontalo City

Variable	n(118)	100%
Work Satisfaction		
Good	85	72.0%
Enough	32	27.1%
Not enough	1	0.8%

Source : Data Primary, Year 2023

Results analysis obtained that most respondents had good hand washing compliance, namely 85 respondents (72.0%). Respondents with sufficient hand washing compliance were 32 (27.1%), and respondents with poor hand washing compliance were 1 (0, 8%).

### Analysis Bivariate

Table 4. Distribution COVID-19 knowledge with hand washing compliance among Gorontalo City Superior MIM students

Covid-19 Knowledge	Handwashing Compliance								P-Value
	Good		Enough		Not enough		N	%	
	N	%	N	%	N	%			
Good	84	71.2	4	3.4	0	0	88	74.6	0,000
Enough	1	0.8	27	22.9	0	0	28	23.7	
Not enough	0	0	1	0.8	1	0.8	2	1.7	

Source : Data Primary, Year 2023

The analysis results show that most respondents with sound knowledge also have good handwashing habits, namely 84 respondents (71.2%). Meanwhile, sufficient hand washing compliance was dominated by adequate knowledge, namely, 27 respondents (22.9%). Based on the results of the bivariate test between the Covid-19 knowledge variable and hand washing compliance, using the Spearman Rank test, we obtained p-value = 0.000, which is smaller than  $\alpha = 0.05$  or p-value <  $\alpha$  value, so H0 is rejected, which means there is The relationship between knowledge of Covid-19 and compliance with hand washing with soap in school-aged children.

### Discussion

#### **Elementary School Students' Covid-19 Knowledge at the the Leading MIM in Gorontalo City**

The research found that the majority of respondents had good knowledge, namely 88 respondents (74.6%). Good understanding of respondents can be seen based on research results where all respondents know and understand what COVID-19 is, what it causes, signs and symptoms of COVID-19, how the COVID-19 virus is transmitted, and preventive measures such as vaccination and washing hands

thoroughly. Soap, keep your distance, and self-isolate for 14 days. This is in line with the respondents' answers to the questionnaire given. This is supported by the theory put forward by Notoadjmojo (2012) that there are several levels of knowledge, including knowing and understanding. Knowing is defined as remembering memories that have been obtained and observed previously.

Meanwhile, understanding is the ability that an individual has to explain several things that are known and can interpret the material correctly. This aligns with research conducted by Yanti et al. (2020) regarding an overview of public knowledge about Covid-19 and community behavior during the Covid-19 pandemic. This research shows good knowledge because respondents know and understand the COVID-19 material; respondents also take precautions and can answer the questions related to COVID-19 material (5).

This research found that of the 118 respondents there were 28 respondents with sufficient knowledge, where there were still things that the respondents needed to learn regarding Covid-19. Based on the research results, respondents with sufficient knowledge stated that they knew, understood, and took preventive measures but needed to do them properly and correctly, such as not self-isolating for 14 days and not washing their hands properly and accurately. Respondents also did not know that people with no symptoms can transmit Covid-19. This is supported by the theory put forward by Duan et al. (2020) that individuals who have sufficient knowledge are classified as individuals who know and understand but do not comply with health protocols regarding the prevention of COVID-19 and also do not know how to transmit and prevent the Covid-19 virus. (6).

This aligns with research conducted by Utami et al. (2020) that respondents with sufficient knowledge. These namely respondents did not know that people could transmit Covid-19 without symptoms and took preventive measures but did not comply with provisions such as washing hands, and maintaining distance. And carry out self-isolation. Meanwhile, in this study, 2 other respondents were in the poor knowledge category; this can be seen from the research results where the respondents needed to learn, understand, and do things about COVID-19. Such as signs and symptoms; prevention methods include keeping your distance, wearing a mask, self-isolation, and washing your hands (7).

According to the theory put forward by Anggreni (2020), children with insufficient knowledge are referred to as children who need to learn about COVID-19, including signs and symptoms and ways of transmission, and do not carry out preventive measures. A person's knowledge can be said to be good, sufficient, and less influenced by other factors, namely information in the form of health education (8). This is based on the results of interviews conducted with teachers and homeroom teachers at the school, that health education about Covid-19 is often held, but not all students take part in this education. Based on the research results, the categories sufficient and inadequate did not participate in health education properly; there were even students who were absent when the education was held. Students with good knowledge participate in educational activities as a whole. This aligns with research conducted by Yudiawan (2019) regarding the correlation analysis of absenteeism levels with MTS student learning outcomes. The al-Gebra Science, Sorong City, West Papua research results show a significant relationship between absenteeism and student learning outcomes and knowledge. Students with more absences tend to have lower learning outcomes than those with fewer absences (9). Based on the research results, supporting theories, and previous research, which is in line with the results of this research, the researcher assumes that the respondents' knowledge is said to be good because the respondents know and understand the material about COVID-19 and take preventive measures, respondents with sufficient knowledge are found in respondents who do not proper and correct preventive measures starting from self-isolation, keeping your distance to washing your hands, as well as respondents with insufficient

knowledge because respondents do not know and do not understand things about Covid-19, including what Covid is, its transmission, signs and symptoms, and how to prevent it.

### ***Handwashing Compliance for Elementary School Students at the Leading MIM in Gorontalo City***

In the research, it was found that as many as 85 respondents had good handwashing compliance. This can be seen from the research results where respondents carried out 6 hand washing movements, washing their hands for 40-60 seconds every day and washing their hands before and after carrying out activities using soap or hand sanitizer. According to the theory put forward by Haryana et al. (2021), hand washing compliance can be said to be good when the person carries out all the steps and washes their hands for 40-60 seconds and performs hand washing during and after activities and uses soap when washing hands ( 10).

in aligns with research conducted by Kurniawati (2022) regarding the relationship between clean and healthy living knowledge and handwashing behavior in the COVID-19 pandemic. The results of her study showed that respondents with good handwashing compliance were respondents who carried out the 6 steps of handwashing. Every day, both in activities and in daily activities (11). In this study, it was found that 32 respondents had sufficient handwashing compliance. This can be seen from the research results where of the 6 steps for washing hands, there is 1 movement that is not carried out, namely step 4 or the "locking" movement. Of the 32 respondents who fell into the sufficient category, only 5 respondents carried out the 4th movement. 3 out of 5 respondents only washed their hands for 40-60 seconds. The remaining 2 respondents did not wash their hands after handling commonly touched objects around the respondent. Respondents also rarely wash their hands; respondents only wash their hands 1-3 times a day, and this is done before eating.

According to the theory put forward by Delima (2022), compliance with hand washing is considered sufficient when children do not wash their hands optimally; that is, one or several movements must be carried out. The action is only carried out at certain times (12). This aligns with research conducted by Simorangkir et al. (2022), which showed that respondents with sufficient handwashing compliance did not carry out several existing handwashing steps and rarely washed their hands before or after activities. Meanwhile, 1 other respondent needed to be in the better compliance category (13). This can be seen from the research results where respondents with poor compliance are respondents who never wash their hands before or after carrying out various activities; respondents do not carry out 6 hand washing movements; respondents also wash their hands for less than 20 seconds. According to the theory put forward by Mujiburrahman (2020), poor handwashing compliance is shown by the behavior of not washing hands according to existing steps both before and after carrying out daily activities, washing hands without using soap or hand sanitizer before entering the house, school, minimarket, etc. (14). This is also in line with research conducted by Ta'adi (2019), the results of which showed that respondents with poor hand washing compliance were respondents who did not carry out the 6 steps of washing hands for a minimum of 40-60 seconds, and did not wash their hands either before or after activity (15).

A person's compliance can be said to be suitable, sufficient, or less influenced by other factors, namely gender. This can be seen from the research results, where most respondents with good handwashing compliance were female. In this study, there was also 1 respondent whose compliance fell into the poor category. This is due to the information given by the homeroom teacher and teacher at the school<sup>51</sup> that this student is indeed a student who is very difficult to manage, and this student is male. Based on research results, supporting theories, and previous research results, which are in line with the

results of this research, the researcher assumes that respondents have good compliance because respondents wash their hands in 6 steps using soap. Respondents wash their hands daily, before or after carrying out activities. Respondents with sufficient hand washing compliance because respondents were reluctant to carry out several hand washing compliance actions. Meanwhile, respondents with poor handwashing compliance were because the respondents needed to wash their hands properly and correctly. Respondents did not carry out the 6 steps for washing their hands and did not wash their hands before or after various activities.

### ***The Relationship Between Covid-19 Knowledge and Hand Washing Compliance of Elementary School Students in the Leading MIM Gorontalo City***

The research results showed that most respondents with sound knowledge also had good handwashing habits, namely 84 respondents (71.2%). Meanwhile, sufficient hand washing compliance was dominated by respondents with adequate knowledge, namely 27 respondents (22.9%). This study found that 88 respondents had good knowledge, of which 84 had good handwashing compliance while the remaining 4 had sufficient handwashing compliance. In this study, the results showed that 84 respondents had good knowledge about COVID-19 and good compliance with washing hands with soap. This is seen based on research results where respondents know and understand about Covid-19 and take preventive measures properly and correctly, where they wash their hands 6 steps and use soap every day before and after activities.

This is to the theory put forward by Erlin et al. (2020) that health knowledge will be the primary motivator in maintaining one's health. The better people's knowledge or understanding of health, the better their perspective on health and illness (16). This aligns with research conducted by Panjaitan & Siagian in 2021 regarding the Relationship between Knowledge and COVID-19 Prevention Behavior in Adolescents. This research explains that without knowledge, a person has no basis for making decisions and determining an action to be taken; knowledge is very important. Determine each individual, thereby influencing behavior in everyday life. Because the higher a person's level of knowledge, the easier it is to decide what he should choose and what he should do in his life (17). However, there were still 4 respondents who needed more handwashing compliance even though they had good knowledge. This is because respondents know and understand that COVID-19 is a dangerous disease caused by a virus originating in China; respondents also know and understand the signs and symptoms, and respondents also take preventive measures, one of which is washing their hands with soap. However, the respondent needed to wash his hands properly, and one of the steps in washing his hands was not carried out. This was the 4th movement, and the respondent washed his hands only 1-3 times a day and did it before or after eating.

According to the theory put forward by Haryani (2021), knowledge will have implications for implementing behavior, where knowledge encourages individuals to do things by what is known, including washing their hands with soap. There was 1 respondent who had sufficient expertise but had good compliance because the respondent knew about COVID-19 and carried out the 6-step hand washing action using soap properly and correctly. However, there are several things about COVID-19 that respondents do not understand, such as people who have no symptoms can transmit COVID-19. Respondents also do not self-isolate, but respondents still try to wash their hands well and correctly (10). This can be seen from the research results where respondents wash their hands in 6 steps using soap every day, both before and after activities, so respondents avoid the COVID-19 virus. According to the theory put forward by Mardianti & Gozali (2021), sufficient knowledge can make someone take

compliance actions to achieve something they want (18). This study also found 1 respondent with insufficient knowledge and compliance and 1 respondent with inadequate expertise and sufficient compliance. Respondents who have adequate knowledge and lack compliance because respondents need to learn and understand material about COVID-19, such as the causes of COVID-19, its signs and symptoms, how to transmit it, and how to prevent it. Respondents also should have taken preventive measures, namely washing their hands 6 steps with soap, washing their hands only 1-2 times a day, did not washing their hands either before or after carrying out activities.

In this study, there was 1 respondent who had insufficient knowledge but sufficient compliance. This can be seen from the results of research where respondents do not know about COVID-19, including its symptoms, causes, methods of prevention, and transmission, but respondents still try to wash their hands with soap even though they still do it 1-3 times a day, washing their hands less. Then, after 20 seconds, one step of the 6 steps for washing hands is still not carried out. This is in line with research conducted by Putra & Manalu (2020), where the research results show that insufficient knowledge can cause inappropriate behavior in its implementation. Other factors that can influence knowledge and compliance are gender, education in the form of health education about COVID-19, and motivation and encouragement provided by people closest to them, especially parents (19). Based on the results of the bivariate test between the Covid-19 knowledge variable and hand washing compliance, using the Spearman Rank test, we obtained  $p$ -value = 0.000, which is smaller than  $\alpha = 0.05$  or  $p$ -value <  $\alpha$  value, so  $H_0$  is rejected, which means there is The relationship between knowledge of Covid-19 and compliance with hand washing with soap in school-aged children.

According to Panjaitan & Siagian (2021), without knowledge, a person has no basis for making decisions and determining an action to be taken; knowledge determines each individual, influencing behavior in everyday life. Because the higher a person's level of expertise, the easier it is to decide what he should choose and what he should do in his life (17). The results of this research align with research conducted by Engkol et al. (2019) regarding the relationship between knowledge and attitudes toward hand washing at SD Inpres Lahendong. The research results show a significant relationship between knowledge and handwashing compliance; the higher the student's knowledge, the higher also the handwashing compliance of students (20).

## CONCLUSION

Based on the results of research on the relationship between Covid-19 knowledge and compliance with hand washing with soap among MIM Unggulan elementary school students in Gorontalo City, there is a significant relationship between Covid-19 knowledge and compliance with hand washing with soap among school-age children in MIM Unggulan City Gorontalo.

Hopefully, it will become a source of information and learning materials related to COVID-19 knowledge and handwashing compliance among elementary school-age children.

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