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Research Article

The Relationship of Hand Washing Behavior with Soap and the Incidence of Typhoid Fever in Children Aged 5 - 12 Years in RW 01 Cikembar Village Cikembar District Sukabumi Dist

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Abstract:
The general aim of this research is to determine the relationship between hand washing behavior with soap and the incidence of typhoid fever in children aged 5-12 years. This research is a quantitative research with a cross sectional approach. The research population was children aged 5-12 years in rw 01, Cikembar village, Cikembar sub-district, Sukabumi district, from August to September 2023, data were obtained for 98 people. The research sample was 98 children aged 5-12 years who were determined using total sampling techniques. Research data was collected using a questionnaire which was then analyzed using chi square analysis. The results of the study showed that the chi square test results of the relationship between hand washing behavior with soap and the incidence of typhoid fever obtained a value (p-Value = 0.000) so that H0 was rejected and the chi square test results of the relationship between snack consumption and the incidence of typhoid obtained a value (p-Value = 0.377) so that H0 is rejected. It is proven that the habit of washing hands before eating influences the incidence of typhoid fever.
Keywords: Hand Washing Behavior, Hand Washing with Soap, Typhoid Fever

1. INTRODUCTION

Law No. 6 of 1962 governing epidemics lists typhoid fever as an infectious disease. This category of infectious diseases includes illnesses that can strike a large number of individuals at once, leading to an outbreak, and are easily spread. An infectious disease called typhoid fever is quite common worldwide, with particularly high rates of morbidity and mortality in developing nations (Salsabila et al., 2021).

Thyphoid fever, a minor intestinal infection brought on by the Salmonella typhii bacteria, is one of the illnesses that affect the gastrointestinal tract. In Indonesia, this illness is still rather widespread. Salmonella typhii is a gram-negative bacterium that can infect humans through food and drink. It is one of the germs that causes typhoid fever. Typhoid illness, or tyoid disease, is a bacterial infection that is caused by Salmonella enterica, or more precisely, Salmonella typhi (Juniah & Arianti, 2023).

In poor nations, typhoid fever is a serious public health issue. According to WHO estimations, typhus causes between 11 and 21 million cases and 128,000 and 161,000 fatalities globally each year (Rauniyar et al., 2021). South Africa, Southeast Asia, and South Asia have a high rate of typhoid fever cases. Slums in Bangladesh, China, India, Indonesia, Laos, Nepal, Pakistan, and Vietnam account for 80% of instances. Typhoid fever is the primary cause of illness and mortality in low- and middle-income nations (Idrus et al., 2023). In 2017, the incidence of typhoid fever worldwide reached 0.1%, or about 14.3 million new cases. In 2019, typhoid fever cases were reported at 94 million cases per year worldwide (Sari et al., 2024).

In Indonesia, typhoid fever is an infectious disease that can kill many people. Children and adolescents often experience typhoid fever. This happens because they are not aware of the importance of keeping the environment and food clean. Children who suffer also usually do not have perfect immunity to infection. The presence of intermediaries and reservoirs, snack habits, unsanitary food management, and unqualified individual hygiene behavior are all factors that can cause the transmission of typhoid fever (Betan et al., 2022). It is the Salmonella typhi bacteria that causes typhoid disease, or typhoid disease which is often referred to as typhoid fever. Symptoms of the disease are increasingly likely to manifest include fatigue, nausea, vomiting, diarrhea, and high temperature. College students are most susceptible to typhoid because of their disordered and unhealthy lifestyle

(Bellji & Wulandari, 2023). The bacteria Salmonella typhi or Salmonella typhosa of the genus Salmonella causes typhoid fever, which is very closely related to hygiene. Salmonella typhi bacteria live in dirty food or soil, so if a person eats dirty food and their immune system is low, the bacteria will attack their intestines (Rosdiana et al., 2023).

In Indonesia, the average incidence of typhoid fever cases reaches 900,000 cases per year, with more than 20,000 deaths. In 2017, typhoid fever cases in Indonesia were estimated to reach 59,047 cases, and the death rate was around 444 people (Aini et al., 2021). Thypoid fever in Indonesia is considered endemic, or a disease that always exists in society. According to health workers' diagnoses, the prevalence of thypoid fever across the country is 1.60%. Nanggroe Aceh Darussalam reached 2.96 percent, Bengkulu reached 1.6 percent, West Java reached 2.14 percent, Central Java reached 1.61 percent, Banten reached 2.24 percent, NTB reached 1.93 percent, NTT reached 2.33 percent, South Kalimantan reached 1.94 percent, East Kalimantan reached 1.8 percent, South Sulawesi reached 1.8 percent, Central Sulawesi Thypoid fever was found in the school age group (5-24 years old), with a prevalence of 1.9%, with the lowest rate in infants 0.8% (Qomah et al., 2023). WHO (2018) estimates that the number of persons affected by typhoid is between 11 and 20 million, with between 128,000 and 161,000 deaths occurring as a result. 500 persons per 100,000 have typhoid fever on average, and between 0.6 and 5% of those cases result in death (Wilujeng et al., 2023). Typhoid fever is a common acute infectious disease in Indonesia, ranging from infants, children, adults, and even the elderly (Sahani et al., 2020).

The typhus-causing bacteria can travel throughout the body and wreck havoc with multiple organ systems. Typhoid fever patients can transmit the bacteria to others by their own feces and urine, as well as through food and beverages tainted by the feces or urine of other typhoid fever patients. or consuming food that has been supplied to a typhoid patient who has not yet been officially treated by his physician. Typhoid fever is a bacterial infection that can damage multiple organs and spread throughout the body. The disease can lead to serious complications that can be fatal if not treated quickly and appropriately. Typhoid fever is a multifactorial disease, meaning that there are many factors that can cause it. Some of these factors include age, gender, education, occupation, environmental sanitation, personal hygiene, and residence. Personal hygiene, which includes handwashing, eating and drinking habits, diet, and environmental sanitation, are some of the essential typhoid fever prevention behaviors to reduce infection rates (Sari & Wahyuni, 2021). Typhoid fever, also known as typhoid abdominals, is an infection characterized by fever symptoms for seven days and usually causes gastrointestinal problems, gastrointestinal problems, and consciousness problems (Purnamasari et al., 2022).

Salmonella Typhi only lives in humans, Not having access to clean water and adequate sanitation increases the risk of typhoid fever transmission. Unclean and healthy living behaviors are closely related to typhoid fever. These include poor environmental sanitation, such as unfit latrines, poor clean water quality, and unqualified landfill conditions, as well as poor personal hygiene, such as not washing hands before meals and lack of food care and storage (Fachrizal et al., 2022). Intestinal and bloodstream microorganisms are present in typhoid fever patients. Prolonged high temperature, exhaustion, headache, nausea, abdominal pain, and diarrhea or constipation are some of the symptoms. Some individuals might get a rash. Severe cases may result in fatalities or major difficulties. A blood test can be used to confirm typhoid illness (WHO,2023).

In October 2017, the Strategic Advisory Group of Immunization Experts (SAGE), which made recommendations to the WHO on the use of vaccines, recommended that typhoid conjugate vaccines be included in routine childhood immunization programs in countries notorious for typhoid disease. Additionally, SAGE asked that nations with high incidence of typhoid sickness or high levels of antibiotic resistance to Salmonella typhi be given priority when it comes to the introduction of typhoid conjugate vaccines. Gavi began supplying funding in 2019 to encourage the use of typhoid conjugate vaccines in nations that qualify.

The World Health Organization has prequalified two conjugate vaccines in March 2023 to help prevent typhus. Given as a single dose to children as early as six months of age, the typhoid conjugate vaccine offers a longer-lasting immunity than the previous typhoid vaccine. Widespread use of typhoid conjugate vaccines in afflicted countries is anticipated to decrease the demand for antibiotics for typhoid treatment and slow the rise in antibiotic resistance in Salmonella Typhi, in addition to lowering the disease burden in endemic areas and saving lives (WHO, 2023).

Typhoid fever is caused by the invasive pathogen Salmonella typhi that comes from contaminated

feces, food, and water (Amal & Pelupessy, 2024). The factors that cause typhoid fever are related to clean and healthy living behaviors (PHBS) and the quality of personal hygiene (the habit of washing hands before eating, the habit of washing hands after defecation, the habit of washing raw foodstuffs and the habit of eating/snacking outside the home), the personal hygiene of food handlers is still low, the cleanliness of restaurants or restaurants is still unhealthy and environmental sanitation (the surrounding environment is still dirty, such as inadequate clean water supply, inappropriate household waste management and fecal disposal that does not meet the requirements or does not have healthy latrines) and community behavior that does not support healthy living (Octavia et al., 2022). One of the clean and healthy lifestyle behavior methods (PHBS) that is currently a global concern is hand washing. Bad handwashing behavior is not only appearing in developing countries, but also in developed countries, where most people still forget the importance of hand washing. As a result, cases of diarrhea continue to rise in countries such as Indonesia (Nuraeni et al., 2022).

A preliminary study that researchers have carried out shows that the number of children aged 5 - 12 years in RW 01 Cikembar Village, Cikembar District is 98 people, 52 boys and 46 girls. Researchers obtained results from Cikembar Community Health Center officers that every year there is an increase in the incidence of typhoid fever, this is due to the lack of public awareness of sanitation measures by washing hands with soap before and after eating, after defecating, and after carrying out activities. The Cikembar Community Health Center's field work program includes educating the public about typhoid prevention, implementing special protection measures (typhoid vaccination), and engaging in advocacy and outreach through KIE (community information and education).

The aim of this research is to analyze the relationship between hand washing behavior with soap and the incidence of typhoid fever in children aged 5 - 12 years in RW 01 Cikembar Village, Cikembar District, Sukabumi Regency.

2. MATERIAL AND METHOD

Quantitative research methodology was employed in this study. This study's design employed a cross-sectional temporal approach. The study included 98 children between the ages of 5 and 12 who were recruited from all 4 community response teams (RTs) in RW 01 Cikembar Village, Cikembar District, Sukabumi Regency. There were 98 samples used in this investigation. Total sampling is the sample calculation method employed in this study. Children between the ages of 5 and 12 were directly handed a questionnaire, together with their parents and those who would fill it out, in order to collect data for this study. The investigation was conducted in Sukabumi Regency's RW 01, Cikembar Village, Cikembar District. This research was carried out in March - July 2023. There are two analyzes used in this research, namely univariate analysis and bivariate analysis. The univariate analysis used is the frequency distribution and the bivariate analysis used in this research is the Chi Square test.

3. RESULT AND DISCUSSION

3.1 Univariate Results

a. Hand Washing Behavior with Soap in RW 01 Cikembar Village, Cikembar District, Sukabumi Regency.

Table 1. Frequency Distribution of Hand Washing Behavior with Soap in RW 01 Cikembar Village, Cikembar District, Sukabumi Regency in 2023

Hand Washing Behavior with Soap	Frekuensi (n)	%
Good	11	11,2
Enough	61	62,2
Not Enough	26	26,5
Total	**98**	**100**

Based on Table 1, the majority of respondents' hand washing behavior with soap is in the adequate category with 61 (62.2%) respondents, and a small portion of respondents' behavior is in the good category with 11 (11.2%) respondents.

b. Incidence of Typhoid Fever in Children Aged 5-12 Years in RW 01 Cikembar Village, Cikembar District, Sukabumi Regency

Table 2. Frequency Distribution of Typhoid Fever in Children Aged 5-12 years in RW 01 Cikembar Village, Cikembar District in 2023

Typhoid Fever Occurrence	Frekuensi (n)	%
Never had a fever	72	73,5
Had a fever	26	26,5
Total	**98**	**100**

Based on Table 2, the majority of respondents' incidence of typhoid fever was in the category of never having fever with a total of 72 (73.5%) respondents, and a small portion of respondents were in the category of having experienced typhoid fever with a total of 26 (26.5%) respondents.

Analysis of the Relationship between Hand Washing Behavior with Soap and the Incidence of Typhoid Fever in Children Aged 5-12 Years in RW 01 Cikembar Village, Cikembar District, Sukabumi Regency

3.2 Bivariat Result

Table 3. Relationship Between Hand Washing Behavior and the Incidence of Typhoid Fever

Hand Washing Behavior with Soap	Typhoid Fever Occurrence				Total		P-Value
	Never had a Fever		Had a Fever				
	n	%	n	%	n	%	
Good	0	0%	11	11,2%	11	11%	0,000
Enough	0	0%	61	62,2%	61	62%	
Not enough	26	26,6%	0	0%	26	27%	
Total	26	26,6%	72	73,4%	98	100%	

Based on table 3, respondents whose hand washing behavior with soap was in the good category and who had never had an incident of typhoid fever were 11 (11.2%) respondents. Respondents whose behavior of washing hands with soap was in the good category and who had experienced typhoid fever were 0 (0%) respondents. There were 61 (62.2%) respondents whose hand washing behavior with soap was in the sufficient category and had never had an incident of typhoid fever. Respondents with the behavior of washing hands with soap in the sufficient category and having experienced typhoid fever were 0 (0%) respondents. There were 0 (0%) respondents whose behavior of washing their hands with soap was in the poor category and had never experienced typhoid fever. There were 26 (26.6%) respondents whose behavior of washing their hands with soap was in the poor category and who had experienced typhoid fever. After analyzing the data using Chi-Square to find the relationship between respondent behavior and the incidence of typhoid fever, a sig. equal to 0.000 < 0.05 so it can be concluded that Ha is accepted and Ho is rejected, which means there is a significant relationship between the behavior of washing hands with soap and the incidence of typhoid fever.

Based on the results of research conducted on 98 respondents, namely children aged 5 - 12 years accompanied by parents who will fill out the questionnaire are the parents of these children in Rw 01 Cikembar Village, Cikembar District, Sukabumi Regency according to table 4.6 of the cross tabulation results between the relationship variables the behavior of washing hands with soap and the incidence of typhoid fever, it is known that the total number of respondents with the behavior of washing hands with soap and never having an incident of typhoid fever was 72 (73.4%) respondents. Respondents with the behavior of washing their hands with soap and never having experienced typhoid fever were 26 (26.6%). Based on Table 4.6, the results of the Chi-Square test calculation have a significant value (Sig.) = 0.000 (p-value ≤ 0.005).

Nurvina's research (2013) proves that dirty or contaminated hands can transfer pathogenic bacteria or viruses from the body, feces or other sources to food. Therefore, hand hygiene needs to be given high priority. Washing your hands using clean water and soap as well as rubbing between your fingers and rinsing your hands with clean, running water will remove dirt particles which contain many microorganisms. The habit of washing hands using clean water and soap before and after eating, after

defecating or doing other activities that cause dirty hands must be made a habit.

One way of transmitting Salmonella typhi bacteria is through fingers or nails. If the person does not pay attention to personal hygiene, such as washing their hands before eating, after defecating, Salmonella typhi bacteria can enter the body of a healthy person through the mouth, then healthy people will become sick.

The bacteria that causes typhus can spread throughout an affected person's body, impacting numerous organs. Individuals who have typhoid fever can spread the bacterium by eating, drinking, or touching objects contaminated with the urine or feces of other typhoid patients. or eating food that has been touched by a typhoid patient who has not yet been officially treated by a physician. A bacterial infection that can spread throughout the body and damage numerous organs is typhoid fever. In the absence of prompt and effective treatment, this illness may result in life-threatening consequences (WHO, 2023).

Washing your hands with soap is a simple behavior, but has a tremendous impact in preventing infectious diseases, because hands are a part of the body that we often use to touch other objects. So, it is not uncommon for disease-causing germs to stick to the hands and cause disease. These include diarrhea, typhoid fever (typhus), hepatitis, COVID-19, and many other types of infections (Ministry of Health, 2022). In addition, the World Health Organization (WHO) has historically held that typhoid control should include the treatment of acute cases and improved water sanitation (Alba et al., 2016).

Hands can directly come into contact with various sources that cause disease such as dirt (both human and animal), body fluids (sweat, saliva, snot) and after that the hands touch objects or even food/drink, so that the source sources of disease such as viruses, bacteria and parasites that live from sources that cause disease will be carried and attached to the food/drink that we consume

Washing hands with soap has been proven to reduce the risk of diarrhea and typhoid. However, compliance with hand washing at critical times (for example, before eating and after defecating) in many parts of the world is far from ideal. Therefore, we should start to promote good and correct hand washing (Ministry of Health, 2022).

Proper hand washing requires soap, rubbing between the fingers and nails using running water. Washing your hands with clean water and soap can dissolve fat and oil on the surface of the skin and reduce the number of germs on your hand. it is proven that the habit of washing hands before eating influences the incidence of typhoid fever, for this reason there is a need for self-awareness to increase the practice of washing hands with soap before eating and defecating using clean water and soap. Prevents transmission of Salmonella typhi bacteria into food touched by dirty hands.

4. CONCLUSION

Most of the respondents had good hand washing behavior with soap, namely 61 people (62.2%). Most of the respondents had never experienced typhoid fever, namely 72 people (73.5%). There is a significant relationship between the behavior of washing hands with soap and the incidence of typhoid fever, with a sig value. of 0.000.

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