



Determinants of Hand Washing with Soap (HWWS) in Rural Communities: Cross Sectional Study in Manggarai Regency East Nusa Tenggara Indonesia

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Abstract

Hand Washing With Soap (HWWS) behavior is a simple thing that can be done to inhibit the transmission of disease from the source of infection. Not much is known with certainty about the determinants of community handwashing behavior as a basis for promoting handwashing behavior. The research aims to identify the various determinants of HWWS behavior in the rural community, the results of which can be considered for designing the promotion of HWWS behavior in rural community and economically vulnerable groups.

A total of 52 villages as survey locations, interviews and observations were carried out on 168 household heads who were determined by purposive random sampling with the inclusion criteria of having toddlers, and the house is on the edge of a river / beach. Univariate data processing to describe the characteristics of respondents and bivariate analysis to describe the relationship between the various HWWS behavior variables.

The results of the study showed that the majority of the community already had HWWS facilities and were around the house where they lived. Critical times for community hand washing behavior are when hands are dirty, after feeding livestock and before eating. There is no difference between the determinants of HWWS behavior with education and with household categories based on the number of repeaters. Health cadres and local health workers dominate the sources of information obtained by the community regarding HWWS behavior.

The implication of the results of this study is that the promotion of HWWS behavior in the community needs to consider non-health messages such as HWWS carried out when hands are dirty, after feeding livestock and before eating. In addition to inhibiting the spread of diseases that are transmitted through hands, the goal of HWWS behavior is also. In addition, health cadres and health workers are very important as a channel for conveying education about HWWS behavior in the community, in addition to the use of social media.

Keywords: HWWS Behavior, Determinants of HWWS, Rural communities.

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1. Introduction

Washing hands properly at critical times can prevent disease transmission. data shows that washing hands can prevent transmission of diarrheal diseases (Ngambut and Kapakado, 2018) (Fewtrell et al., 2005; WHO/UNICEF, 2015; Hirai et al., 2016) and can prevent transmission of Covid19 (Ngambut and Takesan, 2021). Hand washing is a simple, affordable yet effective practice for inhibiting the spread of infection through feces and contact with sources of infection (Luby et al., 2005; Strunz et al., 2014; WHO/UNICEF, 2015; Hirai et al., 2016; Ngambut and Wanti, 2022). In addition, data shows that more than 900 million children worldwide lack access to basic sanitation in schools, and as many as 37 million out of 39 million school-age children do not have access to proper basic sanitation in the Asian region (Bartram & Cairncross, 2010; Freeman et al (Bartram and Cairncross, 2010; Freeman et al., 2014; WHO/UNICEF, 2015). Physical contact between students at school can increase the risk of disease transmission (Karon et al., 2017) The provision of basic sanitation facilities and the availability of supporting facilities such as soap, as well as the promotion of (HWWS) are very important for self-protection from diarrheal infection and Covid19 (Lin et al., 2013; WHO/UNICEF JMP, 2017) Students who do not perform handwashing properly and lack access to hygiene services are at risk to health, especially in developing countries, where access to hygiene and sanitation services is limited. Under these conditions, schools can function as breeding grounds for disease and can even become epicenters of transmission of infectious diseases to the community (Lin et al., 2013; Rah et al., 2015; WHO/UNICEF JMP, 2017).

The determinants of HWWS behavior that have been widely reported by researchers are related to knowledge, psychological factors, characteristics (such as gender, economic conditions and education), and the availability of facilities. and infrastructure such as water, soap (White, Thorseth, Dreibelbis, (White et al., 2020) A qualitative study in Indonesia concluded that the determinants of people's hand washing behavior are the desire for smelly hands; interpersonal factors; availability of HWWS facilities. In addition, the critical time for HWWS behavior is when hands are dirty, after eating and after cleaning up children's feces (Hirai et al., 2016). In Indonesia, programs to change people's behavior in carrying out HWWS are carried out through the triggering strategy of Community-Based Total Sanitation (CBTS), triggering HWWS behavior is one of the five pillars in CBTS (Karolus (Odagiri et al., 2017; Ngambut, 2019). Implementation of triggering changes in HWWS behavior in the community is carried out through promotion of HWWS behavior in various settings carried out by sanitarians. Promotion of HWWS behavior is carried out by conveying messages either directly or indirectly using promotional media. Fill in the message promoting HWWS behavior with a rational normative approach that HWWS is to prevent disease transmission. We do not





know with certainty the determinants of HWWS behavior in the community as a basis for promoting HWWS behavior, the results of this study can be considered for designing the promotion of HWWS behavior in socially and economically vulnerable groups of people.

2. Research Method

The research design is a mixed method study design. The research was conducted in Manggarsi District, NTT Province. Data collection was carried out through interviews and observation of the behavior of respondents about the behavior of HWWS. The sample size is guided by the provisions for implementing CBTS verification (Kementerian Kesehatan RI, 2020). The research inclusion criteria were households with toddlers, houses located on the banks of rivers or riverbanks or on the coast. Determination of households that have children under five because they have a high risk compared to other age groups, in addition to that, the determination of a sample of houses that are on the edge of a river or beach is based on the consideration that many rivers or beaches are used as feces disposal sites. The interviews and observations were carried out by a research team assisted by a data collection team who had been trained in how to conduct interviews and survey instruments. The data collection team consisted of government representatives and non-governmental organizations and professional organizations.

The sampling method in this study is purposive random sampling. 5 households were selected in each village/kelurahan according to the inclusion criteria. The number of villages surveyed was 52 villages and sub-districts with a total of 168 households surveyed consisting of 950 people. Data analysis was carried out through the stages of univariate, bivariate analysis using SPSS software and analyzed descriptively. Data was collected by researchers assisted by a team of data collectors who met the requirements and had been trained for one day. Requirements: The research team has a minimum educational background of diploma three in health and has experience in conducting community surveys on health or sanitation issues. Prior to conducting interviews and observing HWWS behavior, the research team read out an explanation before data collection, followed by signing the willingness form to become a subject in the study and witnessed by one witness.

3. Results And Discussions

a. Result

1. Univariate analysis.

Univariate analysis describes the characteristics of the respondents including age, household category, education and gender. In addition, an overview of knowledge





about the critical time to do HWWS, reasons for doing HWWS, availability and types of HWWS facilities, observations of the practice of respondents doing HWWS, sources of HWWS information. The description is shown in table 1.

The proportion of female respondents was more (52.3 %) compared to men (47.7%). Most of the respondents had elementary school (SD) and junior high school (SMP) education with the respective proportions of 35.1 % and 31.0%. Respondents with a high school education level (SMA) were 26.2 % and Higher Education (PT) were 7.7%. The number of household members surveyed ranged from 1 - 13 people living in one house. Most of the number of family members living in one house ranges from 4 to 6 people (medium category). Meanwhile, those with more than 6 people (large family category) were 26.2 %. In addition, there are also persons with disabilities in the household, namely 2.3% who are adults over 18 years of age and 0.7% who are aged less than 18 years. Observations showed that 91.7 % of the HWWS facilities had water and soap, while 4.2% had water but were not equipped with soap. Most of the HWWS facilities (83.9 %) were outside the house, 41.7% were near the kitchen and 33.9% were inside the house.

Knowledge of the critical time for HWWS behavior shows that most of the respondents wash their hands with soap after coming home from work in the garden and after feeding livestock, followed by before eating, after handling dirty objects, after using the toilet respectively 81.5%, 76.8%, 64.9%, 42.3%. HWWS behavior before giving baby food was only 18.5 % before processing food 11.3%. As many as 12.5 % said that washing hands before and after waking up was a critical time to do HWWS.

Respondents' reasons for doing HWWS varied, for the most part (90.5%) the reason for doing CTPS was so that their hands were clean and the reason to avoid Covid-19 was 39.3%. Reasons to avoid disease 32.1 % and 17.3% reasoned doing HWWS to avoid something that is not visible to the eye. After probing by the researchers, what was meant was the virus in the hands that was visible with very scary eyes. The reason for doing HWWS so that hands are clean has an impact on the contents of promotional materials for HWWS behavior in society delivered by health promoters. The reason for rationality that HWWS is to prevent disease transmission does not dominate public knowledge as the reason for doing HWWS. Although the majority of respondents (64.3%) could perform HWWS correctly and completely (the parts of the hand that were cleaned were between the fingers, palms, back of hand, fingertips, knuckles and wrists), there were still 25% of respondents were only able to practice some of the HWWS steps, even





10.7% of respondents were only able to do a small part of the HWWS behavior, namely rubbing soap on the palms and back of their hands and rinsing immediately with running water.

Regarding the source of information on HWWS behavior, the role of health cadres in the community is very important. The results showed that 53.5% of the sources of information about HWWS behavior were obtained from health cadres, followed by 49.4% health workers. The role of the village head or lurah and community leaders can increase community HWWS knowledge and behavior. The results showed that 23.8% and 29.2 %. Sources of information on HWWS come from social media information 39.9% such as Facebook, Google. 16.7 % of the HWWS behavior results from imitating other people who are considered important. This shows that imitating the behavior of others as a reference in behaving.

Communication channels to convey messages about HWWS behavior need to be expanded, the patrilinear model of community behavior still dominates the community's information sources, besides that, health cadres who are closer to the community who frequently visit the community become a channel for conveying information to the community.

2. Bivariate Analysis

a. Correlation between the components of HWWS behavior and gender

Bivariate analysis describes the relationship between the components of HWWS behavior and gender. The HWWS components include the availability of HWWS, the critical time for doing HWWS, the reasons for doing HWWS, the practice of the 6 steps of HWWS and sources of information on HWWS behavior. The results of the analysis of these relationships are shown in the Table 2.

The average knowledge of women is better than men regarding the implementation of HWWS. Out of the seven critical times for carrying out HWWS, only two were dominated by men, namely the HWWS behavior was carried out after working in the garden and after feeding the livestock. This is related to the work of men who work more in the garden than women. Knowledge about the seven critical times for carrying out HWWS was dominated by women, namely after defecating, before preparing food, after cleaning the baby, before feeding the baby, before touching dirty objects and before going to bed and after waking up. According to the respondent's understanding, the critical time for doing HWWS is before going to bed and after waking up, after eating and after touching dirty objects. For both men





and women, the reason for doing HWWS was to keep hands clean as much as 87.5 % and 92%. Avoiding transmission of Covid-19 is the reason for doing HWWS. Avoiding disease occupies the third position of the four reasons given by respondents for doing HWWS and there are respondents who state that doing HWWS is to avoid evil spirits. The practice of the 6 steps of HWWS behavior is mostly done by women compared to men. Most of the men could not practice the six steps of HWWS behavior correctly (17.9 %) and only 14.3% could only demonstrate the HWWS practice by wetting their hands and washing their palms with soap.

From table 2 it can also be seen that both women and men sources of information about HWWS behavior came from health cadres and health workers in the community, 58% for women and 46.6% for men respectively. Sources of information on HWWS behavior from social media rank next, namely 37.5% for women and 46.6% for men. The role of cadres and health workers is still very dominant in disseminating health information. *Face to face communication* (face to face communication) can generate *trust* because there is a dialogue between the communicator and the communicant (McNamara, 2016). This shows that the role of health promoters is irreplaceable in conducting health education in the community, even in the midst of progress in the use of social media. Submission of information through social media in the era of information technology can be carried out along with the increasing use of social media in society (Meško, Suklan and Roblek, 2017).

b. The relationship between the HWWS component and education

Bivariate analysis describes the relationship between the HWWS components and educational variables. The HWWS components include the availability of HWWS, the critical time for doing HWWS, the reasons for doing HWWS, the practice of the 6 steps of HWWS and sources of information on HWWS behavior. The results of the analysis of these relationships are shown in the table 4. Table four shows that there is no relationship between the availability of HWWS facilities and the education level of the head of the RT. The more complete HWWS facilities, which include water and soap, are in fact found in RT heads who have elementary, junior high, high school and university education respectively. The location of the HWWS facility is located outside the house at all levels of the respondent's education. The critical time for doing HWWS is mostly done after returning from the garden and touching dirty objects. Money is one example of a dirty object according to society, because it is





already in the hands of many other people. Sashing behavior. The same thing is also seen that the critical time to do HWWS is after eating. These three types of critical time indicate that both respondents with elementary, junior high, high school and university education understand that the critical time for washing hands is not intended to prevent disease transmission, but rather is dominated by dirty hands. This is also in line with the reason for the respondent to do HWWS, namely to have clean hands. The reasons for avoiding disease and Covid19 are the second and third reasons for each of the educational backgrounds of the heads of households. In terms of HWWS behavior activities, it appears that there is no relationship between education level and HWWS practice. The behavior of HWWS in elementary and junior high school education is relatively higher compared to respondents with higher education. Apart from that, the most sources of information were obtained from health cadres and health workers, both those with elementary school education and those with higher education.

c. Component HWWS behavior with the number of household members

Bivariate analysis describes the relationship between the components of the HWWS behavior and the household size variable. The components of HWWS behavior include the availability of HWWS facilities, the critical time for HWWS behavior, the reasons for doing HWWS, the six- step practice of HWWS behavior and sources of information on HWWS behavior. The results of the relationship analysis are shown in the table 3. The table 3 shows that there is no difference in the availability of HWWS facilities at the household level in small, medium and large families, namely 90% -95%. However, the availability of soap in the HWWS facilities was better for small families in Bandung and the other two types of families, namely 5.9%. For small families, most of the HWWS facilities were inside the house (26.5 %), in medium families the HWWS facilities were in the kitchen, while for large families, the HWWS facilities were outside the home. Regarding the critical time for performing HWWS, it shows that after working in the garden 82.4%, after feeding livestock 76.5%, after touching dirty objects and before preparing food (73.5% is the critical time for performing HWWS in small families. Furthermore in medium families, the critical time to do HWWS was after feeding livestock (88.9%, after returning from the garden (83.3%, and before preparing food 78.9%). The same thing was also identified in large families which showed that the time The critical time for doing HWWS was after returning from the garden 77.3%, before preparing food 75% and after feeding livestock, namely 70.5%. This shows that most of the respondents' knowledge about the critical time to do HWWS was mostly unrelated to washing hands for prevent transmission of disease through hands except before eating. Most of





the respondents did hand hygiene related to hand hygiene because they were dirty after gardening and raising livestock. This is also in line with the reason given by the respondent that the reason for doing HWWS is to have clean hands for both small, medium and large families. The next reason is to avoid the transmission of Covid19 and disease. Interestingly, the reason to avoid evil spirits is still the reason for doing HWWS. Observations on HWWS behavior, most of them were able to do HWWS correctly (six steps) as recommended by WHO. This occurs in small, medium and large families.

Sources of information about HWWS behavior mostly come from health workers and health cadres. In addition, sources of information from social media networks rank next as sources of information, followed by religious leaders and community leaders. Very few sources of information from village officials. This picture shows that direct promotion of HWWS behavior is still the choice for information dissemination, despite the increasing use of the internet and social media.

4. Conclusion

The results of the study show that the community has HWWS facilities complete with water and soap, located in and around the house. The community's understanding of the critical time for HWWS behavior is when hands are dirty, after feeding livestock, before eating. In addition, health cadres and health workers are a source of information on HWWS behavior in the community and are followed by social media. So it is recommended that the message for promoting handwashing behavior needs to consider conveying the message that hand washing is carried out with the aim of cleaning hands when hands are dirty and after feeding livestock. It is hoped that this message will encourage people to change HWWS behavior which will have an impact on hands that are clean and free of germs on hands.

5. Compliance with ethical standards

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Disclosure of conflict of interest

This research collaboration is a positive thing for all researchers so that conflicts, problems and others are absolutely no problem for all writers.



**Statement of informed consent**

Every action we take as authors is a mutual agreement or consent.

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