

The Relationship Among Knowledge, Attitude, and Behavior Toward the Use of River Water

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Abstract—Background: Diarrhea belongs to infectious diseases caused by a number of factors, such as environment, food and infected person contact. Moreover, river water use behavior is one of the environmental factors that cause someone to suffer from diarrhea. This study is aimed to examine the relationship among knowledge, attitude and river water use behavior in Kutuk (Public Health Center of Undaan, Kudus). **Method:** This study employed case control study. The population of the study was all diarrhea patients in Kutuk Village (Public Health Center of Undaan, Kudus in 2018). The samples were 45 diarrhea patients for experimental group and 45 non-diarrhea patients for control group taken from all eligible cases and controls on specified inclusion and exclusion criteria. The data were analyzed using Chi Square test. The result showed that most respondents in the experimental group had poor knowledge with a total of 23 people (55.6%), while in control group, the number of patients who had good knowledge was 31 people (77.8) with a p value of < 0.001 . Meanwhile, the attitude of those in the experimental group belonged to good category with 22 people (58.0%) and that in the control group also belonged to good category with 29 people (71.1%) with (p value of 0.000 for experimental group and 0,004 for control group). The behavior of most respondents in the experimental group was categorized as non-existent with 21 people (57.8%) and that in the control group was also categorized as non-existent with 32 people (82.2%), with a p value of 0.006 for the experimental group and 0.000 for the control group. **Conclusion:** there is a significant relation among knowledge, attitude and behavior toward the use of river water.

Keywords: knowledge, water use behavior, diarrhea

I. INTRODUCTION

At present, Indonesia is currently experiencing an epidemiological transition in terms of health problems and infectious disease problems. One of the most common problem is diarrhea. Diarrhea is a condition where there are

changes in defecation frequency and stool consistency. Quoted from the Health Profile of Indonesia (2015), diarrheal disease is an endemic disease in Indonesia. In addition, diarrhea is a potential external disease which often results in death. In 2015, there were 18 outbreaks of diarrhea in 11 provinces, 18 districts/ cities, with a total number of sufferers of 1,213 people with 30 deaths (CFR 2.47%) [8].

Furthermore, diarrhea was also a problem for most people in the area of Public Health Center of Undaan, Kudus, in the way that Undaan Public Health Center had the highest number of diarrhea incidence because there were a big number of rivers in that area [11].

Undaan district of Kudus has a lot of rivers used as a source of clean water and many settlements are located on the riverbank. Besides, the rivers also support the community activities, such as bathing, washing, and defecating. River is defined as a water drainage place, medium, and network that starts from springs to the estuary with boundaries on its sides throughout the drainage path (PP RI No. 35 of 1991). Along with progress on today's technology, humans are facilitated to get various water sources. In Indonesia, PDAM water and drinking water are available and the needs to refill drinking water can be met easily [9].

Based on the data previously presented, it can be concluded that there are many diarrheal diseases that tends to increase. This is because of the people's lack of understanding about the use of clean water and sanitation that keeps increasing from year to year.

Based on previous research conducted by Felicia (2003), there was a relationship between environmental factors, including drinking water sources ($p = 0.001$). It means that water source as fulfillment human physiological needs is one of the things that plays a crucial role in occurrence of diarrhea. The repeated use of water sources determines the habit of water use [12].

Based on the preliminary survey in May 2016, it was seen that the majority of people who experienced diarrhea lived on Kutuk riverbank. Based on the preliminary survey, it was

found that most people in Undaan Public Health Center work area had the habit of washing clothes and kitchen equipment, defecating, washing motorized vehicles, and consuming drinking water with the same water from the river. Moreover, most people in the river area of Kutuk Village still carried out various types of activities in the river so that the possibility of cross contamination in river water could occur. Poor community behavior about sanitation, especially in terms of providing and using clean water, can decrease the health status of the community itself. Therefore, this study attempted to examine the relation among knowledge, attitude and river water use behavior in Kutuk (Pubic Health Center of Undaan, Kudus).

II. METHOD

A. Research Design

This study was case control study. Case control study was carried out by identifying the experimental group and control group, then retrospectively examining risk factors that might explain whether cases and controls could be exposed or not.

B. Population and Samples

The population of this study was all diarrhea patients in the area of Undaan Public Health Center of Kudus. Meanwhile, the total number of the samples was 40 diarrhea patients for the experimental group and 40 non-diarrhea patients for the control group taken from all eligible cases and controls on specified inclusion and exclusion criteria.

The inclusion criteria were diarrhea patients recorded in Undaan Public Health Center data for the past 1 year who agreed to become respondents. The exclusion criteria were diarrhea patients who were recorded in Undaan Public Health Center data and diarrhea patients living outside Kutuk village.

C. Data Collection and Analysis

The study used primary data. Primary data were data obtained directly from respondents who became the research samples using questionnaires. The secondary data were obtained from the number of monthly diarrhea report data from Undaan Public Health Center. Later on, the data were analyzed using Chi Square and the value of α in the significance test of this study was 5% or 0.05.

III. FINDING

A. Characteristic of respondents

The characteristics of respondents were used to find out the diversity of respondents based on age, education, occupation, history of diarrhea, house location and the use of river water. It showed that some of the respondents were under 20-35 years old with 25 respondents (55.6%). According to the level of education, the number of respondents who were categorized as not in school was 15 respondents (33.33%). Most of the respondents were self-employed with 18 people (40.0%). For a history of diarrhea, some of the respondents had a history of the disease for 1-2 times with a total of 37 people (82.2%). Meanwhile, most of the respondents' residence was 0-2 km away from the river

with a total of 41 people (91.1%). Based on river water use by respondents, there were 19 people (42.2%), or almost half of the total number of respondents in the diarrhea experimental group, had a good water use habit with a total of 45 people. In addition to taking samples in the diarrhea experimental group, researchers also took samples in the control group. A control group in a study functions as a comparison, from a treatment or experimental group.

B. Relationship of Respondent Knowledge Level and River Water Use

Based on the primary data obtained through interviews using questionnaire, the relationship between respondent's knowledge and river water use is represented below:

TABLE I. RELATIONSHIP BETWEEN RESPONDENT KNOWLEDGE LEVEL AND RIVER WATER USE:

Experimental group	N	%	<i>p value</i>
Know	21	44.4	0.000
Do Not know	24	55.6	
Control group			
Know	35	77.8	0.000
Do Not know	10	22.2	

The results of the Chi-Square Test calculation are presented in Table 1. In the experimental and control groups, we can see the value of $p = 0.000$, meaning p is less than 0.05. Thus, it can be concluded that there is a relationship between knowledge and river water use in the experimental group. Most of the respondents in the experimental group were not aware of the river water use with a total of 25 people (55.6%). Meanwhile, most of the respondents in the control group knew about river water use with a total of 35 people (77.8%).

C. Relationship between Respondent Attitude and River Water Use

Based on the primary data obtained through interviews using a questionnaire, the relationship between respondents' attitudes and river water use is as follows:

TABLE II. RELATIONSHIP BETWEEN RESPONDENT ATTITUDE AND RIVER WATER USE

Experimental group	N	%	<i>P value</i>
Good	18	40.0	0.000
Not good	26	58.0	
Control group			
Good	32	71.1	0.004
Not good	13	28.9	

The results of the Chi-Square Test are presented in Table 2. In the experimental group, it can be seen that the value of $p = 0.000$, meaning that p value is less than 0.05. Thus, it can be concluded that there is a relationship between attitudes and river water use in the experimental group. Meanwhile, for the control group, it can be seen that the value of $p = 0.004$, meaning that p value if less than 0.05. Therefore, it can be concluded that there is a relationship between knowledge and river water use in the diarrhea control group. Based on the research conducted, some respondents in the experimental group had a bad attitude with a total of 26 people (58.0%) and most respondents in the control group had a good attitude with 32 people (71.1%).

D. Relationship between Respondent Behavior and River Water Use

Based on the primary data obtained through interviews using a questionnaire, the relationship between respondent behavior and river water use is presented in Table 3.

TABLE III. THE RELATIONSHIP BETWEEN BEHAVIOR AND RIVER WATER USE

Experimental group	N	%	P value
Good	19	42.2	0.006
Not good	26	57.8	
Control group			
Good	8	17.8	0.000
Not good	37	82.2	

The results of the Chi-Square Test are presented in Table 3. In the experimental group, it can be seen that the value of $p = 0.006$, meaning that p value is less than 0.01. Thus, it can be concluded that there is a relationship between behavior and river water use in the experimental group. Meanwhile, for the control group, it can be seen that the value of $p = 0.000$, meaning that p value if less than 0.01. Therefore, it can be concluded that there is a relationship between behavior and river water use in the diarrhea control group. Based on the research conducted, most respondents in the experimental group had a bad behavior with a total of 26 people (57.8%) and most respondents in the control group also had a bad behavior with 37 people (82.2%)

IV. DISCUSSION

The result of this study shows that there was a significant relationship between diarrhea and river water usage behavior for both experimental group and control group. Moreover, the result of observation for experimental group indicates that respondents who had diarrhea had low education. Thus, low knowledge of diarrhea for experimental groups was in line with low education. In addition, information about diarrhea can be obtained through the respondent experience, such as through employment. The experience intended is the experience of individuals to be able to perform the same or repetitive behavior so that one can have confidence in river water use behavior.

Meanwhile, observation result for control group indicates that respondents who did not suffer from diarrhea had a fairly good level of education with most of them had high school education. The higher the level of education of a person is, the more experience he/ she is. In other words, his/ her way of thinking and behavior will be different from individuals who have lower levels of education. Someone who has a higher education level will see a problem far more logically and rationally.

The results of this study are in line with the research conducted by Rudi (2008) on the relationship between knowledge and attitudes of mothers and the incidence of diarrhea in toddlers in Sawojajar Village, indicating that there was a significant relationship between maternal knowledge and the incidence of diarrhea in children [2]. This study also has a similar result as that of a study by Dofi

(2013) about the relationship between knowledge and the incidence of diarrhea in children in Pabbundukang village, Pangkajene sub-district, Pangkep district that also indicated that there was a relationship between knowledge of the incidence of diarrhea [11].

Furthermore, there was a significant relationship between the respondent attitude and river water use behavior both in the diarrhea experimental and control groups. This finding is in line with Ginting's (2011) study on the relationship between the incidence of diarrhea in toddlers and the attitudes and knowledge of mothers about clean and healthy behaviors in the Siantan Hulu Health Center Pontianak, West Kalimantan, that indicated that there was a significant relationship between attitudes and diarrhea in infants [13]. Newcomb in Notoatmodjo (2005) states that attitude is readiness or willingness to act [14]. The attitude does not function as an action (open reaction) or activity, but it is a predisposition of behavior (action) or an open reaction. So that attitude becomes a picture before action takes place. Attitudes consist of positive and negative attitudes. A positive attitude will bring someone to do good behavior, especially those related to health. Meanwhile, a negative attitude will bring someone a bad behavior that has a negative impact on health (Nasikin, 2007).

A good attitude should encourage someone to stay away from negative behavior which is using river water. It means that the attitude of the respondents was not at the stage of doing good actions, yet. The still large tendency of respondents to use river water can be one of the causes of illness (diarrhea) in respondents. Attitude influence behavior, namely that the attitude is something that is believed by someone that determines what will be done by him/ her. The more specific a person's attitude is, the more specifically we identify the related behavior, the more likely we are to get significant relationship between the two factors.

Attitudes can be interpreted as a positive or negative evaluation system, namely the tendency to approve or reject. A positive attitude is formed when stimuli or effects that come to someone provide a pleasant experience or impression (Sudaryat, 2010). Whereas, a negative attitude will arise if the stimuli that come give an unpleasant experience or impression. The difference in attitude is related to the degree of preference or dislike of an object. In other words, the attitude is related to the readiness of the individual to react to a particular object based on the concept of positive-negative judgment.

There is also significant relationship between behavior and river water use in the experimental and control groups. It means that behavior provides a role that is closely related to river water use carried out by respondents [16].

Behavior is an order that includes knowledge, beliefs, art, morals, customs and abilities and other habits that humans have as a part of the society [18]. The behavior found in the diarrhea patients of the experimental group included the belief in hand washing, the habit of bathing in the river together in the morning, the habit of washing cookware/ kitchen utensils using river water, the habit of washing

clothes in the river, and the habit of boiling river water for consumption.

Culture is a view of life from a group of people in the form of behaviors, beliefs, values, and symbols that they receive unconsciously all of which are inherited through a process of communication from one generation to the next. Therefore, the existing culture is derived from the inheritance of values that have always existed. Culture is an aspect that is very closely related to life in society. Culture is an aspect that is difficult to eliminate, but can change slowly and gradually [1].

Habits that are planted from childhood will affect the habits of someone until he is an adult. For example, when humans are accustomed to using river water from childhood, it will be difficult to change that habit after adulthood. The culture in this study was related to the discovery of people who bathed in rivers, washed cooking utensils with river water, and even consumed river water to drink [19].

V. CONCLUSION

It can be summarized that there is a significant relationship between diarrhea and river water use for both experimental group and control group.

There is a significant relationship between knowledge and river water use in the diarrhea experimental and control groups. There is a significant relationship between attitude and river water use in the diarrhea experimental and control groups. There is also significant relationship between behavior and river water use in the diarrhea experimental and control groups.

ACKNOWLEDGMENT

This research was supported/ partially supported by Muhammadiyah University of Kudus. I sincerely thank the head of research and publication department of UMKU for the assistance, particularly in technique, methodology and for comments that greatly improved the manuscript.

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