Implementation for WASH Program in Households and Its Relationship with Nutritional Status of Children in Susuk Village

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Abstract: Water, Sanitation, and Hygiene (WASH) are basic human needs that are strictly related to health and therefore, having a significant impact on the economy. Studies on the effects of WASH have a paramount benefit to improve the nutritional status of children. This study aimed to describe the implementation of the WASH program in households in Susuk Village. This research is analytic with a cross-sectional design, using a total sampling technique. The population of this study is the whole of 135 student's families in SDN 040494 Susuk, Sub-district of Tiganderket, District of Karo. Data was obtained by conducting direct observation and interviews at the study site. According to Body mass Index per ages, there are 85.2% of students have a normal nutritional status, and 14.8% of students with wasting. Based on the nutritional status of students according to TB per age, there are 47 people (34.82%) classified as stunting and the rest classified as normal (65.18%). The results also show that 97% of the households were at the level of basic service according to the drinking water indicator, and 3% were of limited service. Based on the sanitation indicator, 74.8% of households were at the level of limited service, and 25.2% were of no service. While in the hygiene indicator, 84.4% of households were at the level of basic service and 15.6% were of limited service. Based on these results, we suggest that further intervention from the government and contribution from private sectors are required in the WASH program. Therefore, it will provide evidence on the concern to improve public health, since the program has a direct impact on community health.

1 INTRODUCTION

The Government of Indonesia has launched a Health Development National Movement based on Healthy Paradigma. This paradigma is a perspective or mindset that sees the importance of maintaining health and preventing disease rather than restoring health or treating illness. Therefore we need a preventive, promotive effort that is balanced with curative-rehabilitative efforts.

Water, Sanitation, and Hygiene (WASH) are basic human needs that are strictly related to health and have a significant impact on business and the economy. The study report on the effect of sanitation reports that poor sanitation is a contributor to the increasing incidence of diarrhea in Indonesia. There are 120 million disease occurrences each year; even 100,000 Indonesian children die from diarrhea every year. According to WHO (2014), 94% of the incidence of diarrhea can be prevented through increased clean water supply (25%), improved sanitation (32%), and improved hygiene practices, specifically handwashing with soap (43%) (USAID, 2017).

Indonesian children as part of excellent and quality human resources are needed in increasing national development - one way to improve the nutrition and health of children. Optimal nutritional status can be achieved if dietary needs are required for physical growth and brain development (Almatsier, 2001).

Nutritional problems are caused by three main factors, namely low consumption of food, not to be exact parenting, and the high number of infectious diseases related to the environment. In 2009, FAO mentioned that health, food availability, socio-economic, and environmental problems could cause a decrease in nutritional status. Furthermore, the 2017 USAID Report states that poor sanitation is one of the reasons for solving nutrition problems in Indonesia. Families play a role in overcoming nutritional challenges through meeting food and nutrition needs, improving parenting, and increasing access to clean water-sanitation and adequate health services.

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2 METHODS

This research was an observational analytic study with a cross-sectional design that was carried out with a combination of quantitative and qualitative methods. The study population was all households, namely the families of students of SDN 040494 Susuk, Tiganderket District, Karo District. A sample of 135 families was taken in total sampling.
Quantitative data collected included respondent characteristics, observations of drinking water, sanitation, and family hand washing facilities as distinguished as Table 1. Besides that, we assess the nutritional status of school children according to body weight per age - classified as stunting and normal and body mass index per age – divided into wasting and normal. Public perception regarding the implementation of the WASH program is qualitative data. This data was collected through focus group discussions (FGD). This activity was attended by ten families consisting of three families whose children were classified as stunting and or wasting, and seven other families had children with normal nutritional status. The selection of families for this work is carried out randomly.

Table 1: Classification of indicator household WASH (Modificafion from Emerging JMP Service Ladders for Monitoring WASH in Schools the SDGs).

Service Ladder	Criteria
Drinking Water	
Basic service	Drinking water from an improve source is available at the household
Limited service	There is an improved source (piped water, protected well/spring, rainwater, bottled water), but water not available at time of survey
Sanitation	
Limited service	There are improved facilities (flush/pour flush, pit latrine with slab, composting toilet) or not usable
No service	No toilet or latrines or unimproved facilities
Hygiene	
Basic service	Handwashing facilities, which have water and soap available
Limited service	Handwashing facilities with water, but no soap

Univariate analysis was used to describe the characteristics of respondents and the implementation of WASH facilities. Furthermore, the bivariate analysis uses the chi-square test to determine the relationship between the implementation of WASH facilities and the nutritional status of children.

3 RESULTS AND DISCUSSION

Primary data in the form of qualitative data include data on family characteristics, student characteristics, and WASH indicators.

3.1 Family Characteristics

The socioeconomic characteristics of the family describe the demographic status of parents, including age, level of education, employment, and income. Professional level classification data are assumed to represent the economic level of the family, which indirectly influences family income. Based on the results of the study note, the majority of the age of the head of the family is above 40 years and included in the productive age (36-45 years). This condition is almost balanced with the proportion of wives in the same age group.

The highest percentage is in the heads of families and wives with high school education. The research location is an agricultural area so that most of the family heads and wives have non-permanent income, namely as farmers/ranchers. The characteristics of the respondent's family can be seen in Table 2. The monthly family income is around Rp 2,100,000 - this figure is lower than the Karo Regency UMK in 2019 which is Rp 2,829,558.

Table 2: Respondent characteristic according to ages, level of education and occupational.

The socioeconomic chararacteristics	Husbands*		Wives	
	n	%	n	%
Ages (years)				
<= 25	-	-	1	0.7
26-35	16	12.1	49	36.3
36-45	74	56.0	68	50.4
>= 46	42	31.9	17	12.6
Level of education				
Primary school	32	24.2	17	12.6
Junior high school	45	34.1	36	26.7
High school	51	38.6	78	57.8
University	4	3.1	4	3.0
Occupational				
Permanent income	1	0.8	1	0.7
Non-permanent income	131	99.2	111	82.2
Housewives	-	-	23	17.1

* Three families do not have a husband as the head of family because they have died and divorced.

3.2 Student Characteristics

Referring to the age grouping issued by the Ministry of Health in 2009, most students are aged 5-11 years (82.22%) - classified as childhood. There were 69 male students (51.1%) and the remaining 66 female students (48.9%).

Table 3: Nutritional status for students

The demographic chararacteristics	Students	
	n	%
Ages (years)		
5-11	111	82.8
12-16	24	17.8
Gender		
Male	69	51.1
Female	66	48.9

According to the anthropometric index, the nutritional status of school children is differentiated based on the body height per age index and the body mass index for ages (BMI index). The proportion of stunting school children, according to body height per ages, occupies the highest proportion compared to BMI per age. Data analysis shows 14.8% wasting suffered, and 34.8% stunting. This figures is hingher than tUhe prevalence of nutritional status of school children in Indonesia and North Sumatra are respectively 10.9% and 9.8% for wasting and 27.7% and 33.7% for stunting (NIHRDI, 2018).

Table 4: Distribution of nutritional status of students

The demographic chararacteristics	Students	
	n	%
Body Mass Index per Ages		
Wasting	20	14.8
Normal	115	85.2
Body Height per Ages		
Stunting	47	34.8
Normal	88	65.2

3.3 Wash Implementations

Table 5 shows the distribution of WASH program implementation, which includes indicators of drinking water, sanitation, and hygiene. In the drinking water indicator of 135 families studied, the majority of households are in the category of basic service, as many as 131 respondents (97.0%), while the remaining 4 respondents (3.0%) are in the limited-service category. In the sanitation indicator of 135 respondents studied, the majority of households are in the limited service category, with 101 respondents (74.8%), while the remaining 34 respondents (25.2%) are in the no service category. In the hygiene indicator of 135 respondents studied, the majority of households are in the basic service category, namely 114 respondents (84.4%), while the remaining 21 respondents (15.6%) are in the limited-service category.

Table 5: Distribution respondents according to indicator household WASH

Indicator households WASH	Households	
	n	%
Drinking Water		
Limited service (LS)	4	3.0
Basic service (BS)	131	97.0
Sanitation		
No service	34	25.2
Limited service	101	74.8
Hygiene		
Limited service	21	15.6
Basic service	114	84.4

Environmental health affects individual health which is an indirect cause of nutritional status. In this study, ecological health includes access to clean water for drinking, sanitation, and hygiene. Table 6 presents statistical data that looks at the relationship between WASH indicators and nutritional status.

Table 6: Distribution of nutritional status of students according to the WASH indicator

WASH implementations	BMI per ages (n)		Body height per ages (n)	
	Wasting	Normal	Stunting	Normal
Water				
Limited Service	3	1	2	2
Basic service	17	114	45	86
	p-value: 0.010*		p-value: 0.610	
Sanitation				
No Service	18	16	8	26
Limited service	2	99	39	62
	p-value: 0.001*		p-value: 0.146	
Hygiene				
Limited Service	15	6	2	19
Basic service	5	109	45	69
	p-value: 0.001*		p-value:0.011*	

*significant, p value <0.05

The analysis shows that students who are wasting (BMI index) in families with limited access to clean water are greater in number than another normal nutritional status. In contrast, families with adequate access to clean water have more normal nutritional status than those classified as wasting. Statistically shows a significant relationship (p-value = 0.010). Likewise, based on the classification of nutritional status of body height per age, a similar situation also occurs, only statistically shows a meaningless relationship.

The proportion of wasting students from families who do not have bathrooms and lavatories and the lack of handwashing facilities is higher than the percentage of students with normal nutritional status. Statistical analysis also showed a significant relationship between nutritional status based on BMI index with sanitation and hygiene (p-value = 0.001). Different things happen to students with nutritional status classification based on body height per age, and only hygiene is related to nutritional status.

The prevalence of nutritional status based on BMI index provides information about a nutritional status that is acute. Stunting (body height per age) gives an overview of chronic nutritional status. The nutritional problem is a result of long-standing conditions such as poverty, inadequate parenting, and recurring illness. Low community access to clean water and basic sanitation can increase the incidence of diarrhea that affects nutritional status (WHO & Unicef, 2006). By addressing the problems that cause disease due to the availability of clean water and poor hygiene and sanitation, environmental issues can be overcome (Hapsari, Supraptini, Hananto, 2010).

The results of qualitative studies based on focus group discussions are described as follows. From the question about "what and how is the WASH Program?" The majority of informants answered the following: "in our opinion, this program is a community-based sanitation drinking water supply program, where the program aims to meet clean water and community drinking water and try to help change the habits of people who are less clean to have a clean and healthy lifestyle."

To the question "how was the implementation of the WASH program at the research site?" Most of the informants answered as follows:"not going well, it can be seen from the fact that there are still many people who do not want to change clean and healthy behavior such as defecating improperly, not washing their hands with soap. The most dominant reason is the financial inability to build bathrooms, lavatories, and handwashing facilities."

To the question about "is an aid for water sources needed by the community?", The majority of informants answered as follows: "in our opinion, what is currently needed by the community is easy access to clean water for drinking and daily needs from water sources, such as the availability of pipes and water installations that can flow water from the mountains to people's homes."

In the sanitation indicator, the community is asked to assess the scope of the toilet and bathroom supply program. From the question about "how is the description of sanitation coverage covering bathrooms and latrines?" The majority of informants answered as follows: "there are still many people who do not have bathrooms and lavatories. The community wants its toilet and lavatory in each house, but the lack of funds is a barrier. Besides, defecation in fields or rivers have become a habit."

The final question, from the question "What are the main WASH indicators for improving health, especially the nutritional status of children?" The majority of informants answered as follows: "the availability of sanitation facilities, namely bathrooms and lavatories. Because defecation in any place will transmit diseases that have an impact on the nutritional status of children. Therefore, the community wants assistance from the government and the private sector to realize adequate and adequate sanitation facilities."

Lack of community access to clean water and poor sanitation and hygiene behavior contribute to death (Musadad and Hananto, 2008). Diarrhea and or other infectious diseases are the cause of death.

One of the efforts to reduce the mortality rate is by creating healthy environmental sanitation that ultimately affects the nutritional status of the family. Various studies have shown that malnutrition is associated with poor WASH behavior (Prüss-Üstün et al, 2008; Langford et al, 2011; Spears, 2013; Rah et al, 2015).

A meta-analysis study conducted by Gizaw and Worku (2019) states that interventions on WASH have an impact on improving children's nutritional status. The research also indicates that policymakers, health practitioners, nutritionists, and WASH experts are responsible for improving the health status and nutritional status of children and improving sanitary conditions to prevent infectious diseases. WASH interventions are the most holistic and approaches to prevent wasting and stunting among children especially among two children.

4 CONCLUSIONS

The prevalence of school students who suffer from wasting and stunting is higher than the national data and the Province of North Sumatra. Based on the WASH indicator, most families have access to clean water, sanitation, and adequate hygiene. The results of statistical analysis show that indicator of WASH i.e. drinking water, sanitation facilities (bathrooms and latrines) and cleanliness (handwashing) are related to the nutritional status of students according to the BMI index.

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