

## THE RELATIONSHIP BETWEEN CLEAN AND HEALTHY HOUSEHOLD BEHAVIOR WITH THE INCIDENCE OF DIARRHEA IN GUNTING SAGA VILLAGE

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### ABSTRACT

The prevalence of diarrhea increased by 3% in South Kualuh Regency between 2019 and 2021. The hamlet of Gunting Saga Village, which serves as a study location, depends on the Kualuh River for their everyday requirements. The purpose of this study is to ascertain the correlation between the clean and healthy living behavior (PHBS) in household settings with the incidence of diarrhea in Gunting Saga Village. This quantitative study used analytical descriptive method with Cross-sectional design which was carried out in Gunting Saga Village, North Labuhan Batu District, North Sumatra Province in July 2022. A total of 57 housewives (IRT) were obtained with an age range of 23-66 years and an average high school education. Respondents were taken by snowball sampling technique using questionnaires that had been tested for validity ( $r\text{-count} > 0.279 [n=50]$ ) and reliability ( $0.898 > 0.60$ ). Data analysis used univariate and bivariate analysis, with IBM SPSS data processing software. The results showed that housewives in Gunting Saga Village had a good PHBS category in household settings (59.6%), only 36.8% of households experienced diarrhea. The highest PHBS category come from housewives aged 45-55 years old with Diploma (D3) education. While the lowest PHBS category comes from housewives aged 23-33 years old with non-school education. There was a significant association between PHBS in households with the incidence of diarrhea ( $p = 0.001$   $p < 0.05$ ) and educational characteristics of housewives ( $p = 0.001$   $p < 0.05$ ) and there was no significant association between housewives age and PHBS in households ( $p = 0.700$  [ $p > 0.05$ ]). Puskesmas Gunting Saga can collaborate with the local community to form household-based PHBS posyandu cadres and conduct counseling consistently so that the incidence of diarrhea in Gunting Saga can be suppressed.

### ABSTRAK

Kabupaten Kualuh Selatan mengalami kenaikan prevalensi diare sebesar 3% pada tahun 2019-2021. Kelurahan Gunting Saga sebagai lokasi penelitian berada di aliran sungai Kualuh dan masyarakat menggunakan air sungai untuk memenuhi kebutuhan sehari-hari. Penelitian ini bertujuan untuk mengetahui hubungan perilaku hidup bersih dan sehat (PHBS) pada tatanan rumah tangga dengan kejadian diare di Desa Gunting Saga. Penelitian kuantitatif ini menggunakan metode deskriptif analitik dengan desain *Cross-sectional* yang dilaksanakan di Kelurahan Gunting Saga, Kab. Labuhan batu utara, Prov. Sumatera utara pada Bulan Juli 2022. Didapatkan total responden sebesar 57 ibu rumah tangga (IRT) dengan rentang umur 23-66 tahun dan rata-rata berpendidikan SMA. Responden diambil dengan teknik *snowball sampling* menggunakan kuesioner yang telah diuji validitas ( $r\text{-hitung} > 0,279 [n=50]$ ) dan reliabilitasnya ( $0,898 > 0,60$ ). Analisis data menggunakan analisis univariat dan bivariat menggunakan *software* pengolah data IBM SPSS. Hasil penelitian menunjukkan IRT di Kelurahan Gunting Saga memiliki tingkat PHBS yang baik di tatanan rumah tangga (59,6%), hanya 36,8% rumah tangga yang mengalami diare. Tingkat PHBS terbaik berasal dari IRT yang berusia 45-55 tahun dengan pendidikan D3. Sedangkan tingkat PHBS terkurang berasal dari IRT berusia 23-33 tahun dengan pendidikan tidak sekolah. Terdapat hubungan yang signifikan antara PHBS di rumah tangga dengan kejadian diare ( $p = 0,001$   $p < 0,05$ ) dan karakteristik pendidikan IRT ( $p = 0,001$   $p < 0,05$ ) dan tidak terdapat hubungan yang signifikan antara usia IRT dengan PHBS di rumah tangga ( $p = 0,700$  [ $p > 0,05$ ]). Puskesmas Gunting Saga dapat berkolaborasi dengan masyarakat setempat untuk membentuk kader posyandu PHBS berbasis rumah tangga dan melakukan penyuluhan secara konsisten agar kejadian diare di Gunting Saga dapat ditekan.

## INTRODUCTION

According to the World Health Organization, diarrhea can strike people of any age, but it can be fatal for young children (World Health Organization, 2020). Globally, diarrhea was the leading killer of children in 2019, with about 9% of deaths of children under 5 years old in the world caused by diarrhea (UNICEF, 2022). This indicates that diarrhea claims the lives of over 1,300 children every day and approximately 484,000 children annually (World Health Organization, 2021).

In Indonesia, diarrhea is becoming more common in all age groups despite being highly contagious and fatal in children. According to basic health research data by the Health Research and Development Agency of Ministry of Health of Republic of Indonesia from 2013 to 2018, the country's prevalence of diarrhea rose by 2.3%, from 4.5% in 2013 to 6.8% in 2018 (Kementerian Kesehatan RI, 2013, 2018). In 2018, North Sumatra Province ranked sixth with the highest prevalence of diarrhea (8.1%), after Papua Province (8.3%), West Sumatra (8.3%), NTB (8.4%), Aceh (8.5%), and Bengkulu (8.9%) (Kementerian Kesehatan RI, 2018). However, even worse, North Labuhanbatu Regency, which reached 11.39% in 2018 after Deli Serdang Regency (13.11%), was the second district in North Sumatra Province with the highest prevalence of diarrhea (RI, 2018).

Diarrhea is closely related to personal hygiene in implementing clean and healthy living behavior (PHBS) (Asfar & Sudarman, 2019). One of the primary goals of the PHBS program is to enhance the health of households and the individuals inside the households (Trisanti & Himawan, 2018). Every home should practice prevention to lower the incidence of diarrhea in families. These methods include using safe drinking water, maintaining a clean environment, and practicing proper hygiene (World Health Organization, 2021). Using PHBS in the family structure to lower the risk of families being exposed to different infectious diseases is crucial, with housewives serving as the front line (Jannah et al., 2019). Several previous studies had proven the role of mothers is crucial in preventing diarrheal diseases in the family (Komara et al., 2020; Sulfiati et al., 2019; Yuri et al., 2022). The knowledge, behavior and attitudes of mothers who understand and practice PHBS in the household will significantly affect the morbidity and mortality rates due to diarrheal diseases in the family (Apriani et al., 2022).

Gunting Saga is one of the villages in South Kualuh District, North Labuhanbatu Regency, North Sumatra Province (BPS Labuhanbatu Utara, 2022). According to data from the North Labuhanbatu Regency health office for the years 2019–2021, South Kualuh District had a 3% rise in the prevalence of diarrhea, going from 10% (300 cases) in 2019 to 13% (770 cases) in 2021. Gunting Saga Village was selected as the research location because, according to the findings of a preliminary survey, the area is in the Kualuh River and the locals use the river for a variety of activities related to daily living that put them at risk of diarrhea, including bathing, washing, cooking, and urinating.

The findings of this study can be used as input and reference material by local governments, particularly the North Labuhanbatu Regency Government and the Gunting Saga Health Center, to determine the suitable policies in the implementation of PHBS in household settings and for future more effective and efficient management of diarrhea. These backgrounds undelied researchers to research the relationship between household clean and healthy living behavior (PHBS) and the incidence of diarrhea in Gunting Saga Village.

## METHODS

### Study Design

This study was an analytical descriptive research using a cross-sectional study design that aimed to determine the relationship between clean and healthy living behavior (PHBS) in household settings with the incidence of diarrhea in Gunting Saga Village.

### Location and Time of Study

The study was carried out in the North Sumatra Province's Gunting Saga Village, South Kualuh District, North Labuhanbatu Regency. The study was conducted in July 2022.

### Population and Sample

The populations in this study were all housewives (IRT) who lived in Gunting Saga Village. While the samples of this study were 57 housewives (IRT) who lived in Gunting Saga Village. Sampling

using snowball sampling technique was done by taking available samples with choices and recommendations from existing respondents. The inclusion criteria in this study were housewives (IRT) who were permanently domiciled in Gunting Saga Village, have the age of  $\geq 20$  years and did not have chronic diseases while the exclusion criteria were housewives (IRT) who refused to be respondents in the study.

### Data Collection

Data collection was carried out by direct interviews by visiting housewives (IRT) door to door using a research instrument, namely a questionnaire consisting of several questions regarding respondents' characteristics, clean and healthy living behavior (PHBS) in household settings and history of diarrhea / defecation  $>3$  times in the last 3 months in the family. Research questionnaires had been tested for validity and reliability and declared valid and reliable through statistical tests.

The results of the questionnaire validity test showed that the r-count on each variable was greater than the r-table ( $> 0.279[n=50]$ ) and the questionnaire reliability test showed a Cronbach Alpha coefficient of 0.898 ( $>0.60$ ). The validity and reliability tests were carried out in Lantasa Baru Village which is flowed by the Lau Seruai river which has geographical and socio-cultural similarities with Guting Saga Village. The valid and reliable questionnaires then were being reproduced and before being interviewed, the respondents had filled out and signed an informed consent sheet as a form of consent to be used as research respondents.

### Statistical Analysis

Data processing and analysis were carried out by univariate and bivariate analysis with IBM Statistical Package for Social Science (SPSS) data processing software. Univariate analysis was conducted to see the frequency distribution in each variable studied (characteristics of respondents, PHBS in household settings and history of diarrhea / defecation  $>3$  times in the last 3 months in the family). Meanwhile, bivariate analysis was conducted to see the relationship between clean and healthy living behavior (PHBS) in household settings with the incidence of diarrhea in Gunting Saga Village. The statistical test used is a chi-square with an alpha error rate of 5% with the result expressed as meaningful if the P-value is  $\leq 0.05$  and a meaningful action if the P-value is  $>0.05$ . This study has obtained ethical approval from the Faculty of Medicine, Islamic University of North Sumatra with reference number #461/EC/KEPK. UISU/XI/2023.

## RESULTS

### Univariate Analysis

**Table 1. Housewives (IRT) characteristics in Gunting Village (n=57)**

Variable	n	%	95% CI
<b>Age (Year)</b>			
23-33	22	38,6	26,3 - 52,6
34-44	19	33,3	21,1 - 45,6
45-55	9	15,8	7,0 - 26,3
56-66	7	12,3	3,6 - 21,1
<b>Education</b>			
No School	4	7,0	1,8 - 14,0
Primary School	2	3,5	0,0 - 8,8
Junior High School	17	29,8	17,5 - 40,4
Senior High School	33	57,9	45,6 - 70,2
Associate Degree	1	1,8	0,0 - 5,3

Source: Primary Data (2022)

Based on table 1. It was known that the majority of housewives (IRT) in Gunting Saga Village were aged in the category of 23-33 years (38.6%) and had a high school education level (57.9%). Only 12.3% of housewives (IRT) were aged 56-66 years and had a level of education out of school (7.0%).

**Table 2. PHBS Category in Households and Incidence of Diarrhea in Gunting Saga Village (n=57)**

Variable	n	%	95% CI
<b>PHBS Category</b>			
Good	34	59,6	4,74 - 71,9
Average	15	26,3	15,8 - 36,8
Less	8	14,0	5,3 - 24,6
<b>Diarrhea</b>			
Yes	21	36,8	24,6 - 49,1
No	36	63,2	50,9 - 75,4

Source: Primary Data (2022)

Table 2. showed that the majority of housewives (IRT) in Gunting Saga Village had a good category of clean and healthy living behavior (PHBS) in the household setting (59.6%). Only 14.0% of housewives (IRT) had less PHBS rates. As many as 63.2% of families in the Gunting Saga Village did not experience diarrhea more than 3 times in the last 3 months while 36.8% of other families experienced it.

### Bivariate Analysis

**Table 3. Relationship of Housewives (IRT) Characteristics (Age, Education) with PHBS Category in Gunting Saga Village Household (n=57)**

Variabel	Category of PHBS								P value
	Less (n=8)		Average (n=15)		Good (n=34)		Total (n=57)		
	n	%	n	%	n	%	n	%	
<b>Age (Year)</b>									
23-33	4	18,2	8	36,4	10	45,5	22	100,0	0,700 (>0,05)
34-44	2	10,5	4	21,1	13	68,4	19	100,0	
45-55	1	11,1	1	11,1	7	77,8	9	100,0	
56-66	1	14,3	2	28,6	4	57,1	7	100,0	
<b>Education</b>									
No School	4	100,0	0	0,0	0	0,0	4	100,0	0,001 (<0,05)
Primary School	2	100,0	0	0,0	0	0,0	2	100,0	
Junior High School	1	5,9	11	64,7	5	29,4	17	100,0	
Senior High School	1	3,0	4	12,1	28	84,8	33	100,0	
Associate Degree	0	0,0	0	0,0	1	100,0	1	100,0	

Source: Primary Data (2022)

According to Table 3. The characteristics of IRT education had a significant relationship with PHBS in households ( $p = 0.001$  [ $p < 0.05$ ]), but there was no significant relationship between the age characteristics of housewives (IRT) and clean and healthy living behavior (PHBS) in households ( $p = 0.700$  [ $p > 0.05$ ]).

**Table 4. Relationship of PHBS Category in Households with Diarrhea Incidence of Gunting Saga Village (n=57)**

PHBS Category	Diarrhea Incidence						P-value
	Yes (n=21)		No (n=36)		Total (n=57)		
	n	%	n	%	n	%	
Good	2	5,9	32	94,1	34	100,0	0,001 (<0,05)
Average	11	73,3	4	26,7	15	100,0	
Less	8	100,0	0	0,0	8	100,0	

Source: Primary Data (2022)

Table 4. showed a significant relationship between Clean and Healthy Lifestyle in households with the incidence of diarrhea with a value of  $p = 0.001$  ( $p = 0.001$  [ $p < 0.05$ ]). The PHBS rate in households in the good category did not cause the incidence of diarrhea by 94.1%, while the PHBS rate in households in the less category caused the incidence of diarrhea by 100.0% (Table 4).

## DISCUSSION

### Univariate Analysis

Diarrhea is one of the diseases transmitted through food (foodborne disease) and water (waterborne disease) which is characterized by watery defecation more than 3 times a day (24 hours) (World Health Organization, 2017). Diarrhea is generally caused by bacteria, viruses and parasites from the *rotavirus* and *escherichia* groups that will infect a person when they have poor sanitation and inadequate water hygiene for daily consumption (World Health Organization, 2020). Family is at the frontline in maintaining the health of its members from various infectious diseases, especially diarrhea (Poernomo & Idris, 2016). One of the efforts to prevent the spread of diarrhea is to implement clean and healthy living behaviors (PHBS) in the household (Kementerian Kesehatan RI, 2016).

A healthy family can be seen through the application of clean and healthy living behaviors (PHBS) in daily life (Jannah et al., 2019). Results study in table 2. showed that housewives (IRT) of households in Gunting Saga Village had a good Clean and healthy Behavior Rate (PHBS) (59.6%). This PHBS behavior was reflected in the percentage of diarrhea incidence which was only 36.8% in families in Gunting Saga Village.

In line with study by Taamu et al (2018) which stated that families who participate in doing PHBS well were directly proportional to diarrhea prevention behaviors that reduce the incidence of diarrhea (Taamu et al., 2018). The implementation of PHBS in household settings is effective in preventing diarrhea because PHBS emphasizes personal hygiene behaviors such as washing hands before eating and after defecation, using healthy latrines, consumption of cooked food, clean water management and maintaining environmental cleanliness that can prevent the causes of diarrhea such as rotavirus and *Escherichia* (as agents of diarrheal infection), food malabsorcy conditions, food hygiene factors that will make a person affected by diarrhea (Kementerian Kesehatan RI, 2016; Simanungkalit & Muliana, 2021). PHBS in the family is important because it is closely related to improving the degree of family health and the environment so can prevent the threat of diarrhea in the family (Agrace & Isfaizah, 2020).

### Bivariate Analysis

Based on the results of the study, the highest category of PHBS in households with the highest good category came from families whose housewives were aged 45-55 years (77.8%) with D3 education (100.0%). Meanwhile, the PHBS rate in households with the less-high category came from families whose housewives were aged 23-33 (18.2%) with out-of-school education (100.0%).

A person's level of education affects his health behavior and a person's health behavior affects his/her health degree (Adliyani et al., 2017; Khairunnisa z et al., 2021; Pradono & Sulistyowati, 2014). This is in line with the results of this study which found that the characteristics of education in housewives (IRT) had a significant relationship with clean and healthy living behavior (PHBS) in the household ( $p = 0.001$  [ $p < 0.05$ ]). The results also showed that the highest category of PHBS in

households came from families whose housewives had D3 education (100.0%) while the highest less rate PHBS, came from families whose housewives had no school education (100.0%). Higher education will make it easier for someone to get health information because someone who has a high education will find it easier to think objectively and rationally than someone who has low education (Notoatmojo, 2014). In addition, a high level of education also makes it easier for a person to understand health knowledge that has an impact on his awareness in health behavior in order to improve his health degree (Adliyani et al., 2017).

Based on the results of the study, it is known that the age characteristics of housewives (IRT) did not have a significant relationship with clean and healthy living behavior (PHBS) in the household ( $p = 0.700$  [ $p > 0.05$ ]. This was not in line with study conducted by Febryani et al., (2021) which states that there is a relationship between age and clean and healthy living behavior (PHBS) ( $p = 0.037$  [ $p > 0.05$ ]) because the older a person is, the better the maturity level of thinking and behaving (Febryani et al., 2021). This could happen because in this study the age of housewives (IRT) was an individual characteristic and a demographic factor that is only a predisposing factor while PHBS is a health behavior related to disease prevention and improving health degrees (Darmawan, 2016). In addition, in this study, the majority of respondents housewives (IRT) aged 23-33 years, which made the distribution for all age groups uneven.

Clean and healthy living behavior (PHBS) in the household is an effort to empower every family member to know, want and be able to implement clean and healthy living behaviors and play an active role in the health movement in the family (Kementerian Kesehatan RI, 2016). Getting used to clean and healthy living behaviors (PHBS) such as washing hands with clean water and using healthy latrines in the family environment effectively prevents families from diarrhea (Bambang Irawan & Mujiburrahman, 2022; Radhika, 2020). PHBS criteria in household settings include washing hands with clean water and soap, using healthy latrines, eradicating larvae at home, consuming fruits and vegetables every day, childbirth assisted by health workers, giving babies exclusive breastfeeding, weighing infants and toddlers, doing physical activity and not smoking inside the house (Kementerian Kesehatan RI, 2014).

Several previous studies have proven that PHBS in households is closely related to the incidence of diarrhea in families (Faisal, 2018; Jannah et al., 2019; Putro, 2016). In line with this study which showed that there was a significant relationship between a clean and healthy lifestyle (PHBS) in the angga house with the incidence of diarrhea ( $p = 0.001$  [ $p < 0.05$ ]). The results also showed that the PHBS rate in households was good (59.6%) and did not cause the incidence of diarrhea by 94.1%, while the PHBS rate was less in households causing the incidence of diarrhea by 100.0%.

The implementation of clean and healthy living behavior (PHBS) in the household in addition to preventing families from infectious diseases such as diarrhea can also minimize other health problems (Fadila & Rachmayanti, 2021; Kementerian Kesehatan RI, 2016). This reminds the importance of good knowledge and involvement in the role of mothers to direct family members to practice PHBS properly and correctly. Good and correct PHBS practice in the family will certainly improve family welfare and increase family productivity (Badan Penelitian dan Pengembangan Kesehatan, 2021).

## CONCLUSION AND ADVICE

Based on the results of study housewives (IRT) in Gunting Saga Village, they were aged in the category of 23-33 years (38.6%) and had an average high school education level (57.9%). The results showed a good category of clean and healthy living behavior (PHBS) (59.6%) in households and only 36.8% of families experienced diarrhea. There was a significant association between PHBS in households with the incidence of diarrhea ( $p = 0.001$  [ $p < 0.05$ ]) and IRT education characteristics ( $p = 0.001$  [ $p < 0.05$ ]) while IRT age characteristics had no association with PHBS in households ( $p = 0.700$  [ $p > 0.05$ ]).

Puskesmas Gunting Saga can collaborate with the local community to form PHBS posyandu cadres and conduct counseling activities related to the importance of PHBS in household settings consistently for housewives (IRT) so that the incidence of diarrhea in Gunting Saga Village can continue to be suppressed. Suggestions for future study is to conduct research with the same theme with a larger sample and deepen on each PHBS criteria that had not been discussed in this study, such as: eradicating

larvae at home, consuming fruits and vegetables every day, childbirth assisted by health workers, giving babies exclusive breastfeeding, weighing infants and toddlers, doing physical activity and not smoking at home, to obtain a relationship from each of these criteria.

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