

## RISK FACTORS FOR DIARRHEA IN NOEBEBA DISTRICT, TIMOR TENGAH SELATAN REGENCY

**Denisius Umbu Pati**

Universitas Kristen Wira Wacana Sumba, Indonesia

\*Corresponding Author: denis@unkriswina.ac.id

### ABSTRAK

Salah satu penyebab diare yang sering terjadi disebabkan oleh sanitasi dan perilaku yang buruk. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang mempengaruhi kejadian diare di Kecamatan Noebeba Kabupaten Timor Tengah Selatan. Jenis penelitian yang dilakukan dalam penelitian ini adalah survei analitik dengan desain studi cross sectional. Lokasi penelitian Noebeba di Kabupaten Timor Tengah Selatan. Populasinya adalah seluruh masyarakat yang bertempat tinggal di Kecamatan Noebeba berjumlah 3186 ibu rumah tangga, teknik pengambilan sampel menggunakan random sampling (sampling acak sederhana) dan sampel sebanyak 355 ibu rumah tangga. Hasil analisis univariat menunjukkan bahwa, dengan diare di Kecamatan Noebeba berjumlah 78 (22,0%) dan diare berjumlah 277 orang (78%). Hasil analisis bivariat menunjukkan bahwa ada hubungan antara wadah air rumah tangga ( $p = 0,003$ ), kondisi jamban ( $p = 0,000$ ), pengetahuan ibu rumah tangga ( $p = 0,000$ ), dan praktik cuci tangan ( $p = 0,001$ ) dan kejadian diare. Namun hasil penelitian juga menunjukkan bahwa tidak ada hubungan antara kondisi tempat sampah rumah tangga ( $p = 0,262$ ) dan sanitasi makanan ( $p = 0,156$ ) dengan kejadian diare. Diperlukan juga upaya lintas sektor untuk memberdayakan masyarakat dengan melibatkan pemerintah dan LSM yang ada serta membuat peraturan yang berkaitan dengan perilaku hidup bersih dan sehat bagi masyarakat.

**Kata kunci** : Faktor Risiko, Kejadian Diare

### ABSTRACT

*One frequent cause of diarrhea caused by poor sanitation and behavior. This study aimed to analyze the factors affecting the incidence of diarrhea in the district of Timor Tengah Selatan regency Noebeba. This type of research conducted in this research is analytic survey with cross sectional study design. Noebeba research location in the district of South Central Timor. The population is all the people residing in the District Noebeba 3186 amounted to housewives, the technique of sampling using random sampling (simple random sampling) and samples are 355 housewives. Results of univariate analysis showed that, with diarrhea in the district Noebeba amounted to 78 (22.0%) and diarrhea amounted to 277 people (78%). The results of the bivariate analysis showed that there is a relationship between a container of household water ( $p = 0.003$ ), the condition of latrines ( $p = 0.000$ ), housewife knowledge ( $p = 0.000$ ), and the practice of hand washing ( $p = 0.001$ ) and the incidence of diarrhea. However, the results also showed that there is no correlation between the condition of household trash ( $p = 0.262$ ) and sanitation of food ( $p = 0.156$ ) and the incidence of diarrhea. It is also necessary cross-sector efforts to empower communities by engaging governments and NGOs that exist and make regulations relating to the behavior of clean and healthy living for people.*

**Keywords** : Risk Factors, Genesis Diarrhea.

### INTRODUCTION

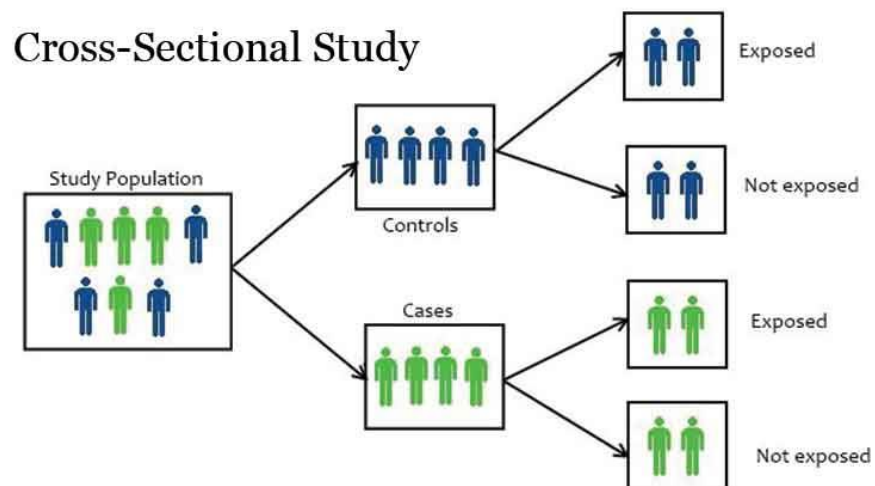
Cases of diarrhea in Indonesia show symptoms in the age group of 3.5% and by province 1.6%-6.3% and cases of diarrhea under five are 6.7% and by province 3.3%-10.2%, the prevalence period cases of diarrhea in all age groups based on symptoms by 7% and under five by 10.2% based on the results of the 2013 Riskesdas (Susanti, 2018). The overall period prevalence of diarrhea for Indonesia is 7.0% (Otsuka et al., 2019), Indonesia with incident cases of diarrhea is 5.7 per 300,000 population, while the incidence of diarrhea in toddlers is 11.9 per 300,000 population (Kemenkes RI, 2013).

Nusa Tenggara Timur province cases of diarrhea in 2011 totaled 200,721 cases of which 111,046 cases (55.3%) were handled. In 2012, there were 206,216 cases of diarrhea, 106,193 cases (51.5%) were handled (Magdalena et al., 2019). In 2013, an estimated 209,553 cases of diarrhea were handled, 102,217 cases (48.8%) were handled. The period prevalence of diarrhea for Nusa Tenggara Timur Province is 10.9% (Shine et al., 2020), the national rate of death in diarrhea outbreaks in 2013 was 1.08%. Nusa Tenggara Timur Province in 2013 there were 209,553 cases of diarrhea, 102,217 cases (48.8%) were handled (Pemerintah Dinas Kesehatan Provinsi Nusa Tenggara Timur, 2014; Riset Kesehatan Dasar NTT, 2013).

Timor Tengah Selatan District is a district with a diarrhea rate in 2012 of around 9,876 cases of diarrhea in 2013 Timor Tengah Selatan District of diarrhea cases around 9,015 cases. In 2014, data obtained from the TTS Health Office, the most cases of diarrhea occurred in the Soe City Health Center area with 901 cases, followed by Kie Health Center 445 cases, Niki-Niki Health Center 429 cases, Pnite Health Center 387 cases, Kuanfatu Health Center 312 cases, Kualin Health Center 310 cases, Kapan Health Center with 251 cases, and other Health Center with an average of 100 cases, except for the Hauhasi Health Center in Toianas District, which only had 33 cases (Eriksen et al., 2021; Rugo et al., 2019; Getachew et al., 2018). Noebaba District in January 2015 reported 224 sufferers of diarrhea, 3 of them died with details of Enonabuasa Village 123 cases, Oepliki Village 52 cases, Oe'ekam Village 19 cases, Teas Village 19 cases, and Oebaki Village 11 cases. This study aims to examine the factors associated with diarrhea in Noebaba South Central Timor.

**METODE**

Research using Cross Sectional Study design. The research was conducted in March 2015-January 2016 in Noebaba District, Timor Tengah Selatan Regency, Nusa Tenggara Timur Province. The population is 3,186 housewives (IRT).



**Figure 1. Cross Sectional Study Design**

The sample technique in this study is simple random sampling. The research sample is 355 housewives (IRT). The number of samples for each village are (1) Oepliki Village totaling 63 IRT, (2) Eno Nabuasa Village totaling 29 IRT, (3) Fatutnana Village totaling 28 IRT, (4) Naip Village totaling 25 IRT, (5) Teas Village totaling 75 IRT, (6) Oebaki Village totaling 57 IRT, (7) Oe'ekam Village totaling 78 IRT.

## RESULT

Diarrhea is an event that occurs when there is a change in the consistency of the stool from the number or frequency of bowel movements. It is said to suffer from diarrhea when the stool is more watery than usual, or when the bowel movements are three or more times within 24 hours (Masyarakat, 2016).

Table 1 for the variable basic sanitation facilities shows that 142 people (40%) have conditions where families can store clean water, while 213 people (60%) meet the requirements, 143 people (40) lack family latrines. .28%), sufficient for 160 people (45.07%) and good for 52 people (14.65%) and family trash facilities that do not meet the requirements for 95 people (26.76%) while fulfilling the requirements for 260 people (73.24%). Lack of knowledge of mothers about diarrhea amounted to 108 people (30.42%), sufficient knowledge amounted to 164 people (46.20%), and good knowledge amounted to 83 people (23.38%). Based on the action or practice of hand washing, there were 39 people (10.99%) who never practiced hand washing, occasionally practiced hand washing as many as 203 people (57.18%), who often practiced hand washing as many as 110 people (30.99%) and the frequency of always practicing hand washing was 3 people (0.84%) and respondents who had good food sanitation were 141 people (39.72%) (Iryanto et al., 2021). Shows that respondents who did not experience diarrhea were 277 people (78.0%) while respondents who experienced diarrhea were 78 people (22.0%)

The results of the analysis showed that there was no significant difference between household waste disposal facilities ( $p=0.262$ ) and food sanitation ( $p=0.159$ ) and the incidence of diarrhea ( $p$  value  $>$  alpha 5%). The results of the analysis showed that there was a significant difference between family clean water storage ( $p=0.003$ ), family latrine conditions ( $p=0.000$ ), mother's knowledge about diarrhea ( $p=0.000$ ) and the act or practice of washing hands ( $p=0.001$ ) on the incidence of diarrhea.

The results of the study in Noebeba District showed that there were 277 people (78.0%) who did not experience diarrhea, while 78 people (22.0%) had diarrhea. Diarrhea prevention in the form of maintaining cleanliness caused by viruses and bacteria that come from an unclean environment (Ningsih et al., 2014).

In this study, some of the people in Noebeba Sub-District had clean water containers for families who did not meet the requirements of 142 people (40%), while 213 people (60%) met the requirements. The results of statistical tests using chi-square  $p = 0.003$  means that there is a relationship between the family's clean water container and the incidence of diarrhea (Fitriani et al., 2021).

**Tabel 1. Relationship between Basic Sanitation Facilities, Behavior, Food Sanitation and Diarrhea**

No	Variable	Diarrhea Incident		<i>p-values</i>
		Diarrhea	No Diarrhea	
1.	<b>The condition of the family's clean water storage area</b>	20 (5,6%) 58 (16,3%)	122 (34,4%) 155 (43,7%)	0,003*
2.	Not eligible Qualify <b>Condition of family latrines</b>	45 (12,7%) 20 (5,6%) 13 (3,7%)	98 (27,6%) 140 (39,4%) 39 (11,0%)	0,000*
3.	Not enough Enough	17 (4,8%)	78 (22,0%)	0,262

	Well	61 (17,2%)	199 (56,1%)	
4.	<b>Family trash facility</b>			
	Not eligible			
	Qualify	46 (13,0%)	62 (17,5%)	0,000*
		17 (4,8%)	147 (41,4%)	
5.	<b>Mother's knowledge about diarrhea</b>	15 (4,2%)	68 (19,2%)	
	Not enough	17 (37,5%)	22 (6,2%)	0,001*
	Enough	36 (10,1%)	167 (47,0%)	
	Well	23 (6,5%)	87 (24,5%)	
		2 (0,6%)	1 (0,6%)	
6.	<b>The act or practice of washing hands</b>	10 (2,8%)	16 (4,5%)	0,159
	Never	22 (6,2%)	99 (27,9%)	
	Sometimes	32 (9,0%)	109 (30,7%)	
	Often	14 (3,9%)	53 (14,9%)	
	Always			
	<b>Food sanitation</b>			
	Not good			
	Not good			
	Well			
	Very good			

This is due to the presence of E.coli bacteria that are in the family's clean water container, based on research results the informant said that the family's clean water container is rarely cleaned because it is very difficult for the people of Noebeba District to get clean water, while the water taken comes from dug wells and lakes usually taken for cooking and drinking needs while for washing equipment the water is rarely used, the results of observations made show that the family's clean water containers are rarely cleaned (Khairunnisa et al., 2020). The results of this study are in line with the research conducted by Musawir (2014) that the majority of infants experienced diarrhea, as many as 21 infants (77.8%) with milk bottles contained E. Coli. The results of the chi square test  $p = 0.000$  means that there is a relationship between E. Coli in milk bottles and the incidence of diarrhea (Musawir, Muhammad Ardasir. Arsin, 2013). This research is in line with Langit (2016) showing that respondents did not meet the requirements for the condition of clean water supply facilities 47.9% The chi square test results obtained  $p=0.001$ (Langit, 2016).

## DISCUSSION

The condition of latrines that do not meet the requirements has the opportunity to become a place for the breeding of disease vectors. The results of research conducted in Noebeba District showed that families with poor family latrines totaled 143 people (40.28%), quite good, 160 people (45.07%). ) and very good, totaling 52 people (14.65%). The statistical test results using chi-square obtained  $p = 0.000$ , meaning that there is a relationship between the condition of family latrines and the incidence of diarrhea. The requirements for latrines according to

health rules are not to contaminate the surface of the soil, not to contaminate the surface of the water, not to contaminate groundwater, and to have a closed area (septic tank) so that it does not become a place for vectors to reproduce. Latrine that does not meet the requirements is a source of spread of bacteria that cause diarrhea (Langit, 2016). Ganiwijaya's research (2016) is in line with this study which shows that there is a relationship between the condition of latrine facilities and the incidence of diarrhea in toddlers in the South Semarang District area with a statistical  $p$  value = 0.094 (Ganiwijaya et al., 2016).

The condition of household waste bins in this study is the condition of the family in managing and destroying household waste by planting (Landfill), burning (Incineration) and making fertilizer (Composting). The condition of household waste bins not fulfilling the requirements was 95 people (26.76%) while 260 people (73.24%) fulfilled the requirements. The results of the chi-square test obtained  $p = 0.262$ , there was no relationship between the condition of household waste bins and the incidence of diarrhea. Research conducted by Ganiwijaya (2016) in South Semarang District is not in line which shows that there is a relationship between the condition of garbage disposal facilities and the incidence of diarrhea in toddlers  $p$  value = 0.001 (Ganiwijaya et al., 2016).

Knowledge of housewives is a mother's ability to understand the incidence of diarrhea. The poor knowledge of housewives about diarrhea was 108 people (30.42%), adequate knowledge was 164 people (46.20%), good knowledge was 83 people (23.38%) Statistical test results using chi-square obtained  $p = 0.003$  means there is a relationship between the knowledge of housewives and the incidence of diarrhea. Mother's knowledge is very important in families where mothers in Noebaba District have a housewife's job. This is very influential with the incidence of diarrhea, because the mother manages food in a household. If the mother does not have sufficient knowledge about PHBS, the chances of diarrhea occurring very large. This research is in line with Munawaroh's research (2016) with a qualitative approach which says that knowledge about good PHBS is bathing with soap, always brushing your teeth, cleaning your hair, washing your hands with soap, cleaning your nails, getting enough rest, not smoking, not throwing garbage, and healthy latrines, always exercise and maintain a balanced nutrition (Siti munawaroh, Kusyogo Cahyo, 2016).

In the practice of hand washing, there were 39 people (10.99%) who never practiced hand washing, occasionally did the practice of hand washing as many as 203 people (57.18%), who often practiced hand washing of 110 people (30, 99%) and the frequency of always practicing hand washing was 3 people (0.84%). The statistical test used chi-square  $p = 0.001$ , meaning that there is a relationship between handwashing and the incidence of diarrhea. Research with Musawir (2014) in the Pannampu Village is in line with showing that there is a relationship between the habit of washing hands with soap and the incidence of diarrhea, statistical test ( $p=0.001$ ) (Musawir, Muhammad Ardasir. Arsin, 2013). This study is in line with Munawaroh (2016) with a qualitative approach which shows that poor PHBS measures include rarely bathing, rarely brushing teeth before going to bed, washing hands without using soap, rarely eating fruits and vegetables, not always exercising regularly, not getting enough rest, smoking, dispose of garbage in an inappropriate place and do not have healthy latrines (Siti munawaroh, Kusyogo Cahyo, 2016).

There are 4 principles of food hygiene and sanitation, including healthy and clean behavior of people who handle food, food sanitation, equipment sanitation and food processing area sanitation (Suherman et al., 2013). Food sanitation in this study is a family condition in maintaining family food so that it is always in good condition. Respondents who had good food sanitation were 141 people (39.72%) and very good 67 (18.89 %). The results of the chi square statistical test were obtained ( $p = 0.159$ ) meaning that there was no relationship between food sanitation and the incidence of diarrhea, the people in Noebaba Subdistrict food sanitation could be categorized as good based on the results of field observations, the community also



chose food ingredients which were always in good physical condition or good results (Nurbaiti et al., 2021). taken from the family's own land and the community also always washes the food ingredients to be processed and the community always finishes the food served so it is not stored (Longeracemosa et al., 2015).

## **CONCLUSION**

The results of the research conducted concluded that there was a very significant relationship between household clean water containers, family latrine conditions, mother's knowledge about diarrhea and the act or practice of washing with the incidence of diarrhea in Noebeba District, Timor Tengah Selatan Regency, while those that did not have a very significant relationship between family trash bins and food sanitation with the incidence of diarrhea in Noebeba District, Timor Tengah Selatan Regency. Based on research conducted in Noebeba District, Timor Tengah Selatan Regency, there are several factors related to the incidence of diarrhea, it is necessary to make efforts by the government to increase people's knowledge and behavior through counseling and providing information related to the incidence of diarrhea so that people can carry out prevention within the family and can improve the quality of individual and community health and prevent an increase in the incidence of diarrhea in the community and the government must provide a source of clean water for the community so that the amount of water needs in the community can be met properly, such as the use of water for cooking, bathing, drinking water, and the use of water for disposal needs defecation.

## **ACKNOWLEDGEMENT**

We thank the community and 3,186 housewives in Noebeba District, South Central Timor District, East Nusa Tenggara Province.

## **REFERENCES**

- Dadonaita, B., Ritchie, H., & Roser, M. (2018). Diarrheal Diseases. Our World In Data.
- Eriksen, E. Ø., Kudirkiene, E., Christensen, A. E., Agerlin, M. V., Weber, N. R., Nødtvedt, A., Nielsen, J. P., Hartmann, K. T., Skade, L., Larsen, L. E., Pankoke, K., Olsen, J. E., Jensen, H. E., & Pedersen, K. S. (2021). Post-Weaning Diarrhea In Pigs Weaned Without Medicinal Zinc: Risk Factors, Pathogen Dynamics, And Association To Growth Rate. *Porcine Health Management*, 7(1), 54. <https://doi.org/10.1186/S40813-021-00232-Z>
- Fitriani, N., Darmawan, A., & Puspasari, A. (2021). Analisis Faktor Risiko Terjadinya Diare Pada Balita Di Wilayah Kerja Puskesmas Pakuan Baru Kota Jambi. *Medical Dedication (Medic): Jurnal Pengabdian Kepada Masyarakat Fkik Unja*, 4(1), 154–164. <https://doi.org/10.22437/Medicaldedication.V4i1.13472>
- Ganiwijaya, F., Rahardjo, M., Lingkungan, B. K., Masyarakat, F. K., & Diponegoro, U. (2016). Sebaran Kondisi Sanitasi Lingkungan Dengan Informasi Geografis Di Kecamatan Semarang. 4.
- Getachew, A., Guadu, T., Tadie, A., Gizaw, Z., Gebrehiwot, M., Cherkos, D. H., Menberu, M. A., & Gebrecherkos, T. (2018). Diarrhea Prevalence And Sociodemographic Factors Among Under-Five Children In Rural Areas Of North Gondar Zone, Northwest Ethiopia. *International Journal Of Pediatrics*, 2018, 1–8. <https://doi.org/10.1155/2018/6031594>
- Iryanto, A. A., Joko, T., & Raharjo, M. (2021). Literature Review : Faktor Risiko Kejadian Diare Pada Balita Di Indonesia. *Jurnal Kesehatan Lingkungan*, 11(1), 1–7. <https://doi.org/10.47718/Jkl.V11i1.1337>

- Kemenkes Ri. (2013). Hasil Riskesdas 2013. Kementerian Kesehatan Republik Indonesia.
- Khairunnisa, D. F., Zahra, I. A., Ramadhania, B., & Amalia, R. (2020). Faktor Risiko Diare Pada Bayi Dan Balita Di Indonesia: A Systematic Review. *Prosiding Seminar Nasional Kesehatan Masyarakat 2022*, 1(1), 172–189.
- Langit, L. S. (2016). Hubungan Kondisi Sanitasi Dasar Rumah Dengan Kejadian Diare Pada Balita Di Wilayah Kerja Puskesmas Rembang 2. 4(April), 160–165.
- Longeracemoso, I., Ex, B., & Di, B. (2015). 12) , 3) & 3). 5(3), 106–110.
- Magdalena, I., Rantetampang, A. L., Pongtiku, A., & Mallongi, A. (2019). The Risk Factors Environment And Behavior Influence Diarrhea Incidence To Child In Abepura Hospital Jayapura City. *International Journal Of Science And Healthcare Research*, 4(1), 171–180. [Http://Www.Ijshr.Com/](http://Www.Ijshr.Com/)
- Manetu, W. M., M'masi, S., & Recha, C. W. (2021). Diarrhea Disease Among Children Under 5 Years Of Age: A Global Systematic Review. *Open Journal Of Epidemiology*, 11(03), 207–221. [Https://Doi.Org/10.4236/Ojepi.2021.113018](https://Doi.Org/10.4236/Ojepi.2021.113018)
- Musawir, Muhammad Ardasir. Arsin, A. A. R. (2013). Kontaminasi Bakteri Escherichia Coli Pada Botol Susu Dengan Kejadian Diare Pada Bayi. 146–153.
- Ningsih, H., Syafar, M., Nyorong, M., Promosi, B., Perilaku, I., & Unhas, F. K. M. (2014). Perilaku Ibu Terhadap Pencegahan Dan Pengobatan Puskesmas Belawa Mother ' S Behaviour Towards The Prevention And Treating Of Children Under Five Years Old From Diarrhea In Belawa Community Health Center Service Area. 51–56.
- Notoatmodjo, S. (2012). Metodologi Penelitian Kesehatan. Rineka Cipta.
- Nurbaiti, N., Priyadi, P., & Maksuk, M. (2021). Faktor Risiko Kejadian Diare Pada Balita Di Puskesmas Kabupaten Muara Enim. *Jurnal Sanitasi Lingkungan*, 1(1), 13–18. [Https://Doi.Org/https://Doi.Org/10.36086/Salink.V1i1.664](https://Doi.Org/https://Doi.Org/10.36086/Salink.V1i1.664)
- Olorategui, M. P., Rouhani, S., Yori, P. P., Salas, M. S., Trigoso, D. R., Mondal, D., Bodhidatta, L., Platts-Mills, J., Samie, A., Kabir, F., Lima, A., Babji, S., Shrestha, S. K., Mason, C. J., Kalam, A., Bessong, P., Ahmed, T., Mduma, E., Bhutta, Z. A., ... Kosek, M. N. (2018). Astrovirus Infection And Diarrhea In 8 Countries. *Pediatrics*, 141(1). [Https://Doi.Org/10.1542/Peds.2017-1326](https://Doi.Org/10.1542/Peds.2017-1326)
- Otsuka, Y., Agestika, L., Widyarani, Sintawardani, N., & Yamauchi, T. (2019). Risk Factors For Undernutrition And Diarrhea Prevalence In An Urban Slum In Indonesia: Focus On Water, Sanitation, And Hygiene. *The American Journal Of Tropical Medicine And Hygiene*, 100(3), 727–732. [Https://Doi.Org/10.4269/Ajtmh.18-0063](https://Doi.Org/10.4269/Ajtmh.18-0063)
- Pemerintah Dinas Kesehatan Kabupaten Timor Tengah Selatan. (2014). Profil Dinas Kesehatan Timor Tengah Selatan 2014.
- Pemerintah Dinas Kesehatan Provinsi Nusa Tenggara Timur. (2014). Profil Dinas Kesehatan Provinsi Ntt 2014.
- Qiu, F., Shen, X., Li, G., Zhao, L., Chen, C., Duan, S., Guo, J., Zhao, M., Yan, T., Qi, J.-J., Wang, L., Feng, Z., & Ma, X. (2018). Adenovirus Associated With Acute Diarrhea: A Case-Control Study. *Bmc Infectious Diseases*, 18(1), 450. [Https://Doi.Org/10.1186/S12879-018-3340-1](https://Doi.Org/10.1186/S12879-018-3340-1)
- Riset Kesehatan Dasar Ntt. (2013). Hasil Riset Kesehatan Dasar Nusa Tenggara Timur (Riskesdas Ntt) 2013.
- Rugo, H. S., Di Palma, J. A., Tripathy, D., Bryce, R., Moran, S., Olek, E., & Bosserman, L. (2019). The Characterization, Management, And Future Considerations For Erbb-Family Tki-Associated Diarrhea. *Breast Cancer Research And Treatment*, 175(1), 5–15. [Https://Doi.Org/10.1007/S10549-018-05102-X](https://Doi.Org/10.1007/S10549-018-05102-X)
- Shine, S., Muhamud, S., Adanew, S., Demelash, A., & Abate, M. (2020). Prevalence And Associated Factors Of Diarrhea Among Under-Five Children In Debre Berhan Town, Ethiopia 2018: A Cross Sectional Study. *Bmc Infectious Diseases*, 20(1), 174.

<https://doi.org/10.1186/S12879-020-4905-3>

- Siti Munawaroh, Kusyogo Cahyo, S. B. (2016). Identifikasi Faktor-Faktor Perilaku Hidup Bersih Dan Sehat (Lchb) Penghuni Rumah Kos Graduate House. 4, 389–395.
- Suherman, A. P., Ane, R. La, & Ibrahim, E. (2013). Praktik Hygiene Penjamah Dan Sanitasi Peralatan Makanan Jajanan Anak Sekolah Dasar Pada Sd Di Kel . Antang Kec . Manggala Kota Makassar Hygiene Practices Of Food Handlersand Street Food Utensils Sanitationat Elementary Schools In Antang Sub-District Mangg. 103–108.
- Susanti, E. (2018). Risk Factors For Diarrhea Cases In Communities Living Along Deli River, North Sumatera. *Journal Of Epidemiology And Public Health*, 04(01), 47–54. <https://doi.org/10.26911/Jepublichealth.2019.04.01.06>
- Susanto, N, Dan Weraman, P. (2014). *Epidemiologi Kesehatan*. Digibooks.
- Ullah, M. B., Mridha, M. K., Arnold, C. D., Matias, S. L., Khan, M. S. A., Siddiqui, Z., Hossain, M., Paul, R. R., & Dewey, K. G. (2019). Factors Associated With Diarrhea And Acute Respiratory Infection In Children Under Two Years Of Age In Rural Bangladesh. *Bmc Pediatrics*, 19(1), 386. <https://doi.org/10.1186/S12887-019-1738-6>