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## **RISK FACTORS THAT INFLUENCE THE INCIDENCE OF DIARRHEA IN TODDLERS**

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### **ABSTRACT**

Diarrhea is a condition where the frequency of defecation is more than 4 times in babies and more than 3 times in children. The incidence of diarrhea is closely related to the clean and healthy living behavior carried out by family members and the increase in cases is strongly influenced by an unclean environment. This research is to analyze the effect of breastfeeding, nutritional status, and hand washing behavior on the incidence of diarrhea in the Naioni Health Center Work Area, Kupang City. Method: This research uses an analytical survey method with a cross sectional design. The population in this study was 1,120 toddlers in the Naioni Community Health Center Working Area. The sampling technique in this research is cluster random sampling with a sample size of 92 people. Statistical analysis of the data used in this research was the chi square test. Analysis found that variables related to the incidence of diarrhea in toddlers were breastfeeding (pvalue=0.005:RP=3.778), nutritional status (pvalue=0.347:RP=0.589), hand washing behavior (pvalue=0.009:RP=3.429). The incidence of diarrhea which has the greatest impact on toddlers is because of the attention of the community in their life activities to be able to use appropriate water for eating, drinking and other basic human needs and how to manage food properly and correctly.

**Keywords:** diarrhea; risk factors; toddlers

### **INTRODUCTION**

Diarrhea is a condition where the frequency of defecation is more than 4 times in babies and more than 3 times in children, the consistency of the stool is watery, it can be green or it can also be mixed with mucus and blood or just mucus. Diarrhea is a symptom of disease in the gastrointestinal system or other diseases outside the digestive tract (Ngastiyah, 2005). Diarrhea often occurs in babies and children. Diarrhea can cause a person to lack fluids. Diarrhea can be a very acute and dangerous disease because it often results in death if treated too late (Pudiastuti, 2011). In 2009, the World Health Organization (WHO) stated that diarrhea was the second most deadly disease for toddlers in the world. UNICEF data reports that 1.5 million children die every year from diarrhea. Diarrhea is still a public health problem in developing countries such as Indonesia because morbidity and mortality are still high. Diarrhea is still one of the main causes of Indonesian public health problems, both in terms of morbidity and mortality rates. This disease can attack all age groups with a morbidity rate of around 280 per 1000 population and for toddlers suffering from diarrhea each year or 53% of all diarrheal illnesses

In the morbidity survey conducted by the Indonesian Ministry of Health in 2006, the morbidity rate for diarrhea for all ages was 423 per 1000 population. This morbidity rate increased when compared with the results of the same survey in 2000, which was 301 per 1,000 population and in 2003, which was 374 population. Based on RISKESDAS data for 2013-2018, data was obtained that in Indonesia itself, the prevalence of diarrhea in toddlers based on the diagnosis of health workers showed that in 2013, 18.5% of toddlers had diarrhea, whereas in 2018, 12.3% of toddlers had diarrhea. Diarrhea is still a public health problem, although in general efforts to control it have improved with evidence of decreasing morbidity rates. Based on reports, the number of diarrhea cases in Kupang City was found to be 6754 cases from 2012-2016 (Health Profile, 2016). Diarrhea cases in East Nusa Tenggara in

2011 amounted to 200,721 cases, of which 111,046 cases were handled or 55.3%. In 2012, it was estimated that there were 206,21 cases of diarrhea, of which 106,193 cases were treated or 51.5% of cases. Furthermore, in 013, the estimated number of diarrhea cases was 209,553, of which 102,217 cases were handled or 48.8% (Profile of the NTT Provincial Health Service, 2014). The incidence of diarrhea in East Nusa Tenggara Province in 2013 was 43% and the period prevalence was 10.9 percent.

Data from the recapitulation of diarrhea sufferers at the Naioni Health Center in 2017 showed that there were 118 boys and 104 girls suffering from diarrhea, whereas in 2018 until May, it was known that there were 41 boys with diarrhea and 41 girls. 56 people. Based on the results of the Kupang City Health Service investigation, it was discovered that in January 2018, there had been an extraordinary incident (KLB) of diarrhea in the 4th week of January 2018 in Manulai 2 Village with a total of 8 cases and 1 death. The occurrence of diarrhea cannot be separated from several influencing factors, including causal factors (agent), host (host) and environmental factors (environment). Factors causing agents that can cause diarrhea include infection factors, malabsorption factors and food factors (Ngastiyah, 2005). Host factors include nutritional factors of toddlers and poor hygiene behavior and environmental factors, namely poor sanitation conditions. Clean and healthy living behavior is the essence and human right to maintain the continuity of life. This is in line with what is included in the constitution of the World Health Organization in 1948, which agreed, among other things, that obtaining the highest possible level of health is a fundamental right for people regardless of race, religion, political beliefs and socio-economic level.

Republic of Indonesia Minister of Health Regulation Number: 2269/Menkes/PER/XI/2011 is that in the household, the target must be to practice behavior that can create a PHBS household, which includes giving birth assisted by health workers, giving babies exclusive breast milk, weighing toddlers every month, using clean water, washing hands with clean water and soap, managing drinking and eating water in the household, using healthy latrines (Stop Open Defecation/Stop BABS), managing liquid waste in the household, throwing rubbish in the trash, eradicating larvae mosquitoes, eating fruit and vegetables every day, doing physical activity every day, not smoking in the house (Maryunani, 2013). Riskesdas data in 2007 shows that the achievement of PHBS-compliant households was 37.8%, while the target to be achieved in 2007 was 44% and the target in 2010 was 65% of PHBS-compliant households (Maryunani, 2013). Based on the results of interviews with Naioni Community Health Center officers, the condition of the people who live in the Naioni Community Health Center working area already has family latrines, including emergency pit latrines, semi-permanent and permanent latrines. The condition of the community in the Naioni Health Center working area is that it is very difficult to get access to clean water because there is a shortage of it, so activities that require clean water are prioritized for cooking, drinking and bathing only. this research is to analyze the effect of breastfeeding, nutritional status, and hand washing behavior on the incidence of diarrhea in the Naioni Health Center Work Area, Kupang City.

## **METHOD**

This type of research is quantitative using analytical survey. This research uses an analytical survey method with a cross sectional design. The population in this study was 1,120 toddlers in the Naioni Health Center Work Area. The sampling technique in this research is cluster random sampling. The total sample size was 92 people spread across 3 sub-districts in the Naioni Public Health Center working area. Statistical analysis of the data used in this research was the chi square test.

**RESULT**

Tabel 1.  
incidence of diarrhea (n=92)

Incidence Of Diarrhea	f	%
Having Diarrhea	26	28,3
Didn't Experience Diarrhea	66	71,7
Total	92	100

Table 1, it can be seen that, the distribution of respondents based on the incidence of diarrhea in the Naioni health center working area who experienced diarrhea in the last 3 months was 26 people (28.3%) while those who did not experience diarrhea were 66 (71.7%).

Tabel 2.  
Breastfeeding in the work area Naioni Health Center (n=92)

Incidence Of Diarrhea	f	%
Exclusive breastfeeding	53	57,6
NonExclusive	42	42,4

Table 2, it can be seen that, the distribution of respondents based on the incidence of diarrhea in the working area of the Naioni health center, that there were 53 mothers who gave exclusive breastfeeding to toddlers (57.6%) while those who were not given exclusive breast milk were 42 people (42.4%).

Tabel 3.  
Nutritional status of toddlers (n=92)

Incidence Of Diarrhea	f	%
Malnutrition	24	26,1
Good Nutrition	68	73,9

Table 3 shows that there are 24 children under five who have poor nutritional status (26.1%) while there are 68 children under five who have good nutritional status (73.9%).

Tabel 4.  
Handwashing practices(n=92)

Incidence Of Diarrhea	f	%
Not Washing Hands	24	26,1
Washing Hands	68	73,9

Table 4 shows that, the action or practice of washing hands of mothers in the working area of the Naioni Community Health Center which had hand washing behavior was 53 people (57.6%) while those who did not had 39 people (42.4%).

Table 5.  
Bivariate Analysis (n=92)

Variable	Sig (p)
Providing Exclusive Breastfeeding	0,005*
Nutritional status	0,347
Washing hands	0,009*

The data in table 5 shows that the variable breastfeeding, Hand washing behavior has *value* <0.025 means the variable is continued in multivariate analysis while the nutritional status variable does not pass because it has a sig p *value* 0.347.

**DISCUSSION**

Diarrhea is caused by various elements such as biological elements including microorganisms (viruses, bacteria, parasites and protozoa), which cause diarrhea including internal and external factors. Internal

bacteria include E.Coli, Rotavirus, worms, Protozoa, Fungi, Shalmonella and Parasites while externally include tonsillitis, bronchopneumonia and encephalitis. According to Palupi, Hadi, and Soenarto (2009) quoted from Pudjiadi (2000), children aged 2-5 years are active consumers who can be exposed to food outside the home. At that age, children prefer to eat snacks following in the footsteps of their friends, even though the processing and serving of these foods may be less hygienic which results in food contamination by germs which can cause a child to suffer from diarrhea. According to Achmadi (2011), diarrhea is an environmentally based disease, which is generally caused by microorganisms. The way diarrhea is transmitted is through various media that we know, such as water and food, which is essentially poor basic sanitation conditions

Apart from that, diarrhea is caused by the condition of humans who behave less cleanly or do not maintain a clean and healthy lifestyle so that the risk factor for the occurrence of a disease, in this case the incidence of diarrhea is caused by an internal factor, one of the diseases or which can cause diarrhea, including the mother's personal hygiene which includes the use of water. , behavior of washing stairs before and after feeding the baby, holding the baby, preparing food and washing hands after defecating, personal hygiene of toddlers, level of education, how to manage food, serve food, provide breast milk. The statistical test results from this research show that the p value is 0.005; Rp. 3,778 so it can be concluded that there is an influence between breastfeeding with the incidence of diarrhea in which mothers who exclusively breastfeed are at risk 3,778 times the toddlers did not experience diarrhea compared to mothers who did not provide breast milk exclusively. This research is in line with research carried out by Anthya Tamimi (2016) with the results of the chi-square statistical test shows that there is a relationship between exclusive breastfeeding and incidence of diarrhea in infants with a value of  $p = 0.014$ . This research is in line with research conducted by Galman and Wahyuni (2014) regarding the incident diarrhea in children aged 1-3 years which shows that there is a relationship between breastfeeding with the incidence of diarrhea.

The results of the study stated that a history of exclusive breastfeeding had an effect on incidence of diarrhea in infants. Babies who do not receive exclusive breast milk are more at risk of suffering from diarrhea compared to babies who receive exclusive breast milk. Breast milk plays an important role in the development of the immune system, both systemic and mucosal. The digestive tract of newborn babies is still very simple, so exposure to nutrients and microbes received in the early phase after birth has a big impact on the development of the immune system. After birth, babies are faced with a transition period where initially they depend on nutrition from the umbilical cord, they now have to receive nutrition enterally (Sentana et al., 2018).

The results of this study are in line with research in Lebak Regency which stated that there was a significant relationship between exclusive breastfeeding and the incidence of diarrhea in babies, where mothers who did not give exclusive breast milk to their babies had more than 8 times the risk of developing diarrhea compared to mothers who gave exclusive breast milk to their babies. suffer from diarrhea in their babies (Sutomo et al., 2020). This is also in line with research in Denpasar which states that there is a significant relationship between exclusive breastfeeding and the incidence of diarrhea. So breast milk has a very important role in children's immunity and is the first nutritional recommendation for children under six months of age. The incidence of diarrhea in babies who are exclusively breastfed is less than in children who are not exclusively breastfed. This is because breast milk contains bioactive components which can prevent babies from experiencing diarrhea (Adikarya et al., 2019).

The results of statistical tests in this study were nutritional status with p value =0.347 ; RP 0.589 can be concluded that there is no influence between status nutrition with the incidence of diarrhea in toddlers

who have good nutritional status have a 0.589 chance of not experiencing diarrhea. Research result This is in line with research conducted by Fahmi (2012), where Status Nutrition in toddlers is divided into 2 groups, namely good and not good. A total of 72 toddlers have good nutrition, 58% of toddlers have nutrition both suffer from diarrhea, and 42% of toddlers do not have diarrhea. Toddler with 28 children under five were malnourished, of which 36% suffered from diarrhea, and 64% had no diarrhea. The results of the analysis obtained a p value = 0.042. So that it can It was concluded that there was no relationship between nutritional status and the incidence of diarrhea in toddlers aged 2-5 years in the working area of the District Health Center Karanganyar, Karanganyar Regency.

This research also proves that the behavior of washing hands with soap influences the incidence of diarrhea in babies. Babies are more at risk of being infected with diarrhea if the mother does not live a clean and healthy lifestyle. The results of the cross table analysis between washing hands with soap and the incidence of diarrhea show that mothers who wash their hands with soap show that more than half of their babies do not experience diarrhea. By washing your hands with soap you will eliminate various bacteria that can cause diarrhea. This is in accordance with the theory that washing hands with soap is a process that mechanically removes dirt and debris from the skin of the hands using ordinary soap and running water (Ministry of Health, 2018b). Washing hands with soap is a habit of cleaning hands from dirt and functions to kill germs that cause diseases that are detrimental to health. Good hand washing requires equipment such as soap and clean running water (Huliatunisa et al., 2020). Washing your hands can be useful for preventing disease, namely by killing germs on your hands. By washing your hands, your hands become clean and free from germs. If your hands are clean, it will prevent the transmission of diseases such as diarrhea (Subekti & Andriani, 2022).

This research is in line with previous research which states that the incidence of diarrhea is influenced by clean and healthy living behavior (Rosiska, 2021). In line with research in Padang City, it was found that the results showed a significant relationship between latrine sanitation, especially the use of latrines and clean water, and the incidence of diarrhea among toddlers in the plunge sub-district. The behavioral aspects of using healthy latrines and using clean water influence the incidence of diarrhea in toddlers according to researchers' assumptions, because the use of healthy latrines and clean water will minimize the spread of diseases such as diarrhea (Hidayati, 2019).

Based on the research results and theories above, it can be said that washing hands with soap can prevent diarrhea. because washing your hands with soap can kill germs that can cause diarrhea in toddlers. Washing your hands with soap is good when your hands look dirty, before handling food, especially what will be given to your child, before eating and feeding your child, after defecating and after washing or changing your child's clothes.

The results of statistical tests in this study show that behavior washing hands has a P value of 0.009; RP 3,429 so it can be concluded that there is an influence between hand washing behavior and The incidence of diarrhea in which the mother washes her hands is 3,429 times more likely toddlers do not experience diarrhea compared to mothers who do not wash hand. The results of this research are in line with research conducted by Nur Alam and Hamzah et al (2012) that washing hands has an effect or a relationship to the incidence of diarrhea. The results of this study are also in line with research conducted by Rafri (2016) with analysis using tests Fisher obtained a value of  $X^2 = 16.476$  and  $p = 0.001$  so it was concluded that There is a relationship between hand washing behavior and the incidence of diarrhea. As explained by Nurbaya (2018), at the toddler age, nutritional status is important for children's growth and development. If a toddler is malnourished in his golden years, he cannot recover and it can also affect the child's brain development and decrease his body's resistance and he can easily experience disease. The worse the nutritional status of toddlers, the greater the risk of diarrhea in toddlers. Nutritional status is really needed by toddlers because if toddlers experience

malnutrition, the immune cells will become very limited so that the ability to provide non-specific immunity against groups of organisms is reduced.

Meanwhile, Juhariyah & Mulyana (2018) explained that the worse a child's nutrition, the greater the risk of the child experiencing diarrhea. In children it shrinks and immune cells become very limited so that the ability to provide non-specific immunity against groups of organisms is reduced. The incidence of diarrhea will worsen the nutritional status of toddlers because weight loss will occur in a short time, this is caused by: parents often stop eating food for fear of getting more severe diarrhea or vomiting. Even though milk is continued, it is often given with expulsion and this watery milk is given for too long. The food given often cannot be digested and absorbed properly due to hyperperistalsis.

## CONCLUSION

In this study it was concluded that there was a significant influence between breastfeeding and the incidence of diarrhea in toddlers, there was no significant influence between nutritional status and the incidence of diarrhea in toddlers, there was a significant influence between hand washing behavior and the incidence of diarrhea in toddlers and there was a significant influence between (Host) food management with the incidence of diarrhea in toddlers. Thus, the incidence of diarrhea has the greatest impact on toddlers because of the attention of the community in their life activities, they can use appropriate water for eating, drinking and other basic human needs.

## REFERENCE

- Riset Kesehatan Dasar. (2013). Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan Dasar Republik Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2010). Pedoman Kader Seri Anak
- Kementerian Kesehatan Republik Indonesia. (2011). Tatalaksana Diare dan Pengendalian Penyakit dan Penyehatan Lingkungan
- Maryunani, A. (2013). Perilaku Hidup Bersih dan Sehat (PHBS). Jakarta; KDT
- Notoadmojo, S. (2012). Promosi Kesehatan Teori dan Aplikasi. Jakarta: Rineka cipta
- Nurbaya, S. (2018). Hubungan Status Gizi dengan Kejadian Diare pada Balita Umur 3-5 Tahun di Rumah Sakit TK II Pelamonia Makassar. *Jurnal Ilmiah Kesehatan Diagnosis*, 12(2), 153–156.
- Juhariyah, S., & Mulyana, S. A. S. F. (2018). Hubungan Status Gizi dengan Kejadian Diare pada Balita di Puskesmas Rangkasbitung. *Jurnal Obstretika Scientia*, 6(1), 219–230. Kemenkes RI.
- Nur, A., & Marissa, N. (2014). Riwayat pemberian air susu ibu dengan penyakit infeksi pada balita. *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, 9(2), 144–149. <https://doi.org/http://dx.doi.org/10.21109/kesmas.v9i2.510>
- Subekti, I., & Andriani, M. (2022). Pengaruh Perilaku Cuci Tangan Pakai Sabun Dalam Pencegahan Diare Pada Anak Usia Sekolah. *Journal of Nursing Care and Biomoleculer*, 7(1), 83–88. <https://doi.org/https://doi.org/10.32700/jnc.v7i1.261>
- Rosiska, M. (2021). Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Ibu dengan Kejadian Diare pada Anak Balita di Puskesmas Sungai Liuk Kota Sungai Penuh Tahun 2020. *Jurnal Ilmu Kesehatan Dharmas Indonesia (JIKDI)*, 1(2), 82–87.

- Hidayati, R. (2019). Hubungan Perilaku Hidup Bersih dan Sehat (PHBS) Dalam Tatanan Rumah Tangga Dengan Kejadian Diare Pada Balita di Puskesmas Lubuk Buaya Padang Tahun 2018. *Journal of Social and Economics Research*,1(1), 1–9. <https://doi.org/https://doi.org/10.54783/jser.v1i1.1>
- Rafri Aditya Purnomo. 2016. Perilaku Mencuci Tangan Dan Kejadian Diare Pada Anak Usia Pra Sekolah Di PAUD Desa Kalikotes Klaten. *Jurnal. Surakarta: UMS.*
- Adikarya, I. P. G. D., Nesa, N. N. M., & Sukmawati, M. (2019). Hubungan ASI eksklusif terhadap terjadinya diare akut di Puskesmas III Denpasar Utara periode 2018. *Intisari Sains Medis*, 10(3). <https://doi.org/https://doi.org/10.15562/ism.v10i3.434>
- Sentana, K. A. R. S., Adnyana, I. G. A. N. S., & Subanada, I. B. (2018). Hubungan pemberian ASI eksklusif dengan kejadian diare pada bayi. *E-Jurnal Medika Udayana*, 7(10), 1–9.
- Achmadi UF. 2011. *Dasar – Dasar Penyakit Berbasis Lingkungan*. Jakarta: Rajawali pers. Amaruiddin, M.D.

