

## Analysis Of Factors Causing Diarrhea In Children Aged 1 – 3 Years In The Working Area Of Simpang Tiga Riau Puskesmas Year 2021

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### ABSTRACT

Diarrhea is a disease characterized by an increase in the frequency of defecation more than usual (> 3 times/day) accompanied by a change in the consistency of the stool to become liquid with or without blood and/or mucus. In Indonesia, the number of sufferers of diarrhea is around 60 million events each year, most of the 70% - 80% of these sufferers are under the age of 3 years, more or less than 40 million events. The increase in the number of sufferers of diarrhea is associated with factors that influence the occurrence of diarrhea such as environmental health factors, hand washing factors and food sanitation factors. This type of research is a cross-sectional analysis design with the aim of analyzing the factors that cause diarrhea in children aged 1-3 years in the Simpang Tiga Riau Health Center work area in 2021. The population of this study is all mothers who have children aged 1-3 years who suffering from diarrhea who came for treatment at the Simpang Tiga Riau Health Center in August 2020 - February 2021. The sample in this study were 70 people and the sampling method used the Accidental Sampling method. This type of research data is primary data by distributing questionnaires to respondents. The data obtained was analyzed by looking at the total percentage of data collected and presented in frequency distribution tables. The results of the study stated that around 70% of the response by washing hands was at risk of having a child experience diarrhea, there was a relationship between hand washing ( $p=0.000$ ), food sanitation ( $p=0.003$ ) and the incidence of diarrhea in children aged 1-3 years. For this reason, it is recommended for mothers who have children aged 1-3 years to pay more attention to environmental health, teach their children good hand washing and pay attention to food sanitation to prevent diarrhea in these children. For officers at the Simpang Tiga Riau Health Center, especially nurses in the infectious disease handling section, to provide counseling to mothers who have children aged 1-3 years about the factors that cause diarrhea in children and provide an explanation of how to prevent diarrhea.

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### 1. INTRODUCTION

Diarrhea is the excretion of feces with a frequency of more than three times with the consistency of watery or liquid stools per day. Diarrhea is a symptom of an infection in the digestive tract, caused by various bacteria, viruses and parasitic organisms. The infection will spread through food or drink that has been contaminated due to poor hygiene 1). Diarrheal disease is caused by several factors. namely environment, nutrition, and community behavior. Environmental factors that cause diarrhea are the water factor that is used daily, for example PDAM water or wells, and behavioral factors, namely the practice of handling diarrhea in the family, whether it is done by the father, mother or other family members, such as the habit of washing hands and using latrines according to health standards. Diarrhea can also be caused by other causes such as malabsorption. Diarrhea is actually a symptom of a disease in the gastrointestinal system or other diseases outside the digestive tract. But now it is better known as diarrheal disease because the name diarrheal disease will speed up the countermeasures 2).

Worldwide, acute diarrhea causes 16% of deaths in children under 5 years of age. Most of these

deaths occur in countries with low and middle income 3). Acute diarrhea is caused by several different types of pathogens, including 5 (five) enteric pathogens, namely Rotavirus (67.6%), Adenovirus (41.5%), enterotoxigenic, E. coli (40.7%), Salmonella (38.4%), and Giardia (37.0%) 4). During 2013, around 6.3 million children died before they were 5 years old worldwide due to infectious diseases, acute diarrhea killed more than 500,000 children and it is estimated that by 2030, infectious diseases will cause the death of around 4.4 million children under the age of 5 and 60% of these deaths will be happened in Africa 5). Based on Indonesia Health Profile data for 2019, the prevalence of diarrhea based on a health worker's diagnosis was 6.8% and based on a health worker's diagnosis or symptoms that had been experienced was 8%. The age group with the highest prevalence of diarrhea (based on the diagnosis of health personnel) was in the 1-4 years age group of 11.5% and in infants by 9%. The lowest prevalence of diarrhea was in the Riau Archipelago Province as much as 5.1% and the highest in North Sumatra Province as much as 14.2% 6).

Various risk factors are thought to cause diarrheal disease. One of the factors is poor environmental sanitation, unhygienic water supply, and lack of knowledge. In addition, poor personal hygiene factors cause diarrhea such as bad hand washing habits, ownership of latrines that are not in accordance with health 7). The results of Fatmawati et al.'s study stated that there was a relationship between hand washing behavior and the incidence of diarrhea, respondents who had bad hand washing behavior had a 36 times chance of experiencing diarrhea (OR=36.364). Respondents who had bad eating habits had 23 times the chance of experiencing diarrhea (OR=23, 125). Respondents who have poor nutritional status (thin) have a 71 times chance of experiencing diarrhea (OR=71.111) 8). Prabowo et al., (2017), states that there is a relationship between environmental sanitation, food hygiene and hand washing behavior with the incidence of diarrhea ( $p$  value 0.034), there is a relationship between food hygiene and the incidence of diarrhea. Hand washing has the most dominant effect on the incidence of diarrhea 9). The purpose of this study was to determine the causes of diarrhea in children aged 1-3 years at the Simpang Tiga Riau Health Center.

## 2. METHOD

This type of research is a quantitative study using an analytic cross-sectional approach. This research was conducted in the Simpang Tiga Riau Health Center Work Area. The sampling technique used in this study was a purposive sampling method, namely mothers who had children aged 1-3 years who had diarrhea who happened to come for treatment at the time the research was carried out with a total sample of 70 children. The inclusion criteria in this study were mothers with children aged 1-3 years who brought their children to the Simpang Tiga Riau Health Center because they had diarrhea. The research location was conducted at the Simpang Tiga Riau Health Center in August 2020 – February 2021. Data collection was carried out using a questionnaire which included environmental health, hand washing and food sanitation.  $\alpha = 0.05$ .

## 3. RESULTS AND DISCUSSION

Based on the results of the study, it was stated that the age of the majority of respondents was 20-30 years old (70%), high school/ vocational education level (30%) and work as a housewife (45.7). the full description is shown in table 1.

Table 1 Characteristics of Respondents (Mothers) (n=70)

	Characteristics	n	%
Age	20 – 30 years	49	70.0
	31 – 40 years	21	30.0
Level of education	SD	5	7.1
	JUNIOR HIGH SCHOOL	9	12.9
	SMA/SMK	49	70.0
	Diploma III	7	10.0
Profession	Housewife	42	60.0

Self-employed	11	15.7
Public Servants	12	17.2
Private Employees	5	7.1

Environmental health is the main cause of diarrhea in children aged 1-3 years (72.9%), followed by food sanitation (71.4%). Full description can be seen in table 2, below

Table 2 Factors causing the incidence of diarrhea in children aged 1-3 years (n = 70)

Causes of diarrhea	Classification	Diarrhea		No diarrhea		<i>p.s</i>
		n	%	n	%	
Environmental Health	At risk	49	70	7	10	0.039
	No risk	9	12.9	5	7.1	
Washing hands	At risk	49	70	2	2.8	<b>0.000</b>
	No risk	9	12.9	10	14.3	
Food sanitation	At risk	26	37.1	0	0.0	<b>0.003</b>
	No risk	32	45.8	12	17.1	

Based on table 2 above, it states that there is a relationship between hand washing and the incidence of diarrhea in children ( $p = 0.000$ ), because hand washing procedures that are not in accordance with health standards tend to cause children to experience diarrhea. Food sanitation factors were also related to the incidence of diarrhea in children ( $p=0.003$ ). Meanwhile, environmental sanitation factors had no relationship to the incidence of diarrhea in children ( $p=0.039$ ).

Based on the calculated chi-square value on the factor of hand washing (23,123) and food sanitation (8,558) which is greater than the chi-square table (3,841), it can be concluded that there is a relationship between hand washing and food sanitation as a cause of diarrhea in children aged 1 – 3 year in the Simpang Tiga Riau health center work area.

Hand washing is an action that is often considered trivial by some people, but has a relationship with the incidence of diarrhea (10). Washing hands according to health procedures will reduce the incidence of diarrhea (11). For maximum results, washing hands is recommended cleanly, regularly, not in a hurry and for 20 seconds. Washing hands clean and regularly will reduce the prevalence of our hands being exposed to viruses, bacteria and other germs that cause diarrhea. Hand washing is very useful for eradicating germs in the hands. Clean hands will be free from causes of diarrhea, such as cholera, dysentery, typhus, intestinal worms and other germs.

Hand washing with soap has been shown to reduce the incidence of diarrhea, especially before and after defecation. Hand washing is one of the most effective measures to prevent diarrhea. Based on the researchers' assumptions, that the habit of washing hands in parents and children is a factor that influences the incidence of diarrhea in the respondents of this study. For this reason, it is highly recommended to always wash your hands using soap and with techniques in accordance with proper hand washing procedure standards.

Food sanitation is also one of the determining factors causing diarrhea. Methods of food processing, ways of serving and ways of managing cutlery are sanitation factors related to the incidence of diarrhea (12, 13). Food sanitation is a preventive effort to free food and drink from all causes of disease. In the process of processing, storing, transporting to consuming food, actions are needed to disinfect germs. Food sanitation aims to ensure the purity of food and prevent consumers from disease. Food sanitation in households follows the principles of food sanitation hygiene, namely selecting food ingredients, storing food ingredients, processing food, storing cooked food, transporting food and serving food. If the six principles of food have been applied,

Based on the results of the research above, the researchers assumed that food sanitation was a factor that influenced the incidence of diarrhea in children. Good food sanitation if given to children will cause the prevalence of diarrhea to decrease. If food sanitation is poor, it will increase the incidence of diarrhea in children.

Environmental health is also another factor that contributes to diarrhea, but in this study no

relationship was found, this may be due to the management of drinking water sources that have been standardized according to health and also environmental hygiene factors around the response residence that meet health requirements. Availability of drinking water sources is one of the factors that can cause diarrhea (15). The availability of clean water will affect public health, economic productivity and quality of life. Healthy conditions depend on the quality of the water. Water can be a medium for spreading disease (water borne) from several causes of diarrhea, such as Salmonella Sp, Campylobacter Jejuni, Staphylococcus Aureus, Bacillus Cereus, Cryptosporidium and Escherichia Coli (16).

According to the researchers' assumptions, the availability of clean water and the environment are other factors that can cause diarrhea in children. So when the environment and clean water sources around where children and families live are unhealthy, it can cause the risk of experiencing diarrhea in children and their family members to be higher.

#### 4. CONCLUSION

There is a relationship between hand washing and food sanitation behavior with the prevalence of diarrhea in children aged 1-3 years in the working area of the Simpang Tiga Riau Health Center. It is expected that parents will encourage their children to improve healthy living behavior, by washing their hands in running water with soap and maintaining food sanitation hygiene. Education about hand washing procedures also needs to be done to families and children early. Counseling about the storage of food ingredients and the processing and presentation of cooked food also needs to be done to prevent food exposure to causes of diarrhea.

#### REFERENCE

- [1] WHO G. WHO recommendations on the management of diarrhea and pneumonia in HIV-infected infants and children. 2010.
- [2] Nastiyah, 2015, Perawatan Anak Sakit. Edisi II, Jakarta: EGC.
- [3] Gupta, A., Sarker, G., Rout, A. J., Mondal, T., & Pal, R. (2015). Risk correlates of diarrhea in children under 5 years of age in slums of bankura, west bengal. *Journal of global infectious diseases*, 7(1), 23–29. <https://doi.org/10.4103/0974-777X.150887>.
- [4] Natnael, T., Lingerew, M., & Adane, M. (2021). Prevalence of acute diarrhea and associated factors among children under five in semi-urban areas of northeastern Ethiopia. *BMC pediatrics*, 21(1), 290. <https://doi.org/10.1186/s12887-021-02762-5>.
- [5] Liu, L., Oza, S., Hogan, D., Perin, J., Rudan, I., Lawn, J. E., Cousens, S., Mathers, C., & Black, R. E. (2015). Global, regional, and national causes of child mortality in 2000-13, with projections to inform post-2015 priorities: an updated systematic analysis. *Lancet (London, England)*, 385(9966), 430–440. [https://doi.org/10.1016/S0140-6736\(14\)61698-6](https://doi.org/10.1016/S0140-6736(14)61698-6).
- [6] Kementerian Kesehatan RI. (2020). Profil kesehatan Indonesia tahun 2019. Kementerian Kesehatan RI. <https://pusdatin.kemkes.go.id>
- [7] Rahmah., Firmawati E., dan Dwi Lestari, N. (2016). Penatalaksanaan diare berbasis komunitas dengan pendekatan manajemen terpadu balita sakit di Kecamatan Ngampilan. *Jurnal Inovasi Dan Penerapan Ipteks*, 4(2), 106–111. <https://doi.org/10.18196/bdr.4211>.
- [8] Fatmawati, Arbianingsih, & Musdalifah. (2017). Faktor yang mempengaruhi kejadian diare anak usia 3-6 tahun di TK Raudhatul Athfal Alauddin Makassar. *Journal of Islamic Nursing*, 1(1), 21–32. <https://doi.org/10.24252/join.v1i1.3509>.
- [9] Prabowo, E., Puspitasari, & Agustiana, L. (2017). Faktor pemicu kejadian diare pada anak usia 1-5 tahun di Puskesmas Kalibaru Kulon Kabupaten Banyuwangi tahun 2017. *Jurnal Ilmiah Kesehatan Rustida*, 4(1), 424–436. <https://www.akesrustida.ac.id/ejournal/index.php/jikr/article/view/4>

- [10] Rosyidah, A. N. (2019). Hubungan perilaku cuci tangan terhadap kejadian diare pada siswa di Sekolah Dasar Negeri Ciputat 02. *Jurnal Ilmiah Keperawatan Orthopedi*, 3(1), 10–15. <https://doi.org/10.46749/jiko.v3i1.25>
- [11] Afriani, B. (2017). Peranan petugas kesehatan dan ketersediaan sarana air bersih dengan kejadian diare. *Aisyah: Jurnal Ilmu Kesehatan*, 2(2), 117–122. <https://doi.org/10.30604/jika.v2i2.53>
- [12] Siregar, W. W., Saragih, N. T., Sihotang, S. H., Munthe, N. B. G., Handayani, D., & Ritonga, N. J. (2019). Hubungan pemberian makanan pendamping ASI dan sanitasi makanan pada bayi usia kurang dari 6 bulan dengan kejadian diare. *Jurnal Penelitian Kebidanan & Kespro*, 2(1), 1–5. <https://doi.org/10.36656/jpk2r.v2i1.93>.
- [13] Maharani, B., Indriyati, & Istiqori. (2020). Faktor-faktor yang berhubungan dengan kejadian diare pada balita di Dukuh Pilang Kelurahan Ketitang Kecamatan Nogosari. *Jurnal Ilmu Keperawatan*, 13(2), 36–52. <http://jurnal.usahid solo.ac.id/index.php/JIKI/article/view/651>.
- [14] Monica, D. Z., Ahyanti, M., & Prianto, N. (2021). Hubungan penerapan 5 pilar sanitasi total berbasis masyarakat (STMB) dan kejadian diare di Desa Taman Baru Kecamatan Penengahan Kabupaten Lampung Selatan. *Ruwa Jurai: Jurnal Kesehatan Lingkungan*, 14(2), 71–77. <https://doi.org/10.26630/rj.v14i2.2183>
- [15] Afriani, B. (2017). Peranan petugas kesehatan dan ketersediaan sarana air bersih dengan kejadian diare. *Aisyah: Jurnal Ilmu Kesehatan*, 2(2), 117–122. <https://doi.org/10.30604/jika.v2i2.53>.
- [16] Padji, H. M., & Sudarmadji. (2017). Curah hujan, kelembapan, kecepatan angin ketersediaan air bersih dan kasus diare di daerah kering Kupang. *BKM Journal of Community Medicine and Public Health*, 33(10), 475–482. <https://doi.org/10.22146/bkm.25005>.