

## Research Article

# Diarrhea in Children Under Five Years Old at RSUD Kota Kendari

Rachmawati. A, Nuraisyah, I Nengah Sunarto, Veriasari Rangga Massora Ramadhan Tosepu\*

Department of Magister Public Health, Postgraduate Halu Oleo University Indonesia

**Abstract.**

Diarrhea is the world's biggest cause of death for children under five years old. According to UNICEF records, every second toddler dies of diarrhea. Diarrhea is often considered a trivial disease, but according to World Health Organization records, diarrhea kills 2 million children in the world every year. This descriptive study used a retrospective approach and utilizes data from diarrhea case reports and medical records of diarrhea patients at RSUD Kota Kendari. The research was conducted in October 2022, and the population were all children under five years old who suffered from diarrhea and had been treated at RSUD Kota Kendari. Then the data is presented in the form of tables or graphs. The results showed that diarrhea was more common in males than females. 46 cases (51.69%) were males, and 43 (48.31%) were females. The highest case of diarrhea was found in children aged 1-4 years, with 51 cases (57.30%), and the highest increase of cases occurred in August with 21 cases. More boys were hospitalized than girls. Weather can cause diarrhea. Based on the data, the highest diarrhea rate occurred in October, when the dry season peaked and the availability of clean water was low. Based on the surveyed data, children were more susceptible to diarrhea because they were still in their infancy. Therefore their immunity was still low, and their awareness of the importance of paying attention and maintaining personal hygiene was minimal.

**Keywords:** Diarrhea, Children, Environmental Health

## 1. Introduction

Diarrhea is still the biggest death cause of children under 5 years old in the world. According to UNICEF records, every second of toddler dies of diarrhea. Diarrhea is often considered as a trivial disease, but the global and national levels showed the opposite result. According to WHO records, diarrhea kills 2 million children in the world every year. While in Indonesia, according to Surkesnas (2001) diarrhea is one of the second largest causes of death for children under five years old[1].

According to the World Health Organization (WHO), Diarrhea is the occurrence of stools with more liquid More than 3 times in 24 hours and more consistent than usual period Diarrhea can affect all age groups including infants, children and adults various

Corresponding Author:  
Ramadhan Tosepu; email:  
ramadhan.tosepu@uho.ac.id

Published 26 May 2023

Publishing services provided by  
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Selection and Peer-review under the responsibility of the ICASI Conference Committee.

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social groups Diarrhea is a leading cause of morbidity and mortality For children under 5 years old. Globally on the rise Diarrhea and diarrhea-related deaths in children under 5, 2015-2017 In 2015, diarrhea sickened about 688 million people and killed 499. Thousands of children under the age of five die worldwide Year. According to WHO data (2017), there are about 1.7 billion cases of diarrhea. For children with a mortality rate of about 525,000 children under 5 each year.

Diarrhea is endemic in Indonesia, It is a latent illness in exceptional cases, often followed by death based on Indonesia Health Profile Data '2016', All Diarrhea Outbreaks Occurred Increase in CFR (Case Fatality rate). His CFR for diarrhea was 1.08% in 2013 and increased to 1.14% in 2014 CFR increase during outbreak in Indonesia continued to occur up to 2.47% In 2015 and 2016 it was 3.04%. This CFR number is not as expected and is less than 1%.[2]

The results of the Basic Health Research in 2018 showed that the prevalence of diarrhea for all groups of age is 8%, under five is 12.3%, and in infants is 10.6%.[3]

According to WHO, diarrhea is often caused by contaminated water sources, inadequate sanitation, poor hygiene practices, contaminated foods and malnutrition. The incidence of diarrhea can be caused by several factors, including: education, employment, social economy, foods, beverages, under-five factors such as toddler age, toddler nutrition, and environmental factors.

There are several factors associated with the occurrence of diarrhea: limited supply of clean water, water contaminated with faeces, lack of sanitary products, unhygienic disposal of faeces, poor personal and environmental hygiene, and improper food preparation and storage. The dominant environmental factors are the means of providing clean water and removing faeces, these two factors interact with human behavior When environmental factors are not healthy because of exposure to the diarrheal microbes and accumulated through unhealthy behavior of the person, transmission of diarrhea can easily occur [4].

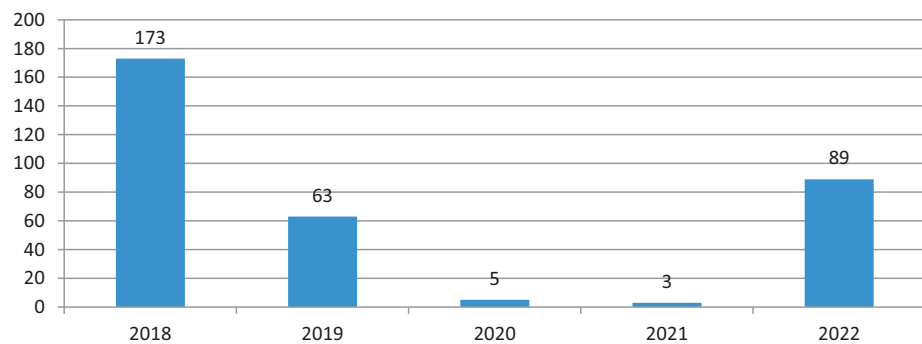
Other factors are unhygienic food, insufficient cold food storage, food contact with flies, and consuming contaminated water[5].

Based on the first obtained data at RSUD Kota Kendari, there were 173 toddlers who suffered diarrhea in 2018, 63 people in 2019, 5 patients in 2020, 3 sufferers in 2021, and 89 people in January to August in 2022. The data showed an increase to diarrhea sufferers in 2022[6].

## 2. Methodology

This research uses descriptive design to describe the factors that cause diarrhea towards children under five years old at RSUD Kota Kendari in 2022 using retrospective approach and utilizing the data of diarrhea records. This research was conducted in October 2022, and the population were all children under five years old who suffered diarrhea and had been treated at RSUD Kota Kendari and analyzed descriptively by considering the percentage of every variabel. Then the data is presented in the form of tables or graphs.

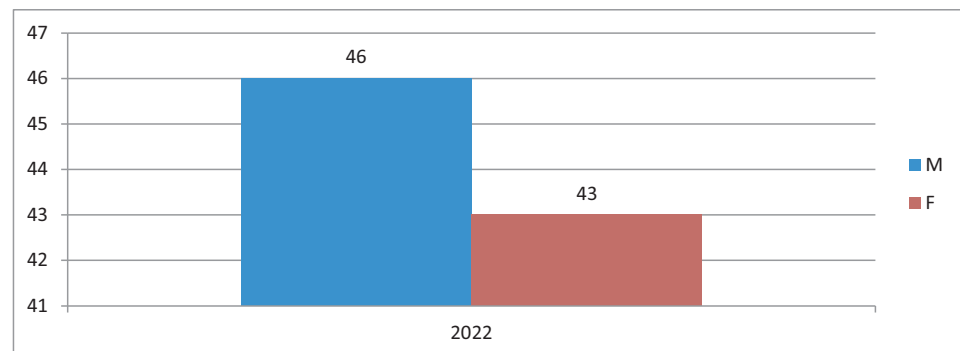
## 3. Findings



Source: RSUD Kota Kendari 2018-2022/General Regional Hospital of Kendari City in 2018/2022

**Figure 1:** The diarrhea cases of children under five in 2018-2022 who were treated at RSUD Kota Kendari .

Based on Figure 1, the diarrhea cases at RSUD Kota Kendari in 2018-2021 showed that the case started to decrease in 2019-2021 with 173, 63, 5, 3 cases. But in 2022 the case started to increase by 89 cases.

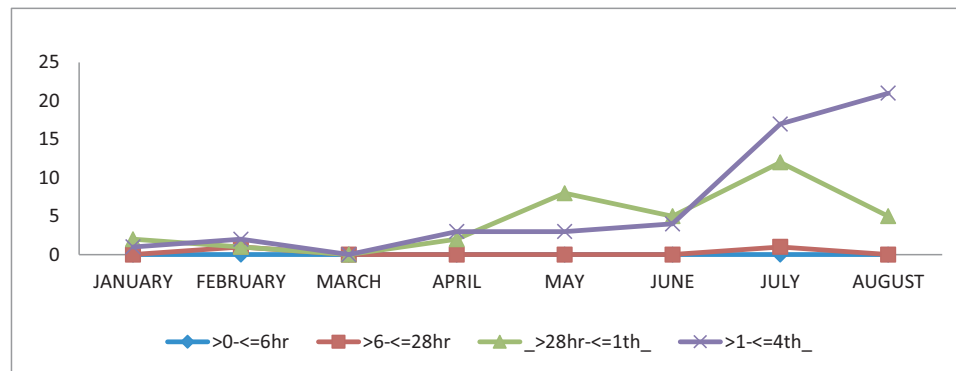


Source: RSUD Kota Kendari 2022/General Regional Hospital of Kendari City in 2022

**Figure 2:** Diarrhea cases towards children under five by gender who were hospitalized at RSUD Kota Kendari in 2022.

Source: RSUD Kota Kendari 2022/General Regional Hospital of Kendari City in 2022

Based on Figure 2, the data showed that For the gender category, more cases of diarrhea were found in male than female, which is 46 cases (51.69%) and 43 cases (48.31%).



Source: RSUD Kota Kendari 2022/General Regional Hospital of Kendari City in 2022

**Figure 3:** Diarrhea cases towards children under five by age category who were treated at RSUD Kota Kendari in 2022.

Based on Figure 3, the data showed that The highest case of diarrhea was found in children in the age 1-4 years with 51 cases (57.30%) and the lowest was in the age 0-6 days with 0 cases. In the figure below, we can see that the increase of diarrhea cases in 2022 has increased from April and the highest occurred in August, that was 21 cases and the lowest was in March with 0 cases.

#### 4. Discussion

Based on the results of the research above, there was a decrease in diarrhea cases from 2018 to 2021, while in 2022 there was an increase in the case of diarrhea in toddlers by 89 sufferers when compared to 2020 and 2021. The highest case of diarrhea was found in children in the age 1-4 years with 51 cases (57.30%) and the lowest in children was in the age 0-6 days with 0 cases.

Judging from the secondary obtained data, the cause of diarrhea is related to the environment and community behavior. The awarness towards taking care of themselves and their environment to keep clean needs to be considered, especially for mothers, because the children under five are easy to be infected by diarrhea. Children are easy to be contaminated by diarrhea because of their age, their immune system, and their thoughts are still low. Parents should never allow their children to put their hands or toys in their mouth, ask them to wash their hands before and after having a meal, wash

their buttock or genital after defecating or peeing, so that it can protect them from the viruses that can cause diarrhea.

The highest cases of diarrhea towards children above 6 months of age can be correlated because of their eating pattern. After the baby is over 6 months old, the immunity that the baby gets from the mother begins to decrease and starts to be introduced to complementary foods, and the served foods use unclean water. In addition, an unhealthy environment and poor sanitation can be the cause of the high case of diarrhea in children under the age of 5 years.[7]

At the age of 6-24 months is the age range that most often experiences acute diarrhea caused by viral infection named rotavirus. In a study conducted by Parwata, et al. (2016), it was found that the case of diarrhea due to rotavirus in 2010 was in children aged 6 months. This is because of the presence of transplacental IgG and IgA antibodies in exclusively breastfed children. Breast milk contains several important things including mucin which has been shown to inhibit the attachment and replication of components of rotavirus[8].

For the gender category, the case of diarrhea in children under five who were treated at RSUD Kota Kendari was more found in male than female, which is 46 cases (51.69%) and 43 cases (48.31%). By considering of the gender cases, this research is related to the several previous researches. In a study conducted by Alambo in 2015 the results showed that children under five with diarrhea disease were more common in boys than girls, with 47 diarrhea patients of under 5 years who were hospitalized at IRNA Pediatric Hospital Dr. Soetomo as many as 29 cases occurred in boys (62%) and 18 cases occurred in girls (38%). However, until now there has been no significant reason for the difference of diarrhea case by gender[7][9][10].

Based on the theory of H. L. Blum, health status is categorized by 4 main components, those are genetics, health services, behavior and environments. If this theory is associated with gender differences in the case of diarrhea, the components that cause diarrhea are behavior and environment.[11] At the age of 13 months, children begin to walk without assistance[12], so they are more easily exposed to disease found in the environment. The research by Trost, S.G. et al. (2002), and Ishii, K. et al (2015), stated that it was found that boys tend to be more active than girls, so that they are more often affected by infectious genes in the environment and are more susceptible to disease[13][14][15]. Therefore, the results of this study are in accordance with the explanation above where the case of acute diarrhea is more in boys.

Beside the knowledge of sanitation, weather factors can also cause the diarrhea. There are two seasons in Indonesia, those are rainy season which theoretically happens in September to April, and dry season occurs in April to September. In the dry season, the diarrhea cases increase because of the minimum of clean water. This is absolutely relatable with the graphic data that showed the highest case of diarrhea happened in August which is the peak of the dry season.

The result of this research is in line with (Nurima et al, 2020), where there is a significant correlation between the maximum temperature and the incidence of diarrhea. It is because of the high temperature or heat can cause fatigue to humans. Therefore, they become dehydrated. The increase of temperature or heat can accelerate the incubation period in patients with diarrhea. Thus the transmission becomes fast and widespread[16].

## 5. Conclusion

The number of cases in acute diarrhea to children under five years old who had been treated in RSUD Kota Kendari in 2022 are 89 cases to children aged 1-4 years which is 51 cases (57,3%). Male are more contaminated than females. Weather aspect also can cause diarrhea. Based on the obtained data, the highest number of diarrhea cases occurred in October which was happening the dry season that decreased the availability of clean water. The age is one of the main factors that can cause diarrhea, because of the surveyed data, children are still in their growing age, so that their immune system and mindset is still low towards the importance of looking after themselves of diarrhea viruses. One of ways to prevent the increase of diarrhea cases towards children under five years old is doing socialization by health workers or non governmental organization in order to increase people knowledge and awareness towards the importance of health especially clean water, so that the case of diarrhea can be decreased.

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