

## Nursing Intervention in Children with Diarrhea: A Case Study

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### ABSTRACT

**Background:** Diarrhea or gastroenteritis is a condition as watery bowel movements more than three times a day for two consecutive days, which may or may not be related to pathological conditions. Diarrhea can occur in all age groups, both toddlers, children and adults with various social groups. Diarrhea is the second leading cause of death in children under five years and almost 1.7 billion cases of diarrhea occur in children with a mortality rate of around 525,000. This study aims to describe the application of knowledge and practice of nursing care in children with diarrhea with the problem of risk of hypovolemia due to active fluid loss.

**Subjects and Method:** This was a qualitative study with a phenomenological approach. The study was conducted at the Pontianak Level II Government Hospital, for 2 weeks. The sample used in this study were 4 key informants from 6 planned respondents and 3 triangulated informants. The key informants are nurses who work in the child care room, while the 3 triangulation informants are the client's family. The study variables were optimizing nursing interventions and diarrhea in children. Data collection was carried out by structured and direct interviews using a tape recorder before it was analyzed.

**Results:** This study identified several themes such as meeting fluid needs, decreasing body temperature, and preventing damage to skin integrity, but in the case of diarrhea in children, meeting fluid needs is the nurse's main intervention that must be done in overcoming hypovolemia without forgetting the involvement of parents.

**Conclusion:** Meeting fluid needs is a nurse's top priority in providing nursing care to diarrhea patients to prevent hypovolemia.

**Keywords:** active fluids, diarrhea, intervention, nurse

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### BACKGROUND

Diarrhea or gastroenteritis is defined as loose stools (BAB) more than three times a day for two consecutive days, which may or may not be associated with a pathological condition. Diarrhea can also be caused by viral gastroenteritis, food poisoning, malabsorption syndro-

mes, which include lactose intolerance, gluten malabsorption, inflammatory bowel disease or Crohn's disease, ulcerative colitis and irritable bowel syndrome (Morris, 2014).

According to the World Health Organization (WHO), diarrhea is the occurrence of bowel movements with a more fluid consis-

tency than usual, with a frequency of three or more times in a 24-hour period. Diarrhea is an environmental-based disease caused by infection with microorganisms including bacteria, viruses, parasites, protozoa, and faecal-oral transmission. Diarrhea can affect all age groups, both toddlers, children and adults with various social groups. Diarrhea is the second leading cause of death in children under five years old (WHO, 2017). WHO data (2017) states that almost 1.7 billion cases of diarrhea occur in children with a mortality rate of around 525,000 children under five each year. Each episode of diarrhea will cause a loss of fluids and nutrients that children need to grow and develop (WHO, 2017).

The results of the 2017 Indonesian Health Demographic Survey (IDHS) show the high mortality rate of children under five in Indonesia. Based on the results of a survey of 2 Indonesian health demographics, the child mortality rate in the last five years was obtained as follows: the neonatal mortality rate at 15 per thousand live births, the infant mortality rate at 24 per thousand live births, and the under-five mortality rate at 32 per thousand live births. Based on the survey results, the high mortality rate of children under five is caused by a number of diseases, one of which is diarrhea. Handling diarrhea for toddlers is the worst. Because, out of 2,328 toddlers with diarrhea, only 74% of them have received treatment (Kemenkes RI, 2017). In West Kalimantan itself, especially cases of morbidity and mortality from diarrheal diseases are in the 9th place. Then the number of diarrhea cases in Pontianak City in 2017 was recorded as 13,418 people. From this data, it was found that more than 80% of the incidence of diarrhea occurred in school-age children and adults (Pontianak City Health Office, 2018).

There are three factors that influence the incidence of diarrhea in children. The first factor is the environmental factor. Diarrhea can occur because someone does not pay attention to the cleanliness of the environment and thinks that the problem of cleanliness is a trivial problem. The dominant environmental factors in the spread of diarrheal disease in children are the disposal of feces and sources of drinking water. The second factor is the sociodemographic factor. Sociodemographic factors that influence the incidence of diarrhea in children are the education and occupation of the parents, as well as the age of the child. Education level plays an important role in public health. A person's high education makes it easier for that person to receive information, both from other people and the mass media. The amount of incoming information will increase knowledge about diarrheal diseases. Another sociodemographic factor that can influence the incidence of diarrhea is age. The younger the child, the higher the tendency to develop diarrhea. Low immune system makes the incidence of diarrhea high. The third factor that can influence the incidence of diarrhea is behavioral factors. Exclusive breastfeeding and hand washing are behavioral factors that influence the spread of enteric bacteria and reduce the risk of diarrhea (Nurul and Nabila, 2012). Diarrhea is bad if not treated. If diarrhea is not resolved, it can cause seizures, heart rhythm disturbances to bleeding in the brain, if severe dehydration (lack of body fluids) can cause death. WHO has developed a health service framework, one of which is in the book on child health services in hospitals, which contains guidelines for the management of sick children in hospitals by health workers, including nurses. According to WHO (2017), the mana-

gement of diarrhea can be done with five steps to resolve diarrhea (cross diarrhea).

Nurses as health workers can contribute in handling diarrhea according to their role, both in the service setting by providing parenteral fluids as a first step to rehydrating lost fluids so as to prevent hypovolemia, as well as in the community. Nurses can carry out their role in several ways, one of which is to provide education to parents regarding oral rehydration to treat diarrhea.

## SUBJECTS AND METHOD

### 1. Study Design

This was a qualitative study with a case study approach. This study was conducted in the Children's Room of the Pontianak Government Hospital Level II carried out from March 1 to March 14, 2021. It aims to obtain an overview of fluid fulfillment in preventing the occurrence of hypovolemia in children with diarrhea.

### 2. Population and Sample

The population and sampling technique in this study was using a total sampling technique, namely all pediatric patients with diarrhea who were treated for 2 weeks during the study period. The total number of pediatric patients treated in the room was 6 children, but 2 of the pediatric patients went home because they had recovered at the time of data collection so that the total sample was 4 pediatric patients. The criteria for the sample taken are children under the age of 5 years, a medical diagnosis of diarrhea.

### 3. Study Variable

The dependent variable is diarrhea. The independent variable is optimizing the provision of nursing interventions.

### 4. Operational Definition of Variable

**Diarrhea is** the discharge of stools more than 3 times a day with the consistency of liquid stools, not loose, with a fishy smell.

**Optimizing the provision of nursing interventions** is an increase in nursing actions in administering existing fluids.

### 5. Study Instruments

The instrument used in this study used a pediatric nursing assessment sheet and a tape recorder.

### 6. Data Analysis

Data analysis carried out in this study was carried out through 5 stages of the Nursing Care process, namely the researcher first conducted an assessment using a child assessment format and a tape recorder. During the assessment, the researcher involved parents to obtain subjective data, then the researcher conducted observations to obtain objective data and involved nurses working in the room. All existing assessments are reviewed and separated where objective data and objective data are, after receiving the data, nursing diagnoses are enforced. At the stage of nursing diagnoses, the next step is to establish nursing actions that will be carried out to overcome nursing problems that occur in children with diarrhea, then carry out the plan which is called nursing implementation, then the researcher evaluates the actions taken. All stages of the nursing process carried out by researchers always involve parents/families of patients from children and nurses who work in the room.

## RESULTS

### 1. Case Illustration

A child. M. a boy, Muslim, ethnic Malay, 1 year 5 months old, diagnosed with acute diarrhea, was admitted from 2 to 4 March 2021. Parents stated that their first child was

sick and was hospitalized. At home, the child has defecated more than 4 times with a liquid consistency.

## 2. Patient's Condition

The results of the anamnesis of the parents said that they had liquid bowel movements 6 times with the consistency of feces, namely more water than dregs, yellow in color, there was mucus, there was a fever with a temperature of 38.4°C, vomited 1 time filled with white water, the child was fussy and weak. The results of further assessment: dark yellow urine, decreased skin turgor, *compos mentis* consciousness, body weight from 11.4 kg, percussion result of flatulence, weak pulse and frequency 144x/min, SpO<sub>2</sub>: 97%, body temperature 38.4°C, respiration rate 28x/min, auscultation results: bowel sounds 30x/min.

In the preparatory stage, nurses provide parents with health education about the function of nursing interventions and the goals to be achieved. The nurse then builds a commitment with the patient's parents to be able to actively participate in the nursing intervention that will be carried out. At the nursing implementation stage, the nurse provides nursing actions, namely giving intravenous fluids, namely RL (Ringer Lactate) 32 tts/min (micro), and recommends parents to increase oral fluids such as water, low-lactose milk, and observe fluid adequacy on the patient, and observe the patient's skin turgor.

After 3 days of treatment, the pediatric patient's condition was: The patient's parents said the patient had defecated only 3 times today, the consistency of the patient's stool was denser with more pulp and not slimy, clear yellow urine. The patient did not vomit today. Observation results: *compos mentis* consciousness, the patient has started to be able to actively play in bed, moist lip mucosa,

whining occasionally, normal skin turgor can return in less than 1 second, Child's body temperature: 36.9°C. SpO<sub>2</sub> = 99%. RR= 27 x/minute, pulse= 121 x/minute, bowel sounds= 23 x/minute.

## DISCUSSION

The etiology of diarrhea includes infections caused by bacteria, salmonella, E-coli. The malabsorption that occurs include malabsorption of carbohydrates, disaccharides. The source can be toxic, spoiled, or allergic foods. During the author's assessment, it turns out that the cause of diarrhea in children N is due to bacterial infection. Children are at risk for diarrhea caused by bacteria. Clinical manifestations of diarrhea are diarrhea, nausea, vomiting, abdominal pain, fever, dry mucous membranes of the lips, decreased skin turgor, *takicardi* (rapid pulse rate), abdominal cramps, weight loss. This complaint also occurs in Anak M, but he does not experience stomach cramps and weight loss.

The nurse did not find a nursing problem that did not occur in Child M was a nutritional deficit, this could be seen from the absence of a decrease in body weight. Child's weight M is still 11.4 Kg. This is due to the implementation or nursing actions carried out by nurses in accordance with hypovolemia nursing problems caused by active fluid loss including identifying skin turgor, observing vital signs, monitoring bowel movements including frequency, contents of chapters, monitoring the amount of intravenous fluid that enters, the number of drops as well as the patency and position of the intravenous infusion, monitoring the amount of oral fluids that enter along with the parents both drinking and food, explaining the purpose and procedure of how to make ORS to the parents,

collaborating in the administration of drugs, ongoing loss of active fluids can cause hypovolemia and even death. The research results of Prabowo et al. (2020) on the description of fluid balance in children with diarrhea after being given the fulfillment of fluid needs, shows that children experience an increase in fluid after being given rehydration. Fluid rehydration in children with diarrhea who are dehydrated can help reduce fluid loss and help balance fluid in the child's body.

Three days in the hospital, Anak M showed changes in stool consistency and changes in bowel frequency as well as improved skin turgor. Thus, the nursing problem of active fluid loss in Child M subjectively and objectively shows signs of meeting fluid needs, in other words, no longer experiencing fluid deficiency. The results of Zicof et al. (2018) on tiered analysis: biopsychosocial determinants and environmental factors on the incidence of diarrhea in children under five in Surakarta showed that the number of family members ( $b= 1.09$ ; 95% CI= 0.02 to 2.15;  $p<0.046$ ) increased the risk of diarrhea. Mother's knowledge is good ( $b= -2.30$ ; 95% CI= -3.46 to -1.14;  $p<0.001$ ), good mother's personal hygiene ( $b= -2.09$ ; 95% CI= -3.48 to -0.70;  $p<0.003$ ), and good environmental sanitation ( $b= -1.64$ ; 95% CI= -2.84 to -0.43;  $p= 0.008$ ) reduced the risk of diarrhea in children under five. Villages have a substantial contextual influence on the incidence of diarrhea with ICC = 66.14%.

Nurses must pay attention to the time and condition of the patient and act quickly and appropriately in providing nursing implementation while the patient is undergoing treatment. Increased knowledge and quality of life is the key to success in treatment by overcoming the problem of active fluid loss, so

that nurses are able to carry out their roles as educators, motivators and as role models in maintaining health. Implementation of appropriate and fast nursing and according to the main needs of diarrhea patients is very useful so that a worse condition does not occur, namely hypovolemia in the patient. Parents as the closest people to their children should understand and realize the importance of good hygiene and fluid intake for children with diarrhea so that they can maintain their child's health condition properly. The key to the success of treating children with diarrhea is carried out properly because of the cooperation between nurses and the patient's family. The results of Dyah's research (2017) show that there is a significant relationship between knowledge ( $p= 0.002$ ), the habit of washing caregivers' hands after defecating ( $p= 0.016$ ), the habit of washing hands before preparing eating utensils ( $p < 0.001$ ), and hand washing habits. before feeding ( $p= 0.001$ ) with the incidence of diarrhea in toddlers.

#### **AUTHOR CONTRIBUTION**

Elly Marce Titihalawa as chairman and immediately carried out the research. Dwi Kurniasih and Florida Listavia Panggus assisted in the drafting process.

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#### **CONFLICT OF INTEREST**

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