

## Nursing Care for Toddlers Giving Tempe Porridge to Children with Diarrhea at The Margorejo Health Center in South Metro Metro City

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### ABSTRACT

**Background & Objective:** The purpose of this study was to determine the nursing care for the implementation of tempe porridge in toddlers experiencing diarrhea at the Margorejo Metro South Health Center in 2024. **Method:** This type of research is a case study research using a qualitative study with an experimental approach. By giving tempe porridge made by yourself in accordance with the SOP for making tempe porridge. Data collection was done by interview, observation and documentation. **Result:** The evaluation results showed that after giving tempe porridge for 3 days with 3 times/day with the number of portions made (50 grams of tempeh, 30 grams of rice flour, 15 grams of margarine, 20 grams of brown sugar and salt to taste) each administration the problem of diarrhea was resolved marked by the frequency of defecation 1-2 times/day, the consistency of soft and clotted phases, the frequency of defecation improved, intestinal peristalsis improved. **Conclusion:** Giving tempe porridge to toddlers with diarrhea is effective in reducing the frequency of defecation and improving the consistency of bowel movements.

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### Introduction

Diarrhea is a disease that causes the discharge of feces more than three times a day with a liquid consistency that can be accompanied by blood or mucus and a frequency that is more frequent than normal. This diarrheal disease is usually characterized by other symptoms such as vomiting, causing the patient to experience a lack of fluid in the body or dehydration, which in the end if you do not get immediate help can cause severity to death (Apriani et al., 2022).

According to data from the World Health Organization (2019) diarrhea is an environmentally based disease and occurs in almost all geographical areas in the world. Every year there are about 1.7 billion cases of diarrhea with a mortality rate of 760,000 children under 5 years old. In developing countries, children under 3 years of age experience an average of 3 episodes of diarrhea per year. In Indonesia, the prevalence of diarrhea is a public health problem with high cases of the Indonesian Ministry of Health, the prevalence of diarrhea in 2018 was 37.88% or around 1,516,438 cases in toddlers. The prevalence increased in 2019 to 40% or around 1,591,944 cases in toddlers (Nugraha et al., 2022).

Based on data from the Indonesian Ministry of Health 2020, the coverage of under-five diarrhea services is the target of finding cases of under-five diarrhea based on the target that has been given based on the Indonesian under-five diarrhea morbidity rate in 2021 the case finding rate is 22.18% or 818,687 of the target of 3,690,984 under-five diarrhea. While in Lampung Province in 2022 it was found that of the number of diarrhea patients in toddlers who were served at health facilities, 25.4% percent received ORS.

Puskesmas Margorejo is one of the health centers in Metro Madya City, precisely in South Metro. Based on the data found there are toddlers who experience diarrhea throughout 2023, there are 54 children under five, cases of diarrhea in children under five have increased in 2024 during January to July there are 52 toddlers who experience diarrhea.

There are several factors that influence the incidence of diarrhea in children under five, namely environmental factors, sociodemographic factors, and behavioral factors. Environmental factors are environmental hygiene, including housing, disposal of human waste (feces), provision of clean water, garbage disposal and sewerage (SPAL). Sociodemographic factors consisted of education and occupation of parents and age of the child. Behavioral factors include exclusive breastfeeding, and the habit of washing hands and washing fruits and vegetables before consumption (Kemenkes RI, 2016).

Diarrhea can lead to decreased appetite and digestive disorders that cause decreased absorption of nutrients in the body, resulting in malnutrition. This can affect the patient's nutritional status because food intake decreases and body catabolism increases. Therefore, it is necessary to carry out nutritional care in diarrhea patients to overcome the occurrence of malnutrition in diarrhea patients (Kurniawati et al., 2016). Diarrhea can also have a deadly effect if the sufferer is dehydrated and loses heavy fluids. Therefore, diarrhea cannot be ignored and underestimated. Children suffering from diarrhea will generally recover in 5-7 days, while in adult cases it will recover in 2-4 days without treatment (the work of the immune system against infection) (Endawati et al, 2021).

Efforts to prevent and overcome diarrhea can be done pharmacologically and non-pharmacologically, how to overcome diarrhea in a non-pharmacological way, namely by carrying out a standardized nutritional care process which includes nutritional assessment, nutritional diagnosis, nutritional intervention, monitoring and nutritional evaluation (Dewi et al, 2024). Sugar and salt solutions or ORS are given to replace fluids and electrolytes to prevent dehydration. The mixture of sugar and salt in water is well absorbed by the body in diarrhea patients. Salt can function to increase the transportation of sugar absorption through cell membranes, while sugar functions

to increase water absorption in the intestinal wall so that dehydration can be handled (Prawati, 2022).

In addition to consuming ORS, tempeh porridge diet can also be consumed to overcome the problem of diarrhea. Giving tempeh porridge to diarrhea patients based on research conducted by Fitri (2022) can be useful for shortening diarrhea healing, and increasing body weight. Consumption of tempeh porridge can be given to overcome the problem of diarrhea, because tempeh is believed to accelerate weight gain and shorten the time of diarrhea (Kemenkes RI, 2017).

Previous research by Simanungkalit and Muliana (2021) contained in one of the health journals published in 2021 regarding the provision of tempe porridge on the duration of diarrhea found that 19 control group respondents without tempe porridge experienced a relatively long recovery from diarrhea compared to 19 intervention respondents who were given tempe porridge.

Based on the above background, the researcher is interested in conducting research on nursing care for toddlers giving tempeh porridge to children with diarrhea at the Margorejo South Metro Health Center, Metro City.

## **Objective**

This study is to determine the nursing care for the implementation of tempeh porridge in toddlers who experience diarrhea at the Margorejo Metro South Health Center in 2024.

## **Method**

This type of research is a case study research using a qualitative study with an experimental approach. By giving tempeh porridge made by yourself in accordance with the SOP for making tempeh porridge. Data collection was done by interview, observation and documentation.

## **Results**

### **Analysis of Client Characteristics**

Based on the results of the analysis of the characteristics of the case study subjects, it is known that the age of the two subjects is the age of toddlers, namely under five years of age. According to Setyawati and Hartini (2018) toddlers are children who have reached the age of over one year or more popularly known as children under five years old. Toddler is a general term for children aged 1-3 years (toddlers) and preschoolers (3-5 years). At the toddler age, children are still fully dependent on their parents for essential activities, such as bathing, toileting and eating. Children aged 2 years have a lower immune system than older children, making them more susceptible to diarrhea caused by viruses (Darmika et al, (2016).

Based on the results of the analysis of the characteristics of the case study subjects, it is known that the gender of Client 1 is female and Client 2 is male. According to research by Ishii, et al. (2015), found that boys are usually more active than girls, so boys are more easily exposed to infectious agents in the environment and are more susceptible to disease. Rahayu and Astuti (2015) reported that boys were more likely to experience diarrheal illness than girls, with a ratio of 1.5:1. Based on gender in this case study, the subjects used were female and male. The effect of gender on the mechanism of diarrhea is not fully understood, so further research is needed (Satrianjaya et al, 2019). However, the risk of diarrhea morbidity in females is lower

than males because of the higher activity of boys with the environment (Kemenkes RI, 2016).

### Analysis of Major Nursing Problems

Based on the results of the analysis of the main nursing problems in this case study, the author determines that the main nursing problem is the problem of diarrhea experienced by the subject of this case study. The assessment was carried out on September 15, 2024 at 11.00 WIB on client 1, the client's mother said that on Friday, September 13, 2024 her child had diarrhea 4 times a day with a liquid consistency, defecation with pulp, on Saturday, September 14, 2024 her child's diarrhea worsened 7x a day, accompanied by vomiting, no fever, decreased appetite and her child still wanted to drink as usual. Then the family took him to the health center. While the 2nd Client the assessment was carried out on September 15, 2024 at 15.00 WIB. The mother said that her child defecated 7-10 times a day in liquid form with pulp and mucus, the mother said her child was nauseous vomiting and her body was hot.

Based on the results of the assessment, it is known that both clients are diagnosed with diarrhea. Diarrhea is defined as a condition where there is an increase in the number of bowel movements that occur due to an infection. A child can be said to have diarrhea if the volume of his bowel movements is measured to be greater than 10 ml kg per day. The consistency of the stool is watery, contains a lot of liquid (liquid) and is frequent (generally defecating more than 3 times in 24 hours) (Anggraini and Kumala, 2022).

Most of the transmission of diarrhea (75%) caused by viruses and bacteria is transmitted through faecal-oral with the mechanism of water media and through infected feces. Diarrhea can occur when a person uses drinking water that has been contaminated, either contaminated from the source, contaminated on the way to the house, or contaminated during storage at home. Feces that already contain viruses and bacteria that, if infested by animals and then the animals settle on food, which if eaten, will enter the body so that the person is likely to get diarrhea (Setiawan and Setyaningsih, 2021).

The initial process that causes diarrhea according to Setiawan and Setyaningsih (2021) is the presence of food or substances that cannot be processed increases the osmotic pressure in the intestinal cavity increases, which leads to a shift of water and electrolytes into the intestinal lumen. This extra content of the intestinal cavity arouses the intestines to make it out, which causes diarrhea. The lining of the small intestine is a porous epithelium that allows water and electrolytes to pass through quickly to protect the osmotic pressure between the intestinal contents and extracellular fluid. Diarrhea takes place when there are substances that are difficult to absorb by osmotic. The substances are isotonic and hypertonic solutions. Isotonic solution, water and solutes in it pass without being absorbed, causing diarrhea. If the adsorbent is a hypertonic solution, water and electronics will move from the extracellular fluid into the intestinal lumen until the osmolarity in the intestine is equal to that of the extracellular fluid and blood, which then causes diarrhea.

According to the Indonesian Ministry of Health (2016) risk factors that can cause diarrhea include environmental factors, sociodemographic factors, and behavioral factors. Based on the analysis, the cause of diarrhea in both clients is the unhealthy behavior carried out by the client and by other family members such as clients who

like to bite used milk bottles that are not washed and the behavior of the client's grandmother who likes to give random snacks to the client.

Management that can be done according to the Indonesian Ministry of Health (2016) in the MTBS book explains that there are several therapies for children aged two years to five years experiencing diarrhea, including taking care at home by providing additional fluids, breastfeeding as often as possible, giving ORS or boiled water as an additional liquid, giving zinc tablets for 10 days. And immediately bring the child to the nearest health care center if diarrhea worsens.

#### Analysis of Nursing Actions Based on Nursing Diagnoses

Based on the analysis of nursing actions based on the nursing diagnosis that was established was diarrhea associated with the infectious process. Of the two clients showed the same symptomatic signs, namely daire more than 4 times a day with liquid consistency, defecation accompanied by pulp and mucus. Diarrhea according to Anggraini and Kumala (2022) is divided into acute diarrhea, namely diarrhea that appears quickly which can be accompanied by several symptoms such as nausea, vomiting, fever, and abdominal pain that lasts for less than 14 days. About 80% are caused by viruses while bacterial infections more often manifest as bloody diarrhea. And chronic diarrhea with increasing frequency of bowel movements, mushy stool consistency, or increasing stool volume in a span of more than 14 days.

Kemenkes RI 2016 states that diarrhea has symptoms according to its classification, namely diarrhea without dehydration with signs that the child is still active, there is a desire to drink in general, the eyes are not sunken, turgor < 3 seconds, fluid loss < 5% of body weight. Mild/moderate dehydration diarrhea with signs of feeling restless, sunken eyes, increased thirst, slow return of turgor, fluid loss of 5-10% of body weight, lethargic or sluggish, sunken eyes, no desire to drink, very slow return of turgor > 2 seconds and fluid loss of 5-10% of body weight.

Efforts to prevent and manage diarrhea can be done pharmacologically and non-pharmacologically, how to deal with diarrhea in a non-pharmacological way, namely by carrying out a standardized nutritional care process which includes nutritional assessment, nutritional diagnosis, nutritional intervention, monitoring and nutritional evaluation (Dewi et al, 2024).

In addition to consuming ORS, tempeh porridge diet can also be consumed to overcome the problem of diarrhea. Giving tempeh porridge to diarrhea patients based on research conducted by Fitri (2022) can be useful for shortening diarrhea healing, and increasing body weight. Consumption of tempeh porridge can be given to overcome the problem of diarrhea, because tempeh is believed to accelerate weight gain and shorten the time of diarrhea (Kemenkes RI, 2017).

Previous research by Simanungkalit and Muliana (2021) contained in one of the health journals published in 2021 regarding the provision of tempe porridge on the duration of diarrhea found that 19 control group respondents without tempe porridge experienced a relatively long recovery from diarrhea compared to 19 intervention respondents who were given tempe porridge.

#### Analysis of Nursing Actions According to Research Results

After carrying out nursing actions for 3 days from October 16, 2024 to October 18, 2024 on these 2 clients, the results of client 1 on October 16, 2024 before being given the action of giving tempeh porridge were known to defecate client 1 liquid as much

as 4x there is pulp, no mucus and no blood, the color is greenish yellow. On September 16, 2024.

Nursing care provided to reduce diarrhea experienced by the two case study clients is to provide tempeh porridge which is processed and made by the researchers themselves, the way to make it is to prepare the tools and materials first by preparing 50 grams of tempeh, 30 grams of rice flour, 15 grams of margarine. 20 grams of brown sugar and salt to taste. 20 grams of brown sugar and salt to taste. Then how to make it is to steam the tempeh for about 15 minutes, boil 200 cc of water and brown sugar then cool and filter, steamed tempeh is blended with sugar solution until smooth texture, add rice flour and cook until the mixture becomes porridge, then add liquid margarine and salt to taste, stir the mixture until evenly distributed then remove and ready to serve.

After being given tempeh porridge 3 times a day, it was known that the frequency of liquid defecation decreased (2x) was still liquid and there was pulp, then on the third day, October 19, after being given tempeh porridge for 3 consecutive days, it was known that the frequency of defecation was 2x in one day, 1x liquid defecation, and 1x defecation with a mushy stool consistency, and lumpy, brownish yellow color.

While in the 2nd client on the first day before being given tempe porridge, the frequency of defecation was 7x with pulp, no mucus and no blood, the color was greenish yellow, watery. On the second day after being given tempe porridge 3x/day, it is known that the frequency of defecation is 4x, yellow liquid stools, there is pulp, no mucus and blood. Furthermore, on the third day after being given tempe porridge, it is known that the frequency of defecation is 1x / day, with a consistency of 1x mushy defecation forming clots.

Based on the nursing actions that have been carried out, it is found that there are differences in the frequency and consistency of the defecation of the two clients, this is because in addition to the two clients being given pharmacological therapy, it is also because the two clients are given non-pharmacological therapy of tempe porridge so that it accelerates changes in reducing the frequency of defecation of the two clients.

Tempeh is a fermented soybean product that is rich in dietary fiber, calcium, vitamin B, and iron. Various kinds of content in tempeh have medicinal value, such as anti-biotics, curing infections and anti-oxidants that prevent degenerative diseases. Therefore, one of the benefits of tempeh for infants can add nutrients to daily needs when diarrhea is realized in the form of tempeh porridge with tempeh as the main ingredient. By giving tempeh porridge to children who experience diarrhea, it can prevent children from dehydration and become a source of increasing children's nutritional intake during diarrhea (Fadillah et al, 2024).

Tempeh has an anti-microbial effect, has shorter diarrhea than those who do not eat tempeh-based foods and accelerates the growth of children suffering from diarrhea, besides that, it is also for the treatment of oral rehydration and early nutrition where tempeh is an alternative ingredient to replace amino acids or organic compounds that combine into proteins needed by the body (Simanungkalit and Muliana, 2021).

Azzahra (2023) stated that the effect of giving tempeh formula had an effect on reducing the frequency of respondents' diarrhea due to the content of tempeh, namely prebiotics and macronutrients in the form of protein and fat whose absorption was disturbed in diarrhea sufferers, while prebiotics are nutritional components that can have an effect on the activity of microorganisms in the intestine, namely probiotics as

normal flora which can have an impact on reducing intestinal peristalsis so that the frequency of defecation decreases. Another thing is that tempeh formula contains higher protein than animal protein so that it can increase the immune system of toddlers with diarrhea.

Research conducted by (Simanungkalit and Maulina, 2022) showed the results that the  $p$  value = 0.002 means the  $p$  value <  $\alpha$  (0.05), meaning that there is a difference in giving tempeh porridge to the length of diarrhea at the Puruk Cahu Health Center. Diarrhea in the group that was not given tempeh porridge was longer than the group that was given tempeh porridge. In conclusion, there is a difference in the duration of acute diarrhea in the provision of tempeh porridge to toddlers at the Puruk Cahu Health Center.

## **Discussion**

Research conducted by Fitri (2022) showed that giving tempeh porridge can be useful for shortening diarrhea healing, and increasing body weight. Consumption of tempeh porridge can be given to overcome the problem of diarrhea, because tempeh is believed to accelerate weight gain and shorten the time of diarrhea.

The results of the evaluation based on the management of care that has been provided for 3 consecutive days by providing nonpharmacological therapy by giving tempeh porridge, both clients gradually want to spend 1 portion of tempeh porridge given from the first day who is only able to spend  $\frac{3}{4}$  portion to  $\frac{1}{2}$  portion up on the second day and on the third day able to spend 1 portion. The problem of diarrhea was resolved and the intervention was stopped.

## **Conclusion**

1. The results of the subjective data assessment on the 2 clients are the client's mother says her child daire  $\geq 4$  times a day with a liquid consistency, defecation accompanied by pulp and mucus.
2. The results of nursing diagnoses on the 2 clients with priority diarrhea problems associated with the infectious process.
3. The focus of interventions carried out on the 2 clients with diarrhea problems is with diarrhea management including giving tempeh porridge.
4. The implementation that the author has done is maximized and effective in accordance with the planning that the author made earlier, so that the expected results are close to the criteria for the results that the author has set
5. Evaluation of nursing care in 2 clients with priority diarrhea problems can be resolved.
6. Tempe porridge effectively reduces the frequency of diarrhea by decreasing the frequency of defecation.

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