

## The Relationship of Handling Body Temperature and Diet on Typhoid Fever Treatment in Toddlers in the ICU Lepo-Lepo Puskesmas Kendari City, Indonesia

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### Abstract

**Background:** Typhoid fever is an important health problem in many countries. Globally, it is estimated that 21 million people suffer from this disease each year. The purpose of this study was to determine the relationship between handling body temperature and diet on the length of stay for typhoid fever in children under five.

**Methodology:** The type of research used in this study is an analytical survey method with a quantitative method with a cross sectional approach. The population in this study was 87 toddlers with typhoid fever. The sampling technique was purposive sampling with a total sample of 46 children under five.

**The results of the study:** Treatment of body temperature on length of stay obtained X2 count value 5,642 > X2 table = 3,481, with a value of 0.003 and diet management on length of stay with an X2 value of 4.920 > X2 table = 3,481, with a value of 0.001 at the level of confidence 95% ( $\alpha = 0.05$ ) so that  $H_a$  is accepted and  $H_o$  is rejected, meaning that there is a relationship between handling body temperature and diet with length of stay in toddlers with typhoid fever.

**Conclusion:** handling body temperature and diet is related to the length of stay for typhoid fever in children under five in the Lepo-Lepo Health Center inpatient room, Kendari City.

**Keywords:** Typhoid fever; length of stay; toddler; body temperature; diet.

### Introduction

Typhoid fever or typhus abdominalis is an acute infectious disease that usually affects the digestive tract with symptoms of fever for more than 7 days, gastrointestinal disturbances and impaired consciousness. This disease is caused by salmonella typhosa and is only found in humans. Transmission of this disease almost always occurs through contaminated food and drink [1]. Typhoid fever is an important health problem in many countries. Globally, it is estimated that 21 million people suffer from this disease each year and 222,000 cause death [2]. Developed countries an estimated 5,700 cases occur annually, typhoid fever is still common in developing countries where it affects about 21.5 million people per year [3]. The incidence of typhoid fever in the world is quite large. The incidence of typhoid fever worldwide in 2002 was around 16 million per year, 600,000 of which caused deaths. In 2007 typhoid fever became 17 million cases and 600 thousand deaths annually worldwide and caused 216,510 deaths. According to the World Health Organization (WHO) (2010), the incidence of typhoid fever reaches 16-600 deaths each year [4]. In Asia, typhoid fever is still relatively high. In Southeast Asia and Africa, the risk factors for abdominal typhus infection are lack of handling body temperature, contact with typhoid patients, eating unhealthy and clean food such as oily food and food sold on the roadside as well as open and dusty food. Indonesia's health profile in 2016 shows the incidence of typhoid fever is 358,810/100,000 cases per year and typhoid fever ranks 3rd out of the 10 most disease patterns of hospitalized patients in Indonesia [5].

Appropriate and comprehensive handling of typhoid patients, not only by giving antibiotics, but also good and correct nursing care and proper diet settings in order to accelerate the healing process of patients with typhoid fever [6]. Handling body temperature is the handling of abnormally increased body temperature that exceeds the

normal limit, which is more than 38 degrees Celsius [7]. In handling body temperature nursing care that needs to be done is to monitor the patient's body temperature to find out the patient's vital signs and the patient's condition. This is adjusted to determine the patient's progress every day during hospitalization, and as a reference to determine the general condition of patients with typhoid fever. Ineffective handling of body temperature increases the length of stay in patients with typhoid fever where fever can be an early sign of infection, but fever can also be caused by metabolic disorders and other causes [8].

The typhoid fever diet is a diet that serves to meet the food needs of typhoid sufferers in the form of low-fiber soft foods [9]. The types of diets included in the digestive system disorder diet are gastric diet, low waste diet, and low fiber diet. The main purpose of the typhoid fever diet is to meet the nutritional needs of typhoid fever sufferers and prevent recurrence. The management of typhoid fever diet is a diet that serves to meet the food needs of typhoid sufferers in the form of low-fiber soft foods. Patients with typhoid fever during treatment must follow the diet instructions recommended by the doctor for consumption. Based on data from The Lepo-Lepo Health Center showed that the cases of typhoid fever that received treatment in the inpatient room were very large where typhoid fever was a disease that was always included in the

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10 most diseases at the Lepo-Lepo Health Center from year to year. The data recorded in the inpatient register of the Lepo-Lepo Health Center, Kendari City, in January, inpatients totaled 282 cases and those diagnosed with typhoid fever were 87 people and those recorded in the inpatient register of the Lepo-Lepo Health Center Kendari City were in the average register. On average, patients with typhoid fever are treated for 4-5 days. The purpose of this study was to determine the relationship between handling body temperature and diet on the length of stay for typhoid fever in children under five in the Lepo-Lepo Health Center inpatient room, Kendari City.

## Materials and Methods

### Sample

This study uses an analytical survey method that uses quantitative methods with a cross sectional approach. The population in this study were all patients with a positive diagnosis of Typhoid Fever who were registered in the register in the Lepo-Lepo Public Health Center inpatient room, Kendari City and recorded in the medical records of 87 people. The sampling technique was purposive sampling with a total sample of 46 samples. The research instrument in the form of a questionnaire was made by the researcher and used to obtain data in this study. Respondents will be measured handling body temperature and proper diet when hospitalized.

### Ethical approval

Ethical approval for this research was obtained from the Bani Saleh School of Health Sciences (Ref No: EC.0183/KEPK/STKBS/VI/2021). Confidentiality of participants is strictly protected.

### Statistic analysis

We use computer programs to perform data analysis. The analysis carried out in this research, namely univariate analysis was carried out to describe each variable, namely the dependent variable was the handling of body temperature and diet management, while the independent variable was the length of hospitalization. Bivariate analysis was conducted to determine whether or not there was a relationship between handling body temperature and diet on the length of stay for typhoid fever in children under five in the Lepo-Lepo Health Center inpatient room, Kendari City.

## Results

### Univariate analysis

The results of the univariate analysis were based on the relationship between handling body temperature and diet on the length of stay for typhoid fever in children under five in the Lepo-Lepo Health Center inpatient room, Kendari City. Based on the distribution of respondents by age group. Table 1 shows that among the 46 research respondents aged 0-24 months, there are 26 respondents (56.6%), and at the age of 25-60 months, there are 20 respondents (43.4%). Based on the distribution of respondents' gender groups, it can be seen in Table 1

Table 1: Distribution of respondents by age and gender.

Variable	n(46)	%
Age		
0-24 Months	26	56.6
25-60 Months	20	43.4
Gender		
Man	19	41.3
Woman	27	58.7

that of the 46 research respondents, the number of female respondents was more than male, 27 respondents were female respondents (58.7%), while 19 respondents were male (41.3%).

### Bivariate analysis

Analysis of the Relationship between Handling Body Temperature and Length of Hospitalization for Typhoid Fever in Toddlers in the Lepo-Lepo Health Center inpatient room, Kendari City, which was analyzed by testing (Chi Square), as shown in Table 2. The results of the analysis in Table 2 show that in this study, out of 46 respondents who were treated with low temperature with length of stay 5 days totaled 1 respondent (3.3%) and treatment with good temperature with length of stay 5 days amounted to 10 respondents (66.7%). While the respondents who handled the temperature less with length of stay > 5 days totaled 30 respondents (96.7%) and good temperature treatment with length of stay > 5 days amounted to 5 respondents (33.3%).

Based on the results of statistical tests using the chi-square test, the calculated  $X^2$  value is  $5,642 > X^2$  table = 3,481, with a value of 0.003 at a 95% confidence level ( $\alpha = 0.05$ ) so that  $H_a$  is accepted and  $H_o$  is rejected, meaning that there is a relationship between body temperature handling and length of time care for toddlers with typhoid fever. Analysis of the Relationship between Diet Management and Length of Hospitalization for Typhoid Fever in Toddlers in the Lepo-Lepo Health Center inpatient room, Kendari City, which was analyzed by testing (Chi Square), as shown in Table 3. The results of the analysis in Table 3 show that in this study, from 46 respondents who were treated with inadequate diet with length of stay 5 days, 1 respondent (3.3%) and good diet treatment with length of stay 5 days amounted to 11 respondents (68.8%). Meanwhile, the respondents who had poor diet handling with length of stay > 5 days were 29 respondents (96.7%) and good diet management with length of stay > 5 days were 5 respondents (31.2%). Based on the results of statistical tests using the chi-square test, the value of  $X^2$  count is  $4,920 > X^2$  table = 3,481, with a value of 0.001 at a 95% confidence level ( $\alpha = 0.05$ ) so that  $H_a$  is accepted and  $H_o$  is rejected, meaning there is a relationship between diet management and length of stay in toddlers with typhoid fever.

## Discussion

Typhoid fever temperature can be more than 38°C, which usually appears in the afternoon and evening. This fever lasts more than 3 days or even more than 7 days. In handling body temperature nursing care that needs to be done is to monitor the patient's body temperature to find out the patient's vital signs and the patient's condition. This is adjusted to determine the patient's progress every day during hospitalization, and as a reference to determine the general condition of patients with typhoid fever [10]. According to research, giving warm compresses to patients aims to help lower body temperature through the evaporation process. Evaporation itself is the loss of heat by the process of sweating occurs because the sweat in that part of the skin evaporates. Warm compresses can be applied to the forehead, groin, axilla, and even rubbed all over the body using a towel. Thus speeding up the evaporation process, because in that area there are large blood vessels. The length of stay of typhoid fever patients is determined by the symptoms that accompany typhoid fever such as fever.

The results of this study are supported by Nurwahuni's 2009 research which explains that there is a body mechanism for warm compresses in an effort to reduce body temperature, namely by giving warm compresses to areas of the body that will give a signal to the hypothalamus through the spinal cord. When heat-sensitive receptors in

**Table 2:** Relationship between handling body temperature and length of stay in toddlers with typhoid fever.

Body Temperature Handling	Length of Treatment				Total		X2 Hits	X2 Table	p Value
	5 days		> 5 days		N	%			
	n	%	n	%					
Not enough	1	3.3	30	96.7	31	100	5,642	3,481	0.003
Good	10	66.7	5	33.3	15	100			
Total	11	23.9	35	76.1	46	100			

**Table 3:** Relationship between diet management and length of stay in toddlers with typhoid fever.

Diet Management	Length of Treatment				Total		X2 Hits	X2 Table	p Value
	5 days		> 5 days		N	%			
	n	%	n	%					
Not enough	1	3.3	29	96.7	30	100	4.92	3,481	0.001
Good	11	68.8	5	31.2	16	100			
Total	12	26.1	34	73.9	46	100			

the hypothalamus are stimulated, the effector system issues signals that initiate sweating and peripheral vasodilation. Changes in blood vessel size are regulated by the vasomotor center in the medulla oblongata of the brain stem, under the influence of the anterior hypothalamic so that vasodilation occurs. The occurrence of this vasodilation causes the waste / loss of energy / heat through the skin to increase (sweating), it is hoped that there will be a decrease in body temperature so that it reaches a normal state again.

The typhoid fever diet is a diet that serves to meet the food needs of typhoid sufferers in the form of low-fiber soft foods. Infectious diseases can cause loss of appetite so that food intake is inadequate, even though diet management in patients with infectious diseases increases. Changes in diet often occur in patients with infectious diseases who are hospitalized at the puskesmas. Food intake from hospitals is one of the factors for changes in dietary status that occur in inpatients at hospitals and health centers [11]. The results of this study are in line with other studies regarding the level of energy and protein adequacy with the length of treatment for typhoid fever patients. So the diet therapy given to typhoid fever patients is adjusted to the disease, which is expected to be able to and help healing [12].

## Conclusion

Based on the results of research conducted by researchers at the Lepo-Lepo Health Center, Kendari City, it can be concluded that there is a relationship between handling body temperature and diet on the length of stay for typhoid fever in children under five in the Lepo-Lepo Health Center inpatient room, Kendari City.

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