



Factors Related to the Incidence of Diarrhea in Children Aged 1-3 Years in the Working Area of the Gunung Labu Puskesmas, Kerinci District

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Abstract

Diarrhea is Reason death biggest third on toddlers in the world after pneumoniae and disease default . Death rate caused toddlers _ Because diarrhea reached 1.5 million per year . Incident the biggest happened at 2 years First life and decline along with growth children (Ministry of Health RI, 2017) . Many factors are related with incident diarrhea in toddlers 1-3- years . Research This aim For know related factors _ with incident diarrhea in toddlers aged 1-3- years in the health center Mount Labu, Kayu Aro Barat District , 2022. Type study is study qualitative with approach *cross sectional* . Data collection has done on the month February 2023 - March 2023 . Population in research This as much 262 people and samples numbered 70 people, engineering taking sample with formula *Lemeshow* . Data analyzed in a manner univariate with distribution frequency on each one variables and analysis bivariate with using the *chi-square* test . Statistical test results showing there is connection level knowledge (*p value*=0.000), nutritional status (*p value*=0.000), age wedding early (*p value* = 0.000) then can taken conclusion that there is connection level knowledge, status nutrition , age wedding early with incident diarrhea in toddlers aged 1-3 years in the health center Mount Labu, Kayu Aro Barat District , 2022. Recommended to officer health For give counseling health and facilitation Mother in get iformation about disease diarrhea.

Keywords: Genesis Diarrhea, Age Toddlers 1-3 Years, Knowledge Level, Nutritional Status, Early Marriage

Introduction

Infectious diseases are one of the major health problems in almost all developing countries including Indonesia. Infectious diseases are a global health problem because they cause relatively high morbidity and mortality rates in a relatively short period of time. Infectious diseases are a combination of various factors that influence each other. These factors consist of the environment (environment), the causative agent (agent), and the host (host).

These three factors are referred to as the epidemiologic triangle (Dyah & Yunita, 2017). Diarrhea is the third leading cause of death in children under five in the world after pneumonia and congenital diseases. Data from the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO), almost one in five deaths of children under five in the world is caused by diarrhea. The number of under-five deaths caused by diarrhea reaches 1.5 million per year. The greatest incidence occurs in the first 2 years of life and decreases as the child grows (MOH RI, 2017).

Diarrhea is one of the leading causes of morbidity and mortality in almost all geographic regions of the world and all age groups can be affected. Diarrhea is one of the leading causes of childhood morbidity and mortality in developing countries. In developing countries, children under five experience an average of 3-4 episodes of diarrhea per year but in some places there are more than 9 episodes of diarrhea per year almost 15-20% of life time is spent on diarrhea (Dyah & Yunita, 2017).

Diarrhea disease is influenced by several factors, including environmental conditions, community behavior, community services, nutrition, population, education which includes knowledge, and socioeconomic conditions. Diarrhea can occur due to poor hygiene and sanitation, malnutrition, crowded environments and poor medical resources (Dyah & Yunita, 2017).

Literature Review

Acute diarrhea is a common problem in children under five. Every year an estimated 2 billion cases of diarrhea occur worldwide. Bacterial infection is one of the causes of liquid diarrhea or bloody diarrhea. The etiology of acute diarrhea is bacteria, viruses, protozoa, and helminths. Diagnosis and taking into account the need for fluid replacement, as well as the selection of anti-biotics can be an important element in the management of acute diarrhea (Amin, 2015).

Diarrhea is a condition where a person defecates with mushy or liquid conditions, it can even be water alone and the frequency is more frequent (usually three times or more) in one day (Ministry of Health, 2011).

Research conducted by Veny Septiana (2021), on Factors Associated with the Incidence of Diarrhea in Children at Pembina Health Center Palembang. The results of 40 respondents studied were obtained, 28 people (66.7%) had diarrhea and had poor nutritional status, 12 respondents (42.8%) had diarrhea and had normal nutritional status. This study showed that more than half of the toddlers were malnourished and undernourished (66.7%).

Nutritional problems are basically a reflection of nutrient consumption that does not meet the body's needs. A person will have a good nutritional status, if the intake of nutrients in accordance with the needs of the body. Inadequate intake of nutrients in the diet can cause malnutrition, while people with excessive intake of nutrients will suffer from overnutrition. Nutritional status can be determined through the measurement of several parameters, then the results of these measurements are compared with standards or references. The role of nutritional

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status assessment aims to determine whether there is a wrong nutritional status. Assessment of nutritional status is important because it can cause morbidity and mortality related to nutritional status. Therefore, by knowing the nutritional status, efforts can be made to improve the level of health in the community (Ministry of Health of the Republic of Indonesia, 2017).

Based on the results of the theory and the results of existing research, it can be concluded that nutritional status is very influential on the incidence of diarrhea. A person will have a good nutritional status, if the nutritional intake is in accordance with the needs of the body. Inadequate intake of nutrients in food can cause malnutrition, on the other hand, people whose nutritional intake is excessive will suffer from overnutrition.

Research Method

This type of research is quantitative research with a cross sectional method approach. The research was conducted at the Gunung Labu Health Center in 2023. The sample size was 70 people, namely toddlers aged 1-3 years. Sampling was done by accidental sampling, namely sampling based on who was in the research location as a research sample. The research was conducted using a questionnaire. Data analysis conducted in this study is univariate and bivariate analysis. Univariate analysis to see the frequency distribution of each variable, namely the frequency distribution of the incidence of diarrhea. Bivariate analysis was conducted to see the relationship between independent variables (knowledge, nutritional status, early marriage age) with the dependent variable (incidence of diarrhea), the analysis was carried out using the Chi Square Test at a confidence level of 95% and the data was processed using SPSS.

Result

Respondent Characteristics

Tabel 4.1
Distribution of Respondent characteristics in the Gunung Labu Health Center Working Area,
Kerinci Regency in 2023.

Respondent Characteristics	<i>f</i>	%
Age		
18-22 Years	5	7.1%
23-27 Years	23	32.9%
28-32 Years	30	42.9%
>32 Years	12	17.1%
Total	70	100.0%
Education		
SD	-	-
SMP	20	28.6%
High School	40	57.1%
Higher Education	10	14.3%
Total	70	100.0%
Jobs		

IRT	32	45.7%
Swasta	14	20.0%
Wiraswasta	16	22.95
PNS	8	11.4%
Total	70	100.0%
Age of Child		
1 Year	5	7.1%
2 Years	38	54.3%
3 Years	27	38.6%
Total	70	100.0

Based on table 4.1 above, it can be seen that the distribution of respondent data in the Gunung Labu Health Center Working Area, Kerinci Regency in 2022, more than half of the respondents were 28-32 years old as many as 30 people (42.9%), had a high school education as many as 40 people (57.1%), Respondents had jobs as housewives as many as 32 people (45.7.9%) and more than half of the age of the respondent's child was in the 2 Year category as many as 38 people (54.3%).

Mother's Knowledge Level

Tabel 4.2
Frequency Distribution of Maternal Knowledge Level in the Working Area of Puskesmas Gunung Labu Kerinci Regency in 2023.

Knowledge Level	<i>f</i>	%
Good	46	65.7%
Less	24	34.3%
Total	70	100.0

Based on table 4.2, it can be seen that out of 70 respondents, more than half of the respondents had a good level of knowledge as many as 46 people (65.7%).

Nutritional status of toddlers aged 1-3 years

Tabel 4.3
Frequency Distribution of Nutritional Status in Toddlers 1-3 Years of Age in the Working Area of the Gunung Labu Health Center, Kerinci Regency, 2023.

Distribution retrieved from Respondent	<i>f</i>	%
Child Nutrition Status		
Good Nutrition	45	64.3%
Undernourished	25	35.7%
Total	70	100.0

Based on table 4.3 above shows that of the 70 respondents there were more than half of the respondents with good nutrition as many as 45 people (64.3%).

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Age of Early Marriage

Tabel 4.4
Frequency Distribution of Early Marriage Age in the Working Area of the Gunung Labu Health Center, Kerinci Regency in 2023.

Distribution retrieved from Respondent		
	<i>f</i>	%
Age of Early Marriage		
Not Early Marriage	51	72.9%
Early Marriage	19	27.1%
Total	70	100.0

Based on table 4.4 above, out of 70 respondents, more than half of the respondents had a status of not early marriage as many as 51 people (72.9%).

Incidence of diarrhea in toddlers aged 1-3 years

Tabel 4.5
Frequency Distribution of Diarrhea Events in Toddlers 1-3 Years of Age in the Working Area of Puskesmas Gunung Labu Kerinci Regency in 2023.

Distribution retrieved from Respondent		
	<i>f</i>	%
Incidence of Diarrhea		
Diarrhea	34	48.65%
No Diarrhea	36	51.45%
Total	70	100.0

Based on table 4.5 above, out of 70 respondents, more than half of the respondents did not have diarrhea as many as 36 people (51.45%).

Level of Maternal Knowledge with the Incidence of Diarrhea in Toddlers 1-3 Years of Age

Tabel 4.6
Relationship between the level of maternal knowledge and the incidence of diarrhea in toddlers aged 1-3 years in the working area of the Gunung Labu Health Center, Kerinci Regency in 2023.

Knowledge Level	Inchidence Diarrhea				Amount		<i>P Value</i>
	Diarrhea		No Diarrhea				
	n	%	n	%	n	%	
Good	10	14.3%	36	51.4%	46	65.7%	0,000
Less	24	34.3%	0	0.0%	24	34.3%	
Total	34	48.6%	36	51.4%	70	100%	

Based on table 4.7, the analysis of the relationship between the level of knowledge and the incidence of diarrhea shows that more than half of the respondents who have a good level of

knowledge are 46 (65.7%) people where 36 (51.4%) people do not experience diarrhea and 10 (14.3%) people experience diarrhea.

The results of statistical tests using the chi square test obtained a value of $p = 0.000$ (p value < 0.05), it can be concluded that there is a relationship between the level of knowledge with the incidence of diarrhea in the working area of the Gunung Labu Health Center, Kerinci Regency in 2023..

Nutritional Status with the Incidence of Diarrhea in Toddlers 1-3 Years of Age

Tabel 4.7

Relationship between nutritional status and the incidence of diarrhea in toddlers aged 1-3 years in the working area of the Gunung Labu Health Center, Kerinci Regency in 2023.

Nutrition Status	Inchidence Diarrhea				Total		<i>P Value</i>
	Diarrhea		Doing				
	n	%	n	%	n	%	
Good	9	12.9%	36	51.4%	45	64.3%	0,000
Less	25	35.7%	0	0%	25	35.7%	
Total	34	48.6%	36	51.4%	70	100%	

Based on table 4.8, the analysis of the relationship between nutritional status and the incidence of diarrhea shows that more than half of the respondents had good nutritional status as many as 45 (64.3%) people where there were 36 (51.4%) people who did not experience diarrhea, the rest 9 (12.9%) experienced diarrhea.

The results of statistical tests using the chi square test obtained a value of $p = 0.000$ (p value < 0.05), it can be concluded that there is a relationship between nutritional status and the incidence of diarrhea in the Gunung Labu Health Center Working Area, Kerinci Regency in 2023.

Relationship between Early Marriage Age and Incidence of Diarrhea in Toddlers 1-3 Years of Age

Tabel 4.8

Relationship between Early Marriage Age and the Incidence of Diarrhea in Toddlers 1-3 Years of Age in the Working Area of Puskesmas Gunung Labu, Kerinci Regency in 2023.

Early Marriage Age	Incidence of Diarrhea				Total		<i>P Value</i>
	Diarrhea		Doing				
	n	%	n	%	n	%	
Not Early Marriage Age	17	24.3%	34	48.6%	51	72.9%	0,000
Early Marriage Age	17	24.3%	2	2.9%	19	27.1%	
Total	34	48.6%	36	51.4%	70	100%	

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Based on table 4.9, the analysis of the relationship between the age of early marriage and the incidence of diarrhea shows that more than half of the respondents have a non-early marriage status of 51 (72.9%) people where there are 34 (48.6%) people who do not experience diarrhea, the remaining 17 (24.3%) experience diarrhea.

The results of statistical tests using the chi square test obtained a value of $p = 0.000$ (p value < 0.05), it can be concluded that there is a relationship between the age of early marriage and the incidence of diarrhea in the Gunung Labu Health Center Working Area, Kerinci Regency in 2023.

Discussion

Based on the results of the study, it was found that the distribution of respondent data in the Gunung Labu Health Center Working Area, Kerinci Regency in 2023, more than half of the respondents were 28-32 years old as many as 30 people (42.9%). The delivery of good information is during adulthood because adulthood is a period in which there is development of intelligence, mental maturity, personality, mindset and social behavior. So that the information obtained will form a knowledge and attitude seen from the response after the information is received.

According to Sulastri (2019), the more age the level of maturity and strength of a person will be more mature in thinking and working in terms of trust, people who are more mature will trust more than people who are not mature enough. Age is an internal factor that affects the level of knowledge, where the age of the individual is calculated from the time of birth to repeated years. So it can be concluded that most mothers who have toddlers with diarrhea are mothers ranging in age from 26-35 years. The older the mother, the better the mother's knowledge in knowing how to handle diarrhea in toddlers properly and correctly.

Conclusion

Maternal Knowledge Level in the Working Area of Puskesmas Gunung Labu Kerinci Regency Year 2023

Based on the results of the study, it shows that of the 70 respondents, more than half of the respondents had a good level of knowledge as many as 46 people (65.7%). Notoatmodjo (2018) defines knowledge as something that is known by someone. Low maternal knowledge and education are the most important underlying causal factors because they greatly affect the level of ability of individuals, families and communities to manage existing resources to obtain adequate food and the extent to which available nutritional health services and environmental sanitation are utilized properly. The level of education will greatly influence changes in attitudes and healthy living behaviors. A higher level of education will make it easier for a person or community to absorb information and implement it in daily behavior and lifestyle, especially in terms of health and nutrition. The mother's level of education will affect the degree of health (Susanti, 2016).

The results of this study are in line with the results of research in the Lubuk Buaya Padang Puskesmas work area, that most mothers (67.5%) with toddlers aged 1-5 years have a moderate level of knowledge about diarrhea (Rane et al., 2017); also in line with the results of research in the Busungbiu II Puskesmas work area of Buleleng Regency which states that most mothers (70%) have good knowledge about diarrhea (Santini & Mahayana, 2020).

Nutritional Status of Toddlers 1-3 Years of Age in the Working Area of the Gunung Labu Health Center, Kerinci Regency in 2023.

Based on the results showed that of the 70 respondents there were more than half of the respondents with good nutrition as many as 45 people (64.3%). Good nutrition is able to build a strong immune system and can prevent disease, so that it can form better health in toddlers (Zarei, 2013). In toddlers who experience poor nutritional status, the body's immune system is not strong against bacteria that cause infection, therefore bacteria will develop in the small intestine and can cause small intestinal infections. This infection can interfere with the absorption function of the small intestine so that little water is absorbed and the feces become watery (Rinda, 2014). In toddlers who experience cases of diarrhea, the small intestine villus atrophy, causing the absorption of water and other substances to be disrupted. Water and other substances that should be absorbed and circulated into the blood circulation and lymph vessels become unabsorbed, therefore, the chyme formed still contains a lot of water and other substances. The large intestine can only reabsorb a maximum of 6-8 liters of water per day, if the water content in the chyme exceeds the reabsorbing power of the large intestine, the feces that are released become watery (Wijayaningsih, 2013).

These results are in line with the research of Nurjani et al (2021) which showed that of the 89 respondents with undernourished toddlers, 33 respondents (37.1%) were well-nourished, while 56 respondents (62.9%) were well-nourished..

Early Marriage Age in the Working Area of Puskesmas Gunung Labu Kerinci Regency in 2023.

Based on the results of the study, it shows that out of 70 respondents, more than half of the respondents had a status of not early marriage as many as 51 people (72.9%). Marriage is a very meaningful momentum for every human life in the form of an inner and outer relationship between a man and a woman as husband and wife with the aim of forming a harmonious and eternal family based on God Almighty (Sekarayu & Nurwati, 2021). Early age is a transitional period between childhood and adulthood (adolescence), where children will experience various changes in all fields. Early marriage is a marriage that is legally carried out by someone who has not had the preparation and maturity to cause concern which will result in a number of risks and major impacts, especially on health (Indrianingsih, et al., 2020).

One of the health problems of early marriage is pregnancy and childbirth at a young age for women. Pregnancy and childbirth at a young age are pregnancies that are at risk of maternal death. Women who marry at an early age will have a longer exposure time to the risk of becoming pregnant, so marrying at an early age also has an indirect impact on fertility rates (Afifah, 2014).

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This study is in line with the research of Robin et al (2019) which shows that most of the marriage age ≥ 21 years as many as 50 people (68.5%) the rest of the marriage age < 21 years as many as 23 people (31.5%).

Incidence of diarrhea in toddlers aged 1-3 years in the working area of the Gunung Labu Health Center, Kerinci Regency in 2023.

Based on the results showed that out of 70 respondents, more than half of the respondents did not have diarrhea as many as 36 people (51.45%). Diarrhea is an infectious disease and is characterized by symptoms such as changes in the shape and consistency of the stool to become mushy to liquefy and an increase in the frequency of defecation more than usual accompanied by vomiting, thus causing the patient to experience a lack of fluid in the body or dehydration which in the end if not getting immediate help can cause severity to death. Toddlers who experience diarrhea will develop symptoms such as frequent defecation with liquid or watery stool consistency, signs and symptoms of dehydration (decreased skin turgor, sunken fontanel and eyes, dry mucous membranes), fever, vomiting, anorexia, weakness, pallor, changes in vital signs (rapid pulse and respiration), decreased or absent urine output (Witza, 2020).

Diarrhea is a digestive disorder characterized by increased frequency of bowel movements. The appearance of diarrhea is often associated with infection of the digestive tract by various organisms, including bacteria. There are 4 bacteria that commonly cause diarrhea, namely *Escherichia coli*, *Salmonella enteritica*, *Shigella* and *Campylobacter jejuni* (Alodokter, 2019). According to Tantri (2016), *E. Coli* has a rod or bacillus shape, *Salmonella* has a rod shape, *Shigella* also has a rod shape, while *Campylobacter jejuni* has a spirillum shape (resembles a rod) when viewed with a light microscope (Andriani, et al. 2013). The four bacteria are gram negative bacteria (Tantri, 2016).

Relationship between knowledge level and the incidence of diarrhea in toddlers aged 1-3 years in the working area of the Gunung Labu Health Center, Kerinci Regency, 2022

Based on the results of the analysis of the relationship between the level of knowledge and the incidence of diarrhea, it shows that more than half of the respondents who have a good level of knowledge are 46 (65.7%) people where 36 (51.4%) people do not experience diarrhea and 10 (14.3%) people experience diarrhea. The results of statistical tests using the chi square test obtained a value of $p = 0.000$ ($p \text{ value} < 0.05$), it can be concluded that there is a relationship between the level of knowledge and the incidence of diarrhea in the working area of the Gunung Labu Health Center, Kerinci Regency in 2023.

Notoatmodjo (2018) defines knowledge as something that is known by someone. Knowledge or cognitive is a very important domain for the formation of a person's actions, because from experience and research it turns out that attitudes and behaviors based on knowledge will be more lasting than those that are not based on knowledge. The higher the level of knowledge, the higher the basic abilities a person has (Notoatmodjo, 2014).

The results of this study are in line with Ayu (2018) which states that bivariately, the results showed that there was a significant relationship between maternal knowledge about

diarrhea and the incidence of diarrhea in children under five at Kendari City Hospital, Southeast Sulawesi Province in 2018 with a p value = $0.011 < \alpha = 0.05$ with X^2 count = 9.024.

The relationship between children's nutritional status and the incidence of diarrhea in toddlers aged 1-3 years in the Gunung Labu Health Center Working Area, Kerinci Regency in 2023.

Based on the results of the analysis of the relationship between nutritional status and the incidence of diarrhea, it shows that more than half of the respondents have good nutritional status as many as 45 (64.3%) people where there are 36 (51.4%) people who do not experience diarrhea, the rest 9 (12.9%) experience diarrhea. The results of statistical tests using the chi square test obtained a value of $p = 0.000$ (p value < 0.05), it can be concluded that there is a relationship between nutritional status and the incidence of diarrhea in the Gunung Labu Health Center Working Area, Kerinci Regency in 2023.

Nutritional status is a risk factor for the incidence of acute diarrhea in children under five. Poor nutritional status is associated with susceptibility to infection. Strong nutrition is needed for optimal immunity processes in the body. The dominant humoral and cellular immunity is no longer a maternal gift but a maturation process of the immunological aspects of the baby. This process is strongly influenced by the nutritional status of the child. The immunity maturation process will run well if the child has a good nutritional status. Vice versa, in children with poor nutritional status, the development of their immune abilities will also be disrupted. This means that nutritional status is related to the incidence of diarrhea in toddlers (Ade Rahmawati, 2019).

Research by Wibisono (2020) revealed that nutritional status has an influence on the incidence of recurrent diarrhea in children with a p value < 0.05 . Another study by Suherman (2018) showed that nutritional status has a close relationship with the incidence of diarrhea with a p value < 0.05 .

The Relationship between Early Marriage Age and the Incidence of Diarrhea in Toddlers 1-3 Years of Age in the Working Area of Puskesmas Gunung Labu Kerinci Regency in 2023.

Based on the results of the analysis of the relationship between the age of early marriage and the incidence of diarrhea, it shows that more than half of the respondents have a non-early marriage status as many as 51 (72.9%) people where there are 34 (48.6%) people who do not experience diarrhea, the remaining 17 (24.3%) experience diarrhea. The results of statistical tests using the chi square test obtained a value of $p = 0.000$ (p value < 0.05), it can be concluded that there is a relationship between the age of early marriage and the incidence of diarrhea in the working area of the Gunung Labu Health Center, Kerinci Regency in 2023.

The results of research by Robin et al (2019) show that baby growth according to nutritional status is found that mothers whose marriage age ≥ 21 years have normal baby growth more than mothers whose marriage age < 21 years. In mothers aged ≥ 21 years, 65.8% of the baby's growth was normal and 4.1% of the baby's growth was less (thin). Whereas in mothers whose marriage age < 21 years obtained 24.7% with normal baby growth and 5.5% is

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less baby growth (thin). Nutritional status greatly affects the growth of the baby where if the baby's nutrition is not good then the baby's growth is also not good then it will affect the body in forming immunity. Where the nutritional status of the child greatly affects the incidence of diarrhea in children, this is in line with the results of research by Wibisono (2020) which revealed that nutritional status has an influence on the incidence of recurrent diarrhea in children with a p value <0.05 .

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