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Factors Influencing Nutrition Status in Toddlers in Work Areasuptdcommunity Health Center Karang Tumaritis Nabire District

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Abstract *Background: Malnutrition including undernutrition is a major health problem for toddlers. Data from the Nabire District Health Office shows the number of cases of toddlers experiencing undernutrition.in Nabire Regency is 177 toddlers in 2023. Data from the UPTD Karang Tumaritis Health Center shows that toddlers who experience malnutrition in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency in 2023 are 26 toddlers. Objective: The purpose of this study was to determine the factors that influence Malnutrition Status in Toddlers in Nabire. Method: The research design used was case control with purposive random sampling technique. The study population wasall toddlers in the Working Area of UPTD Karang Tumaritis Health Center, Nabire Regency. The sample used was 110 toddlers. While the respondents were mothers of toddlers. Sampling was carried out by accidental sampling from 208 toddlers. Data collection was carried out in the monthMarch to May 2024 includes dataprimary and secondary.**Results**: Data processing was carried out using a computer with the SPSS (Program for Social Scene) version 16.1 application with the chi-square test. The results of statistical analysis showed that the factors that influence malnutrition are infectious diseases (large p-value = 0.00), immunization status (p-value = 0.00), history of exclusive breastfeeding (p-value = 0.00), and unrelated factors, namely the level of maternal education (p-value = 0.25). Conclusion: Factors that influence malnutrition are infectious diseases, immunization status, history of exclusive breastfeeding. Suggestion: Early detection and prevention of malnutrition in children must be improved in the child growth and development monitoring program.*

Keywords: *Toddlers, Malnutrition, Mother's Education, Immunization Status*

1. INTRODUCTION

Health development aims to increase awareness, willingness and ability to live healthily for everyone in order to achieve the highest level of public health. The Healthy Indonesia Program is a health development program launched during the 2020-2022 period. The main targets of this health development are stated in the National Medium-Term Plan (RPJMN) of the Indonesian Minister of Health Decree Number HK. 02.02/MENKES/52/2020. One of the main objectives is to improve the health and nutritional status of mothers and children (Ministry of Health of the Republic of Indonesia, 2020).

Malnutrition is a major health problem in children because it can inhibit their growth and development and contribute to child morbidity and mortality. In general, malnutrition in children is divided into wasting (underweight for height), stunting (underweight for age), and underweight (underweight for age) (Int. J. Environ. Res. Public Health, 2022). (World Health Organization) estimates that worldwide in 2020 the prevalence of malnutrition in children is 7.7%, tending to increase from the prevalence of malnutrition in 2023 of 7.5% and higher than the WHO target in 2025 of <5%, the prevalence of stunting in 2021 looks quite high at 22.9% but this figure has decreased from 2022 by 23.8% and after being below the WHO

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target of 2025 of 40%, and the prevalence of underweight in 2022 is 14.0% and has decreased from 2021 by 16.5% (Policy Brief, 2020). Of the total prevalence of malnutrition in the world, 69% are in Asia and 23% are in Africa. The results of the Nutritional Status Monitoring (PSG) the prevalence of malnutrition in toddlers, especially malnutrition in Indonesia in 2022 reached 11.1%. Meanwhile, public health problems are considered serious if the prevalence of malnutrition ranges from 10.0% -14.0%, and are considered critical if ≥ 15.0%. So that malnutrition is still a serious public health problem in Indonesia (Ministry of Health of the Republic of Indonesia, 2023).

According to WHO, malnutrition is the cause of death in children, which is 54%. The large number of cases of malnutrition in the country indicates a problem with nutrition in toddlers. In developing countries, the number of toddlers who experienced malnutrition in 2019 was 129 million toddlers or around 1 in 4 toddlers and 10% of toddlers experienced malnutrition (Ariesthi et al., 2019).

According to the United Nations International Children's Emergency Fund (UNICEF), malnutrition is the biggest problem in Indonesia. It is estimated that 1 in 10 toddlers in Indonesia are malnourished. The prevalence of malnutrition in toddlers in Indonesia in 2022 was 17.7%, consisting of 3.9% severe malnutrition and 13.8% undernourishment. The lowest prevalence of malnutrition status, which was 13%, was in the Riau Islands province and the highest prevalence of malnutrition status, which was 29.5%, was in the East Nusa Tenggara province (Ministry of Health of the Republic of Indonesia, 2022).

Malnutrition in children is a major indicator in assessing the quality of human capital in the future. Malnutrition can disrupt the function of the immune system, thereby increasing the severity, duration, and susceptibility to infectious diseases. In addition, malnutrition in early childhood, especially in the first two years of life, can cause permanent damage. This period is an important phase of child growth and development which is often referred to as the "Golden Period". If malnutrition in infancy continues, it can result in poor cognitive development and learning ability, reduced lean body mass, short adult stature, impaired glucose metabolism, and low productivity (Richard et al., 2023).

The factors that cause malnutrition have been explained by the United Nations International Children Emergency Fund (UNICEF) and have been used internationally. First, the direct cause is food intake or infection, or a combination of both. Second, the indirect causes are family-level food availability, parenting patterns, and health services and the environment. Third, the main problems are poverty, family characteristics, and the mother's

education level. Fourth, the basic problem, namely the political and economic crisis (Wahyono, 2021).

Infection contributes to energy, protein, and other nutrient deficiencies due to decreased appetite and reduced food intake. Illness in children has a negative effect on child growth. In a study by Mgongo et al., in 2021 in Tanzania, it was stated that children who were sick in the last month had an increased risk of malnutrition. Research from Gezahegn, Kassahun in 2022 in Ethiopia, showed that diarrhea is associated with the incidence of malnutrition in children. Research by Ayana and Hailemariam in 2023 in Ethiopia showed that there was a relationship between children with fever and the incidence of malnutrition. Immunization status in children is one indicator of contact with health services that are expected to help improve children's nutritional status. According to research conducted by Samiak and Emeto in 2020 in Papua New Guinea, and Semba et al in 2020 in Indonesia, the proportion of children with malnutrition is greater in children who are not immunized or who are only partially immunized.

Exclusive breastfeeding affects the nutritional status of children. Research conducted by Aguayo Dzed in Nepal in 2022 showed that there was a relationship between exclusive breastfeeding and malnutrition. Different results were shown in a study conducted by Menon, A Mohamed, and Victor in 2019 in Uganda, which showed that there was no relationship between exclusive breastfeeding and the incidence of malnutrition (Ministry of Health of the Republic of Indonesia, 2023).

The factors of maternal education level and maternal employment status are among the main issues affecting children's nutritional status. Better educated mothers tend to be more receptive to nutritional information and apply their knowledge in childcare and feeding practices. A study (Putri and Wahyono, 2021) in Indonesia showed that maternal education was related to the incidence of malnutrition. However, different results were shown in a study (Asfaw, Wondaferash, Taha, 2022) in Ethiopia, which showed that maternal education had no significant relationship with the incidence of malnutrition in children.

In addition to maternal education, maternal employment is also considered to be related to the incidence of malnutrition, because mothers who do not work are considered to have more time to care for and pay attention to their children. Their children's nutritional intake will also be considered. Research (Agedew and Shimeles, 2020) in Ethiopia, states that the proportion of malnourished children is higher in working mothers. Cases of malnourished children in Papua in 2023 were 1,050 children in Papua Province who were reported with

malnutrition. This number is based on the results of the electronic Community-Based Nutrition Recording and Reporting (e-PPGBM) from around 400 Health Centers in Papua.

Based on data from the Nabire District Health Service, the number of cases of toddlers experiencing malnutritionin Nabire Regency, there were 177 toddlers in 2023. Data from the Karang Tumaritis Health Center UPTD shows that there were 26 toddlers experiencing malnutrition in the Work Area in 2023.

Based on this phenomenon, the author is interested in conducting research to determine the factors that influence the status of malnutrition in toddlers in the working area of the Karang Tumaritis Health Center UPTD, Nabire Regency.

2. METHOD

This study was conducted using analytical observational research. In this study, observations were made on factors related to the incidence of malnutrition in toddlers in the Working Area of the Karang Tumaritis Health Center UPTD, which included infectious disease factors (Diarrhea and Fever), Immunization Status, History of Exclusive Breastfeeding, and Mother's Education Level. The study used a case control research design. The case group in this study was a group of toddlers with malnutrition. The control group in this study was a group of toddlers with good nutrition. This study was conducted in the Working Area of the Karang Tumaritis Health Center UPTD in the monthMarch to May 2024. The population in this study was 208 toddlers with a sample of 55 controls and 55 cases.

This study uses several research instruments, namely anthropometric measuring instruments (scales, measuring tape, and microtoise) and questionnaires. The types of data used are primary data and secondary data. This analysis is used to see the relationship between independent variables and dependent variables. In bivariate level analysis, each independent variable is cross-tabulated with the dependent variable. In the case control design, the relative risk estimate is expressed by the Odds Ratio (OR), which is the comparison between the chances of something happening in the group with risk and the chances of something happening in the group without risk. OR is calculated in a simple way,

3. RESULTS AND DISCUSSION

Results

1. Research Location Overview

This research was conducted in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency, namely Karang Tumaritis Village.UPTD Karang Tumaritis Health Center has a working area in part of Nabire District which oversees two sub-districts and one village, namely Karang Tumaritis sub-district, Girimulyo sub-district and Kali Harapan village with a working area of 819.3 Ha and covers 11 hamlets. The geographical conditions are lowlands with an average height of 12-20 m above sea level and a temperature of 23 - 31 oC which is yard land so it is easily accessible by car or motorbike.

The working area boundaries of the Karang Tumaritis Health Center UPTD are:

1. North :Oyehe Village
2. South Side : Hills andforest
3. East :Nabarua Subdistrict
4. West :Bumi Wonorejo Village

The limited space in the main health center building causes some service activities to still not be able to be carried out optimally. Geographically, the UPTD Karang Tumaritis Health Center (main health center building) is located in a strategic location, namely on the side of the Regency road and residential houses with adequate road access, while the location of the Kali Harapan Health Center is less strategic because it is located in an Elementary School complex that is not directly visible from the road.

Demographic Conditions The working area of the Karang Tumaritis Health Center UPTD is divided into 2 sub-districts and 1 village.2 sub-districts and 1 village, namely Karang Tumaritis Sub-district, Grimuliyo Sub-district, and Kali Harapan Village. Almost all residents in the working area of UPTD Karang Tumaritis Health Center have health insurance. Meanwhile, for poor residents who have not received National health insurance, they are included in the regional health insurance in the form of KPS (Papua Health Card).

2. Respondent Characteristics

Respondent characteristics are the criteria given to research subjects, so that the source of information in the research is directed appropriately. Respondent characteristics in this study are in the form of toddler age, gender, and respondent groups inKarang Tumaritis Community Health Center Technical Implementation UnitNabire Regency.

a) Toddler Age

Children under the age of five, commonly abbreviated as toddlers, are a period of child growth and development where basic growth will influence and determine the development of language, creativity, social awareness, emotions and intelligence which are the precursors to further development (Saidah & Dewi, 2020). The toddler age is classified by experts as a stage of child development that is quite vulnerable to disease attacks, including diseases caused by a lack or excess of certain types of nutritional intake. The toddler age is grouped into two groups, namely infant age (0-11 months), toddler age (12-60 months). According to WHO, the toddler group is 0-60 months (Merryana Adriani et al., 2014).

Table 1 Characteristics of Respondents Based on Toddler Age in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Toddler Age	Group				Total	
	Case		Control			
	f	%	f	%	f	%
Infant (0-11 months)	4	7.3	11	20.0	55	92.7
Toddlers (12-60 months)	51	92.7	44	80.0	55	80.0
Total	**55**	**100**	**55**	**100**	**110**	**100**

Source: Primary Data 2024

Based on Table 1, it is stated that of the 110 respondents studied, the highest age group of toddler cases was in the 12-60 month age group, amounting to 51 toddlers (92.7%) and the lowest age group was in the 0-11 month age group, amounting to 4 people (7.3%) while the highest age control group was in the 12-60 month age group, amounting to 44 toddlers (80.0%) and the lowest was in the 0-11 month age group, amounting to 11 toddlers (20.0%).

b) Toddler Gender

According to Cristian (2017) Gender is a concept used to describe the differences between men and women in socio-cultural terms. For example, women are known as gentle, beautiful creatures while men are considered strong,

Table 2 Respondent Characteristics Based on Toddler Gender in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Toddler Gender	Group				Total	
	Case		Control			
	f	%	f	%	f	%
Man	32	58.2	20	36.4	55	36.4
Woman	23	41.8	35	63.6	55	63.6
Total	**55**	**100**	**55**	**100**	**110**	**100**

Source: Primary Data 2024

Based on table 2, it is stated that out of 110 mothers of toddlers who were respondents in the study above, it shows that the respondents for the case group who were male were 32 toddlers (58.2%) and the respondents for the female were 23 toddlers (41.8%). Meanwhile, for the control group who were male were 20 toddlers (36.4%) and the respondents for the female were 35 toddlers (63.6%).

c) Respondent Group

*Case control*is an observational analytical research type conducted by comparing the case group and the control group based on their exposure status, then observations are made, namely whether the subjects have a history of exposure to the research factor or not (dr. Syumarti, 2015).

Table 3 Respondent Characteristics Based on Respondent Groups in the Working Area of the UPTD Karang Tumaritis Community Health Center, Nabire Regency

Group	f	%
Control	55	50.0
Case	55	50.0
Total	**110**	100

Source: Primary Data 2024

Based on table 3, it is stated that of the 110 mothers of toddlers who were respondents in the control group, 55 toddlers (50.0%) were studied, while respondents in the case group were 55 toddlers (50.0%).

3. Univariate Analysis

Univariate analysis aims to explain or describe the characteristics of each research variable. In general, this analysis only produces frequency distribution and percentage of each variable (Notoatmodjo, 2018).

a) Mother's Education

Researchers suspect that maternal education indirectly contributes to the nutritional status of toddlers. Toddlers who have highly educated mothers tend to have good nutritional status, because the knowledge possessed by the mother, motivation will have an impact on the provision of good food (Utami, 2018).

Table 4 Frequency Distribution of Respondents of Mother's Education in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Education	**Group**		**Total**	**%**
	Case	**Control**		
No school Graduated from	2	6	8	7.3
elementary school	8	4	12	10.9
Graduated from junior	0	2	2	1.8
high school	18	18	36	32.7
Graduated from high	27	25	52	47.2
schoolBachelor's				
Degree/Master's Degree				
Total	**55**	**55**	**110**	**100**

Source: Primary Data 2024

Based on table 4, it shows that of the 110 mothers of toddlers who were respondents, for the group of cases of the highest education of mothers of toddlers, namely mothers who had completed higher education, namely 27 mothers of toddlers (47.3%) and the lowest were mothers of toddlers who did not attend school, namely 2 (0.2) while the Control case of the highest education of mothers was 25 mothers of toddlers (45.5%) and the lowest were those who did not attend school, namely 6 mothers of toddlers (10.9%).

b) Exclusive Breastfeeding

Exclusive breastfeeding is giving only breast milk to babies from birth to 6 months of age. However, there are exceptions, babies are allowed to consume medicines, vitamins, and mineral drops on the advice of a doctor. During the first 6 months of exclusive breastfeeding, babies are not given other foods and drinks (formula, oranges, honey, water, tea, and solid foods such as bananas, papaya, milk porridge, rice porridge, biscuits, rice porridge). While predominant breastfeeding is giving breast milk to babies, but has given a little water or water-based drinks, such as tea, as prelacteal food or drinks before breast milk comes out (Menon, 2021).

Table 5 Frequency Distribution of Respondents of Exclusive Breastfeeding in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Exclusive Breastfeeding	Group				Total	
	Case		Control			
	f	%	f	%	f	%
Yes	0	0	10	18.2	10	9.1
No	55	100	45	81.8	100	90.9
Total	**55**	**100**	**55**	**100**	**110**	**100**

Source: Primary Data 2024

Based on table 5, it shows that out of 110 mothers of toddlers who were respondents for the case group of exclusive breastfeeding, toddlers who were given only breast milk until the age of 0-6 months were 0 toddlers (0.0%) and 55 toddlers (55%) were not given exclusive breastfeeding, while the control group of exclusive breastfeeding, toddlers who were given only breast milk until the age of 0-6 months were 10 toddlers (18.2%) and 45 toddlers (81.8%) were not given exclusive breastfeeding.

c) Infection History

Infectious diseases in this study that were observed were a history of diarrhea and fever. Respondents were said to have a history of infectious diseases if they experienced one of these diseases. Diarrhea is defined as a condition in which there is an increase in the number of bowel movements that occurs due to an infection. The consistency of the stool is runny, contains a lot of fluid (water) and often defecates more than three times (Debie Anggraini, 2022).

Fever is a disorder that often occurs in infants or children. A child is said to have a fever if the child's body temperature is more than 37℃. Normal body temperature in humans ranges from 36-37℃. A child's body temperature that continues to increase is often a frightening experience for parents (Ismoedijanto, 2016).

Table 6 Frequency Distribution of Respondents Based on History of Infectious Diseases in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Infectious Diseases	Group				Total	
	Case		Control			
	f	%	f	%	f	%
Yes	41	74.5	19	34.5	60	54.5
No	14	25.5	36	65.5	50	45.4
Total	**55**	**100**	**55**	**100**	**110**	**100**

Source: Primary Data 2024

Based on table 6, it shows that of the 110 mothers of toddlers who were respondents for the case group of toddlers who had a history of infectious diseases, there were 41 toddlers (74.5%) and those who did not have a history of infectious diseases were 14 toddlers (25.5%), while for the control group of toddlers who had a history of infectious diseases, there were 19 toddlers (34.5%) and those who did not have a history of infectious diseases were 36 toddlers (65.5%).

d) Immunization

Basic immunization is one of the efforts for children's immunity so as to prevent the transmission of dangerous diseases, epidemics, and help children not get sick easily. Complete basic immunization consists of several types of vaccines, ranging from polio, BCG, DPT, and others. The immunization must also be given according to the schedule determined by (Ministry of Health and IDAI Directorate of Disease Control, Ministry of Health 2021).

Table 7 Frequency Distribution of Respondents Based on Immunization in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Immunization	**Group**				**Total**	
	Case		**Control**			
	f	**%**	**f**	**%**	**f**	**%**
Yes	8	14.5	32	58.2	40	36.3
No	47	85.5	23	41.8	70	63.6
Total	**55**	**100**	**55**	**100**	**110**	**100**

Source: Primary Data 2024

Based on table 7, it shows that of the 110 toddlers who were respondents for the case group, 8 toddlers (14.5%) received complete basic immunization and 47 toddlers (85.5%) received incomplete immunization, while for the control group, 32 toddlers (58.2%) received complete basic immunization and 23 toddlers (41.8%) received incomplete immunization.

4. Bivariate Analysis

Bivariate analysis is an analysis carried out for two variables that are related or correlated (Notoatmodjo, 2018).

a) The Relationship between Infectious Diseases and Malnutrition in Toddlers.

Table 8 Relationship between Infectious Diseases and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Group	Diarrhea				Total	*P Value*
	Yes		No			
	f	%	f	%		
Control	19	34.5	36	65.5	55	
Case	41	74.5	14	25.5	55	**0.00**
Total	**60**	**100**	**50**	**100**	**110**	

Source: Primary Data 2024

Based on table 8, it can be seen that the relationship between infectious diseases and the incidence of malnutrition in toddlers was analyzed using the chi-square test, obtaining a p-value of 0.00 (p-value <0.05), meaning that there is a significant relationship between infectious diseases and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD.

b) The Relationship between Complete Basic Immunization and the Incidence of Malnutrition in Toddlers.

Table 9 Relationship between Complete Basic Immunization and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Group	Complete Basic Immunization				Total	*P Value*
	Yes		No			
	f	%	f	%		
Control	32	58.2	23	418	55	
Case	8	14.5	47	85.5	55	**0.00**
Total	**40**	**100.0**	**70**	**100**	**110**	

Source: Primary Data 2024

Based on table 9, it can be seen that the relationship between complete basic immunization and the incidence of malnutrition in toddlers was analyzed using the chi-square test, obtaining a p-value of 0.00 (p-value <0.05), meaning that there is a significant relationship between complete basic immunization and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD.

c) Relationship between Exclusive Breastfeeding History and Malnutrition in Toddlers

Table 10 Relationship between Exclusive Breastfeeding History and Malnutrition Incidents in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Group	History of Exclusive Breastfeeding				Total	*P Value*
	Yes		No			
	f	%	f	%		
Control	10	18.0	45	81.8	55	
Case	0	0	55	0	55	**0.00**
Total	**10**	**100**	**100**	**100**	**110**	

Source: Primary Data 2024

Based on table 10, it can be seen that the relationship between exclusive breastfeeding and the incidence of malnutrition in toddlers was analyzed using the chi-square test, obtaining a p-value of 0.00 (p-value <0.05), meaning that there is a significant relationship between the history of exclusive breastfeeding and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD.

d) Relationship between Mother's Education Level and the Incidence of Malnutrition in Toddlers

Table 11 Relationship between Mother's Education Level and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency

Group	Mother's Education						Total	*P Value*
	Low		Currently		Intermediate			
	f	%	f	%	f	%		
Control	10	7.3	20	32.7	25	45.5	55	
Case	10	14.5	18	32.7	27	49.1	55	**0.24**
Total	**20**	**100**	**38**	**100**	**52**	**100**	**110**	

Source: Primary Data 2024

Based on table 11, it can be seen that the relationship between maternal knowledge and the incidence of malnutrition in toddlers was analyzed using the chi-square test, obtaining a p-value of 0.24 (p-value > 0.05), meaning that there is no significant relationship between maternal education and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD.

Discussion

The Relationship between Infectious Diseases and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency.

Based on the results of the chi-square test, it can be seen that the relationship between infectious diseases and the incidence of malnutrition in toddlers obtained a p-value of 0.00 (p-value <0.05), meaning that there is a significant relationship between infectious diseases and the incidence of malnutrition in toddlers at the UPTD Karang Tumaritis Health Center. The infectious diseases observed were diarrhea and fever.

Researchers suspect that there is a significant relationship between infectious diseases and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD due to the response of the toddler's mother.take quick action to deal with diarrhea or fever by taking your child for treatment at a health service such as a community health center or clinic..Researchers also found facts from respondents related to infectious diseases with the incidence of malnutrition in toddlers whose mothers did not take quick action to treat or prevent infectious diseases, which would worsen the child's health condition and have an impact on the child's poor nutritional status.

Diarrhea is a condition characterized by an increase in the frequency of defecation more than three times a day accompanied by a change in stool consistency to become more liquid, with/without blood and with/without mucus. Research conducted by Scrimshaw, Taylor, and Gordon, 2022 shows that there is a reciprocal relationship between infectious diseases and malnutrition. Infectious diseases can cause malnutrition and vice versa, malnutrition can also be a cause of infectious diseases. Infection affects nutritional status by decreasing food intake, decreasing food absorption in the intestine, increasing catabolism, and taking nutrients needed by the body for tissue synthesis and growth. In addition, malnutrition can be a predisposing factor for infection because it reduces the body's defenses and interferes with the function of the human immune system. Infectious diseases cause decreased absorption of nutrients in the body due to decreased appetite and fluid loss. Delayed treatment and improper management of diarrhea or fever at home increase children's vulnerability to malnutrition.

Another study that is in line with this study is by Gezahegn, Kassahun, and Dube 2022 in the Tompaso Health Center Work Area, Tompaso District with the results of the chi-square statistical test obtained P-value = (0.00) p-value <0.05 and $\alpha = 0.05$ which means there is a relationship between the relationship between infectious diseases and the incidence of

malnutrition in toddlers with the incidence of malnutrition in toddlers which shows that diarrhea is related to the incidence of malnutrition in toddlers.

Research (Wassie and Dube, 2021) in Ethiopia, shows that infectious diseases can result in decreased appetite and digestive disorders which cause decreased absorption of nutrients in the body, resulting in malnutrition.

Infectious diseases arise as a response of the body when the inflammatory process occurs due to infection and decreased appetite or food intake occurs in line with the severity of the infection. The more severe the infection, the greater the decrease in food intake. If toddlers are often sick, it will affect the nutritional status of the toddler, where the first reaction to infection is a decrease in the toddler's appetite so that the toddler will refuse food given by his mother. This means that it will cause a decrease in the intake of nutrients into the child's body which will cause nutritional disorders by (Yisak H, et al, 2020).

This study is not in line with the study shown in the study of Sinharoy et al., 2021 in Rwanda Africa, showing that infectious diseases are not related to the incidence of malnutrition. The results of this study are possible because the prevalence of malnutrition studied was very small. Toddlers who experience poor nutritional status are more likely to be sick toddlers (18.9%) compared to toddlers who are not sick (14.8%). However, the results of the statistical analysis showed that there was no significant relationship between the incidence of infectious diseases in the last month and the nutritional status of toddlers in Lubuk Buaya Village.p-value = (3.01) p-value($p > 0.05$).

The Relationship between Complete Basic Immunization and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency.

Based on the chi-square test, the relationship between complete basic immunization and the incidence of malnutrition in toddlers obtained a p-value of 0.00 (p-value <0.05), meaning that there is a significant relationship between complete basic immunization and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD. RRespondents who received complete immunization were 40 toddlers with a percentage of 36.4% and those who received incomplete immunization were 70 toddlers with a percentage of 20.0%.

Toddlers who have incomplete immunization status, such as the many toddlers who do not receive immunization because the toddler's mother thinks that if her child is immunized, her child will experience measles and fever after being immunized so that the mother does not take her child to the integrated health post. Immunization plays an important

role in creating the immune system of toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency. It is hoped that mothers who have toddlers will routinely consult their child's immunization status by taking their child to the integrated health post every month, so that the child's nutritional development can be controlled every month. Immunization is the provision of immunity against a disease by inserting something into the body so that the body is resistant to disease.

This study is in line with the study by Cahyono (2017) which proved that there was an influence of immunization status on the incidence of malnutrition with a p-value <0.005 with an OR value = 2.09 in the Toaya Health Center working area, Sindue District, Donggala Regency 2016, pProviding immunization to children has an important goal, namely to reduce the risk of morbidity (illness) and mortality (death) in children due to diseases that can be prevented by immunization.

This study supports previous research by Putri and Wahyono 2021 in Indonesia which stated that immunization was not related to the incidence of malnutrition. However, on the contrary, according to research conducted by Samiak and Emeto in Papua New Guinea and Semba et al, 2020 in Eastern Indonesia showedpThe proportion of malnourished children is greater in children who are not immunized or who are only partially immunized. Immunization status in children is one indicator of contact with health services. Because it is expected that contact with health services will help improve nutritional problems. So, immunization status is also expected to have a positive effect on long-term nutritional status. Immunization in children has an important goal, namely to reduce the risk of morbidity (illness) and mortality (death) in children due to diseases that can be prevented by immunization.

The Relationship between the History of Exclusive Breastfeeding and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency.

Based on the chi-square test, it can be seen that the relationship between exclusive breastfeeding and the incidence of malnutrition in toddlers is obtained with a p-value of 0.00 (p-value <0.05), meaning that there is a significant relationship between the history of exclusive breastfeeding and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD. KRespondent characteristics show that toddlers who receiveExclusive breastfeeding until the age of 0-6 months is 10 toddlers with a percentage of 9.1% and those who do not receive exclusive breastfeeding are 100 toddlers with a percentage of 90.9%.

Researchers also found facts from respondents that some mothers of toddlers had never received education regarding providing exclusive breastfeeding to toddlers.It is hoped that there will be routine efforts to provide understanding to mothers of malnourished toddlers directly and not through cadres so that they can directly provide counseling on providing breast milk to mothers of malnourished toddlers.

Breast milk is an ideal form of food to meet children's nutritional needs because breast milk is able to meet the nutritional needs of babies to live for the first 6 months of life. Exclusive breastfeeding is giving only breast milk to babies from birth to 6 months of age. However, there are exceptions, babies are allowed to consume medicines, vitamins, and mineral drops on the advice of a doctor. During the first 6 months of exclusive breastfeeding, babies are not given other foods and drinks (formula milk, oranges, honey, water, tea, and solid foods such as bananas, papaya, milk porridge, rice porridge, biscuits, and steamed rice). Breast milk also has other benefits, namely increasing children's immunity to disease.

Based on research, exclusive breastfeeding can reduce the frequency of diarrhea, fever and ear infections. Indirectly, breastfeeding also has an effect on the psychomotor development of children because sick children will find it difficult to explore and learn from their surroundings. Another benefit of breastfeeding is the formation of a stronger bond in the interaction between mother and child, which has a positive effect on the development and behavior of children.Breastfeeding patterns affect the nutritional status of children. Early introduction of complementary foods is significantly associated with an increased risk of respiratory infections. The prevalence of diarrhea is higher in weaned children. This may be due to the loss of immunity from non-exclusive breastfeeding and the introduction of unhygienic complementary foods that are susceptible to infectious diseases. Infections contribute to deficiencies in energy, protein, and other nutrients. Childhood illness has a negative effect on child growth.

This research is in line with the research conducted by Faraissa Hasanah (2016) entitled the relationship between the history of exclusive breastfeeding and the incidence of malnutrition in toddlers. The research results obtained a P-value = (0.03)P-value <0.05which means there is a significant relationship between exclusive breastfeeding and the incidence of malnutrition in Pabean Ilir Village, Pasekan District, Indramayu Regency. This shows that exclusive breastfeeding is a factor that prevents the incidence of malnutrition in toddlers.

In contrast to this study, it was shown in a study conducted by Menon and Victor (2019) in Uganda which showed that there was no relationship between exclusive breastfeeding and the incidence of malnutrition. The absence of a significant relationship

between breastfeeding history and the incidence of malnutrition is likely due to the mother's lack of memory in remembering her child's breastfeeding history, especially in mothers with children over one year old. However, biasis non-differential because it canoccurred in both groups of malnourished children and in groups of children who did not experience malnutrition. The same results as the study conducted by Winskell and Menon 2022 in Bangladesh showed that there was a relationship between exclusive breastfeeding and the incidence of malnutrition.

The Relationship between Mother's Education Level and the Incidence of Malnutrition in Toddlers in the Working Area of the UPTD Karang Tumaritis Health Center, Nabire Regency.

Based on the chi-square test, it can be seen that the relationship between maternal knowledge and the incidence of malnutrition in toddlers obtained a p-value of 0.24 (p-value > 0.05), meaning that there is no significant relationship between maternal education and the incidence of malnutrition in toddlers at the Karang Tumaritis Health Center UPTD.Data on maternal education showed that 20 mothers had a low level of education, 38 mothers had a secondary level of education, and 52 mothers had a high level of education.

Then based on the results of direct observations conducted by researchers, researchers also found that the problem of malnutrition may be caused by direct factors, namely food intake or infectious diseases that may be experienced by toddlers and other factors such as family size, inadequate health services in addition to lack of parenting patterns, eating patterns are also other factors, namely environmental sanitation factors and also economic factors, most of the population in the UPTD Karang Tumaritis Community Health Center Work Area, Nabire Regency.

This study is in line with the results of Nelsi Suriani (2015) which showed that there was no significant relationship between the level of maternal education and the incidence of malnutrition in toddlers in Rambusaratu Village, Mamasa Regency with a P value = (4.01) where the P value >0.05 means that there is no relationship between maternal education and the incidence of malnutrition in toddlers, thus the lower the mother's education about nutrition, the lower the nutritional status of toddlers.

Parental education will influence parenting children because with high education in parents will understand the important role of parents in a child's growth besides that, with a good education it is estimated that you will have good nutritional knowledge. Mothers who are better educated tend to be more receptive to nutritional information and apply it her knowledge in child care and in the practice of providing food. This study had the same results

as the study Wondaferash and Dube (2022) in Ethiopia showed that maternal education had no significant relationship with the incidence of malnutrition in children. However, different results were shown by Putri and Wahyono's (2021) study in Indonesia, Jalan Kendari, Indramayu Regency, East Java, showing that maternal education was related to the incidence of malnutrition in toddlers.

This research is not in line with research by Sintamurniwaty (2016) which states that the level of education is in line with the level of knowledge of mothers where mothers who have low education are at greater risk of influencing the occurrence of malnutrition in toddlers compared to those who have high education category P-value = (0.02) P-value < 0.05This means that there is a significant relationship between the mother's education level and the incidence of malnutrition in toddlers.in Mopusi Village, Baloaang District, Bolaang Mongondow Regency. With sufficient knowledge, a mother can implement healthy living behavior, know the prevention and can handle every risk that can cause malnutrition and vice versa.

4. CONCLUSION

1. The infectious disease factor has a significant relationship with the incidence of malnutrition in toddlers, this is indicated by the significant chi-square test result with a p-value of 0.00 (p-value <0.05).
2. The child's immunization status factor has a significant relationship with the incidence of malnutrition in toddlers. This is indicated by the significant chi-square test result value obtained with a p-value of 0.00 (p-value <0.05).
3. The factor of Exclusive Breastfeeding History has a significant relationship with the incidence of malnutrition in toddlers. This is indicated by the significant chi-square test result obtained with a p-value of 0.00 (p-value <0.05).
4. The mother's education level factor is not significantly related to the incidence of malnutrition in toddlers. This is indicated by the significant chi-square test result value obtained with a p-value of 0.24 (p-value > 0.05).

5. SUGGESTION

Based on the research results, it can be suggested

1. For the UPTD Karang Tumaritis Community Health Center, Nabire Regency

   For health workers at the UPTD Karang Tumaritis Community Health Center, Nabire Regency, it is recommended to provide more counseling related to the incidence of

malnutrition in toddlers so that there are no nutritional problems in the UPTD Karang Tumaritis Work Area, Nabire Regency.

2. For Toddler Mothers

   It is recommended that mothers of toddlers routinely bring their toddlers to the integrated health post every month. So that the health condition and nutritional status of their toddlers can be controlled.

3. For the Community

   The community is expected to always bring babies and toddlers to the Community Health Center to attend Integrated Health Posts (Posyandu) and immunizations, so that the child's health status is always monitored by health workers and they can play an active role in activities related to cases of malnutrition.

4. For Educational Institutions

   It is hoped that this research can be used as input and as an additional reference source for the library at STIKes Persada Nabire.

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