

# THE RELATIONSHIP BETWEEN FORMULA FEEDING AND LACK NUTRITION IN BATITA CHILDREN IN THE WORKING AREA OF HULONTHALANGI PUSKESMAS

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## ABSTRACT

This study aims to determine the relationship between giving formula milk and the incidence of malnutrition in toddlers in the working area of the Hulonthalangi Health Center. Presentation of unclean formula milk can make babies susceptible to infection which results in less than optimal absorption of nutrients. The formulation of the problem in this study is whether there is a relationship between giving formula milk and the incidence of Malnutrition in toddlers in the working area of the Hulonthalangi Health Center.

This research uses quantitative research methods. The population in this study were 200 children aged 1-3 years (Batita). In this study, the samples taken were 35 toddlers using the solvine formula. The type of data used is primary data sourced from questionnaires. The data analysis technique used in this study was a descriptive analysis method which was carried out by means of descriptive statistics that describe or describe the data that has been collected by making generalizations of the research results using the chi-square test  $p = <0.05$ .

The results of this study showed that there were 30 toddlers (85.7%) consuming formula milk and 5 toddlers (14.2) consuming breast milk, there were 6 toddlers (17.14%) experiencing malnutrition status and 19 toddlers (54.28%) had normal nutritional status, and from the results of the Pearson chi-square test it was found that the result was 0.272 greater than  $p$  value = 0.05 which means that  $H_a$  is rejected and  $H_0$  is accepted so that it means that there is no relationship between giving formula milk and the incidence of malnutrition in toddlers in the working area of the Hulonthalangi Health Center in 2022.

**Keywords:** Formula Milk, Malnutrition, Toddlers.

## INTRODUCTION

Health is a basic human right and one of the factors that really determines the quality of human resources. According to the World Health Organization (WHO), the notion of health is a physical, mental and social condition of a person who is not only free from disease or health problems but also shows the ability to interact with the environment and

work. Healthy workers enable better work results to be achieved compared to workers whose health is disturbed [24].

Developing countries, including Indonesia, currently have multiple nutritional problems, namely malnutrition and accompanied by the emergence of problems of excess nutrition. In cases of undernutrition it is often associated with a type of infectious disease, while over

nutrition or obesity tends to be the initial signal of a degenerative/non-infectious disease which is currently occurring in almost all regions and cities, as well as in remote areas in Indonesia [10].

One of the health problems faced is malnutrition. Children who are malnourished have low immune systems so they are more susceptible to infectious diseases. One of the factors that can overcome the problem of malnutrition in children is breastfeeding. Breast milk can prevent malnutrition because it contains the nutrients the baby needs in the right amount, can be used efficiently by the body, and protects the baby from infection [19].

*The World Health Organization (WHO) described that the proportion of children under five years of age with malnutrition experienced a 10% decrease in the percentage that occurred between 1990 and 2013, from 25% to 15%. The number of malnutrition sufferers in the world has reached 104 million children and malnutrition is still the cause of one third of all causes of child death worldwide.*

South Asia is an area that has the largest prevalence of malnutrition in the world, which is 46%, followed by sub-Saharan Africa 28%, Latin America/Caribbean 7%, and the lowest is in Central, Eastern Europe and the Commonwealth of Independent States (CEE) / CIS) by 5%.

According to (World Health Organization, 2016) around 7.7% or 52 million children under 5 years globally experience malnutrition, the percentage of children under 5 years with the highest malnutrition status is in Southern Asia at 15.4%, in Oceania by 9.4%, in Southeast Asia by 8.9%, in West Africa by 8.5% and the percentage of children under 5 years with the lowest malnutrition status was in North America by 0.5%. Malnutrition in children under five can also be found in

developing countries, one of which is Indonesia [14].

Based on data released by the Indonesian Ministry of Health (2020), the prevalence of Undernutrition in toddlers aged 0-59 months in Indonesia reached 13.8% in 2020, as well as in East Nusa Tenggara Province at 15.3%, West Papua 12.8%, West Nusa Tenggara 12.6%, West Kalimantan 11.6%, Aceh 11.2%, North Kalimantan 11.2% as well, West Sulawesi 10.8%, Papua 9.6%, Central Sulawesi 9.7%, Maluku 9.8%, Central Kalimantan 8.9%, North Maluku 9.3%, East Kalimantan 8.9%, South Kalimantan 9.0%, Southeast Sulawesi 8.1%, East Java 7.8%, Central Java 8.0%, DI Yogyakarta 8.2%, West Sumatra 8.0%, Gorontalo 6.7%, South Sulawesi 5.6%, Java West 5.4%, Banten 4.8%, Riau Archipelago 4.7%, Lampung 4.1%, Riau 4.6%, DKI Jakarta 3.8%, South Sumatra 3.7%, Bangka Belitung Islands 3.6%, North Sulawesi 3.3%, Jambi 2.9%, Sumatra North by 2.8%, Bengkulu by 2.9%, and Bali province by 2.7% the incidence of malnutrition in toddlers aged 0-59 months [15].

Based on the results of monitoring the nutritional status carried out by the Gorontalo Provincial Health Office in 2018, the results obtained regarding the incidence of malnutrition in toddlers in Gorontalo Province was 16.7%, and in Boalemo Regency it was 13.40%, Gorontalo Regency 11.13%, Pohuwato by 8.22%, the city of Gorontalo by 13.57%, and in Bone Bolango Regency by 17.34%, and North Gorontalo Regency by 20.18% [25].

Based on data obtained by the Hulonthalangi Health Center in 2020, the prevalence of malnutrition in toddlers in Hulonthalangi District in 2019 was 15 children, in 2020 there were 25 children and in 2021 there were 28 children. Malnutrition is a public health problem in an area if the prevalence of undernutrition

is above 10% by comparing the type of problem with the universally agreed cut-off [22].

We can see that the problem in this case is that every year the incidence of undernutrition is increasing, initially in 2019 there were 15 children and in 2020 there were 25 children and in 2021 there were 28 children, where in this case the incidence of undernutrition is still a one of the 10 health problems found in the work area of the Hulonthalangi Health Center, so in this case we need to look again at what the actual problems are that are the cause of undernutrition in the work area of the Hulonthalangi Health Center so that every year the incidence of malnutrition in children continues to increase and has not been completely overcome.

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Infant formula is a liquid or powder with a certain formula that is given to infants and children which functions as a substitute for breast milk. Formula milk has an important role in baby food because it often acts as the only source of nutrition for babies [11].

According to the regulation of the Minister of Health No. 39 of 2013 in Lestari, et al (2014) that formula milk is milk that is specifically formulated as a substitute for breast milk for babies up to 6 months old. With the rise of formula

milk advertisements in Indonesia, formula milk has become the staple food for babies, no longer a substitute for breast milk. Giving formula milk to babies who do not have the right frequency, dosage and sanitation of presentation will result in nutritional problems, it can be Overnutrition or Undernutrition[14].

Presentation of formula milk that is not clean can make babies susceptible to infection which results in less than optimal absorption of nutrients. Infectious diseases caused by formula feeding such as acute respiratory infections (ARI) which increased 3 times compared to babies who were breastfed, diarrhea increased 2 times higher in babies and toddlers who were given formula milk. In addition to infectious diseases, giving formula milk also causes several diseases such as type 1 diabetes, digestive system disorders due to intake of formula milk that is too thick [18].

Nutritional status is an important health indicator where under-fives are a group that is very vulnerable to nutritional problems, especially stunting which is a condition of failure to thrive in children under five with chronic malnutrition so that their height is less for their age. Short-term risks due to malnutrition are increased morbidity and mortality, developmental disorders, increased burden of care and treatment. Long-term risks can increase reproductive health disturbances, study concentration, and decreased work productivity [4].

Malnutrition or malnutrition is a condition of a person who is deficient in nutrition, or whose nutrition is below average. Malnutrition is a lack of nutritional ingredients such as proteins, carbohydrates, fats and vitamins needed by the body [11].

Nutrition is an organism's process of using food that is consumed normally through the process of digestion, absorption, transportation, storage,

metabolism, and excretion of substances that are not used to maintain life, growth and normal function of organs and produce energy [27].

Toddler is a general term for children aged 1-3 years and preschool children (3-5 years) when toddlers are still fully dependent on their parents to carry out important activities, such as bathing, defecating and eating. The development of speech and walking has improved, but other abilities are still limited.

The child's growth status and weight (underweight or overweight) are key factors in determining a family's readiness to change the environment and lifestyle. Parents often misinterpret the child's weight status so that this misperception can lead to inappropriate feeding [11].

The toddler period is a period of human formation and development, this age is a vulnerable age because children are very sensitive to growth disorders and the dangers that accompany them. The toddler period is also referred to as the golden age, in which the foundations of ability, senses, thinking, speaking and intensive intellectual mental growth are formed and the beginning of moral growth [26].

Malnutrition is caused by inadequate and inappropriate nutritional intake, lack of parental knowledge about child nutrition, parenting patterns, namely the family's ability to provide time, attention and support for children so they can grow and develop optimally physically, mentally and socially. food security in sufficient quantities and balanced nutrition and the family economy [11].

Pathophysiologically undernutrition and malnutrition in children under five are experiencing protein energy deficiency, iron nutritional anemia, disorders due to iodine deficiency (GAKI), vitamin A deficiency. Lack of sources of the four above in children under five inhibits growth, reduces body resistance so that

they are vulnerable exposed to infectious diseases, resulting in low levels of intelligence, decreased physical abilities, impaired physical and mental growth, stunting, blindness and death in children under five [11].

Malnutrition is a health problem that contributes to the low quality of human resources in Indonesia. Malnourishment in toddlers can affect children's intelligence, decrease children's productivity and low cognitive abilities [28].

Clinically malnutrition can be easily recognized, including:

1. Low appetite
2. The child has failure to thrive (judging by the weight, height or both which are not suitable for his age).
3. Lose body fat and muscle mass
4. The body's muscle strength disappears
5. Look lethargic, easily cry excessively, get angry easily
6. It's hard to communicate well
7. Dry skin and hair, and easy to fall out
8. Cheeks and eyes look sunken
9. The wound healing process is very long
10. Vulnerable to disease

Lack of nutritional food intake can result in the use of body reserves, causing tissue deterioration. It is characterized by weight loss or stunted growth in height. Developmental delays that may affect age, namely gross motor delays, affecting the appropriate posture during feeding, fine motor delays, impairing the ability to provide self-feeding and social delays can interfere with the ability to participate in family mealtimes [11].

Death is the last impact that can occur, it will continue to occur if no prevention is carried out. Growth and development of children can be disrupted due to lack of input of nutrients that are needed by the body. It is also very important to pay attention to the long-term

impact because diseases that occur at a young age affect the central nervous system, especially their intelligence. A factor that is no less important to know is whether or not there are permanent organic changes such as the heart, pancreas, liver, and other vital organs that can shorten their life, another factor is the impact on their physical growth [11].

## **RESEARCH METHODS**

In this study using a cross sectional study research design with a cross sectional study approach because the independent variables (risk factors) and dependent variables (effects) or cases that occur in the research object are measured or collected simultaneously (at the same time), this type of research is analytic observation research with a quantitative approach. Research that is an analytic observation is a type of research that is directed to explain a situation or situation [19]. This research was conducted in June - July 2022. This research was conducted in the working area of the Hulonthalangi Health Center, Hulonthalangi District, Gorontalo City Regency, Gorontalo Province [19].

Quantitative research is a research method based on positivism philosophy, as a scientific or scientific method because it has fulfilled scientific principles concretely or empirically, objectively, measurably, rationally, and systematically [7]. This research uses quantitative methods because this research uses numbers with statistical calculations and aims to test the hypotheses that have been made.

The data source used is the primary data source which is the object of research which is directly observed with the research subject, namely the informant. Data obtained from informants in the form of words and actions of informants [9]. Primary data obtained directly by researchers through questionnaires and

secondary data sources are data obtained indirectly in the field, but the results of literature studies and documentation studies of various references and archives, who support the topic of discussion in this study in order to understand more deeply about the problems that are used as research objects [9]. Secondary data were obtained from the Puskesmas as well as related institutions with the title of this research.

The population is a generalized area consisting of objects/subjects that have certain qualities and characteristics that are determined by researchers to be studied and then conclusions are drawn [13]. The population in this study is all children aged 1-3 years of 200 children in the area work of the Hulonthalangi Health Center, Hulonthalangi District, Gorontalo City District, Gorontalo Province.

The sample is part of the number of characteristics possessed by the population. Thus the sample is part of the population, and can represent the population so that the number is less than the population [13].

The sample in this study were all mothers who had toddlers aged 1-3 years, namely 35 samples based on the criteria and calculation of the sample size.

The sampling technique used is Non Probability Sampling. Non Probability Sampling is a sampling technique that does not provide equal opportunities or opportunities for each element or member of the population to be selected as a sample [10].

The sampling technique used was purposive sampling. According to Sugiyono [28]. Purposive sampling technique is a data collection technique with certain considerations [28].

## **RESEARCH RESULT**

Based on the results of the research on the characteristics of the respondents including education level, occupation, information about malnutrition, age, gender and number of family members presented in the distribution table of the respondents as follows:

**Table 1** Characteristics of Respondents at the Hulonthalangi Health Center

No.	Participant characteristics	N	Percentage (%)
1.	<b>Level of education :</b>		
	Primary school	7	8,5%
	Junior high school	10	28,6%
	Senior high school	13	37%
	Diploma	2	5,7%
	level 1	3	8,5%
	level 2	0	0%
	level 3	0	0%
2.	<b>Profession :</b>		
	Housewife	24	68,5%
	Government employees	1	2,8%
	trader	5	14%
	farmer	5	4%
	entrepreneur	0	0%
3.	<b>Receive information about malnutrition :</b>		
	Yes	35	100%
	No	0	0%
4.	<b>Age :</b>		
	17-25 years	11	31,4%
	26-35 years	15	42,8%
	36-45 years	9	25,7%
5.	<b>gender :</b>		
	woman	35	100%
	man	0	0%
6.	<b>Number of family members :</b>		
	3-6 people	28	80%
	7-10 people	7	20%

Source : processed data, 2022

Based on table 1 it can be seen that the respondents had the last level of education out of 35 respondents as many as 7 people (20%) had an education level (sd), as many as 10 people (28.6%) respondents had junior high school education, as many as 13 people (37%) had education senior high school, 2 people (5.7%) have diploma education, and 3

people (8.5%) have strata 1 degrees. There are 7 categories of education and the other category here is education which is not specifically stated.

Among the 35 respondents, the majority, namely 24 people (68.5%) work as irt, as many as 5 people (14%) are traders, and 5 people (14%) work as farmers and the least is 1 person (2.8 %) who work as civil servants. Then on the characteristics of getting information about malnutrition as many as 35 people (100%) it can also be concluded that all respondents had received information related to the incidence of malnutrition.

Meanwhile, in terms of age characteristics, the majority of respondents were aged 26-35 years, namely 15 people or a percentage of 42.8%, and at the age of 17-25 years there were 11 people (31.4%) and the least was at the age of 36-45 years. That is equal to 9 respondents (25.7%). As well as on the characteristics of the respondents, out of a total of 35 respondents, 35 people (100%) were female and were mothers of toddlers who were sampled in the study. And also on the characteristics of the number of family members in 1 house as many as 28 people (80%) respondents in one house there are 3-6 people, and there are 7 people (20%) respondents who have 7-10 people in 1 house.

**Table 2** frequency distribution of age, sex, age of giving formula milk, recommending giving formula milk, reasons for giving formula milk, weight 1 month before, current weight, nutritional status of toddlers in the working area of the hulonthalangi health center

No.	Indicator	Frequency	Percentage (%)
1.	<b>Toddler age :</b>		
	12-18 months	16	45,7%
	19-24 months	11	31,4%
	25-36 months	8	22,8%
2.	<b>gender :</b>		
	girl	19	54,28%
	boy	16	45,7%

3.	Age of formula feeding:		
	0-6 months	16	45,7%
	7-12 months	13	37,1%
	13-18 months	6	17,1%
	18-24 months	0	0%
	25-36 months	0	0%
4.	Recommending formula feeding :		
	Own mothers	28	80%
	husband	0	0%
	Doctors, midwives and other health workers	2	5,7%
	In law (other family)	5	14,2%
5.	Reasons mothers give formula milk :		
	Breast milk does not come out	13	37,1%
	Milk is not enough	21	60%
	Mother has an illness	0	0%
	Mother does not have time to breastfeed	1	2,8%
6.	Berat badan batita 1 bulan sebelumnya :		
	6-11,5 Kg	9	25,7%
	11,5-13,9 Kg	26	74,28%
7.	Toddler weight nor :		
	6-11,5 Kg	9	25,7%
	11,5-13,9 Kg	26	74,28%
8.	Nutritional status :		
	Normal nutrition	29	82,8%
	malnutrition	6	17,1%
	overweight	0	0%

Source : processed data, 2022

Based on table 2, it can be seen that the samples in the research have toddler age characteristics, namely there are 16 toddlers (45.7%) aged 12-18 months, 19-24 months there are 11 toddlers (31.4%), and 25-36 month as many as 8 toddlers can also be presented (22.8%), after the age characteristics of the sample can also be seen from the sex characteristics, namely there are 19 toddlers (54.2%) who are female toddlers and those who are male boys there are 16 toddlers (45.7%).

Regarding the age characteristics of formula feeding, there were 16 toddlers (45.7%) who were given formula milk from 0-6 months of age, and 13 toddlers (37.1%) were given from 7-12 months of age, and as many as 6 toddlers (17, 1%) started at the age of 18-24 months. Furthermore, on the characteristics that suggest giving formula milk to toddlers, there are 28 mothers (80%) giving

formula milk because of the mother's own will, and there are 2 mothers (5.7%) giving formula milk suggested by doctors, midwives and health workers. Other health services, and there were 5 mothers (14.2%) giving formula milk to toddlers on t

he advice of in-laws or other relatives.

Then on the characteristics of the reasons for mothers giving formula milk to toddlers, there were 13 (37.1%) mothers giving reasons for giving formula milk to toddlers because breast milk had not come out since toddlers were babies, then there were 21 mothers (60%) giving reasons for giving formula milk because the amount of breast milk was not sufficient for the baby's needs, and there was 1 mother (2.8%) giving the reason for giving formula milk because there was no time to breastfeed the baby, especially during working hours during the day.

Furthermore, on the weight characteristics of the previous 1 month in toddlers there were 9 toddlers (25.7%) who weighed 6-11.5 kg at weighing 1 month earlier, then there were 26 toddlers (74.28%) who had body weight is at 11.5-13.9 kg. Then the characteristics of the current weight in toddlers have the same number as at the time of examination 1 month before. Furthermore, on the nutritional status of toddlers, there were 29 toddlers (82.8%) who had normal nutritional status from the calculation of the z-score by looking at the toddler's weight and height, then there were 6 toddlers (17.1%) who had poor nutritional status.

**Table 3** the relationship between giving formula milk and malnutrition in toddlers in the work area of the hulonthalangi health center

	Chi-Square Tests				
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.207 <sup>a</sup>	1	.272		
Continuity Correction <sup>b</sup>	.210	1	.647		

Likelihood Ratio	2.046	1	.153	formula milk to their children on their
Fisher's Exact Test			.561	own initiative on the grounds that their
Linear-by-Linear Association	1.172	1	.279	child's nutritional needs have not been
N of Valid Cases	35			met if they only give breast milk, then on

Source : processed data, 2022

The results of the study in table 3 show that there is no relationship between giving formula milk and the incidence of malnutrition in toddlers in the working area of the hulonthalangi health center. Which means  $H_0$  is rejected and  $H_1$  is accepted so that it can be concluded that there is no relationship between the two variables. By looking at the results of the chi-square test above, namely that the pearson chi-square result is 0.272, which means that the value exceeds or is greater than  $p = 0.005$ .

## DISCUSSION

### Formula Feeding

Based on the research results obtained from 35 respondents in the Hulonthalangi Health Center work area, it was found that there were 31 toddlers who consumed formula milk and there were also 4 people consuming breast milk, of the 35 samples used as research there were 29 toddlers who had normal nutritional status and 6 of them had nutritional status not enough.

It can be seen from the data obtained above from the results of observations and questionnaires given by the author, that more toddlers are given formula milk since they were less than one year old until now. From the results obtained, it can be seen from table 2 which is the result of univariate analysis on the frequency distribution of age, sex, age of formula feeding, who recommends giving formula milk, reasons for giving formula milk, and so on.

Where it can be seen that there are still many mothers who give formula milk to their children for various reasons and suggest, where some mothers give

formula milk to their children on their own initiative on the grounds that their child's nutritional needs have not been met if they only give breast milk, then on the grounds that do not have enough time to provide breast milk to their children for work reasons, and also some mothers provide formula milk to their children for the reason that breast milk does not come out so that the only way to meet their child's nutritional needs is to provide formula milk that is considered capable of meeting the needs of their child.

Also, some mothers gave formula milk to their children on the grounds that it was recommended by their husbands, in-laws and also health workers, because from the data obtained that there were 2 children who had an infectious disease which caused the nutritional needs of these children not to be met due to the disease. so that health workers such as doctors and midwives recommend that mothers give formula milk to their children.

### Malnutrition Incidence

Based on the results of the research that has been done, it shows that most of the samples, namely toddlers in the Hulonthalangi Health Center work area, have good or normal nutritional status, namely there are 29 toddlers (82.8%) and there are 6 toddlers (17.14%) who have poor nutritional status. .

Nutritional status is a condition of a person that can be measured both anthropometrically and clinically as a response or food intake at a certain time. Toddlers and toddlers are groups of people who are vulnerable to nutrition. This group experiences growth and development cycles that require more nutrients than other age groups so that children suffer from nutritional disorders most easily [4].

It can be seen in table 2 that of the 35 toddlers who were sampled, it was found that 28 toddlers had normal nutritional



status and 6 of them had poor nutritional status. Why did this happen, even though it can be seen from the data that children who consume formula milk are more than those who consume breast milk.

In this case, formula milk is not the only reason some children have malnutrition status, because there are other factors that cause this to happen. It can be seen that there are still many toddler parents whose economy and education are still below, for example in table 1 related characteristics of the respondents that there are still many mothers who have a lower level of education such as junior high school graduates around 28.6%, elementary education 8.5% and high school 37% so it needs to be seen again that mothers who have education below will definitely have different knowledge from mothers who have high education, so in this case it is possible that the mother's knowledge related to parenting of the family, especially children is still lacking, causing the fulfillment of nutrients in the family is still not appropriate.

Then it can be seen from the economic factor where there are still many families who have a lower economic level, because they have a low economy, of course, the availability of food to fulfill nutrients will also be lacking, this is one of the reasons why children experience malnutrition.

Then one of the causes of malnutrition in children is based on data obtained by researchers that there are children in one family who have pulmonary TB infection. This is what we need to know that this infectious disease causes the child's absorption of nutrients to be not optimal even though given a lot foods that are high in nutrients, because the absorption of nutrients is not optimal will certainly cause the fulfillment of the child's nutritional needs cannot be met which causes the child to experience

malnutrition. So that what must be treated first is the infectious disease first and then only by improving the child's nutritional status.

Toddler nutritional status is influenced by two factors, namely direct and indirect factors. The direct factors that affect the nutritional status of toddlers are infectious diseases, food intake and the economy, as well as the mother's parenting style, while the indirect factors that affect the nutritional status of children under five are formula milk.

### **The Relationship between Giving Formula Milk and Malnutrition**

The majority of toddlers' nutritional status in this study had normal or good nutritional status for 29 toddlers (82.8%), and 6 toddlers (17.14%) were malnourished, indicating there was no relationship between the two variables with the Pearson chi-square results. 0.272 which means it exceeds the p value of 0.005. Factors that affect the nutritional status of toddlers are food consumption, economic factors, energy consumption levels, protein, one of which is formula milk.

Government regulation of the Republic of Indonesia Number 33 of 2022 states that, as age increases, the baby's need for nutrients also increases. These nutrients are important for the process of growth and development of infants and toddlers. Because over time, the milk produced by the mother is less than optimal to meet the nutritional needs of the child. It should be noted that even though solid food has been introduced to breast milk, it still fulfills the nutritional needs of children around 80% in infants 6-9 months, 60% in infants 9-12 months, and it is recommended that it be given until the baby is 2 years old.

The purpose of giving MP-ASI to babies is not only to fulfill nutritional needs, but also important to improve and

develop the baby's ability to accept various kinds of food that vary in taste, shape and texture, and to help develop the baby's oromotor, namely in terms of chewing and swallowing.

After the baby is 6 months old, the baby's nutritional needs can no longer be met by breast milk alone, therefore complementary food for breast milk (MP-ASI) is needed to meet the baby's need for these nutrients so that their growth and development can take place optimally. Complementary food is a food transition from breast milk to food for children and adults in the family. The introduction and administration of MP-ASI should be done gradually both in form and in quantity according to the baby's digestive ability [8].

Formula milk is one of the complementary foods for breast milk. Formula milk is made from cow's milk which has been processed and its composition content changed as best as possible so that the content is the same as breast milk but not 100% the same. In the process of making formula milk, the carbohydrate, protein and mineral content of cow's milk has been changed and vitamins and minerals have been added so that it follows the required composition according to the baby's age [18].

In this study, 29 toddlers (82.8%) who consumed breast milk and formula had good or normal nutrition. Good nutrition in toddlers was due to the provision of formula milk according to the toddler's dosage and needs, as well as the frequency of meals and the needs of other nutritional needs. pretty good. So that toddlers who still have malnutrition are caused by other factors that affect the nutritional status of toddlers such as parents' income, nutritional intake, mother's upbringing, and others.

In Table 3, it was found that 6 toddlers (17.14%) experienced

malnutrition, influenced by several factors, one of which was the level of family income, but the low level of family income did not always affect the nutritional status of toddlers. In Nurmawati's 2015 study in Demak district, there was no relationship between formula feeding and family income levels. So in this study that toddlers who are given formula milk are of various kinds of income in the family, both more and less income. Likewise, the nutritional status of toddlers who have low income does not always have low nutritional status either.

One of the factors is the employment status of the mother, the results of univariate analysis found that most of the mothers did not work or work as housewives (IRT), namely 24 people (68.5%), the results of cross tabulation found that most of the mothers who worked as IRT remained giving formula milk to toddlers with the reason for giving because the milk did not come out, there were 13 (37.1%) mothers who gave this reason and the milk was not sufficient for the baby's needs, there were 21 people (60%) gave this reason and one of them because they did not have time to breastfeed.

In addition to good nutrition and malnutrition, toddlers who consume formula milk also have more nutrition. According to Atul Singhal (2010) states that there is an increased risk of excess nutrition in toddlers who are given formula milk rather than those who are given breast milk. This can happen because the protein and mineral content of formula milk exceeds the adequacy rate for toddlers, so toddlers get excess food intake. Overnutrition that occurs in toddlers will interfere with the growth and development of gross and fine motor movements of toddlers, which results in toddlers not being able to make

movements that they should be able to do at that age.

The nutritional status of toddlers needs serious attention from parents, because malnutrition in toddlers will cause irreversible (irreversible) damage, short body size is an indicator of prolonged malnutrition in toddlers. A more fatal nutritional deficiency will have an impact on brain development. The nutritional status of toddlers can be known by looking at their weight and height [26].

A well-chosen daily diet will provide all the nutrients needed for the normal functioning of the body. Consumption of food affects a person's nutrition. Good nutritional status or optimal nutritional status occurs when the body obtains enough nutrients to be used efficiently, thus enabling physical growth, brain development, work ability and general health at the highest possible level.

Factors that cause malnutrition are poverty, lack of parental education, lack of public knowledge about nutrition, a balanced diet and health. Besides that, what causes nutritional problems is from direct causes and indirect causes. The direct cause of nutritional problems is food intake that does not meet balanced nutrition. Indirect causes consist of food supplies at home, as well as health services. Meanwhile, the basic thing that causes malnutrition is the lack of public education and skills, the lack of knowledge from the community about the importance of balanced nutrition for the growth and development of children [17].

Physical growth is often used as an indicator in measuring the nutritional status of both individuals and populations. Parents need to pay attention to aspects of children's growth if they want to know their nutritional status. The role of the mother is very influential in the nutritional state of the child. Parenting style plays an important role in the

occurrence of growth disorders in children. Mothers have an important role in child rearing. Children's nutritional status is a parameter of child growth and development. Mother's care for children affects the growth and development of children through the adequacy of food and health conditions [31]. The impact that occurs on children who experience malnutrition and malnutrition, namely a weak immune system which can make children more susceptible to disease, especially toddlers and toddlers with poor sanitation environments, toddlers are susceptible to infectious diseases from other toddlers or sick adults, weak immune function and lack of intake of vitamin A. The long-term impact of malnutrition is stunting, which can make a toddler's height and weight abnormal when compared to normal toddlers of the same age. Not only that, malnutrition can also inhibit brain development and intellectual capacity during a critical growth period [31].

One of the causes of malnutrition in children is due to infectious diseases, such as the data obtained by researchers that there are 2 children who have pulmonary TB infection, this disease causes the absorption of nutrients from children is not optimal, because the absorption of these nutrients is not optimally will of course cause the child to easily experience underweight or it can become a serious problem, namely the occurrence of malnutrition.

So that mothers who have children still have to check the health of their children, and also always maintain cleanliness when serving both milk and food that will be consumed by children, so that these children are not easily exposed to microbes, because if the cleanliness of children's food and cutlery is not maintained of course the food will be contaminated with microbes that cause

these children to easily experience infectious diseases.

And when giving food, mothers need to have knowledge regarding how to serve good food according to the child's age both in quantity, texture and others, and mothers must know how to process food properly and correctly so that the nutrients from these foods can be maintained.

According to Khosman (2012) said that the frequency of food per day is one aspect of eating habits, the frequency of consumption in children is tied to a 3x daily diet, meaning that if the frequency of giving milk and the number of doses given are correct then the chances of fulfilling nutrition are greater, and vice versa [16].

In this study the results of the Pearson chi-square test were 0.272, which means that  $H_a$  is rejected and  $H_0$  is accepted, so it means that there is no relationship between giving formula milk and the incidence of malnutrition in toddlers in the working area of the Hulonthalangi Health Center in 2022.

## CONCLUSION

Based on the results of research conducted to prove that:

1. There were 31 toddlers (88.5%) consuming formula milk and 4 toddlers (11.4%) consuming breast milk
2. It is known that there are 6 toddlers (17.14%) experiencing malnutrition status and 29 toddlers (82.8%) having normal nutritional status.
3. From the results of the Pearson chi-square test, the result was 0.272, greater p value = 0.05, which means  $H_a$  was rejected and  $H_0$  was accepted, so it means that there is no relationship between giving formula milk and the incidence of malnutrition in toddlers in the working area of the Hulonthalangi Health Center in 2022

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