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Analysis of Nutritional Intake, Infectious Diseases and Health Services on the Nutritional Status of Toddlers in the Working Area of Namtabung Health Center, Selaru District, Tanimbar Islands

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ABSTRACT
Malnutrition among toddlers is still a public health problem in Indonesia. Malnutrition in toddlers can affect morbidity and mortality rates. The high level of morbidity in malnourished toddlers is caused by decreased energy. The body is resistant due to its inability to form antibodies in sufficient quantities. The macronutrient that functions to form antibodies is protein, apart from that protein is also needed for growth and development. Research by Erika, et al (2020) shows that malnourished toddlers do not consume protein according to their needs. To determine the relationship between nutritional intake, infectious diseases and health services with the nutritional status of toddlers. This research is cross sectional. Sampling was carried out using purposive sampling technique. Based on the results of univariate analysis, it shows that there is a relationship between the nutritional status of toddlers, nutritional intake, infectious diseases and health services.

Keywords: Health services, infectious diseases, nutritional intake, nutritional status of toddlers

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BACKGROUND

Malnutrition among toddlers is still a public health problem in Indonesia. The results of the Indonesian Nutrition Status Study (SSGI) of the Ministry of Health in 2022, the prevalence of undernutrition among children under five in Indonesia increased by 0.6% from 7.1% in 2021 to 7.7% in 2022. Malnutrition among children under five can affect the figure. morbidity and mortality rates. Based on data from the 2021 Indonesian Nutrition Status Study (SSGI), it is 25.1 percent, indicating that the stunting rate in the Tanimbar Islands Regency is still very high so it requires hard work from all parties, including the District, District, Village Government, individuals, groups/communities and the private sector. synergize to overcome stunting in the Tanimbar Islands Regency. The solution to overcoming nutritional status problems is to meet nutritional intake in balanced amounts. Meeting nutritional needs is the main step in preventing and treating nutritional imbalances in children.

METHODS

The type of approach model used in this research is *cross-sectional.* is research that studies the correlation between exposure or risk factors (independent) and consequences or effects (dependent), with data collection carried out simultaneously at one time between the risk factors and their effects.

This research was conducted in Namtabung Village, Selaru District, Tanimbar Islands Regency. Data collection was carried out in January-February 2024. The time needed to conduct this research was around two months. The researcher will prepare the research results after completing data collection.

The population in this study were mothers who had toddlers at the Namtabung Community Health Center. A total of 262 toddlers. The samples in the research were mothers and toddlers at the Namtabung Community Health Center. The data collection methods used in this research used questionnaires and anthropometry. The technique that will be used in this research is data analysis techniques using univariate analysis and bivariate analysis. The results of the univariate analysis are identification of the relationship between food intake and nutritional status. And the results of the bivariate analysis are that this research will use tests *non parametric test.* Statistical test *non parametric test* which will be used is *spearman (spearmen r/rho).* This test is used to find out how big the relationship is between variables X and Y. The significance limit, if p *value* < 0.05 then the statistical calculation results are significant, conversely if p *value* > 0.05 means the results are not significant. In this study the variables studied were the dependent and independent variables. The data is processed and analyzed using a computer and SPSS to obtain correlation values.

RESULTS

Toddler Gender

Based on the research results, the majority of toddlers were female, namely 35 toddlers (54.7%), while the rest were male, namely 29 toddlers (45.3%). Complete data can be seen in Table 4.

Table 1. Toddlers by Gender

Gender	N	%
Man	29	45,3
Woman	35	54,7
Total	64	100,0

Toddler age

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Data on age characteristics of toddlers were grouped into 3 categories, based on research results, the majority of toddlers were aged 24-36 months and 37-48 months, namely 25 toddlers (39.1%) each. Complete data can be seen in Table 2.

Table 2. Toddlers by Age

Age	N	%
24-36 Months	25	39,1
37-48 Months	25	39,1
49-59 Months	14	21,8
Total	64	100,0

Mother's age

Mother's age data is grouped into 3 categories, based on research results, most of the ages of mothers under five fall into the early adulthood category (26-35 years), namely 35 mothers (54.7%), and some others fall into the late adolescent category (17-25 years) namely 14 mothers (21.8%). Complete data can be seen in Table 3.

Table 3. Mothers of Toddlers by Age

Age	N	%
Late Teenagers (17-25 Years)	14	21,9
Early Adulthood (26-35 Years)	35	54,7
Late Adulthood (36-45 Years)	15	23,4
Total	64	100,0

Mother's education

Maternal education data is grouped into 3 categories. Based on research results, the majority of mothers under five have a secondary education level, namely high school or vocational school, 34 mothers (53.1%). Meanwhile, only 6 mothers (9.4%) had basic education levels, namely elementary and middle school. Complete data can be seen in Table 4.

Table 4. Mothers of Toddlers Based on Education

Education	n	%
Basic Education (SD)	3	9,4
First School Education (SMP)	3	9,4
Secondary Education (SMA/SMK)	34	53,1
Higher Education (Diploma, Masters)	24	37,5
Total	64	100,0

Mother's job

Based on the research results, the majority, namely 39 (60.9%) mothers of toddlers, work, with jobs including civil servants, private employees and entrepreneurs. Meanwhile, 35

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(39.1%) mothers of toddlers do not work or are only housewives. Complete data can be seen in Table 5.

Table 5. Mothers of Toddlers by Occupation

Work	N	%
Work	39	60,9
Doesn't work	25	39,1
Total	64	100,0

Maternal nutritional knowledge

Data on nutritional knowledge of mothers under five are grouped into 3 categories, based on research results, the majority of mothers have good nutritional knowledge with a value of 75-100%, namely 39 mothers (60.9%). Meanwhile, others had less knowledge with a score of <56%, namely 12 mothers (18.8%). Complete data can be seen in Table 6.

Table 6. Distribution of Knowledge Levels of Mothers of Toddlers in Namtabung Community Health Center Working Area

Nutrition Knowledge	N	%
Good (75-100%)	39	60,9
Fair (56-75%)	13	20,3
Less (< 56%)	12	18,8
Total	64	100,0

4.3 Variable Characteristics

Dependent Variable

Description of nutritional status in toddlers aged 0-59 months based on body weight according to body length and body weight according to height in the Namtabung Community Health Center working area.

Table 7. Description of Nutritional Status in Toddlers Aged 0-59 Months Based on BB according to PB and BB according to TB in the Namtabung Community Health Center Working Area

Nutritional status	f	%
Good Nutrition	95	79,1
Malnutrition	25	20,8
Malnutrition	0	0
Total	120	120

Based on Table 5 above, it can be seen that of the 262 toddlers aged 0-59 months at the Namtabung Community Health Center Posyandu there were 120 samples who had good nutritional status of 79.1%, totaling 95 toddlers. Then continued with malnutrition status of 20.8%, totaling 25 toddlers, malnutrition status of 0%, totaling 0 toddlers, and no cases of malnutrition were found.

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Independent Variable
Nutrient Intake

Table 8. Average Nutrient Intake of Toddlers

Nutrients	(g/kcal)	Percentage (%)
Energy	900 kcal	40%
Protein	15 g	30%
Vitamin A	-	25%
Iron	-	35%

Results Analysis of nutrient intake was carried out using the 24 hour recall method. The results show that:

a. Based on the average energy consumption is 990 kcal with a percentage of (40%). Respondents had energy intake below the recommended requirements.
b. Based on the average protein consumption is 15 grams, with a percentage of (30%). Respondents had protein intake below the recommended requirements.
c. Based on the average consumption of vitamin A -, with a percentage (25%). Respondents experienced deficiencies.

Based on average iron consumption - , with a percentage (35%). Respondents indicated inadequate intake.

Infectious Diseases

Infectious diseases commonly experienced by toddlers in the Puskesmas working area during the last six months are recorded as Diarrhea: 36.0% and ARI (Acute Respiratory Infection): 64.0%.

Analysis shows that 100% of toddlers who experienced infectious diseases in the last six months had deficient or poor nutritional status.

Health services

Table 9. Access to Health Services

Type of Service	Percentage of Respondents (%)
Immunization	70%
Medical examination	40%
Knowledge of Service	50%

Availability and access to health services is also measured through surveys.
Results show:

a. **Frequency of Visits to the Community Health Center**:
Based on Her table top Average visit for immunization: 70%
Average visits for health checks: 40%
b. **Knowledge of Health Services**:
Based on the table above, the average knowledge about health services is 50% of mothers who know the immunization schedule and nutritional checks.

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Variable Statistical Test

Statistics

		NUTRITIONAL INTAKE	INFECTIONAL DISEASES	HEALTH SERVICES	NUTRITIONAL STATUS
N	Valid	120	120	120	120
	Missing	0	0	0	0

FREQUENCY TABLE

NUTRITIONAL INTAKE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	QUITE 8-100%	38	31.7	31.7	31.7
	KUIRANG <80%	82	68.3	68.3	100.0
	Total	120	100.0	100.0	

INFECTIONAL DISEASES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DIARRHEA	50	41.7	41.7	41.7
	ISPA	70	58.3	58.3	100.0
	Total	120	100.0	100.0	

HEALTH SERVICES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OF	54	45.0	45.0	45.0
	NO	66	55.0	55.0	100.0
	Total	120	100.0	100.0	

NUTRITIONAL STATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	UNDERNUTRITION <-2 SD to/-3 SD	25	20.8	20.8	20.8
	GIZI NORMAL - 2 SD sd/ + 2 SD	95	79.2	79.2	100.0
	Total	120	100.0	100.0	

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Correlations

		NUTRITIONAL INTAKE	INFECTIONAL DISEASES	HEALTH SERVICES	NUTRITIONAL STATUS
NUTRITIONAL INTAKE	Pearson Correlation	1	.188*	-.004	.136
	Sig. (2-tailed)		.040	.969	.139
	N	120	120	120	120
INFECTIONAL DISEASES	Pearson Correlation	.188*	1	.017	.108
	Sig. (2-tailed)	.040		.854	.242
	N	120	120	120	120
HEALTH SERVICES	Pearson Correlation	-.004	.017	1	-.052
	Sig. (2-tailed)	.969	.854		.576
	N	120	120	120	120
NUTRITIONAL STATUS	Pearson Correlation	.136	.108	-.052	1
	Sig. (2-tailed)	.139	.242	.576	
	N	120	120	120	120

*. Correlation is significant at the 0.05 level (2-tailed).

The results of research with 262 respondents can be seen in the following details: the majority of the sample is 120 toddlers. On average, the results obtained for Identification of Nutrient Intake, Infectious Diseases, Health Services show that there is a significant relationship with the nutritional status of toddlers. The results of this study show that there is a relationship between nutritional intake, infectious diseases and health services (p=0.002) with nutritional status (p value <0.05).

CONCLUSION

Based on the research results, it can be concluded that:

1. There is a relationship between nutritional intake and the nutritional status of toddlers at the Namtabung Community Health Center.
2. There is a relationship between infectious diseases and the nutritional status of toddlers at the Namtabung Community Health Center
3. There is a relationship between health services and the nutritional status of toddlers at the Namtabung Community Health Center

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