INTERNATIONAL JOURNAL OF SOCIAL HEALTH
https://ijsh.ph/index.php/rp
Volume 4 Number 4 April 2025 E-ISSN: 2984-7079

The Relationship Between Maternal Characteristics and Knowledge About Nutritional Status with The Care of Thin Toddlers (Wasting) in the Helvetia Community Health Center Area

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KEYWORDS
Mother's knowledge, characteristics, nutritional status, and care of wasting toddlers

ABSTRACT
Wasting is a malnutrition condition that needs to be addressed in Indonesia. Weight loss in children or failure to gain weight due to lack of energy and protein intake causes wasting. Objective: To determine whether there is a relationship between the characteristics and knowledge of mothers regarding nutritional status with the care of toddlers who experience wasting in the Helvetia Health Center area, Medan. The study used a quantitative approach, focusing on numerically analyzing objective phenomena. Of the 45 mothers with wasting toddlers at the Helvetia Health Center, 40 mothers were selected as samples using the Slovin formula. Data analysis was conducted using the multivariate analysis method. Questionnaires were distributed for data collection and then analyzed by applying the chi-square test. Results: The results of this study showed that the value of the p-value was 0.000 (<0.05), so that the null hypothesis (H0) was rejected. Conclusion: There is a relationship between the characteristics and knowledge of mothers about nutritional status and the care of wasting toddlers.

DOI: 10.58860/ijsh.v4i4.296

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INTRODUCTION

Wasting is a malnutrition condition that needs to be treated immediately in Indonesia. Weight loss in children or failure to gain weight due to lack of energy and protein intake causes wasting. Toddlers who experience wasting, both in moderate and severe levels, are more susceptible to infection, decreased intelligence, decreased physical capacity, and even risk death (Setiawan et al., 2024).

Wasting occurs when a toddler's weight decreases significantly over time or is below the normal range (De Onis et al., 2019; Martorell & Young, 2012; Richard et al., 2012). Children who experience wasting conditions usually show ideal body proportions, where the body's weight and height are not proportional to their age. A child is categorized as wasting if the weight and height indicators (BB/TB) are between -3 and -2 SD. Children can experience severe acute malnutrition if the BB/TB indicator is below -3 SD. Acute wasting refers to a condition of weight loss that is much more severe than wasting in general (Zulfiana et al., 2023).

The parenting style of mothers to children is influenced by characteristic factors such as income and education level, as well as the mother's employment status (Komala et al., 2023; Permatasari & Waluyanti, 2019; Prasticha et al., 2023). Working mothers tend to have limited time in the process of parenting and caring for children, while mothers who do not work have much more time to focus on

parenting and caring for children, including in terms of the nutritional intake received by their children (Aritomang et al., 2022).

The level of education from parents will affect the child's nutritional value status because education affects the extent to which parents understand nutrition information. Parents, if they are highly educated, tend to be more proactive in taking preventive measures, have knowledge related to health problems, and have a good health history with a good record (Appoh & Krekling, 2005; Fitriani et al., 2024; Kadir, 2019; Muhasriady & Tiwari, 2024; Saaka, 2014).

It is hoped that mothers with higher education will be better able to take care of their children. (Oktaviani, 2020).

Nutritional problems are often closely related to the mother's knowledge and attitude towards parenting. Mothers who have a good understanding will tend to have healthier children. Knowledge aims to achieve a more precise and deeper understanding of something. Maternal knowledge is essential in monitoring child growth and development, as well as ensuring optimal progress in toddlers (Mareta et al., 2024).

The treatment of toddlers who experience wasting requires a comprehensive approach. Nutritious feeding is a very important factor, accompanied by growth monitoring and education for caregivers about the signs of wasting. In addition, community mobilization also has a crucial role in increasing access and awareness of this nutritional problem. This collaborative approach is expected to be effective in overcoming nutritional problems in toddlers (Indonesia et al., 2023).

Based on data from the United Nations International Children's Emergency Fund (UNICEF), in 2020, there were 45.4 million children under five years old in the world who experienced acute malnutrition (wasting). The majority of these children live in poor areas, are in areas of humanitarian conflict, and do not have adequate access to health and nutrition services (Jayani, 2021).

Indonesia has more than 760,000 children under five with malnutrition, making it the second highest case of wasting under five in the world. The Indonesian government is committed to addressing this problem and targets a reduction in waste from 10.2% to 7% by 2024 (UNICEF et al., 2021).

Research by Erni Rukmana et al. on the relationship between family characteristics and nutrition (BB/TB) in toddlers aged 6-24 months at the Titi Papan Health Center, Medan City, North Sumatra, is an area in Indonesia that focuses attention on handling the problem of malnutrition. In 2022, the prevalence of children with BB/TB problems was recorded at 7.8%. Although this figure is lower than the threshold for public health problems (>20%), much treatment still needs to be done. To reduce nutritional problems in North Sumatra Province, especially in Medan City, steps involving the government and various related sectors are needed (Lynde et al., 2013).

In an initial survey, researchers interviewed 22 mothers with toddlers with wasting conditions. Of these, 8 mothers knew about wasting, while 14 believed their children were stunted. Based on the survey results, the researcher conducted a study on "The Relationship between Maternal Characteristics and Knowledge of Nutritional Status with Skinny Toddler Care (Wasting)."

Based on the background described, the researcher formulated this research problem as a relationship between the mother's understanding of nutritional status and the treatment method provided to toddlers who experience wasting in the Helvetia Health Center area. The general purpose of this study was to determine whether there was a relationship between maternal characteristics and knowledge about nutritional status and the care of toddlers who experienced wasting. The special objectives include analyzing the relationship between maternal characteristics and knowledge of toddler care, researching maternal knowledge related to children's nutritional status, and understanding

treatment methods for toddlers who experience wasting conditions. The benefits of this study for the research site are that it advises midwives on the importance of proper diet and nutrition, increases maternal knowledge about nutrition and health, and encourages family and community involvement in nutritional care for toddlers. For educational institutions, the research results are expected to be a source of reference in libraries, especially at Universitas Prima Indonesia, and provide useful information for health workers and the government in designing intervention programs. As for future researchers, this study can be used as a reference in studies on the relationship between nutritional characteristics and knowledge, and the treatment of toddlers who experience wasting.

Although numerous studies have addressed the causes of malnutrition and the role of maternal factors in child health, there remains a lack of research specifically examining how maternal knowledge and socioeconomic status influence the care of toddlers suffering from wasting. Most existing studies focus broadly on malnutrition or stunting without distinguishing the acute nature of wasting. Furthermore, while income and education are often included as demographic variables, few studies directly explore how these characteristics interact with maternal knowledge to influence caregiving practices for children with wasting conditions. This research attempts to close that gap by providing a focused, localized analysis of these relationships in the context of a primary health care setting in Indonesia.

This study offers a novel contribution by integrating multivariate and bivariate analyses to examine how maternal characteristics—including age, income, education, and knowledge—relate to the care of toddlers experiencing wasting. Focusing specifically on the Helvetia Health Center area provides localized insights that are highly relevant for targeted intervention programs. Moreover, the research highlights the complex role of maternal knowledge as a direct influencer of caregiving behavior and a mediating factor between socioeconomic status and health outcomes.

This study aims to investigate the relationship between maternal characteristics (age, education, income, occupation) and maternal knowledge about nutritional status with the caregiving practices provided to toddlers diagnosed with wasting. Through quantitative analysis, the research seeks to identify key socioeconomic and cognitive factors that may influence maternal responses to acute malnutrition.

This study provides evidence-based insights for healthcare workers, policymakers, and public health educators aiming to reduce the prevalence of wasting among toddlers. By identifying the significant role of maternal knowledge and income in caregiving practices, the study can help inform targeted interventions, such as community-based nutrition education, income-support programs, and mother-focused counseling. It also contributes academically by offering a contextualized understanding of malnutrition care in urban Indonesian communities, and can serve as a reference for future research on maternal roles in child nutrition.

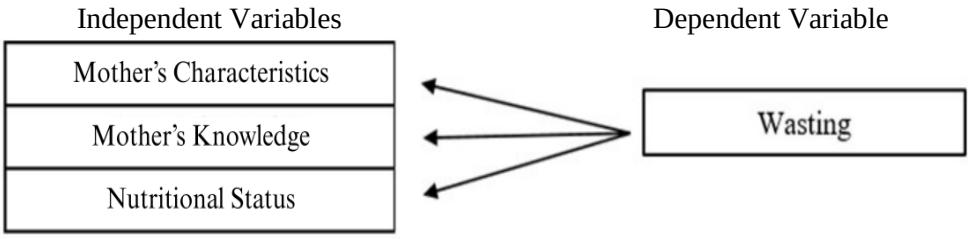
METHOD

Research Types and Design Research Types of Research

The research uses a quantitative approach that focuses on numerical analysis of objective phenomena. To maximize objectivity, the research design relies on the use of numbers, statistical analysis, an organized structure, and controlled experiments. Therefore, the type of research applied is descriptive research with a quantitative approach.

Research Design

The study adopted a quantitative descriptive design using a cross-sectional approach to analyze the relationship between mothers' characteristics and understanding of nutritional status and care of underweight toddlers (wasting).



Place and Time of Research

Place of Research

The research was carried out in the Helvetia Health Center area, which has an adequate population and sample count, thus facilitating the research process.

Research Time

The research was carried out between November 2024 and December 2024

Population and Research Sample

Research Population

Population is the totality of each element being studied with the similarity of characters. It can be in the form of individuals or groups, events, or something to be studied (Handayani, 2020). This study's population was collected, namely all wasting toddlers, with as many as 45 respondents in the Helvetia Health Center Area.

Research Sample

Samples refer to a part of the population with similar characteristics (Cahyadi, 2022). This study attracted a sample consisting of parents and children, totaling 40 respondents, who were calculated using the formula from Slovin.

Formula:

$$n = \frac{N}{1+N(e)^2}$$

$$n = \frac{45}{1+45(0,05)^2}$$

$$n = \frac{45}{1+45(0,0025)}$$

$$n = \frac{45}{1+0,1125}$$

$$n = \frac{45}{1,125}$$

$$n = 40$$

Thus, the study used 40 respondents from the total population as samples. The sampling method used was purposive sampling.

Data Collection Methods

This research uses two sources, primary and secondary data, to collect data. The primary data was obtained directly by the researcher by distributing questionnaires to respondents after obtaining

permission from parents, followed by a letter of consent from the respondents. The secondary data was obtained from the Helvetia Health Center Area.

Measurement Aspects

Independent variables	Definition	Measuring instruments	Scale	Result
Education	Education is the level of school that respondents have attended	Curator	ORDINAL	1. SD 2. JUNIOR 3. SMA 4. College
Age	Age is the age from birth to the present year	Questionnaire	INTERVAL	1. Young Age < 20 Years Old 2. Adult Age 20-40 Years 3. Old Age > 40 Years Old
Work	Work is an activity that is carried out every day by responding and getting a wage	Curator	NOMINAL	1. IRT 2. Farmer 3. Self-employed 4. PNS
Income	Income is the amount of money earned by households from respondents per 1 month	Curator	ORDINAL	1. Low 500,000-1.000.000, 2. Medium 1,000,000-3.000.000 3. Height > 3,000,000
Knowledge	Mother's knowledge of wasting is everything respondents know about wasting	Curator	ORDINAL	1. Good 2. Enough Less
Nutritional Status	Nutritional status is the result of weighing and measuring the weight and height of children under five based on age	Anthropometry	ORDINAL	1. Good Nutrition 2. Malnutrition 3. Adequate Nutrition
Variable Dependent Washing	Wasting is a condition of a child who is low in weight compared to his height	Curator	ORDINAL	1. Yes 2. Not

Data Processing Techniques and Data Analysis

a. Editing
   The results of the questionnaire from the field must be edited first.
b. Coding
   After the editing is done, it must be coded.
c. Scoring
   The researcher determines the highest and lowest scores for each question. After correctly filling in the questionnaires, the researcher will process the questionnaires from 40 respondents.
d. Tabulating (Tabulasi)

Data Analysis

Data analysis using Multivariate Analysis. Multivariate Analysis is a type of statistical analysis used to analyze data consisting of many independent and Dependent Variables. Data analysis using Chi-Square by processing data using SPSS.

RESULT AND DISCUSSION

Based on the results of a study at the Helvetia Health Center related to the Relationship between Characteristics and mothers' Knowledge of Nutritional Status and Care of Skinny Toddlers (Wasting), the following results were obtained:

Univariate Analysis.

Table 1. Frequency Distribution of Respondent Characteristics with Mothers Who Have Toddlers

Yes	Characteristic	Frequency(*f*)	Percentage %
1.	**Mother's age**	5	12.0
	26-35 Years	24	60.0
	36-45 Years	11	27.5
	Total	**40**	**100**
2.	**Education level**		
	SD	2	5
	SMP	11	27.5
	SMA	20	50.0
	S1	7	17.5
	Total	**40**	**100**

Based on Table 1, it can be seen that the average number of respondents from mothers aged 20-25 years is 5 people (12.5%), mothers aged 26-35 years are 24 people (60.0%), and mothers aged 36-35 years are 11 people (27.5%). The average level of education of mothers, namely elementary school amounting to 2 people (5.0%), mothers with junior high school education were 11 people (27.5%), mothers with high school education amounted to 20 people (50.0%) and mothers with S1 education were detected as many as 7 people (17.5).

Table 2. Distribution of Frequency of Job Characteristics and Income of Respondents of Mothers with Skinny Toddlers (Wasting) November - December 2024

No	Responsive Features	Frequency(*f*)	Percentage %
3.	**IRT mother's job**	34	85.0

	Farmer	1	2.5
	Self employed	4	10.0
	PNS	1	2.5
	Total	**40**	**100**
4.	**Family income**		
	Tall	20	50.0
	Keep	19	47.5
	Low	1	2.5
	Total	**40**	**100**

As for table 2, it is known that the average work of mothers is as an IRT of 34 people (85.0%), farmers of 1 person (2.5%), and entrepreneurs of 4 people (10.0%). The average family income is 20 people (50.0%), the median income based on data collection is 19 people (47.5%), and the low income is 1 person (2.5%).

Table 3. Frequency Distribution of Maternal Knowledge Characteristics related to Nutritional Status, Toddler Age, and Skinny Toddler Care (Wasting) November - December 2024

No.	Responsive Features	Frequency(*f*)	Percentage%
	Mother's Knowledge of		
5.	**Nutritional Status**		
	Good	17	42.5
	Enough	7	22.5
	Less	14	35.0
	Total	**40**	**100**
6.	**Toddler Age**		
	1 Year	9	22.5
	2 Years	17	42.5
	3 Years	10	25.0
	4 Years	4	10.0
	Total	**40**	**100**
7.	**Skinny toddler care (wasting)**		
	Good	18	45.0
	Not Good	22	55.0
	Total	**40**	**100**

Based on Table 3, the average level of knowledge from mothers about nutritional status is 17 people (42.5%), 7 people (22.5%) have sufficient knowledge, and 14 people (35.0%) have less knowledge. The average age of toddlers is 9 people (22.5%), 22.5% of toddlers.
There were 17 people (42.5%), 10 3-year-old toddlers (25.0%), and 4 4-year-old toddlers (10.0%). On average, 22 people (55.0%) provided good care to toddlers who experienced wasting, while 18 (45.0%) provided poor care.

Bivariate Analysis

The results of the study on the Relationship between Characteristics and Maternal Knowledge about Nutritional Status with Skinny Toddler Care (Wasting), at the Helvetia Health Center, obtained the following results:

Table 4. The Relationship between Knowledge and Wasting Care in the Helvetia Health Center Area

No	Knowledge	Wasting				Total	*P-value*
		Already		No		N%	
		N	%	N	%		
1	Good	0	0.0	17	100.0	17	
	Enough	9	100.0	0	0.0	19	
	Less	13	92.2	1	7.1	14	0.000

Based on Table 4, the results of the data analysis were obtained from the Chi Square testing of the relationship between knowledge and the care of thin toddlers (wasting). The p-value result was 0.000, which means that H0 was accepted and Ha was rejected. This shows that the results of the data analysis showed a meaningful relationship between income and the care of thin toddlers (wasting).

Table 5. The Relationship between Education and Wasting Care in the Helvetia Health Center Area

No	Education	Wasting				Total	*P-value*
		Already		No		N%	
		N	%	N	%		
2	SD	2	100.0	0	0.0	2	
	SMP	5	45.5	6	54.5	11	
	SMA	13	65.5	7	35.0	20	
	S1	2	28.6	5	71.4	7	0.185

Based on Table 5, the results of the data analysis obtained the results of the Chi Square test between the relationship between education and the care of thin toddlers (wasting), which obtained a p-value of 0.185 where H0 was accepted and Ha was rejected, which showed the results of the data analysis that there was an insignificant relationship between education and the care of thin toddlers (wasting).

Table 6. The Relationship between Income and Wasting Care in the Helvetia Health Center Area

No	Income	Wasting				Total	*P-value*
		Already		No		N%	
		N	%	N	%		
3	Tall	4	20.0	16	80.0	20	
	Keep	17	89.5	2	10.5	19	
	Low	1	100.0	0	0.0	1	0.000

Based on Table 6, the results of the data analysis obtained the results of the Chi Square test of the relationship between income and the care of thin toddlers (wasting), which obtained a P-value of

0.000, so that H0 was accepted and Ha was rejected, which showed the results of the data analysis that there was a meaningful relationship between income and the care of thin toddlers (wasting).

Multivariate Analysis

Table 7. The Relationship of Knowledge with Wasting in the Helvetia Health Center Area

No	Variable	B	S.E	Forest	df	Mr.	XP (B)
1.	Knowledge	4.164	1.228	11.490	1	.001	64.300
	Mothers ' Constant Nutritional Status	-9.655	2.947	10.736	1	.001	.000

This study shows which independent variable has a dominant effect on the dependent variable. The Knowledge Variable has a Sig. (P-value) of 0.001 (<0.05), concluding that knowledge has a comprehensive impact on wasting with an Exp(B)/odd ratio of 64,300.

The study's results, based on the relationship between characteristics and knowledge regarding nutritional status in the treatment of thin toddlers (wasting) in the Helvetia Health Center Area from November to December 2024, were obtained from 40 respondents who were included in the study.

From the data on the characteristics of the mothers, it is known that the average age of the female respondents is 24 people (60.0%), and the number of mothers aged 20-25 years is 5 people with a percentage of 12.5%. The average elementary education is 2 people (5.0%), and the average high school education is 20 people (50.0%). Furthermore, it can be known that the average work of mothers is as an IRT as many as 34 people (85.0%), farmers as many as 1 person (2.5%). Furthermore, it can be known that the average family income is 20 people (50.0%), the median income is 19 people (47.5%), and the low income is indicated by 1 person (2.5%).

Overall, from the 40 respondents obtained from the results of the study, it can be known that the average level of knowledge by mothers on nutritional status is 17 mothers with good knowledge (42.5%), while mothers with less knowledge are 14 people (35.0%). Furthermore, it can be known that the average age of toddlers is 17 people (42.5%) at 2 years old, and 4 years old toddlers (10.0%). On average, there were 22 people with good care for thin toddlers (55.0%) and 18 people with poor care for thin toddlers (45.0%).

The Relationship of Knowledge and Care of Skinny Toddlers (Wasting) in the Helvetia Health Center Area

Research shows that almost all mothers have a good level of knowledge about nutritional status. However, good knowledge does not always prevent wasting. The wasting phenomenon is also estimated to be influenced by various other factors, such as suboptimal parenting patterns, unbalanced nutritional intake, and family economic limitations.

The statistical analysis results using the chi-square test showed that the p-value was 0.000 (<0.05). These findings indicate a significant relationship between maternal knowledge about nutritional status and the treatment of toddlers with malnutrition conditions (wasting) at the Helvetia Health Center. This research is directly proportional to the results of a study obtained by Yustika et al. (2022), who found a significant relationship between knowledge from mothers related to nutrition and the nutritional status of toddlers. Through statistical testing, the study reported a ρ-value of 0.003, which indicates a relationship between maternal knowledge and nutrition and the handling of thin toddlers at

the Oepoi Health Center, Kupang City (Pehe, 2022). Mothers with a high level of nutrition knowledge tend to understand toddlers' nutritional needs better than mothers with low nutrition knowledge. This allows them to provide a varied food menu, so that toddlers do not get bored easily and can meet their balanced nutritional needs (Mahartiningsih et al., 2023).

The Relationship between Education and Wasting Care in the Helvetia Health Center Area

This study is based on the premise that the average toddler with a normal nutritional status score has a mother educated in elementary, junior high, or high school. However, cases of wasting that occur in toddlers are generally found in toddlers who have mothers who are educated at the high school level, while the percentage reaches 65.5%.

The results of statistical testing of this study using the chi-square test method showed that the p-value was 0.185(>0.05). These results indicate that the level of maternal education does not have a significant meaning or relationship with the care of thin toddlers (wasting). The results of this study align with the study by Astuti et al. (2012), which concluded that there was no relationship between the mother's education level and the nutritional status of preschool children in Godean District, based on the BB/TB index. Similar research by

Anindita (2012) found no relationship between the mother's education level and the incidence of stunting conditions that occurred in toddlers. Maternal education is considered a fundamental factor that contributes to the achievement of the status of good nutrition for toddlers. The mother's education level plays a role in her ability to receive information related to nutrition and health. Mothers with higher education tend to understand and adopt this information more easily than mothers with lower education. However, in the research conducted, a mother with a low level of education certainly does not always have children under five who experience a lot of stunting or wasting when compared to mothers with a much higher level of education. This underlies that maternal education levels will be one of the basic factors causing malnutrition, while many other factors, especially in low-income families, also affect the discovery of nutritional problems such as wasting and stunting.

The Relationship between Income and Wasting Care in the Helvetia Health Center Area

This study shows that mothers' income as respondents is in the medium category. Income is defined as the total real income of all family members, whether used to meet the common needs in the house individually or together (Apriadji, 1986). However, high family income is not always directly proportional to the per capita income. The number of family members influences this; the more family members, the lower the per capita income obtained (Budiono, 2004).

The statistical test results from this study, with the chi-square test, showed that the p-value is 0.000 (<0.05). This value indicates a meaningful relationship between income and the care of toddler wasting.

The results of this study are consistent with those of the study in Pasaman Regency, where statistical testing showed a p-value of 0.000. The findings indicate a significant relationship between parental income and wasting. A similar study in Bukittinggi City also showed similar results, with a p-value of 0.016, which confirmed a significant relationship between parental income and wasting cases.

These findings are directly proportional to a study conducted in Tamil Nadu, which indicated that children from families with low economic status had a higher prevalence of wasting, with statistically significant results ($p < 0.05$) (Anuradha et al., 2014). Previous research by Meshram (2018) also supports this, where the prevalence of wasting was recorded 2.56 times higher in children from

families with low per capita income compared to those with higher per capita income (Meshram et al., 2019). Based on the opinion of the researcher, low income, if it is below the Regional Minimum Wage (UMR), results in parents or respondents not being able to meet the eligibility criteria for the standard of living in the study area. The adequate standard of living allows respondents to pay more attention to the status of family nutritional values, especially in children under five. Fixed income from each month plays an important role in ensuring family food security, which ultimately has an impact on improving the status of family nutrition. This is directly proportional to the results of a study conducted in Pasaman Regency, where 89.7%, namely, mothers of toddlers in wasting conditions, have a lower income level.

CONCLUSION

The research conducted in the Helvetia Health Center area reveals that maternal knowledge about nutritional status plays a critical role in determining the quality of care provided to toddlers experiencing wasting. The findings indicate a statistically significant relationship between maternal knowledge and appropriate caregiving practices, suggesting that mothers with better nutritional awareness are more likely to engage in effective interventions for their malnourished children. Conversely, the study found no significant correlation between the formal educational attainment of mothers and the care of wasting toddlers, implying that education alone may not equate to applied nutritional understanding. Interestingly, family income is significantly associated with caregiving practices, indicating that economic stability is a key enabler for accessing nutritious food, healthcare services, and other resources vital for child recovery. These insights underscore the multidimensional nature of caregiving, which is influenced not solely by formal education but also by targeted knowledge and financial capacity. For future research, it is recommended to explore additional psychosocial factors such as maternal attitudes, social support, access to health information, and the role of health workers in reinforcing nutrition knowledge. Longitudinal studies could also be valuable in assessing how changes in knowledge and income over time affect child nutritional outcomes.

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