

## **Relationship Between Mothers's Nutritional Knowledge and the Nutritional Status of Stunted Toddlers in Nyawangan Village, Sendang Health Center, Tulungagung Regency**

### ***Hubungan Pengetahuan Gizi Ibu dengan Status Gizi Balita Stunting di Desa Nyawangan, Puskesmas Sendang, Kabupaten Tulungagung***

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#### **ABSTRACT**

Stunting remains a chronic nutritional problem affecting children's physical growth, cognitive development, and future productivity. This study aims to examine the relationship between maternal nutritional knowledge and the nutritional status of stunted toddlers in Nyawangan Village, Tulungagung Regency. This research employed an observational analytic method with a retrospective approach. A total of 58 mothers of toddlers were selected using simple random sampling, and data were collected via questionnaires. The results showed that 51.7% of mothers had poor nutritional knowledge and 55.2% of toddlers were stunted. Spearman's test indicated a weak positive correlation between maternal knowledge and children's nutritional status, but the result was not statistically significant ( $r = 0.165$ ;  $p = 0.216$ ). Although not significant, the findings suggest that better maternal knowledge tends to be associated with better nutritional status in children. Therefore, nutrition education for mothers should be enhanced by considering other contributing factors such as economic status, environment, and parenting practices.

#### **ABSTRAK**

Stunting masih menjadi masalah gizi kronis yang berdampak pada pertumbuhan fisik, kognitif dan produktivitas anak di masa depan. Penelitian ini bertujuan untuk mengetahui hubungan antara pengetahuan gizi ibu dengan status gizi balita stunting di Desa Nyawangan, Kabupaten Tulungagung. Penelitian ini merupakan studi observasional analitik dengan pendekatan retrospektif. Sampel penelitian berjumlah 58 ibu balita yang dipilih secara acak sederhana dan data dikumpulkan menggunakan kuesioner. Hasil penelitian menunjukkan bahwa 51,7% ibu memiliki pengetahuan gizi yang kurang dan 55,2% balita mengalami stunting. Hasil uji spearman menunjukkan adanya hubungan positif lemah antara pengetahuan gizi ibu dan status gizi balita, tetapi tidak signifikan secara statistik ( $r = 0,165$ ;  $p = 0,216$ ). Kesimpulan dari penelitian ini adalah meskipun hasil data tidak signifikan, terdapat kecenderungan bahwa semakin baik pengetahuan ibu semakin baik pula status gizi balita. Edukasi gizi kepada ibu perlu ditingkatkan dengan mempertimbangkan faktor lain seperti ekonomi, lingkungan dan pola asuh.

## INTRODUCTION

Nutritional problems in toddlers are still a serious challenge in Indonesia, especially stunting cases. Stunting is a condition of failure to grow due to chronic malnutrition, recurrent infections and lack of psychosocial stimulation, especially in the first 1000 days of life (1). Stunting not only impacts children's physical growth, but also interferes with cognitive development, academic achievement and economic productivity in adulthood (2).

According to WHO (2021), in 2020 the number of stunting cases in the world will increase to 22% or even 149.2 million. As a result of the 2018 Basic Health Survey (Riskedas), 7 million children under five, or 30.8% of the child population in Indonesia, are stunting (3).

In 2020 data from the East Java Provincial Health Office, data for the August 2020 weigh-in month showed the proportion of short babies (stunting) at 12.4%, then for the proportion of thin babies (wasting) the size was 8.0% (4).

From data from the Tulungagung Regency Health Office, 4.5% of toddlers in Tulungagung Regency will experience stunting in 2021. The number of babies aged 0-59 months is a major concern, because early childhood growth greatly affects life expectancy and school rates (5).

Based on village data, the number of toddlers who experience *stunting* in Nglutung Village is 11 toddlers, Talang Village 12 toddlers, Dono Village 13 toddlers, Tugu Village 12 toddlers, Picisan Village 14 toddlers, Kedoyo Village 19 toddlers, Krosok Village 14 toddlers, Nyawangan Village 32 toddlers, Sendang Village 14 toddlers, Nglurup Village 12 toddlers, and in Geger Village 16 toddlers.

Data was collected from the Sendang Health Center for a preliminary study. Among all villages, Nyawangan Village has the highest number of stunted toddlers, with 32 babies per village. Based on data from the Sendang Health Center, researchers wanted to find out the relationship between the level of nutrition knowledge in Nyawangan Village and the nutritional status of stunted toddlers in Nyawangan Village.

There is other data on stunting, namely data from the 2022 Indonesian Nutrition Status Survey (SSGI) showing that the prevalence of stunting in Indonesia is 21.6%, which is still above the WHO standard, which is below 20% (6). This problem shows that various intervention efforts that have been carried out have not fully succeeded in reducing the prevalence of stunting to the ideal number.

The factors that cause stunting are very complex and interrelated. One of the important factors that can affect the incidence of stunting is the level of maternal nutritional knowledge. Mothers as the main caregivers in the family play a central role in determining the diet and fulfilling the nutritional needs of children, both from pregnancy to toddlers. Good nutritional knowledge allows a mother to

provide food that is in accordance with the nutritional needs of the child at every stage of her development (7).

Lack of nutritional knowledge can lead to incorrect feeding practices, such as delays in complementary feeding of BREAST MILK (MP-ASI), selection of foods with low nutritional quality or unbalanced diets that have an impact on the nutritional status of children (8). Inadequate knowledge also often causes mothers to lack understanding of the importance of a variety of nutritious foods, the right frequency of meals and portions of meals that are appropriate for the child's age and are at risk of high stunting, including in rural areas (9). In addition, insufficient consumption of micronutrients such as iron, zinc, and vitamin A also worsens stunting conditions in toddlers in rural areas (10).

In addition, socioeconomic factors, maternal education level, access to health facilities and local culture also affect the knowledge and practice of feeding toddlers (11). Therefore, increasing nutritional literacy among mothers is needed to improve the nutritional status of children, especially in efforts to prevent stunting.

Nyawangan Village as part of the work area of the Sendang Health Center has quite diverse geographical and socioeconomic characteristics. Most of the population works in the agricultural sector and small trades. This condition affects access to nutritional information, the availability of nutritious food, and economic ability to meet family nutritional needs. Intervention efforts to reduce stunting rates in this region need to consider the active role of mothers in household food management.

This study aims to analyze the relationship between maternal nutrition knowledge and the nutritional status of toddlers who experience stunting in Nyawangan Village. By finding these relationships, it is hoped that education-based intervention recommendations can be developed to help reduce stunting rates in Tulungagung Regency and similar areas in Indonesia.

## **MATERIALS AND METHODS**

This study is an analytical observational research conducted using a retrospective method. Therefore, the research is carried out without disturbing the subject and with the aim of explaining the situation. The goal is to find out whether the nutritional status of stunted toddlers in Nyawangan Village, Sendang Health Center, Tulungagung Regency, correlates with the level of mother's knowledge about nutrition. The research lasted from October 2022–May 2023. The research was conducted in Nyawangan Village, Sendang Health Center, which is located in Tulungagung Regency. This study utilizes 417 people from Nyawangan Village, Sendang Health Center, as respondents. For this study, 58 respondents were selected from a sample calculated using the Rianto 2011 formula. For this study, samples were taken randomly in a simple way, with the following sampling criteria: the respondents were mothers of toddlers in Nyawangan Village, Sendang Health Center, they could

communicate well, willing to undergo interviews. The level of knowledge of mothers about toddlers and the nutritional status of stunted toddlers were independent variables in this study.

Primary and secondary data determine the research method. The research data was collected through questionnaires, which contained the respondents' personal data. This study analyzed univariate and bivariate. The characteristics of each of the variables studied are explained by univariate analysis. In addition, bivariate analysis showed a relationship between the nutritional status of stunted toddlers in Nyawangan Village, Sendang Health Center, and the level of mothers' knowledge about nutrition under five. The results of the bivariate analysis are presented in the form of a frequency distribution table. Bivariate analysis is the analysis of data to determine if there is a significant relationship between independent variables and bound variables.

## RESULT

According to the descriptive analysis, Nyawangan Village is located on a plateau of 7363 km<sup>2</sup>, or 750.63 ha. It is located to the north of Mount Wilis, to the south of Picisan Village and Tugu Village, to the west of Krosok Village and Sendang Village, and to the east of Petungroto Village. The results showed that most of the respondents were between 30 and 35 years old, namely 17 respondents (29.3%). Most of the respondents' jobs were housewives, namely 50 respondents (56.2%), and most of the respondents' knowledge was in the underserved category, namely 30 respondents (51.7%). The nutritional status of toddlers is also low, with 32 young children (55.2%).

**Table 1 Distribution of Frequency of Respondent Characteristics by Age in Nyawangan Village, Sendang Health Center, Tulungagung Regency.**

Variabel	Frequency	
	n	%
<b>Age</b>		
18-23 years old	15	25,9
24-29 years old	15	25,9
30-35 years old	17	29,3
36-41 years old	11	19,0
<b>Total</b>	<b>58</b>	<b>100</b>

Source : Primary Data, 2023

According to the age distribution table, it is known that the age group of 30-35 years is the largest group in this study, with a total of 17 respondents (29.3%). Followed by the age group of 18-23 years and 24-29 years old, each of which amounted to 15 respondents (25.9%). And the age group of 36-41 years was the least, namely 11 respondents (19.0%). The majority of respondents were between 30-35 years old, which reflects the productive and active age as mothers of toddlers in Nyawangan Village, Sendang Health Center, Tulungagung Regency. The fairly even distribution of

age indicates that information and education about nutrition need to be tailored to various age ranges of mothers.

**Table 2 Frequency Distribution of Respondent Characteristics Based on Last Education in Nyawangan Village, Sendang Health Center, Tulungagung Regency.**

Variabel	Frekuensi	
	n	%
<b>Final Education</b>		
SD	33	56,9
SMP	17	29,3
SMA	8	13,8
College	0	0
<b>Total</b>	<b>58</b>	<b>100</b>

Source : Primary Data, 2023

The respondents last education distribution table showed that most of the 33 people who answered, i.e. 56.9%, were elementary school graduates. Followed by junior high school graduates 29.3%, high school graduates 13.8% and no or 0% of respondents who pursued higher education. This shows that the low level of maternal education can have an impact on limited nutritional understanding, which can indirectly affect the nutritional status of children.

**Table 3 Frequency Distribution of Respondent Characteristics Based on Work in Nyawangan Village, Sendang Health Center, Tulungagung Regency.**

Variabel	Frequency	
	n	%
<b>Work</b>		
PNS	0	0
Private Employees	2	3,4
Self employed	6	10,3
Housewives	50	56,2
<b>Total</b>	<b>58</b>	<b>100</b>

Source : Primary Data, 2023

A total of 50 people, or 56.2% of respondents, were housewives, as shown by the table of the characteristics of the respondents' work frequency distribution. As a housewife, the role of mothers is crucial in regulating the diet and fulfillment of daily child nutrition.

**Table 4 Distribution of Respondents' Knowledge Based on Knowledge in Nyawangan Village, Sendang Health Center, Tulungagung Regency.**

Variabel	Frequency	
	n	%
<b>Knowledge</b>		
Good	2	3,4
Enough	26	44,8
Less	30	51,7
<b>Total</b>	<b>58</b>	<b>100</b>

Source : Primary Data, 2023

Based on the distribution of the frequency of respondents' knowledge, the table shows that most of the respondents have less knowledge, namely 30 people, and the proportion of respondents is 51.7%. Most of the respondents do not have a good understanding of nutrition, which then has the potential to affect feeding practices in toddlers.

**Table 5 Distribution of Frequency of Nutritional Status of Toddlers in Nyawangan Village, Sendang Health Center, Tulungagung Regency.**

Variabel	Frequency	
	n	%
<b>Nutritional Status</b>		
Good Nutrition	26	44,8
Stunted	32	55,2
<b>Total</b>	<b>58</b>	<b>100</b>

Source : Primary Data, 2023

As a result of the characteristic frequency distribution table according to the nutritional status of the respondents, it can be seen that most of the respondents have a short nutritional status of toddlers, namely stunting; 32 of them, or 55.2% of the total respondents, had such nutritional status. The stunting rate in Nyawangan Village is quite high and exceeds the expected national threshold (<20%). This indicates a serious nutritional problem.

**Table 6: Cross-tabulation of Knowledge with Nutritional Status in Nyawangan Village, Sendang Health Center, Tulungagung Regency.**

Variabel	Nutritional Status				Total		r	p
	Good Nutrition		Stunted					
	n	%	n	%	n	%		
Good	1	1,7	1	1,7	2	3,4	0,165	0,216
Enough	14	24,1	12	20,7	26	44,8		
Less	11	19,0	19	32,8	30	51,7		
	26	44.8	32	55.2	58	100		

Source : Primary Data, 2023

19 respondents, or 32.8% of the total, had a lower knowledge category than the majority of respondents' knowledge category, as shown in Table 5.6. There was a weak positive relationship between maternal knowledge and nutritional status but not statistically significant. Although there is a trend that better knowledge tends to result in better nutritional status of children, statistically this relationship is not statistically significant. This may be influenced by other factors such as economy, parenting or environment.

The majority of mothers have low nutrition education and knowledge, most children experience stunting, there is a tendency to have a relationship between maternal knowledge and nutritional status of toddlers although it is not significant.

## **DISCUSSION**

### **Knowledge of Toddler Mothers**

The results showed that out of 58 respondents, 2 were in the category of good knowledge (3.4%), 26 were in the category of sufficient knowledge (4.4%), and the majority of respondents were in the category of lack of knowledge (51.7%).

The results of this study are greatly influenced by the mother's education, because most of the respondents have an elementary education level (52.6%). With a good education, the ability to comprehend and comprehend new information will increase, which of course has an impact on the person's knowledge. This is in line with the theory that education lasts a lifetime and is an effort to develop personality and abilities, both inside and outside of school. In addition, the results of another study showed a significant relationship between mother's knowledge of MP-ASI and the nutritional status of children aged 6-24 months, that the higher the mother's knowledge, the better the child's nutritional status (12). Research at the Putri Ayu Jambi Health Center shows that 57% of mothers with good knowledge have children with good nutritional status (13). Research in Tabanan shows a very strong relationship between MP-ASI knowledge and children's nutritional status (14). Thus, maternal knowledge is an important factor and must be translated into good practices so that it has a real effect on the nutritional status of children. For example, nutrition education for mothers under five needs to be strengthened, especially in areas with high stunting, nutrition interventions are not only counseling but direct practice (local MP-ASI), the role of posyandu cadres, village midwives, and the health center program is the spearhead of education for mothers under five in a sustainable manner, and it is also necessary to pay attention to other supporting factors, namely the economy and the environment so that knowledge-based interventions can be effective.

### **Nutritional Status News**

The results showed that 26 respondents (44.8%) and 32 respondents (55.2%) had a good nutritional status as toddlers, respectively. This can be caused by the lack of knowledge of mothers

under five about nutrition, as shown by the results of research on mothers under five knowledge about nutrition in Nyawangan Village and wrong parenting.

Anthropometry, clinical, and laboratory measurements are three methods to measure the nutritional status of toddlers. Anthropometric measurements are the most common and common method for measuring the nutritional status of toddlers. The nutritional status of toddlers is an important indicator which can reflect the balance between nutritional intake and the needs of the child's body. Nutritional status assessment is carried out by anthropometric measurements to determine the nutritional status of toddlers in the form of BB/U, TB/U or PB/U, BB/TB (11). Meanwhile, stunting is a condition of failure to grow in children under five due to chronic malnutrition and recurrent infections, especially in the first 1,000 days of life (HPK). Children who are stunted have a shorter height than their age standard.

According to several studies, the nutritional status of children under five is significantly related which shows that the worse the nutritional status of children, the higher the risk of stunting (15). Other studies show that most of the toddlers with undernourished status or as many as 62.5% are stunting (16) and 16 times higher risk of stunting compared to toddlers with good nutritional status (17).

### **Knowledge With Nutritional Status**

The results showed that of the 58 respondents, 1 (1.7%) and 1 (1.7%) knew that they had a good nutritional status, 14 (24.1%) and 12 (20.7%), and 12 (20.7%) knew that they had a poor nutritional status. Environmental factors also cause the results of this study to be very uncertain. Nyawangan Village Sendang Health Center in Tulungagung Regency is far from the city center, so the environment can affect respondents' knowledge about nutrition. The first influence for a person comes from his environment; There, one can learn good and bad things depending on the characteristics of his group. The experiences they have in their environment will affect the way they think (18). In line with that, good maternal nutrition knowledge tends to provide food intake that suits the needs of the child so that the child has a normal nutritional status (7). In addition, it will affect the provision of better energy, protein, carbohydrates and fats to the child, with data showing that there is a significant relationship between maternal knowledge and child-feeding behavior (19). Mother's knowledge of children's nutritional needs can be a strong predictor for the nutritional status of toddlers so that they are able to meet children's nutritional needs well (20).

Several factors affect the mother's knowledge of poor nutrition, including educational factors. These factors have an impact on the growth of children under five, who can experience growth disorders such as stunting (21). One of the factors that affect the nutritional status of toddlers is the mother's knowledge of nutrition because it determines the behavior or attitude of the mother in choosing the food to be consumed by the toddler. Mothers who do not know about their child's nutrition tend to give their child less nutrient intake, which in turn can lead to nutritional problems such as child



stunting (22). In addition, nutritional intake and diet of toddlers as well as mother's parenting and knowledge, there are infectious diseases that can interfere with nutrient absorption and increase energy needs so that the contribution to nutrition is less (23). Socioeconomic factors including the income and employment of parents of toddlers affect the ability to provide nutritious food and access to health services (24). The latter related to poor sanitation and environment increases the risk of infections that can worsen nutritional status in toddlers (25).

## **CONCLUSION**

Based on the results of a study conducted in Nyawangan Village, Sendang Health Center, Tulungagung Regency, it can be concluded that most mothers under five have a low level of nutritional knowledge, which is 51.7%. This low knowledge is in line with the low level of education of the respondents where the majority are only elementary school graduates.

The nutritional status of toddlers in Nyawangan Village also shows a fairly high stunting rate, which is 55.2%. This figure is far above the national threshold set by the WHO (<20%) and indicates a serious chronic nutritional problem

The results of the analysis showed a tendency to have a relationship between maternal nutrition knowledge and nutritional status of toddlers, although statistically insignificant ( $p = 0.216$ ). This can be influenced by other factors such as maternal education, diet, nutritional intake, infectious diseases, family income, environmental sanitation and access to information.

Nutrition education interventions for mothers under five are urgently needed, especially in areas with a high prevalence of stunting. This educational program must be based on direct practices such as the creation of local MP-ASI and supported by active pran posyandu cadres, health workers and cross-sector support.

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