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The Relationship Between Stunting and Malnutrition with Toddler Development 24-59 Months

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Abstract
Introduction: *Stunting is a health problem that is often found in developing countries, including Indonesia. Many factors can cause high rates of stunting in toddlers. This stunting problem certainly not only affects children's growth but also their development.* ***Objective:*** *The aim of this research is to determine the relationship between stunting and malnutrition Toddler Development Aged 24-59 Months at Alai Health Center, Padang City* ***Method:*** *he research design used is quantitative with a cross-sectional approach which aims to describe the relationship between stunting and malnutrition with the development of toddlers aged 24-59 months in the Alai Health Center area, Padang City in 2024.* ***Result and Discussion****: The results of the study showed that out of 46 respondents with malnutrition status and abnormal development, there were 31 children (46.9%) with questionable development, there were 6 children (23%), while those with normal malnutrition with abnormal development were 2 children (3.1%) and those with questionable development were 7 children (27%). Based on the statistical test or Fisher's Exact Test, the p value was obtained 0.001.* ***Conclusions:*** *Researchers' efforts as health workers should increase mothers and families' awareness of the importance of toddler growth and development and the foods that should be consumed, especially those related to providing complementary foods to breast milk for babies.*

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Introduction

Stunting is a health problem that is often found in developing countries, including Indonesia. Stunting or short is a problem of chronic malnutrition caused by a lack of nutritional intake for a long time, resulting in growth disorders in children, namely the child's height is lower or shorter (dwarf) than the standard for their age (Kemenkes RI, 2019); (Carvalho, Exposto, Pereira, Fatima, & da Conceicao Pacheco, 2025); (Harahap, Amelia, Andayani, Lubis, & Aulia, 2022)

The condition of being short (stunting) based on the Decree of the Minister of Health of the Republic of Indonesia Number 1995/MENKES/SK/XII/2010 concerning the arthrometry standards for assessing the nutritional status of children is a condition where the results of measuring Body Length according to Age (PB/U) or Height according to Age (TB/U) are between -3 SD to 2 SD. If the measurement results of PB/U or TB/U are below -3 SD, it is called very short (severe stunting) (Kemenkes RI, 2020).

In 2017, there were 22.2% or 151 million children suffering from stunting worldwide (Anastasia et al., 2023). The largest proportion of stunting is in Asia with the number of stunted toddlers more than half of the cases in the world or as many as 83.6 million (55%), while the other third is in Africa as much as 39% of the number of stunted toddlers. The largest proportion of stunted toddlers in Asia comes from South Asia as much as 58.7% and the smallest proportion is in Central Asia as much as 0.9% of stunted toddlers. Southeast Asia is in second place with the number of stunted toddlers as much as 14.9% (UNICEF, 2018); (Sudarman, Aswadi, Syamsul, & Gabut, 2021); (Sari & Sagitarini, 2023)

In Indonesia, the incidence of stunting in toddlers is a major health problem faced (Kemenkes RI, 2018).The prevalence of stunting or short in Indonesia tends to be static. The results of the 2019 Riskesdas showed that the prevalence of stunting in toddlers in Indonesia was 36.8%. In 2018 it decreased to 35.6%. However, in 2017 the prevalence of stunting in toddlers increased again to 37.2% and in 2016 the prevalence of stunting in toddlers decreased further to 27.5%. In 2017 and 2018, the prevalence of stunting increased again to 29.6% and 30.8% (Kemenkes RI, 2019).

Exclusive breastfeeding or Breast milk is the most ideal food that has a big impact on the health, growth, and development of children so that breastfeeding is recommended for two years after birth. Breast milk contains the nutrients needed by babies in the right amount and is easy to digest. Improving optimal breastfeeding practices is the key to ensuring healthy child growth and development (Hadi et al., 2021); (Azlinasari, Sufriani, & Harahap, 2021)

Children need adequate nutrition for their growth and development. The role of parents, especially mothers, is very important in fulfilling children's nutrition because children need support and attention from parents in dealing with their growth and development. Good nutritional knowledge from parents is needed to get good nutrition for children so that parents are able to provide a balanced menu of choices (Pormes, Rompas, & Ismanto, 2014)

Low nutritional knowledge in mothers will affect the mother's attitude, behavior in choosing food, and the mother's behavior in providing food to toddlers, resulting in an imbalance in nutritious food needed by toddlers for growth and development, and ultimately causing poor nutritional status in toddlers. The low knowledge of mothers in the research area is also caused by the low motivation and participation of mothers in participating in counseling activities carried out by officers, so that mothers do not get more knowledge about health, especially about nutrition itself.

The results of the study also found that there are still many mothers who do not understand the nutrients contained in food ingredients and also mothers do not understand how to process food ingredients properly, which has an impact on the nutritional needs of toddlers themselves. This is due to the lack of exposure to information received by the mothers themselves, both through the mass media and through counseling provided by health workers (Jago, 2019)

Early childhood is a golden period that is very sensitive to the environment and this period lasts very short. This period is called the golden period of child development, the window of opportunity and the critical period. This period is a sensitive period, a period of rapid and important growth.

Toddlers have different growth and development rates, therefore parents must be more aware of their child's growth and development and need to recognize the danger signs (red flags) so that if there is a delay/Deviation in the child's growth and development, it can be identified more quickly. The problem of growth and development in children under the age of five in the world according to WHO in 2018, globally there are 149 million children under the age of five experiencing stunting, 49 million wasting and 40 million overweight. As many as 22% of all children under 5 years old experienced stunting in 2018, as many as 17 million children under five years old were affected by wasting in its severe form in 2018, a 45% increase in the number of overweight children under 5 years old in Africa and 33% in Asia, since 2000. Developmental problems that occur in Indonesia Based on the results of the Early Detection and Intervention Stimulation (SDIDTK) service on 500 children from five areas of DKI Jakarta, it was found that 57 children (11.9%) had developmental disorders (Prasma, Siringoringo, Widiastuti, & Butarbutar, 2021)

Method

The research design used is quantitative with a cross-sectional approach that aims to describe the Relationship between Stunting and Malnutrition with the Development of Toddlers Aged 24-59 Months in the Alai Health Center Area, Padang City in 2024. The study was conducted in September-December 2024. The population in this study were toddlers aged 24-59 with stunting as many as 31 toddlers and 15 toddlers with malnutrition in the Alai Health Center Work Area. The sampling technique used the total sampling technique, namely the entire population became the object of research, namely 46 people.

The types of data in this study are secondary and primary data. The instrument used to obtain secondary data in this study is KPSP and the primary data in this study is a questionnaire.

Result and Discussion

1. Result

Respondent Characteristics

Table 1
Respondent Characteristics Based on Gender in Toddlers Aged 24-59 Month at Alai Health Center

No	*Gender*	f	%
1	Man	21	45.7
2	Women	25	54.3
	Amount	**46**	**100**

Based on Table 1, it shows that out of 46 respondents, 21 were male (45.7%), while 25 were female (54.3%). So, most respondents were female.

Table 2
Respondent Characteristics Based on Age in Toddlers Aged 24-59 Months in Alai Health Center

No	*Age*	F	%
1	24-36 Months	22	47.8
2	37-59 Months	24	52.2
	Amount	**46**	**100**

Based on Table 4.2, the results of the study from 33 respondents found that 22 children (47.8%) were aged 24-36 months, while 24 children (52.2%) were aged 37-59 months

Univariate Analysis

a. Stunting in Toddlers

Table 3
Respondent Characteristics Based on Stunting in Toddlers Aged 24-59 Months in Alai Health Center

No	*Stunting*	F	%
1	Stunting	31	67.4
2	No Stunting	15	32.6
	Amount	**46**	**100**

Based on Table 3, it shows that out of 46 respondents, it was found that 31 children (67.4%) experienced stunting, while the remaining 15 children (32.6%) did not experience stunting.

b. Nutritional Status

Table 4
Respondent Characteristics Based on the Incidence of Malnutrition in Toddlers 24- 59 Months at Alai Health Center

No	*Nutritional Status*	F	%
1	Malnutrition	37	80.4
2	Normal Nutrition	9	19.6
	Amount	**46**	**100**

Based on Table 4, it shows that out of 46 respondents, it was found that 37 children (80.4%) experienced malnutrition, while 9 children (19.6%) had normal nutrition.

c. Development

Table 5
Respondent Characteristics Based on Development in Toddlers 24-59 Month at Alai Health Center

No	*Development*	f	%
1	Deviation	33	71.7
2	Doubtful	13	28.3
	Amount	**46**	**100**

Based on table 5, 33 children (71.7%) experienced deviant development, while 13 children (28.3%) experienced doubtful development. The results show that more children experienced deviant development.

Bivariate Analysis

Table 6
The Relationship Between Malnutrition and Toddler Development Aged 24-59 Months In Alai Health Center Area

Malnutrition	**Development**				**amount**		**p value**
	Deviation		**Doubtful**				
	f	**%**	**f**	**%**	**F**	**%**	
Malnutrition	31	46.9	6	23	37	69.9	**<0.001**
Normal Nutrition	2	3.1	7	27	9	30.1	
	33	**50.0**	**13**	**50**	**46**	**100**	

Based on table 6, out of 46 respondents with malnutrition status and abnormal development, there were 31 children (46.9%) with questionable development, there were 6 children (23%), while those with normal malnutrition with abnormal development numbered 2 children (3.1%) and those with questionable development numbered 7 children (27%). Based on the statistical test or Fisher's Exact Test, the p value was obtained = (0.000) < ÿ = 0.001. So, the hypothesis is determined that Ho is rejected or Ha is accepted, meaning that there is a relationship between stunting and malnutrition with the development of toddlers aged 24-59 months in the Alai Health Center area.

Table 7
The Relationship Between Stunting and Toddler Development Aged 24-59 Months in Alai Health Center Area

Stunting	Development				amount		p-value
	Deviation		Doubtful				
	f	%	f	%	F	%	
Malnutrition	28	42	3	11.5	31	53.5	**<0.001**
Normal Nutrition	5	8	10	38.5	15	46.5	
	33	**50.0**	**13**	**50**	**46**	**100**	

Based on table 7, out of 46 respondents with stunting and abnormal development, there were 28 children (42%) with questionable development, there were 3 children (11.5%), while stunting with malnutrition and abnormal development occurred in 5 children (8%) and with questionable development there were 15 children (38.5%).

Based on the statistical test or Fisher's Excat Test, the p value is obtained = (0.000) <ÿ = 0.001. So the hypothesis is determined that Ho is rejected or Ha is accepted, meaning that there is a relationship between stunting and malnutrition with the development of toddlers aged 24-59 months in the Alai Health Center area.

2. Discussion

Univariate Analysis

1) Stunting in toddlers

Based on the research results from 46 respondents, it was found that 31 children (67.4%) experienced stunting, while the remaining 15 children (32.6%) were malnourished.

Based on the results of research conducted in Wangen Village, most of the respondents were in the Short category, namely 23 respondents (77%). Stunting or short is a condition of failure to grow in infants (0-11 months) and toddlers (12-59 months) due to chronic malnutrition, especially in the first 1,000 days of life, so that the child is too short for his age. Malnutrition occurs since the baby is in the womb and in the early period after the baby is born, but stunting only appears after the child is 2 years old.

2) Malnutrition

Based on the results of the study with 46 respondents, it was found that out of 46 respondents, 37 children (80.4%) were malnourished, while 9 children (19.6%) were malnourished. The results showed that more children were malnourished. Based on the research results from 46 respondents, it was found that 31 children (67.4%) experienced stunting, while the remaining 15 children (32.6%) were malnourished. Nutritional status is a condition indicated as a consequence of the balance between nutrients that enter the body and those needed (Maryunani et al., 2010). Nutritional status is an expression of a state of balance in the form of certain variables, or the manifestation of certain nutrients (Supariasa et al., 2013).

Nutritional status is a picture of what is consumed by a person over a long period of time. Therefore, the availability of nutrients in a person's body determines the nutritional state whether it is lacking, optimum or more (Maryunani et al., 2010)Toddlerhood is an important period that needs to be considered by parents who have toddlers, because during this period the nutritional status of toddlers affects the growth and development of toddlers. Toddlerhood is a golden age because if toddlers experience malnutrition, the child's growth and development will be disrupted, usually toddlers who are malnourished tend to be thinner and shorter than their peers who have normal nutrition. In addition, malnutrition can interfere with cognitive development. Toddlers will be slow in thinking and understanding something.

3) Development

Based on the results of the study with 46 respondents from 46 respondents, it was found that respondents who experienced developmental deviations numbered 33 children (71.7%), while the development of children who were doubtful numbered 13 children (28.3%). Development concerns the process of differentiation of body cells, body tissues, organs, and organ systems that develop in such a way that each fulfills its function. Including cognitive, language, motor, emotional, and behavioral development because of interaction with the environment (Soetjiningsih, 2013).

Factors that influence growth and development according to Soetjiningsih (2015) in general there are two main factors that influence child growth and development, namely genetic factors, and environmental factors. Genetic factors include various normal and pathological congenital factors, gender, ethnicity, or nation. While environmental factors are divided into prenatal environmental factors, perinatal environmental factors, and postnatal environmental factors (Soetjiningsih et al., 2015).

Bivariate Analysis

The Relationship Between Malnutrition and the Development of Toddlers Aged 24-59 Months

Based on the statistical test or Fisher's Excat Test, the p value is obtained = (0.000) <ÿ = 0.001. So, the hypothesis is determined that Ho is rejected or Ha is accepted, meaning that there is a Relationship Between Stunting and Malnutrition with the Development of Toddlers Aged 24-59 Months in the Alai Health Center Area in 2024 with a total of 35 respondents.

In this study, there is a significant relationship between malnutrition and development that can affect the development of toddlers, based on the results of table 4.6. Respondents with developmental deviations who have poor nutritional status are 2 respondents (3.1%), and respondents with questionable development are 7 respondents (27%%). The researcher assumes that there is a significant relationship between malnutrition and development that can affect the development of toddlers, based on the results of table 4.6. Respondents with developmental deviations who have poor nutritional status are 2 respondents (3.1%), and respondents with questionable development are 7 respondents (27%%).

Nutritional status is a picture of what is consumed by a person over a long period of time. Therefore, the availability of nutrients in a person's body including infants and toddlers determines the nutritional status of infants and toddlers whether it is lacking, optimal or more. Food given to infants and toddlers will be used for body growth, therefore nutritional status and growth can be used as a measure to monitor the adequacy of infant and toddler nutrition, where all growth and health of toddlers are closely related to adequate food intake. Optimal growth and development in toddlers requires food that is appropriate for growing toddlers (Maryunani et al., 2010)

Relationship between Stunting and Toddler Development Aged 24-59 Months

Based on the analyzed journal, stunting is caused by multidimensional factors and is not only caused by poor nutrition experienced by pregnant women and toddlers. Several factors that cause stunting are poor parenting practices, limited health services including ANC-Ante Natal Care (health services for mothers during pregnancy) Post Natal Care and quality early learning, lack of household/family access to nutritious food, lack of access to clean water and sanitation (TNP2K, 2017).

This is in line with research conducted by (Probosiwi et al., 2017) which stated that stunting has a significant relationship with child development as indicated by OR 3.9 (1.7-8.9) which among the suspected developments, the possibility of children with stunting is 3.9 times greater than children with normal development. From the analyzed journals, stunting is related to the risk of stunted development, because in stunted children there

are changes in structure and function in brain development, there is a delay in the maturity of nerve cells in the cerebellum (Auliana, Susilowati, & Susiloningtyas, 2020)

Factors that influence growth and development according to Soetjiningsih (2015) in general there are two main factors that influence the growth and development of children, namely genetic factors, and environmental factors. Genetic factors include various normal and pathological congenital factors, gender, ethnicity, or nation. While environmental factors are divided into prenatal environmental factors, perinatal environmental factors, and postnatal environmental factors (Soetjiningsih et al., 2015). Researchers also assume from the results of research that has been conducted that stunting has a large influence on toddler development, because toddlers who are stunted will find it more difficult to grow normally as usual

Conclusion

Based on the results of the research that has been carried out, conclusions can be drawn as follows: Of the 46 respondents, it was found that 33 children (71.7%) experienced deviant development, while 36 respondents (71.7%) experienced abnormal development There were 13 children (28.3%) who were doubtful. The results showed that more children experienced abnormal development in toddlers in the Alai Health Center area. In 2024 and Based on the statistical test or Fisher's Excat Test, the p value = (0.000) <ÿ = 0.001 was obtained. So, there is a Relationship Between Stunting and Malnutrition with the Development of Toddlers Aged 24-59 Months and while stunting with the development of toddlers 24-59 Months Based on the statistical test or Fisher's Excat Test, the p value = (0.000) <ÿ = 0.001 was obtained. So, there is a Relationship Between Stunting and Malnutrition with the Development of Toddlers Aged 24-59 Months.

The hope for stunted children is that they can achieve optimal growth and development, so that they have a good quality of life in the future. This involves various efforts, from increasing public awareness to effective intervention programs.

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