



Relationship Of Maternal Nutrition Status And Mother's Height Of Stunting Events In Tolls At Puskesmas Pagambiran

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<p>Track Record Article</p> <p>Accepted: 22 February 2023 Revised: 14 March 2023 Published: 24 March 2023</p> <p>How to cite: Nasution, Namirah, A., Basyir, V., Mariko, R., Syah, Afrainin, N., Jurnalís, Dianne, Y., & Karmia, Rifa, H. (2023). Relationship Of Maternal Nutrition Status And Mother's Height Of Stunting Events In Tolls At Puskesmas Pagambiran. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 5(1), 102–112.</p>	<p style="text-align: center;">Abstract</p> <p><i>Stunting is a chronic malnutrition problem characterized by height for age which is <-2 SD according to the median standard of child growth. Stunting causes poor quality of human resources, which will reduce productivity. The factor causing the problem of stunting In Tolls AtPagambiran Health Center, Padang City is the lack of clean water sanitation. The purpose of this study was to determine the relationship between the nutritional status of the mother, the height of the mother, and the mother's knowledge of the incidence of stunting in toddlers at the Pagambiran Health Center, Padang City. This research is an observational analytic study with a cross-sectional design. This research was conducted at the Pagambiran Health Center in Padang City with 3457 populations in November 2021-December 2022. The research sample was 174 mothers and children aged 24-59 months. Sampling using Stratified Random Sampling and Simple Random Sampling. Data collection used a questionnaire and the MCH handbook. The statistical tests used are Chi-square and Logistic Regression. The results of the univariate study found that 55 mothers (31.6%) had a history of chronic energy deficiency, and 12 mothers (6.9%) had a height < 150 cm. The results of the bivariate study using chi-square analysis obtained the p-value of each variable, namely the mother's nutritional status (p=0.005) and mother's height (p=0.018). The study concludes that there is a relationship between the mother's nutritional status and the mother's height in the incidence of stunting in toddlers at the Pagambiran Health Center, Padang City. Researchers suggest that counseling related to stunting can be carried out for pregnant women and prospective brides as an initial preventive measure.</i></p> <p>Keywords: <i>Chronic Energy Deficiency, Mother's Height, Stunting.</i></p>
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INTRODUCTION

Stunting is a global malnutrition problem that is still getting world attention (Sudikno et al., 2022). In 2020, COVID-19 increased food insecurity and exacerbated existing health conditions among children (UNICEF, 2020). *Stunting* is a condition in which toddlers have less length or height than their age. This condition is measured by length or height that is less than minus two standard deviations of the WHO child growth standard median (Kemenkes RI, 2018b).

In 2019 the global prevalence of stunting was 21.3% (144 million) of children under five years of age experiencing stunting (UNICEF,2020). Whereas in 2020, the prevalence of stunting was 22% (149.2 million) (UNICEF, 2021). In Asia, around 54% of children under five years of age are stunted, and two out of five, with a prevalence of 40%, live in Africa(UNICEF, 2020). The prevalence of stunting in Timor Leste is 48.8%, and in Indonesia, it is 31.8% (UNICEF, 2021).

Over five years, the prevalence of stunting in Indonesia has decreased by 6.4% nationally, from 37.2% in 2013 to 30.8% in 2018 (Kemenkes RI, 2019). In 2019 the stunting prevalence rate was 27.67% (Kemenkes RI, 2019). In 2020 the stunting prevalence rate was 32.8% (UNICEF, 2020).

It was stunting in 2019 in the province of West Sumatra, with cases of stunting rates of 27.47%. The prevalence of stunting in Padang in 2019 was 20.92% (Kemenkes RI, 2019). Based on the regulation of the President of the Republic of Indonesia number 72 of 2021 concerning Accelerating the Reduction of Stunting, one of the stunting locations in West Sumatra is the city of Padang (Kemenkes RI, 2021).

Data from the Padang City Health Office report for 2020, there are 2943 stunted toddlers. The health center with the highest prevalence in 2020 was the Seberang Padang Health Center, namely 16.4%, but the prevalence has decreased in the last three years. Pagambiran Health Center is one of the health centers with the highest prevalence of stunting and has experienced an increase in the last three years.

In 2018, the prevalence of stunting at the Pagambiran Health Center was 5.65%; in 2019, it was around 11.5%, and in 2020 it was 12.3% (Padang, 2020). Assessment of nutritional status can be assessed by calculating body mass index (BMI), upper arm circumference (LiLa), and hemoglobin (HB) levels in the blood. The size of LiLa for each pregnant woman varies according to the nutrients consumed daily. LiLa size is normal ≥ 23.5 cm; if LiLa size is < 23.5 cm, it indicates a Chronic Energy Deficiency (CED).

Research on Burundi mothers' education level and knowledge about assessing children's nutritional status and providing health facilities predicts child stunting (Nkurunziza et al., 2017). Research conducted in Central Lampung also reported that maternal nutritional status during pregnancy was significantly associated with stunting in toddlers aged 6-59 months (Alfarisi et al., 2019). The same thing relates to this; there is research on the relationship between the nutritional status of mothers during pregnancy and the incidence of stunting in toddlers aged 6-36 months (Sukmawati et al., 2018).

Research conducted in Mexico shows that women with short stature are more likely to be overweight and have stunted children than those who are not short (Leksono,2021). In a study by Ratu, 2018, there was a relationship between maternal height and the incidence of stunting (Ratu et al., 2018). Stunting must be avoided and managed as soon as possible since it has several adverse effects, including growth failure, cognitive and motor development obstacles that impede brain development and educational achievement, but not appropriate physical body size, and metabolic issues (Wati et al., 2022).

The researchers' assumptions based on field observations found that stunting at the Pengambiran Toll Road in Padang City occurred because parents did not provide adequate nutrition while their children were growing. Another factor is that clean water sanitation is not sufficiently available, so many children often experience recurring illnesses; this is what causes children to experience stunting. of the problems described above, therefore the researcher is interested in conducting research on Relationship Of Maternal Nutrition Status And Mother's Height Of Stunting Events In Tolls At Pagambiran Health Center, Padang City

METHODS

This research is an analytic study using a cross-sectional design. The research was conducted in tolls at Puskesmas Pagambiran, Padang City, from November to December 2022. The population in this study was 3457, namely all children aged 24-59 months and their mothers at the Pagambiran Health Center in Padang City. The research sample comprised 174 respondents, and the sample had to meet the predetermined inclusion and exclusion criteria. The inclusion criteria of this study are mothers willing to become respondents, mothers who have an MCH book and complete MCH book filling, children who do not have congenital disabilities, and children who are born full term and single. At the same time, exclusion criteria are mothers who cannot meet three times in a row.

The sampling technique used a proportional random sampling method so that the results for each village were Pagambiran Village, 64 samples; Pampangan Village, 41 samples; BatuangTaba Village, 31 samples; KampuangJua Village, 19 samples and Gates Village, 19 samples. The sampling technique for each village uses a simple random sampling technique. Data collection was carried out for two months, from August to September 2022. Data was collected by measuring children's height and weight and conducting interviews and observations of mothers using questionnaires. The data were computerized using SPSS for univariate tests to determine frequency distribution. Bivariate analysis using chi-square and multivariate analysis using multiple logistic regression tests. This research has obtained

permission to pass ethics from the Faculty of Medicine Ethics Committee, Andalas University, with number 899/UN.16.2/KEP-FK/2022.

RESULTS

This research is descriptive-analytic. Data were collected for two months, from August to September 2022, by measuring the child's height and weight, looking at the mother's MCH book, and interviewing using a questionnaire. Respondents in this study were children aged 24-59 months and their mothers who met the inclusion and exclusion criteria.

The characteristics of the respondents in this study included age, education, and employment status. Data collection was obtained by conducting interviews with respondents. The frequency distribution of respondents based on the characteristics of mothers in Tolls At Puskesmas Pagambiran, Padang City, can be seen in the following table:

Table1. Characteristics of Respondents (Maternal)

Characteristics of Respondents	Frekuensi (f)	(%)
Age		
20-35 years	160	92%
>35 years	14	8%
Pendidikan Ibu		
-Elementary school	0	0
-Junior High school	21	12,1%
-Senior High school	146	83,9%
-College	7	4%
Employment status		
- Doesn't work	170	97,7%
- Work	4	2,3%

Table 1. explains that the majority of mothers in this study were in the 20-35 year age group of 160 people (92%); for ages > 35 years, there were 14 people (8%), and there were no mothers in the age group <20 years. Most of the mothers had an education level of graduating from high school/equivalent, as many as 146 people (83.9%). Furthermore, at the employment level, most mothers are homemakers, as many as 170 people (97.7%).

Table 2. Distribution of the Frequency of Stunting Incidents in Toddlers Aged 24-59 Months in the Work Area of the Pagambiran Health Center

Prevalence Stunting	Frekuensi (f)	Persen (%)
Stunting	74	42,5 %
Non stunting	100	57,5 %
Total	174	100%

Table 2. shows that as many as 74 people (42.5%) of toddlers aged 24-59 months at the Pagambiran Health Center in Padang City have a short height.

Table 3. The Relationship between Maternal Nutritional Status and Stunting Incidence in Toddlers in the Work Area of the Pagambiran Health Center

Variabel	<i>Stunting</i>				Total		p value
	Yes		Non		N	%	
	n	%	n	%			
Maternal Nutritional Status							
CED	32	18,4%	23	13,2%	55	31,6%	0,005
Non CED	42	24,1%	77	44,3%	119	68,4%	
Total	74	42,5%	100	57,5%	174	100%	

Table 3. explains that the highest proportion of stunting incidents occurred in mothers with a history of CED, namely 32 people (18.4%). From the results of statistical tests, the value of $p = 0.005$ ($p < 0.05$) was obtained. So based on these results, it can be interpreted that there is a significant relationship between the history of CED in pregnant women and the incidence of stunting in toddlers in the Pagambiran Health Center, Padang working area City.

Table 4. The Relationship between Mother's Height and Stunting in Toddlers in the Work Area of the Pagambiran Health Center

Variabel	<i>Stunting</i>				Total		pvalue
	Yes		Non		n	%	
	n	%	n	%			
Mother's Height							
Mother's Height <150 cm	9	5,2%	3	1,7%	12	6,9%	0,018
Mother's Height \geq 150 cm	65	37,4%	97	55,7%	162	93,1%	
Total	74	42,5%	100	57,5%	174	100%	

Table 4 explains that the highest percentage of stunting occurs in mothers with a height <150 cm, namely 5.2%. From the statistical test results, the value of $p = 0.018$ ($p < 0.05$) was obtained. Based on these results, it can be concluded that there is a significant relationship between the history of maternal height and the incidence of stunting in toddlers in the working area of the Pagambiran Health Center, Padang City.

DISCUSSION

Characteristic

Table 1 shows that the respondents in this study were 174 mothers with toddlers aged 24-59 months in the working area of the Pagambiran Health Center. The frequency of maternal age shows the highest distribution (92%) at the age of 20-35 years, meaning that most of the respondents are at the optimal age for pregnancy and childbirth. The study's results also showed no mothers aged <20 years and as many as 8% of mothers aged >35 years. Both age groups are

at risk. Table 2 shows that as many as 74 people (42.5%) of toddlers aged 24-59 months at the Pagambiran Health Center in Padang City have a short height.

The Relationship between CED and the incidence of stunting in children

Stunting is closely related to parameters of nutritional status of toddlers assessed with a height/age index so that gives an indication of chronic nutritional disorder as a result of the circumstances long (Rahmawati et al., 2018).

Reasons stunting is one of the problems which are interconnected. Stunting is the result of a short age nutrition starting from pregnancy to toddler. This causes there is a problem with the network child's physical growth permanent, thus resulting in decreased psychological and motor power. Stunted children have a score Intelligence Quotient (IQ) is lower than IQ in normal children. Growth and development in children as a result of malnutrition if you don't get it. Early intervention will continue to maturity (Kemenkes RI, 2018).

The results of statistical tests using the Chi-Square test between the history of CED in pregnant women and the incidence of stunting in this study obtained $p = 0.005$, which means that $p < 0.05$. So from these results, it can be concluded that there is a significant relationship between the history of CED in pregnant women and the incidence of stunting in toddlers aged 24-59 months in the working area of the Pagambiran Health Center. This also shows that the hypothesis in this study is accepted.

This research is in line with Yulianto & Hana's (2022) stunting that there is a relationship between the nutritional status of mothers during pregnancy and the incidence of stunting in the working area of the UPT Puskesmas Kota Dalam, Pesawaran Regency with the result $p = 0.013$, which means there is a significant relationship. The mother's health condition and nutritional status during pregnancy can affect the growth and development of the fetus. Mothers who experience chronic energy deficiency or anemia during pregnancy will give birth to babies with low birth weight (LBW). Low birth weight LBW is often associated with less height or stunting. Therefore, prevention efforts are needed by establishing and strengthening policies to improve maternal nutrition and health interventions starting from adolescence.

In line with Wulandari's research (2021), it was found that the p-value was 0.003 (< 0.05) so H_0 was rejected. Because of the significant value of $0.003 < 0.005$, it can be concluded that there is a relationship between the nutritional status of mothers during pregnancy and the incidence of stunting in toddlers aged 0-24 months at the Kaligesing Purworejo Health Center in 2020. There are many factors that can influence the incidence of stunting in toddlers, one of which is the nutritional status of mothers during pregnancy, which is caused by not being able

to meet the needs of nutritional food that is reversed and sufficient as needed, resulting in growth and development that is not optimal and susceptible to infectious diseases that in the future result in stunting in toddlers, Pregnant women need to eat nutritious foods to meet their needs such as tempeh, tofu rich in protein, milk, fish, eggs, nuts, vegetables and fruits for weight gain during pregnancy so that the upper arm circumference also increases (Y. Wulandari et al., 2023)

Efforts that can be made for the fulfillment of nutrition in infants, so that the number of nutritional status can be less overcome, namely the consumption of diverse food to meet nutritional needs toddler is the most important suggestion to make it happen is a factor that affects parental education and economic status of food in toddlers which is not suitable, lack of knowledge society against stunting (body short) and lack of awareness society of importance measuring the height of each toddler month to posyandu. Possible solution done is the way to increase parental knowledge about the nutritional needs of toddlers (Yuningsih, 2022).

The researcher assumes that the mother's nutritional status before and during pregnancy affects the nutrition of the fetus. Malnutrition is related to a disturbed fetus, which will impact low birth weight and cause stunting. Therefore, it is necessary to improve the quality of providing care from the pre-conception, delivery, and postpartum period and counseling regarding balanced nutrition and supplementary feeding to mothers who are chronically deficient in energy.

The Relationship between Mother's Height and Stunting in Toddlers

Factors associated with the incidence of stunting, namely parenting style, body weight birth, history of infection under five, history of disease pregnancy, parental height, and factors socioeconomic. Parents height is the body size of the father and mother measured using a deep micro toise accuracy of 0.1 cm from toe to head by stating the category of short mothers when height <150 cm and normal ≥ 150 cm, while the father category is short if the height is <155 cm and normal if it is ≥ 155 cm (Ratu et al., 2018).

Mother's height can affect child's linear growth over the period growth which includes genetic and non-genetic factors. At the individual level, mother's height associated with the child's genetic potential for reach their full height in adulthood. In populations where the prevalence of stunting is high, Mother's height also reflects a history of restriction growth experienced by the mother in early childhood his life (Andari et al., 2020).

Table 2 explains a relationship between maternal height and the incidence of stunting using the Chi-Square test obtained $p = 0.018$, meaning that the value of $p < 0.05$. Based on the statistical results, it can be concluded that there is a significant relationship between maternal

height and the incidence of stunting in children aged 24-59 months in the Working Area of the Pagambiran Health Center, Padang City.

Sumiaty's research (2019), shows that a mother's height is a risk factor for children with stunting. The same thing was also obtained from the results of a study conducted by Ratu in 2018 that there was a relationship between maternal height and the incidence of stunting in children aged 24-59 months (Ratu et al., 2018). Research conducted by Yulianto & Hana (Yulianto & Hana, 2022) in the working area of the UPT Puskesmas Kota Dalam, Pesawaran Regency, stated that there was a relationship between maternal height and the incidence of stunting $p < 0.05$ ($p = 0.002$).

This study is not in line with Septriana's (2016) research which shows the results of the Chi Square Test at $\alpha = 0.05$ obtained a p-value of 0.195. This shows that there is no relationship between mother's height and the incidence of stunting toddlers. Not in line with Hadibah's research (2019) which obtained the results of an analysis based on the Chi-Square test showed that there was no meaningful relationship between maternal height and the incidence of stunting in toddlers aged 24-59 months in Maron district, Probolinggo Regency ($p = 0.704$).

Based on research Andari et al., (2020), mothers with short height (< 150 cm) have a 2.7 times greater risk of having a stunted child compared to mothers with normal height (> 150 cm). Another research that conducted in Gianyar Regency, Bali, shows mothers with short height (< 150 cm) tend to have stunted children (Manggala et al., 2018). If the parent is short due to nutritional deficiencies or diseases, it is likely that the child can grow to a normal height as long as the child is not exposed to other risk factors (Hariani et al., 2018).

The study's results found that some mothers had the low height but had children with normal height (1.7%). This was obtained by observations made by researchers on several mothers, stating that mothers provide good nutrition to their children, for example, exclusive breastfeeding, children have no history of infectious diseases, mothers are very concerned about diet and the type of food consumed by children.

CONCLUSIONS

The conclusions in this study were prepared based on the research results and discussion, which referred to the research objectives. The conclusions from the research conducted in the Pagambiran Health Center Work Area are: There is a relationship between the nutritional status of mothers, namely Chronic Energy Deficiency in as many as 32 people (18.4%) to the incidence of stunting in toddlers at Pagambiran Health Center, there is a relationship between

mother's height <150 cm in 9 people (5.2%) to the incidence of stunting in toddlers at the Pagambiran Health Center.

Genetics that carry short traits also affect performance hormone that plays a role in growth. There is growth hormone affect cortical bone deposition and possibly stimulate growth and height gain. This must be balanced with adequate nutritional intake to support its growth so that the next generation will not be affected by growth failure or stunting (Baidho et al., 2021).

It is expected to provide counseling to women of childbearing age, prospective brides, and pregnant women on an ongoing basis about the importance of pre-pregnancy nutritional status, nutritional status during pregnancy, breastfeeding, and solids as an effort to prevent stunting through providing education, counseling or leaflets to pregnant women. These mothers have under-fives and toddlers regarding stunting as a whole.

SUGGESTION

It is expected to provide counseling to women of childbearing age, prospective brides, and pregnant women on an ongoing basis about the importance of pre-pregnancy nutritional status, nutritional status during pregnancy, breastfeeding, and solids as an effort to prevent stunting through providing education, counseling or leaflets to pregnant women. These mothers have under-fives and toddlers regarding stunting as a whole.

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