International Journal of Multidisciplinary Approach Research and Science
E-ISSN 2987-226X P-ISSN 2988-0076
Volume 1 Issue 03, September 2023, Pp. 518-526
DOI: https://doi.org/10.59653/ijmars.v1i03.278

Factors associated with the incidence of stunting in children aged 6-24 months in the Cileungsi area

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Received: 18-09-2023 *Reviewed: 20-09-2023* *Accepted: 28-09-2023*

Abstract
Stunting is a chronic malnutrition problem caused by a lack of nutritional intake over a long period of time, resulting in growth disorders, namely short children. This study aims to determine the factors associated with the incidence of stunting in toddlers aged 6-24 months in Cileungsi area. This method of research is a correlational study with a cross sectional approach. Sampling was carried out using non-probability sampling using total sampling. The sample in this study was 50 respondents in the Cileungsi area, namely mothers with toddlers aged 6-24 months who were willing to be respondents. Data was collected using interviews and height observations. The results showed that 56% of children aged 6-24 months experienced stunting (28 children), 3% (6 children) had low birth weight history, 14% (7 mothers) had hemoglobin levels during pregnancy is anemia, 56% did not receive exclusive breastfeeding (28 children). The results of the multivariate analysis showed that exclusive breastfeeding was the variable that had the significant relationship with the incidence of stunting in children aged 6-24 months in the Cileungsi area (p value = 0.000). Recommendations it is hoped that volunteer will always provide motivation, enthusiasm, education, and conduct home visits to the community regarding the importance of exclusive breastfeeding.
Keywords: Stunting, exclusive breast feeding, anemia, low birth weight

Introduction

Stunting is a chronic malnutrition problem caused by a lack of nutritional intake for quite a long time, resulting in impaired growth in children, namely the child's height is lower or shorter (dwarf) than the standard age. Based on the results of the Indonesian Nutrition Status Survey (SSGI), the prevalence of stunting in Indonesia fell from 24.4% in 2021 to 21.6% in 2022. Meanwhile, the threshold for stunting to be considered a public health problem is 20%,

meaning that stunting is still a serious threat. for the Indonesian people (*Sistem Informasi Direktorat Gizi Masyarakat Kemkes*, n.d.).

Efforts to accelerate the prevalence of stunted children are a government priority. Even though there has been a decrease from 30.8% in 2018 to 27.67% in 2019, the stunting prevalence rate is still quite high because almost one in three Indonesian toddlers is stunted. The government itself has set a fairly ambitious stunting reduction target of 14% by the end of 2024 (Tim Nasional Percepatan Penanggulangan Kemiskinan, 2020). Potential factors that influence inhibition include socio-economic, family, health services, nutrition, and health status. Genetic factors, exclusive breastfeeding, child birth weight, age suitability for giving M-PASI, as well as family education level and food intake also influence growth retardation in early childhood. (Rahayu et al., 2016). The aim of this research is to identify factors that contribute to the incidence of stunting in the Cieleungsi area.

Literature Review

The First 1000 Days of Life

The First 1000 Days of Life are the 270 days (nine months) in the womb plus the first 730 days (two years) of a child's life. The First 1000 Days of Life are very sensitive in optimizing a child's growth and development and determining the quality of their life in the future. This phase is called the Golden Period because during this period very rapid brain growth occurs. Malnutrition in this period will result in damage or stunted growth that cannot be repaired in the next period of life. Sufficient nutrition while in the womb will make the fetus grow and be born as a healthy, strong and perfect baby in every phase of its development and growth (Indah, 2017).

Stunting

Stunting is a chronic nutritional problem caused by a lack of nutritional intake over a long period of time, generally this is due to food intake that is not in accordance with nutritional needs. The problem of stunting starts in the womb and only becomes visible when the child reaches the age of two years. For UNICEF, stunting is defined as the percentage of children aged 0 to 59 months, with a height below minus (moderate and severe stunting) and minus three (chronic stunting), this is measured using child growth standards issued by WHO (Kemenkes, 2018).

Stunting is a condition where children experience failure to grow and develop, characterized by abnormal height and impaired intelligence. Stunting can occur because in the first 1,000 days of life (HPK) the child experiences problems calculated from 270 days of the mother's womb, and up to the child's age of 2 years (Devianto et al., 2022).

Factors that influence stunting

Several factors that influence the occurrence of stunting include low birth weight, exclusive breastfeeding, complementary feeding and immunization. Low birth weight (LBW) babies are one of the consequences of pregnant women suffering from chronic energy deficiency.and have poor nutritional status. LBW is associated with high infant and toddler

mortality rates, which will have an impact on the quality of future generations, namely slowing children's growth and mental development, as well as reducing intelligence (IQ). A baby's first and main food is mother's milk. Babies who drink breast milk will grow well if they can consume 150-200 cc/kg BW/day of breast milk. WHO and UNICEF recommend exclusive breastfeeding. Exclusive breastfeeding is defined as the act of not giving other food or drinks (even water) except breast milk . Growth disorders or stunting occur in children over 6 months of age because they come from complementary foods with breast milk. Breastfeeding alone can no longer provide enough energy and nutrients to improve children's growth and development optimally (Marlan Pangkong, A.J.M Rattu, 2017).

Oktaviani, et all (2022) explains the risk factors that influence the occurrence of stunting, including Chronic Energy Deficiency (CED), anemia in pregnant women, stunted (short) pregnant women, weight gain in pregnant women, and pregnancy in teenagers. Chronic energy deficiency is defined as those who have a body mass index (BMI) of less than 18.5 while the upper arm circumference is less than 25.5 cm. Pregnant women who experience CED at conception tend not to experience improvements in nutritional status during pregnancy or may continue to experience CED.

Anemia in pregnant women can cause the placenta to not develop completely so that the weight of the placenta is lower which can result in abnormalities in the structure of the placenta. This will hinder the process of transporting food from the pregnant mother to the fetus. The next impact is that the fetus will experience obstacles to growth and development while in the womb. Pregnant women who experience anemia increase the risk of stunted fetal growth, prematurity and low birth weight.

The factor of a mother being stunted or short can influence a child to experience stunting. Genetic factors with a short history can determine the occurrence of stunting in babies born. Short pregnant women generally have a growing fetus that is carried by the mother. If the mother is short in height, there is a risk of passing on chromosomal genes to the child born so that the child will have a short body or be stunted.

Weight gain during pregnancy is an important indicator in indicating that the nutritional needs of pregnant women and the growth and development of their fetus are met adequately, both in quantity and quality. The weight gain of pregnant women can store nutrients which can later be used for breast milk production. Whether or not the mother's weight gain is adequate during pregnancy is determined by the mother's nutritional status as measured by the body mass index (BMI) before entering pregnancy.

Understanding the growth of adolescent girls is very important, because this is related to the pregnancy period and future growth of the fetus. After the birth of a teenage girl, her body will experience rapid growth in two periods, namely during the first two years of life, especially the first year of life, and the next period when entering pre-puberty or what is called accelerated growth.

Research Method

This research is a quantitative study using the correlational study method which aims to determine the relationship between the variables studied. Using a cross-sectional study approach, researchers observe or measure variables at certain times.

This research was conducted in the Cileungsi area, Cigarogol Village RT.09 RW.03. The population in this study were all toddlers aged 6-24 months in the Cileungsi area, Cigarogol Village RT.09 RW.03, totaling 50 people. The sampling technique used in this research is nonprobability sampling using total sampling. So the sample size in this study was 50 toddlers aged 6-24 months in the Cileungsi area, Cigarogol Village RT.09 RW.03. The type of data used in this research is primary data. The primary data in this study were obtained from interviews and observations of the heights that were asked and direct measurements were taken at the time of the study. Prior to conducting the research, he submitted a research permit No: 012/e/D/I/2023 and obtained approval from the head of RT 09 Rw 03 Kampung Cigarogol, Mekar Sari sub-district, Cileungsi District, Bogor.

Results

Table 1. Characteristics of Children Aged 6-24 Months in the Cileungsi area (N=50)

Characteristics	Frequency (N)	Percentage (%)
Stunting		
Not stunted	22	44
Stunting	28	56
Birth Weight		
Normal	47	94
Low birth weight	3	6
Mother's Hemoglobin Level during Pregnancy		
Normal	43	86
Anemia	7	14
Exclusive breastfeeding		
Exclusive breastfeeding	22	44
Not exclusive breastfeeding	28	56

Based on table 1 above, it shows that 56% (28 children) of children aged 6-24 months who are stunted, have low birth weight at birth of 6% (3 children), the hemoglobin level of pregnant women who are anemic is 14% (7 mothers) and 56% (28 children) children aged 6-24 with a history of not getting exclusive breastfeeding.

Table 2. Relationship between Birth Weight, Hemoglobin Levels of Pregnant Women and Exclusive Breastfeeding with the Incident of Stunting in Children Aged 6-24 Months in the Cileungsi Area (N=50)

Variabel	Stunting				P Value	OR 95% CI
	Stunting		Tidak Stunting			
	N	%	N	%		
Birth Weight						
Low birth weight	3	6	0	0	0,113	-
Normal	25	50	22	44		
Mother's Hemoglobin Level during Pregnancy						
Anemia	0	0	7	14	0,001	2,867 (1,906-4,312)
Normal	28	56	15	30		
Exclusive breastfeeding						
Not exclusive breastfeeding	28	56	0	0	0,000	-
Exclusive breastfeeding	0	0	22	44		

Based on table 2 above, it shows that 50% of children aged 6-24 months with normal weight experience stunting (25 children), pregnant women have normal hemoglobin levels and 56% of children experience stunting (28 children), children aged 6-24 months who were not given exclusive breast milk and experienced stunting was 56% (28 children). The results of the chi square test showed that there was no significant relationship between birth weight and the incidence of stunting in children aged 6-24 months (P value = 0.113). Meanwhile, hemoglobin levels in pregnant women (P value = 0.001; OR 95% CI = 2.867 (1.906-4.312)) and those who are not exclusively breastfed (p value = 0.000) have a significant relationship with the incidence of stunting in children aged 6-24 months.

Table 3. Factors Associated with the Incident of Stunting in Children Aged 6-24 Months in the Cileungsi Area (N=50)

No	*Variabel*	*Koef*	*Sig*	*Exp*
1	Birth Weight	0,240	0,113	0,786
2	Mother's Hemoglobin Level during Pregnancy	0,241	0,001	0,786
3	Exclusive breastfeeding	0,241	0,000	0,786

Based on table 3, it is found that exclusive breastfeeding is the variable that has the most dominant relationship with the incidence of stunting in children aged 6-24 months in the Cileungsi Region (p value = 0.000).

Discussion

Relationship between Birth Weight and Stunting in Children Aged 6-24 Months in the Cileungsi Region

Based on the research results, it shows that there is no significant relationship between birth weight and the incidence of stunting in children aged 6-24 months in the Cileungsi Region (P value = 0.113). This is in accordance with research (Komalasari et al., 2020) that there is no relationship between LBW and stunting (p value: 0.743; OR: 1.000). The absence of a relationship between LBW and stunting can also be caused by the greatest effect on birth weight at the age of 6 months and then decreases until the age of 2 years. If in the early 6 months, toddlers can catch up with growth, so there is a chance for toddlers to have bodies with normal height and avoid stunting at a later age (Tanzil & Hafriani, 2021). Efforts to reduce the proportion of stunted children under five and babies with LBW are 2 of the 4 targets for efforts to improve nutrition in the world (WHO, 2012) namely reducing the proportion of children under five who are stunted by 40% and reducing the proportion of children born with low weight by 30% (Halim et al., 2021). Other research shows different results that there is a significant relationship between history of birth weight status (p=0.015) and the incidence of stunting in children under 2 years (Rahayu et al., 2016)

Prevention of babies born with Low Birth Weight and stunting must start from the beginning of the pregnancy process (preconception) by preparing young women to become healthy mothers. However, the results of Riskesdas show that as many as 36.3% of young women aged 15-19 years experienced Chronic Energy Deficiency. In women of reproductive age 15-49 years, as many as 17.3% who are pregnant are at risk of Chronic Energy Deficiency in 2018. Chronic Energy Deficiency in young women and pregnant women is a nutritional problem caused by a lack of energy in a long period of time and also is the cumulative result of malnutrition from the fetus, infancy and childhood, and continues into adulthood. Chronic Energy Deficiency can interfere with the growth of the fetal brain, especially in the first trimester of pregnancy (Ninda et al., 2021).

The incidence of anemia in Indonesia is still quite high. Based on the 2018 Riskesdas data, the prevalence of anemia in adolescents is 32%, meaning that 3-4 out of 10 adolescents suffer from anemia. This is influenced by nutritional intake that is not optimal and lack of physical activity. The main intervention needs to be done to prevent stunting before getting married and after marriage. Before marriage, namely during adolescence prevention of anemia is carried out through specific interventions by holding national nutritional actions. One of the interventions is to give blood-boosting tablets to young women at schools and health centers. (*Sistem Informasi Direktorat Gizi Masyarakat Kemkes*, n.d.).

The Relationship between Hemoglobin Levels of Pregnant Women and the Incident of Stunting in Children Aged 6-24 Months in the Cileungsi Area

Based on the results of the study, it was shown that hemoglobin levels in pregnant women had a significant relationship with the incidence of stunting in children aged 6-24 months in the Cileungsi Region (P value = 0.001; OR 95% CI = 2.867 (1.906-4.312)). This is in accordance research (Kiran & Dewi, 2017) that there is a relationship between the mother's history of HB

during pregnancy and the incidence of stunting in children aged 1-3 years in the Kalirejo District Health Center Working Area. With an OR value of 5.444, it means that mothers with abnormal hemoglobin are 5 times at risk of giving birth to children with a risk of stunting compared to mothers who do not have anemia. Pregnant women with anemia are often found because during pregnancy the need for nutrients increases and changes occur in the blood and bone marrow. The hemoglobin level during pregnancy is related to the length of the baby to be born, the higher the Hb level, the longer the size of the baby to be born. Prematurity and Low Birth Weight are also risk factors for stunting, so that anemia in pregnant women can indirectly cause stunting in toddlers. The World Health Organization has set a target for 2025 to reduce 50% of the incidence of anemia during the reproductive period (WHO, 2012). One of the causes of anemia due to economic factors. Communities that have a more or less economic condition are at risk of anemia during pregnancy and this influences the occurrence of stunting (Assaf & Juan, 2020).

The relationship between exclusive breastfeeding and the incidence of stunting in children aged 6-24 months in the Cileungsi area

Based on the research results, it shows that exclusive breastfeeding has a significant relationship with the incidence of stunting in children aged 6-24 months in the Cileungsi area (p value=0.000). This is in accordance with the research (Ilmi Khoiriyah et al., 2021) that there is a significant relationship between a history of exclusive breastfeeding and the incidence of stunting, toddlers who are not exclusively breastfed are 5.3 times more likely to become stunted compared to toddlers who are exclusively breastfed. A child will grow well if given adequate nutrition according to his needs (Tanzil & Hafriani, 2021). The effect of exclusive breastfeeding on changes in stunting status is caused by the function of breast milk as an anti-infection. Insufficient breastfeeding and giving food or formula too early can increase the risk of stunting because babies tend to be more susceptible to infectious diseases such as diarrhea or respiratory diseases (Ilmi Khoiriyah et al., 2021).

Sari's research (2021) shows that out of 193 children aged 12-23 months, 29.5% are stunted. Children who are not given exclusive breastfeeding have a higher risk of stunting compared to babies who are not given exclusive breastfeeding (Sari et al., 2021).

Conclusion

Factors that influence the incidence of stunting include low birth weight, maternal hemoglobin during pregnancy, exclusive breastfeeding. The most significant factor in the incidence of stunting is exclusive breastfeeding. The suggestion of this research is education about exclusive breastfeeding.

Funding Acknowledgment

Thank you to the PKP DKI Jakarta health and technology institute, chairman of RW 03, chairman of RT 09, the volunteer team and residents of RT 09 Rw 03 Cigarogol Cileungsi.

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