

OVERVIEW OF MATERNAL PREGNANCY HISTORY IN STUNTED TODDLERS

Novita Amalia Fatma Putri, Yulia Susanti*, Dona Yanuar Agus Santoso, Riani Pradara Jati

Sekolah Tinggi Ilmu Lesehtan Kendal, Jln Laut 31 Kendal, Central Java 51311, Indonesia

*yuliasusanti@stikeskendal.ac.id

ABSTRACT

Stunting or short stature is a condition of impaired growth and development in infants and toddlers caused by chronic malnutrition, resulting in the child being too short for their age. The prevalence in Kendal Regency has decreased, but it has not yet met the target. Objective to describe the maternal pregnancy history of children with stunting. This is a quantitative study using a retrospective approach. The population in this study consists of mothers with toddlers experiencing stunting, located in the stunting locus health centers in Kendal Regency, totaling 680 individuals. The sample was selected using a purposive technique with a cluster sampling approach, with a total sample size of 251 participants. The characteristics of the respondents show that the average age of the mothers is 28 years, with 115 mothers (45.8%) having a high school education. The majority of mothers are unemployed or housewives, totaling 110 (43.8%). Male toddlers account for 132 (52.6%) of the sample, and 132 (52.6%) of the mothers have toddlers classified as severely stunted. The maternal pregnancy history reveals that the majority, 233 (92.8%), are at risk due to factors such as pregnancy spacing, body stature, pregnancy planning, iron (Fe) supplement intake, nutritional intake, prenatal checkups, pregnancy-related hypertension, anemia during pregnancy, pregnancy contractions, and rest patterns.

Keywords: pregnancy history; stunted; toddlers

INTRODUCTION

The incidence of stunting in toddlers is a major nutritional problem faced by Indonesia. Stunting in toddlers is one of the indicators of chronic nutritional status that can reflect socioeconomic conditions (Adriani & Wijatmadi, 2012). Based on data from nutritional status monitoring (PSG) over the last three years, stunting in toddlers has the highest prevalence compared to other nutritional issues such as undernutrition, wasting, and obesity. The prevalence of stunting in toddlers increased from 27.5% in 2016 to 29.6% in 2017. Indonesia ranks 17th out of 117 countries with a prevalence of 30.8% (Kemenkes, 2019). Stunting has significant health impacts, including impaired growth and development (low birth weight, small stature, thin body, and short height), as well as cognitive and motor delays. In adulthood, individuals affected by stunting are at higher risk of non-communicable diseases such as diabetes, obesity, stroke, and heart disease. Stunting also affects population growth by reducing human resource productivity (Ali, 2018). The short-term impacts of nutritional problems include impaired brain development, reduced intelligence, stunted physical growth, and metabolic disorders. In the long term, stunting can lead to decreased cognitive abilities, poor academic performance, and weakened immune systems, making individuals more susceptible to illness (Kemenkes, 2018).

The causes of stunting include a history of low birth weight in toddlers, a history of infectious diseases, parenting practices related to nutrition, the absence of exclusive breastfeeding, the availability of food and clothing, parental education, and socio-cultural and economic factors. Specifically, poor or inadequate parenting behaviors can lead to stunting, such as a mother's lack of knowledge in meeting her nutritional needs during pregnancy, insufficient nutritional preparation for pregnancy, and inadequate postnatal nutrition to improve breast milk production

(Ariyanti, 2015). Stunting begins during the fetal stage due to the mother's poor nutritional intake during pregnancy. As a result, the fetus does not receive adequate nutrition in the womb. Malnutrition can hinder growth and may persist after birth. Stunting in children can be caused by various factors, including genetics, insufficient nutritional intake during pregnancy and after birth, recurrent infections, and parents' lack of knowledge about normal child development (Hadiati, 2020). A mother's nutritional intake during pregnancy is a critical factor for the baby, as inadequate nutrition during pregnancy can affect the newborn's nutritional status. Starting in the second trimester, malnutrition can impact fetal development, as this period is crucial for the growth of the fetus's head, body, and bones. Poor nutrition in pregnant women can also lead to risks and complications, such as anemia (Zeffira et al., 2022).

Children with a history of low birth weight are at higher risk of experiencing stunting compared to those born with normal weight. One of the causes of low birth weight is the mother's nutritional status before and during pregnancy, which plays a critical role in determining birth weight. However, low frequency of visits to antenatal care (ANC) services also affects both maternal and child health. Mothers with fewer than four ANC visits are 1.15 times more likely to give birth to a baby with low birth weight. The issue of low birth weight requires attention due to its complex causes and impacts. However, antenatal care services can have a preventive effect on children with a history of low birth weight (Aisy & Kurniasari, 2022). The role of public health in preventing stunting involves designing, developing, and evaluating programs aimed at reducing the incidence of stunting. Government efforts to combat stunting include implementing the 1,000 Days of Life (1.000 HPK) program and conducting regular antenatal check-ups to reduce the risk of stunting, as well as providing more food to children of pregnant mothers. However, this remains a shared responsibility, not only of the government but also of all Indonesian families. This includes providing proper nutrition during the first 1,000 days of a child's life and maintaining cleanliness and health in the environment (Satriawan, 2018).

A preliminary study conducted by the researcher found that 7 out of 10 respondents, mothers of toddlers with stunting, did not plan their pregnancies, while 3 respondents reported planning their pregnancies. During their pregnancies, 3 respondents indicated that they consumed healthy foods and iron (Fe) vitamins, whereas 7 respondents said they consumed healthy foods but rarely took iron (Fe) vitamins. Previous pregnancy issues can also cause or influence the occurrence of stunting in their toddlers. The health and nutritional status of mothers before and during pregnancy can impact fetal growth and the risk of stunting. Therefore, the research problem can be formulated as, "What is the maternal pregnancy history of children with stunting?"

METHOD

This study employs a quantitative research design using a retrospective approach. The population in this study consists of mothers with toddlers experiencing stunting across 5 health center areas, totaling 680 toddlers. Sampling was conducted using a purposive technique with a cluster sampling approach, resulting in 251 respondents who met the inclusion criteria: biological mothers of toddlers with stunting who live in the same household and reside in the study area. The research locations include 5 health centers in Kendal Regency that are focused on stunting, namely Kaliwungu Selatan Health Center, Kangkung Health Center, Cepiring Health Center, Pegandon Health Center, and Ringinarum Health Center. The research instruments include a questionnaire

on respondent characteristics and a questionnaire on pregnancy history. Data analysis was performed using univariate analysis.

RESULT AND DISCUSSION

Table 1.
Characteristics of Respondents Based on Age

Age	Mean	Median	Mode	Min-Max
Mother	30,57	32.00	28	22-40
Toddler	1,980	2,00	1	1-3

Table 1 shows that the data analysis results indicate that the majority of mothers are 28 years old, with the youngest mother being 22 years old and the oldest being 40 years old. The toddlers' ages range from a minimum of 1 year to a maximum of 3 years, with the youngest toddler being 1 year old and the oldest being 3 years old.

Table 2.
Frequency Distribution of Mothers Education and Employment (n = 251)

Variable	f	%
Education		
No formal education	9	3,6
SD (Elementary)	30	12,0
SMP (Junior High)	80	22
SMA (High School)	115	45,8
Diploma	5	2,0
Bachelor's degree	12	4,8
Employment		
Unemployed	110	43,8
Self-employed	55	21,9
Factory worker	20	8,0
Farmer	53	21,1
Civil servant	6	2,4
Others	7	2,8

Table 2 shows that the majority of mothers have a high school education (SMA), with 115 respondents (45.8%). Additionally, the majority of mothers are unemployed or identified as housewives, totaling 110 respondents (43.8%).

Table 3.
Frequency Distribution of Toddler Characteristics by Gender and Stunting Status (n = 251)

Variable	f	%
Gender		
Male	132	52,6
Female	119	47,4
Stunting Status		
Short	119	47,4
Severely Short	132	52,6

Table 3 shows that the majority of toddlers are male, with 132 toddlers (52.6%). Regarding stunting status, most toddlers are classified as severely stunted, totaling 132 toddlers (52.6%).

Table 4.
Frequency Distribution of Pregnancy History Characteristics (n = 251)

Variable	Frequency	Percentage
Pregnancy Interval		
<2 years	62	24,7
2 – 4 years	131	52,2
≥4 years	58	23,1
Arm Circumference		
KEK : < 23,5 cm	30	12,0
Normal : ≥ 23,5 cm	221	88,0
Pre-Pregnancy Weight		
< 45 kg	57	22,7
45-60 kg	161	64,1
≥60 kg	33	13,1
Height		
At Risk : < 150 cm	41	16,3
Normal : ≥ 150 cm	210	83,3
Pregnancy Planning		
Planned	135	53,8
Unplanned	116	46,2
Iron (Fe) Supplementation		
Yes	139	55,4
No	112	44,6
Nutritional Intake Changes		
Yes	202	80,5
No	49	19,5
Prenatal Care Visits		
< 4 visits	61	24,3
4-8 visits	172	68,5
≥8 visits	18	7,2
Hypertension During Pregnancy		
Yes	78	31,1
No	173	68,9
Anemia During Pregnancy		
Yes	72	28,7
No	179	71,3
First Contraction		
Second Trimester	53	21,1
Third Trimester	198	78,9
Maternal Rest Pattern During Pregnancy		
Adequate	251	100
Inadequate	0	0

Table 4 shows that the majority of mothers have a pregnancy interval of 2-4 years, totaling 131 (52.2%). The arm circumference indicates that 221 respondents (88.0%) have normal measurements. Regarding pre-pregnancy weight, most mothers fall within the range of 45-60 kg, with 161 (64.1%). For maternal height, the majority are ≥ 150 cm, comprising 210 (83.3%). In terms of pregnancy planning, most pregnancies were planned, with 135 (53.8%) reporting this. The consumption of iron (Fe) supplements was prevalent, with 139 (55.4%) mothers taking them. Regarding nutritional intake during pregnancy, a significant majority, 202 (80.5%), reported changes in their dietary patterns. Most mothers had 4-8 prenatal check-ups, accounting for 172 (68.5%). Regarding hypertension during pregnancy, the majority did not experience it, with 173 (68.9%) reporting no hypertension. Similarly, most mothers did not experience anemia during

pregnancy, with 179 (71.3%) indicating they were free from anemia. The majority experienced their first contractions during the third trimester, totaling 198 (78.9%). Finally, all mothers reported that their rest patterns during pregnancy were adequate, with 251 (100.0%) indicating sufficient rest.

Table 5.
 Frequency Distribution of Maternal Pregnancy History (n = 251)

Variable Risk Status	Frequency	Percentage
At Risk	233	92,8
Not At Risk	18	7,2

Table 5 shows that the majority of maternal pregnancy histories are categorized as not at risk, with 233 respondents (92.8%) indicating low risk. Only 18 respondents (7.2%) fall into the at-risk category.

The results of the study indicate that the majority of mothers with stunted toddlers have a risky pregnancy history characterized by several factors, including problematic pregnancy intervals, insufficient arm circumference, low pre-pregnancy weight, height below normal, lack of pregnancy planning, inadequate iron (Fe) supplementation, insufficient nutritional intake, fewer than four prenatal check-ups, and the presence of hypertension and anemia. Additionally, many mothers experienced contractions in the second trimester and reported inadequate rest during pregnancy. Almost all mothers exhibited a history of risky pregnancies, suggesting a significant correlation between these risk factors and the occurrence of stunting in their children. These findings highlight the need for targeted interventions to improve maternal health and nutritional status before and during pregnancy. Strategies should include education on the importance of prenatal care, adequate nutritional intake, and planning for pregnancies to mitigate the risk factors associated with stunting. Addressing these issues could contribute to healthier pregnancies and better developmental outcomes for children.

The results of the study indicate that the majority of mothers with stunted toddlers have a risky pregnancy history, particularly concerning pregnancy intervals, which significantly contribute to a higher risk of stunting. This finding is supported by Ernawati (2021), who emphasizes the importance of women, especially adolescents, in learning and understanding women's health and the responsibilities of motherhood. By doing so, they can better plan for the ideal age for marriage and pregnancy, manage pregnancy intervals, and pay attention to nutritional needs during pregnancy. Maintaining appropriate pregnancy intervals allows parents to focus on providing love and the best nutrition for their children, which is crucial in preventing stunting. Effective education and support programs targeting maternal health and pregnancy planning can thus play a vital role in reducing the incidence of stunting and promoting healthier developmental outcomes for children.

The results of the study indicate that almost all mothers of stunted toddlers have upper arm circumferences (LiLA) measuring ≥ 23.5 cm. If LiLA is below normal (< 23.5 cm), it is considered an indicator of inadequate nutritional status and potential chronic energy deficiency (KEK). The measurements show that nearly all mothers with stunted toddlers have arm circumferences below this threshold, suggesting that maternal nutritional deficiencies can lead to stunted growth in their children. In Indonesia, one of the parameters used to assess the nutritional status of pregnant women is the upper arm circumference (LiLA). Inadequate energy and protein intake during pregnancy can lead to chronic energy deficiency (IBD). Pregnant women are at risk of IBD if their LiLA measurement is ≤ 23.5 cm (marked in red on the LILA scale). Conversely, a measurement

greater than 23.5 cm indicates that the pregnant woman is not at risk of KEK (Indonesia, K.K.R., 2018). This issue underscores the importance of maternal awareness during pregnancy, particularly regarding the necessity of having at least four prenatal check-ups to monitor LiLA measurements. Early identification of chronic energy deficiency in pregnant women allows healthcare providers to implement timely interventions, helping to ensure better health outcomes for both mothers and their children. Such proactive measures can significantly contribute to reducing the prevalence of stunting in children.

Furthermore, the majority of mothers had a pre-pregnancy weight ranging from 40 to 60 kg, while nearly all had a height of ≥ 150 cm. The condition of mothers before pregnancy, particularly in terms of body posture (weight and height) and nutritional status, is a crucial factor contributing to the occurrence of stunting. As future mothers, adolescent girls should aim for good nutritional status. This assertion is supported by research from Muhdar et al. (2019), which states that women should achieve an ideal height and weight during pregnancy. For pregnant women at risk of chronic energy deficiency (IBD), the government has established nutrition improvement programs that include the provision of nutritional supplements, such as biscuits fortified with protein, linoleic acid, carbohydrates, and enriched with 11 vitamins and 7 minerals. Attention to maternal body posture, including arm circumference, weight, and height before pregnancy, is essential, as chronic energy deficiency (IBD) in pregnant women can adversely affect the health of the baby, potentially leading to stunting. Thus, ensuring that mothers are well-nourished and in good health prior to and during pregnancy is vital for preventing stunting in their children.

The results of this study indicate that half of the mothers with stunted toddlers did not plan their pregnancies. Each pregnancy should be well and carefully planned, as unprepared pregnancies carry a high risk of stunting in children due to inadequate nutritional intake for the pregnant mother. According to Saputri (2019), child marriage is one of the factors contributing to the high prevalence of stunting in Indonesia, with 30-35% of stunting cases occurring among children born to young women. There is a pressing need for education on reproductive health and preparation for healthy pregnancies. This approach should be implemented in a timely manner, including psychological and financial preparations. Therefore, providing pre-marital counseling is essential to prevent stunting by enhancing understanding of reproductive health. Such initiatives can empower young couples to make informed decisions about family planning and ensure better health outcomes for both mothers and their children.

The results of the study indicate that half of the mothers with stunted toddlers did not consume iron supplements during pregnancy. Iron is crucial during pregnancy as it enhances metabolism in the body. A deficiency of iron during this period can be extremely dangerous, putting both the pregnant mother and the toddler at risk of various complications, including stunting. Toddlers require iron for growth, as much of the blood transferrin carries iron to the bone marrow and other parts of the body. Research by Fatimah and Wirjatmadi (2018) shows that iron from animal sources is more easily absorbed by the body, and zinc is primarily found in animal-based foods. This highlights the importance of consuming a varied and balanced diet to prevent stunting in toddlers. Ensuring adequate intake of these nutrients is essential for promoting healthy growth and development in early childhood.

The research results indicate that nearly all nutritional intake during pregnancy is adequate. Stunting begins to occur while the fetus is still in the womb, often due to the mother's inadequate nutritional intake. As a result, the nutrition received by the child in utero may not be sufficient, leading to growth hindrances that can continue after birth. This study is supported by Sari et al. (2022), who state that providing information and education has a positive impact on pregnant women during childbirth. Survey data show that the knowledge of pregnant women improves when they receive counseling, making them more aware of stunting. This increased knowledge can help maintain their health and ensure proper nutritional intake during pregnancy. Pregnant women who experience nutritional deficiencies are at risk of giving birth to babies with low birth weight (LBW). Therefore, it is crucial for pregnant women to understand the importance of balanced nutrition to maintain their nutritional status and ensure the health of the fetus.

The research findings indicate that one-quarter of mothers with stunted children did not undergo 4-8 prenatal check-ups during pregnancy. Preventing stunting should begin during the first 1,000 days of life, which includes regular prenatal examinations. When pregnant women come in for check-ups, they can receive various information and education related to pregnancy and childbirth preparation early on, which can help reduce the incidence of stunting. Additionally, the results reveal that one-quarter of mothers had a history of hypertension during pregnancy. Hypertension is a condition that should be routinely monitored in pregnant women, as it increases the risk of stunting in children by 4.9 times compared to mothers with normal blood pressure. Hypertension during pregnancy is a risk factor for premature birth, which can impede growth and development processes. This is supported by research conducted by Fitriani et al. (2022), which shows that routine prenatal examinations are essential due to the relationship between hypertension during pregnancy and the occurrence of stunting. Babies born prematurely to hypertensive mothers may experience inadequate oxygen supply in the umbilical cord blood flow, which can lead to placental resistance. This situation further worsens the physical growth of the fetus and impacts the child during their early years.

The research findings indicate that more than half of the mothers with stunted children experienced anemia during pregnancy. Anemia in pregnant women leads to inadequate nutrition for the child; when a fetus or child does not receive sufficient nutrition, their growth and development can be impaired, triggering stunting. Supporting research by Marbun et al. (2019) highlights the importance of knowledge among pregnant and breastfeeding mothers regarding nutritional intake for young children in preventing stunting. One effective measure is the provision of iron supplementation during pregnancy to address anemia, which can increase the risk of hemorrhage during pregnancy and even lead to maternal mortality. In addition to helping produce hemoglobin during pregnancy, iron supplements assist mothers in meeting the nutritional needs for fetal development, thereby helping to prevent stunting in their children.

The research findings indicate that a significant majority of mothers with stunted children experienced contractions during the third trimester of pregnancy. These contractions, known as Braxton Hicks contractions, are irregular uterine contractions that occur throughout pregnancy. Often referred to as "false contractions," they typically happen more frequently at night, although their intensity and frequency do not increase over time. The cramping felt by mothers is a natural response as the pregnancy approaches delivery. Moreover, the study revealed that all mothers with stunted children reported having adequate rest patterns during pregnancy. However, any

disturbances in rest patterns can adversely affect maternal health, increasing the risk of miscarriage or premature birth. Supporting research by Nata (2023) emphasizes that contractions are a natural occurrence during pregnancy. It is crucial for pregnant women to consume a nutritious diet to ensure the fetus is protected from stunting. Additionally, maintaining a healthy lifestyle and ensuring adequate rest are essential during pregnancy. This includes taking vitamins, engaging in regular exercise, getting sufficient sleep, and staying hydrated, all of which contribute to the well-being of the developing fetus and help prevent stunting.

Based on previous research findings and existing theories, the researcher assumes that several factors—such as Pregnancy Spacing, Pregnancy Planning, Contractions during Pregnancy, and Prenatal Check-ups—are essential for expectant mothers to effectively predict and monitor their baby's development. Furthermore, Vitamin Consumption, Nutritional Intake, and Rest Patterns must be actively practiced by pregnant women to prevent diseases that could lead to severe complications, such as Hypertension and Anemia. These elements collectively contribute to the overall health of both the mother and the fetus, ultimately reducing the risk of adverse outcomes such as stunting in children.

CONCLUSION

The characteristics of the respondent mothers indicate that the average age is 28 years, with the youngest being 22 years old and the oldest being 40 years old. The majority of mothers have a high school education, totaling 115 respondents (45.8%), and most do not work, with 110 respondents (43.8%). The characteristics of the stunted children show that the average age of the children is 1.88 years, with the youngest being 1 year old and the oldest being 3 years old. Most of the children are male, totaling 132 children (52.6%), and the stunting status falls into the very short category, also with 132 children (52.6%). The maternal pregnancy history indicates that the majority (233 respondents or 92.8%) are at risk, as seen from various factors such as pregnancy spacing, body posture, pregnancy planning, iron (Fe) vitamin consumption, nutritional intake, frequency of prenatal check-ups, as well as the presence of hypertension and anemia during pregnancy, and insufficient rest patterns. These findings highlight the importance of addressing these factors in efforts to prevent stunting in children.

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