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Factors Affecting the Event of Stunting

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ABSTRACT
In 2022, the study population consisted of all mothers of children under the age of five who visited the stunting locus area for health screenings. This study's sample consisted of 120 participants: 60 cases and 60 controls. Total sampling was employed as the sampling method. Analysis of data using the chi-square and multiple logistic regression tests. According to the results of the bivariate analysis using the chi-square test, two variables were significantly associated with the prevalence of stunting: mother age (p = 0.012) and history of prenatal examination (p = 0.047). The results of the multivariate analysis with multiple logistic regression test revealed that there were 3 variables that influenced the incidence of stunting in children under the age of five, namely the maternal age variable with a p value of 0.001, the birth spacing variable with a p value of 0.018, and the history of pregnancy examination variables with a p value of 0.018, with the mother's age variable being the most influential variable with an odds ratio (OR) value of 1.02. Participating in the Nutrition Awareness Family program reduces the incidence of stunting among women who plan a pregnancy throughout adulthood (20-35 years) and set a safe birth spacing of more than 2 years between pregnancies. As well as consistently doing prenatal checks (> 4 times) and using the Nutrition Monitoring book as a source of information throughout early pregnancy, it is recommended to reduce the occurrence of stunting.

Keywords: Stunting, Maternal Age, History of Prenatal Care, Nutrition

INTRODUCTION

In children under the age of five, a condition known as "stunting" occurs when they are too small for their age due to persistent malnutrition (Afework et al., 2021; Kasaye et al., 2019; Nshimyiryo et al., 2019). The first two years of a child's life are characterized by rapid growth (a "growth spurt"), making this time a "window of opportunity" for the child's development. Decree of the Minister for Health in 2010 defines "stunting" as a child's nutritional status measured by the index of body length for age (PB/U) or height for age (TB/U), with measurement results that are at or below the standard value or the z-score of less than or equal to 3 SD for stunted and less than or equal to 3 SD for very short children (severely stunted).

Prenatal malnutrition increases new born and toddler mortality, makes people sicker and creates poor posture as an adult in the patients. There are also long-term economic consequences for sufferers because their cognitive capacities are also impaired. Short-term and long-term effects of stifling growth can be detrimental. For a short time, stunting can lead to growth failure, cognitive and motor development hurdles that influence brain development and educational success, and a less-than-optimal physical body size as well as metabolic problem (Permatasari et al., 2020; Handryastuti et al., 2020; Nuzuliana & Wijhati, 2021). A growth issue manifests itself in the form of stunting; if this occurs, one of the body's organs is quickly at risk, namely the brain.

During the learning process, the brain's nerve cells are directly linked to the child's response, including what the child sees, hears, and thinks. Long-term stunting affects intellectual capacity, nerve and brain cell dysfunction that is permanent and causes a decrease in the ability to absorb school-age lessons that will affect productivity as adults and increase the risk of non-communicable diseases like diabetes mellitus, hypertension and coronary heart disease (Onyango et al., 2021). The RPJMN goal for toddlers with short and very short nutritional status is 28%, according to the 2018 Basic Health Research (Riskesdas). According to the Indonesia data of 2019 profile statistics, there were 528 stunting toddlers in 15 public health centre regions (Jayanti et al.,

2021). One of 360 metropolitan districts where integrated stunting reduction interventions would be focused in 2018-2020 is based on an April 9, 2020, decision by the Minister of National Development Planning or Head of Bappenas No KEP 42/41/HK/04/2020. Stunting prevention efforts necessitate a coordinated approach that includes dietary interventions delivered to families' priority target groups and the locations where they live over the course of the first 1,000 days (HPK). The annual survey of the District Health Office found that 76.68 percent of families met the nutritional awareness family (Kadarzi) standard in 2018.

Kadarzi is a method of implementing family-based nutritional habit. Mother's knowledge and views, family traditions, and the leadership role of community leaders, as well as Kadarzi's exposure to information, influenced Kadarzi's conduct. Only 59.47 percent (59.47 percent) of Kadarzi which is below the national objective of 80%. Short and very short toddlers in Indonesia have decreased overall, although this is still regarded crucial for more research to take place (Benton, 2010).

Toddlers' nutritional status is a barometer for the future health and intellect of a country, therefore a country's growth in these areas will be built on the foundation of healthy toddlers and those with good nutritional status (not stunting). In spite of the fall in stunting, it remains a major public health issue in all developing countries (Kumar et al., 2021). There is evidence that not all village leaders and commitments to addressing stunting can adopt the spirit of the central pattern and the local government. Stunting management commitments are still translated differently in different villages because each village head has a different understanding and sense of the urgency of stunting management (Indra & Khoirunnurrofik, 2022). Stunting handling guidelines and techniques, as well as budget, are not standardized. When it comes to large-scale national campaigns and behavioural change communication, the best strategy is still up in the air.

METHODS

Case-control research design and retrospective technique are used in this quantitative investigation. A total of 528 women with young children participated in this study. Purposive sampling of up to 120 participants was used in this investigation.

RESULTS

There were 2,693 malnourished toddlers (9.05 percent) in 2020, according to the public health centre study. The Promise Health Centre had the largest number of undernourished children under the age of five, at 522. In Regency's of Labuhan batu has 528 short toddlers (1.78 percent) with 202 cases at the Labuhan Bilik Health Centre being the most common.

Univariate Analysis

Mother's Age

The results of the univariate analysis for the maternal age variable can be seen in the following table:

Table 1
Frequency Distribution by Mother's Age

Mother Age	n	%
Risky	40	33,3
No Risk	80	66,7
Total	120	100

That shows that of the 120 respondents investigated, those who are younger than 20 or older than 35 are 40 respondents (33.3 percent) and those who are not at risk are 80 respondents (20-35 years) (78 .3 percent).

Parity

The results of the univariate analysis for the parity variable can be seen in the following table:

Table 2
Frequency Distribution by Parity

Parity	n	%
Risky	54	45,0
No Risk	66	55,0
Total	120	100

Of the 120 people surveyed, 54 had parity at risk, and 66 (55%) had parity at risk, according to Table 2. (45 percent).

Birth Distance

The results of the univariate analysis for the birth spacing variable can be seen in the following table:

Table 3
Frequency Distribution by Birth Distance

Birth Distance	n	%
Risky	54	45,0
No Risk	66	55,0
Total	120	100

As can be seen, of the 120 people who took part in the research, 54 (45.0 percent) were considered at risk (the gap between the prior child's birth and the current one was less than two years), while the remaining 66 (46.0 percent) were not (55 ,0 percent).

Nutritional Status

The results of univariate analysis for nutritional status variables can be seen in the following table:

Table 4
Frequency Distribution by Nutritional Status

LILA size	n	%
Risky	20	16,7
No Risk	100	83,3
Total	120	100

Demonstrates that of the 120 respondents analysed, 100 of them (83.3%) are not at risk, while 10 of them (3.3%) are at risk (16.7 percent).

History of Pregnancy Check-up

The results of univariate analysis for pregnancy examination variables can be seen in the following table:

Table 5
Frequency Distribution by History of Pregnancy Examination

Pregnancy test	n	%
Risky	48	40,0
No Risk	72	60,0
Total	120	100

A total of 48 (40%) of the 120 participants studied were classified as "at risk" (having had fewer than four prenatal check-ups and not receiving all of the recommended services), while the other 120 participants (having had more than four prenatal check-ups and receiving all of the recommended services) are shown in Table 5. total of 72 respondents if all 10 T are completed

(60 percent).

Bivariate Analysis

The Relationship Between Mother's Age with Stunting Incidence:

Table 6

Distribution of Maternal Age Relationship with Stunting Incidence

Mother Age	Stunting incident				Total		*p*
	Stunting		Not stunting				
	f	%	f	%	f	%	
Risky	27	67,5	13	32,5	40	100	0,01
No Risk	33	41,3	47	58,8	80	100	2
Total	60	50	60	50	120	100	

Table 6 shows that out of 120 people who were either under the age of 20 or above the age of 35, 27 (67.5%) died as a result of stunting, while 13 (32.5 percent). While there were 80 participants between the ages of 20 and 35, 33 (41.3 percent) of those participants experienced stunting, while 47 (58.8 percent) of those participants did not. Based on the p value = 0.012 obtained from statistical testing, it is possible to draw the conclusion that the proportion of stunted children under the age of five differs depending on whether the mothers are at risk or not. Therefore, it is reasonable to conclude that mother age is associated with a higher risk of stunting.

Relationship Between Nutritional Status and Stunting Incidence

Table 7

Distribution of Relationship between Nutritional Status and Incidence of stunting

LILA Size	Stunting incident				Total		*p*
	Stunting		NOT Stunting				
	f	%	f	%	f	%	
Risky	10	50,0	10	50,0	20	100	
No Risk	50	50,0	50	50,0	100	100	
Total	60	50	60	50	120	100	1,000

Among the 120 participants with a LILA size of 23 cm, 10 (50 percent) have malnutrition and 10 (50 percent) do not have stunting, according to Table 7. While there were 100 respondents with a LILA size of 23 cm, 50 (50%) respondents had malnutrition, and 50 (50%) respondents did not have stunting, there were 50 (50%) respondents in each group. With a p value of 1,000, the statistical test shows that there is no difference in the proportion of stunting episodes between nutritional statuses at risk and those without risk. We may conclude from these data that nutritional status has no bearing on the occurrence of stunting.

The Relationship Between Pregnancy Check-up History and Stunting Incidence

Table 8

Distribution of Relationship between History of Pregnancy Examination and Incidence of stunting

ANC Frequency	Stunting incident				Total		*p*
	Stunting		Not Stunting				
	F	%	f	%	f	%	
Risky	29	60,4	19	39,6	48	100	
No Risk	31	43,1	41	56,9	72	100	0,047
Total	60	50	60	50	120	100	

The 14th row of Table 14. Of the 120 women who underwent prenatal exams four times but did

not receive the full complement of 10 T services, 29 (60.4%) showed signs of stunting, whereas only 19 (39.6%) did not. In the meantime, there were 72 women who had their pregnancies checked more than four times and received 10 T treatments in all, including 31 (43.1 percent) who were stunted and 41 (56.9 percent) who were not. Based on the p value = 0.047 derived from statistical tests, it can be determined that the frequency of prenatal check-ups 4 times and those 4 times differ in their share of stunting events. A correlation between Pregnancy Examinations and the prevalence of stunting can thus be concluded.

DISCUSSION

Stunting affects children's growth and development, as well as their motor skills and productivity, and increases their chance of developing non-communicable diseases, such as asthma and diabetes (Wibowo et al., 2022). Potential economic losses owing to decreased job productivity and increased maintenance expenses are a result of stuttering in toddlers. The quality of human resources, productivity, and competitiveness of the nation will be negatively impacted by all of these (Djamil, 2020). In the long run, efforts to address the issue of stunting through a family-based strategy will provide greater outcomes. Stunting can be avoided or minimized if enough nutrition is met, including macronutrients and micronutrients (Mousa et al., 2019). MP-ASI is an essential component of diet since it contains macro and micronutrients that have a role in linear growth (Muldiasman et al., 2018). The supply of high-protein, calcium-rich, vitamin A-rich, and zinc-rich diets can help youngsters grow taller. Normal development patterns can be restored if appropriate nutrition is provided. The risk of stunting can be increased if MP-ASI is given less frequently or if it is given too early.

Shocking occurs when a mother does not provide her child with appropriate and proper nutrition, especially when it comes to the way she feeds her infant (Utami et al., 2019). Even during pregnancy and lactation, a mother's lack of nutrition can have a significant impact on the development of her child's body and brain (Ramadhan et al., 2022). Short birth spacing, maternal infection, teenage pregnancy, maternal mental health issues, and infected children under the age of five are all risk factors for stunting (Fauziah et al., 2022; Mediani 2020; Kragel et al., 2020). Children's growth is also negatively impacted (Chang 2019; Pembrey et al., 2014; Onis et al., 2007) by the lack of access to health care and sanitary facilities (Cameron et al., 2021), as well as clean water. Nutritional improvement (Crowley et al., 2019; Reber et al., 2019; Nkhata et al., 2018) can be achieved in two ways: directly (particular actions) and indirectly (as a result of the causes that produce nutritional disorders) (sensitive activities). Pregnant women's PMT, KEK, blood-added pills, prenatal check-ups, TT vaccination, and vitamin A for postpartum mothers are all examples of health sector initiatives. Starting with BMI, exclusively nursing, administering vitamin A, monitoring growth, basic immunization, and giving MP-ASI for new born and toddlers. In the meanwhile, sensitive activities include sectors such as the reduction of poverty, the provision of food (Serrem et al., 2020; Yen 2021; Fallaize et al., 2020), the development of jobs, and the improvement of infrastructure.

CONCLUSION

The results of the study reveal that the progress achieved requires effective communication strategies in identifying areas that require nutritional intervention, so there is still a need for programs to reduce stunting rates which have a direct impact. The nutrition and food security program are implemented in collaboration with the health office in the form of a program that focuses on handling nutrition specifically. It is hoped that regional leaders, heads of sector-leading OPDs, cross-sectoral OPDs and lines to villages will cooperate in efforts to deal with stunting.

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