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Determinants of stunting in babies under five years

Ivan Elisabeth Purba[1], Dewi Syahriani Harahap[2], Donal Nababan[3], Evawani Martalena Silitonga[4]
[1,2,3,4]Postgraduate Directorate, Universitas Sari Mutiara, Indonesia

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ABSTRACT

The aim of this research is to analyze the determinants of stunting in toddlers. This research is an analytical survey research with a cross-sectional design explaining the relationship between knowledge, parenting patterns, socio-economic and access to sanitation, exclusive breastfeeding and the incidence of stunting in toddlers. This research was conducted in the Hutagodang health center working area, South Labuhan Batu Regency from January to August 2023. The population was mothers who had toddlers and the entire population was sampled. The research results show that there is a significant relationship between knowledge, parenting patterns, socio-economic factors, exclusive breastfeeding and the incidence of stunting in toddlers. There is no relationship between access to sanitation and the incidence of stunting in toddlers. The most dominant factor in the incidence of stunting in toddlers is knowledge with an exposure (β) of 4,558 greater than the exposure (β) of other variables. Parents of toddlers are expected to increase their knowledge about stunting, its impacts and how to prevent it. This can be done through printed media such as leaflets, brochures, magazines which have been provided by the community health center at the village hall, village office, posyandu and village health post, electronic media or outreach carried out by village midwives, community health center officers and village officials.

Corresponding Author:

Ivan Elisabeth Purba,
Postgraduate Directorate,
Universitas Sari Mutiara,
Jl. Kapten Muslim No.79, Helvetia Tengah, Kec. Medan Helvetia, Kota Medan, Sumatera Utara 20123, Indonesia,
Email: nababan_donal@yahoo.com

INTRODUCTION

Stunting in children is a global nutritional problem and can threaten the nation's generation and become a public health problem if the prevalence is greater than 20% (Rachmayanti et al., 2022)(Prastia & Listyandini, 2020). Stunting is a health problem that is often found in developing countries, including Indonesia. Stunting is a risk factor for increased mortality, reduced cognitive abilities and low motor development as well as unbalanced body functions(Stikes Respati, 2020)(MONICA et al., 2022).

Fulfilling nutritional intake at 1000 HPK for children is very important to obtain optimal nutritional intake(Yulastini et al., 2022)(Kumala et al., 2022). The contribution of the health sector only contributes 30%, while the non-health sector contributes 70% in overcoming nutritional

problems. In the 1000 HPK movement, it was explained that to overcome the problem of malnutrition, specific and sensitive interventions are needed(Rosha et al., 2016).

Stunting has an impact on reducing productivity, increasing the risk of degenerative diseases, and increasing the birth of babies with low birth weight, as well as increasing poverty in the future(Brahmana et al., 2022).

The bad impact of stunting is decreased cognitive ability, decreased immunity and will reduce the quality of Indonesia's human resources, productivity and the nation's competitiveness(Yekti, 2020)(Asatuti et al., 2021).

Mother's parenting style influences the incidence of stunting. Parenting patterns such as feeding practices, psychosocial stimulation, hygiene practices, environmental sanitation and use of health services have a significant relationship with the incidence of stunting(Bella et al., 2020).

According to the 2019 Study on the Nutritional Status of Indonesian Toddlers, the prevalence of stunting in North Sumatra Province was 30.11%(RI, 2019) and this prevalence is still higher than the 2020-2024 RPJMN target of 19%.

Economic conditions are closely related to the risk of stunting because economic conditions will show the family's ability to meet nutritious food intake.(Febriani et al., 2016) states that there is a relationship between economic status and the incidence of stunting. Respondents with low economic status have a 15.3 times greater risk of suffering from stunting than respondents with high economic status. (Ngaisyah, 2015) research also shows that income is significantly related to the incidence of stunting with an OR of 2.42, meaning that children whose families have low incomes have a 2.42 times risk of becoming stunted compared to those who have high incomes.

A household with a poor level of implementation of PHBS has a higher risk of experiencing stunted children compared to a better one(Langi, 2020)(Darmawan et al., 2022)(Sriyanah et al., 2023).

Mothers with a better level of knowledge are more likely to apply their knowledge in caring for their children, especially providing food according to the nutrients needed by toddlers, so that they do not lack food intake(C. Ni'mah & Muniroh, 2015)(Laili, 2019).

(Ramdaniati & Nastiti, 2019) state that there is a relationship between the mother's level of knowledge and the incidence of stunting. Research by (K. Ni'mah & Nadhiroh, 2015)in Surabaya shows that maternal knowledge is related to the incidence of stunting. Research by Handayani, et al (2019) shows that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers.

Based on ePPGBM (Community Based Nutrition Recording and Reporting application) data from the Labuhan Batu Selatan District Health Service on March 1 2023, data on children under five stunted was 38.6%, meaning that the prevalence of stunting was higher than the health service's target of 28%. Through short interviews at the posyandu, it was found that some mothers did not understand stunting, the impact of stunting, and the factors that cause stunting. Based on this, researchers are interested in analyzing the determinants of stunting among children under five in the Hutagodang Community Health Center Working Area, Labuhan Batu Selatan Regency.

RESEARCH METHOD

Stunting in children is a global nutritional problem and can threaten the nation's generation and become a public health problem if the prevalence is greater than 20% (Kemenkes RI, 2017). Stunting is a health problem that is often found in developing countries, including Indonesia. Stunting is a risk factor for increased mortality, reduced cognitive abilities and low motor development as well as unbalanced body functions.

Fulfilling nutritional intake at 1000 HPK for children is very important to obtain optimal nutritional intake. The contribution of the health sector only contributes 30%, while the non-health sector contributes 70% in overcoming nutritional problems. In the 1000 HPK movement, it was

explained that to overcome the problem of malnutrition, specific and sensitive interventions are needed (Rosha, 2016).

Stunting has an impact on reducing productivity, increasing the risk of degenerative diseases, and increasing the birth of babies with low birth weight, as well as increasing poverty in the future (Bappenas RI, 2018).

The bad impact of stunting is decreased cognitive ability, decreased immunity and will reduce the quality of Indonesia's human resources, productivity and the nation's competitiveness (Eko Sandjojo, 2017).

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A household with a poor level of implementation of PHBS has a higher risk of experiencing stunted children compared to a better one (Lina Apriani, 2018).

Mothers with a better level of knowledge are more likely to apply their knowledge in caring for their children, especially providing food according to the nutrients needed by toddlers, so that they do not lack food intake (Lailatul, 2015).

Siti Nur' (2019) state that there is a relationship between the mother's level of knowledge and the incidence of stunting. Research by Ni'mah and Nadhiroh (2015) in Surabaya shows that maternal knowledge is related to the incidence of stunting. Research by(Handayani et al., 2019) shows that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers.

Based on ePPGBM (Community Based Nutrition Recording and Reporting application) data from the Labuhan Batu Selatan District Health Service on March 1 2023, data on children under five stunted was 38.6%, meaning that the prevalence of stunting was higher than the health service's target of 28%. Through short interviews at the posyandu, it was found that some mothers did not understand stunting, the impact of stunting, and the factors that cause stunting. Based on this, researchers are interested in analyzing the determinants of stunting among children under five in the Hutagodang Community Health Center Working Area, Labuhan Batu Selatan Regency.

RESULTS AND DISCUSSIONS

This research is an observational study using a cross-sectional design. This research was conducted in the working area ofthe Hutagodang Community Health Center, Labuhan Batu Selatan Regency from January to August 2023. The population in this study were mothers with toddlers and the sample was the entire population. Collecting primary data through direct interviews was guided by a questionnaire. Data analysis was carried out in stages including univariate and bivariate analysis.

The Relationship between Knowledge and the Incident of Stunting in Toddlers

The results of the bivariate analysis of the relationship between knowledge and the incidence of stunting in children under five will be presented in the following table:

Table 1. Relationship between knowledge and incidence of stunting in toddlers

No	Knowledge	Incidence of stunting in toddlers				Total		*P value*
		Stunting		Not Stunted				
		n	%	n	%	n	%	
1.	Good	5	18.5	22	81.4	27	100.0	*0.015*
2.	Enough	12	52.1	11	47.8	23	100.0	
3.	Not Enough	22	73.3	8	26.6	30	100.0	

From table 1, it is known that of the 27 respondents with good knowledge, 5 respondents (18.5%) had stunted toddlers and 22 respondents (81.4%) had non-stunting toddlers. There were 23 respondents with sufficient knowledge, 12 respondents (52.1%) had stunted toddlers and 11 respondents (47.8%) had non-stunting toddlers. There were 30 respondents with less knowledge, with 22 respondents (73.3%) having stunted toddlers and 8 respondents (26.6%) having non-stunting toddlers. The results of statistical tests using the chi-square test obtained a p value of 0.015, meaning that there is a relationship between knowledge and the incidence of stunting in toddlers.

The Relationship between Parenting Patterns and the Incident of Stunting in Toddlers

Table 2. Relationship between parenting styles and the incidence of stunting in toddlers

No	Parenting Patterns	Incidence of stunting in toddlers				Total		*P value*
		Stunting		Not Stunted				
		n	%	n	%	n	%	
1.	Good	5	19.2	21	80.7	26	100.0	*0.0347*
2.	Not Enough	34	62.9	20	37.1	54	100.0	

From table 2 it is known that of the 26 respondents with good parenting patterns, respondents (19.2%) had stunted toddlers and 21 respondents (80.7%) had non-stunting toddlers. There were 54 respondents with poor parenting patterns, 34 respondents (62.9%) had stunted toddlers and 20 respondents (37.1%) had non-stunted toddlers. The results of statistical tests using the chi-square test obtained a p value of 0.0347, meaning that there is a relationship between parenting patterns and the incidence of stunting in toddlers.

Relationship between access to sanitation and incidence of stunting in children under five

Table 3. Relationship between access to sanitation and the incidence of stunting in toddlers

No	Access to sanitation	Incidence of stunting in toddlers				Total		*P value*
		Stunting		Not Stunted				
		n	%	n	%	n	%	
1.	Good	10	45.5	12	54.5	22	100,0	0.716
2.	Not Good	29	50.0	29	50.0	58	100,0	

From table 3 it is known that of the 80 respondents with access to good sanitation, 10 respondents (45.5%) had stunted toddlers, 12 respondents (54.5%) had non-stunting toddlers. Of respondents with poor access to sanitation, 29 respondents (50%) had stunted toddlers and 29 respondents (50.0%) had non-stunted toddlers. The results of statistical tests using the chi-square test obtained a p value of 0.716, meaning that there is no relationship between access to sanitation and the incidence of stunting in children under five.

The relationship between socio-economics and the incidence of stunting in toddlers

Table 4. Relationship between socioeconomic and stunting incidents in toddlers

No	Socioeconomic	Incidence of stunting in toddlers				Total		*P value*
		Stunting		Not Stunted				
		n	%	n	%	n	%	
1.	High	3	15.0	17	85.0	20	100,0	0.022
2.	Law	36	60.0	24	40.0	60	100,0	

From table 4 it is known that of the 20 respondents with high socioeconomic status, namely 3 respondents (15.0%) had stunted toddlers, 17 respondents (85.0%) had non-stunting toddlers. Of the 60 respondents with low socioeconomic status, 36 respondents (60.0%) had stunted toddlers and 24 respondents (40.0%) had non-stunting toddlers. The results of statistical tests using the chi-square test obtained a p value of 0.022, meaning that there is a relationship between socio-economics and the incidence of stunting in children under five.

The Relationship between Exclusive Breastfeeding and the Incident of Stunting in Toddlers

Table 5. Relationship between exclusive breastfeeding and the incidence of stunting in toddlers

No	Exclusive breastfeeding	Incidence of stunting in toddlers				Total		*P value*
		Stunting		Not Stunted				
		n	%	n	%	n	%	
1.	Yes	5	33.7	10	66.3	15	100.0	0.018
2.	No	34	52.3	31	47.7	65	100.0	

From table 4, it is known that of the 15 respondents who gave exclusive breastfeeding, 5 respondents (33.7%) had stunted toddlers, 10 respondents (66.3%) had non-stunting toddlers. Of the 65 respondents who did not provide exclusive breastfeeding, 34 respondents (52.3%) had stunted toddlers and 31 respondents (47.7%) had non-stunted toddlers. The results of statistical tests using the chi-square test obtained a p value of 0.018, meaning that there is a relationship between socio-economics and the incidence of stunting in toddlers.

The Relationship between Knowledge and the Incident of Stunting in Toddlers

The results of this study show that the OR value is 4.558, meaning that mothers with less knowledge have a 4.5 times risk of having stunted toddlers. If the mother's knowledge is good but is not supported by good economic status, good parenting, the fulfillment of nutritional intake will also influence the toddler's nutrition will not be fulfilled. This situation is caused by the routine of the community, especially the mothers of the majority of farmers who do work every day. Parental knowledge about nutrition helps improve the nutritional status of children to achieve growth maturity. Children with stunting easily develop health problems, both physical and psychological.

Pormes (2014) states that parental knowledge about nutrition is related to the incidence of stunting in children aged 4-5 years. (Merryana Adriani et al., 2014) shows that the mother's nutritional knowledge level is good, so the nutritional status of the mother and toddler is good. Mothers will pay attention to their children's nutritional needs so that they can grow and develop as optimally as possible. Mothers will try to have food that suits their children's needs and will store nutritious food for their children.

The Relationship between Parenting Patterns and the Incident of Stunting in Toddlers

This research shows that there is a relationship between maternal parenting patterns and the incidence of stunting. Mothers with poor parenting styles are 2.8 times more likely to have stunted toddlers. Parenting patterns that do not practice feeding babies and toddlers. Lack of family income means that nutritional intake will be low. Parenting patterns are also assessed by the mother's readiness to bring the child to posyandu to receive immunization. Housewives' busyness in earning a living can result in them being less concerned about caring for their children, not

providing nutritious food, and not taking their children to health facilities if they are sick. child's health condition. Parenting styles contribute to the welfare and happiness as well as the quality of life of children so that children's physical and mental development becomes optimal.

According to (Picauly & Toy, 2013), mothers with poor parenting styles have a greater chance of their children being stunted than mothers with good parenting styles.

Relationship between access to sanitation and incidence of stunting in toddlers

Household access to toilet facilities is related to the possibility of disease in children aged 0-23 years. Children become more easily contaminated by the environment as they begin to crawl, walk, explore, and put objects in their mouths, which increases the risk of ingesting fecal bacteria from humans and animals. This condition increases the risk of children experiencing repeated cases of diarrhea and worms, thereby worsening the child's nutritional status. Evidence that can be seen is that one of the main causes of malnutrition in children is fecal bacteria that are ingested in large quantities and live in an environment with poor sanitation and hygiene conditions (Humphrey, 2009).

This research shows that there is no relationship between access to sanitation and the incidence of stunting. Toddlers who experience stunting even though they have good access to sanitation are most likely influenced by the lack of availability of food, poor parenting patterns and the mother's lack of knowledge.

According to (Nababan & Rizabuana, n.d.), there is no influence of the sanitation of the living environment on the incidence of stunting. Almost overall environmental sanitation is not good. One of the reasons for the absence of influence is that it is influenced by food security factors, it is possible that children with poor environmental sanitation conditions have families that are food secure so that children's nutritional intake is met, this is what causes children not to experience stunting.

Socioeconomic Relationship with the Incident of Stunting in Toddlers

Socioeconomic level influences the family's ability to meet the nutritional needs of toddlers and the choice of food types. Socioeconomic status is greatly influenced by the level of family income. If access to food at the household level is disrupted, especially due to poverty, malnutrition diseases, one of which is stunting, will definitely emerge. This research shows that there is a significant relationship between socio-economics and the incidence of stunting. Based on research by Azwar (2000), family income is the amount of money earned and the amount of money that will be spent to finance household needs for one month.

According to Supariasa (2001), low family income means that basic needs often cannot be met, with low economic groups suffering from malnutrition more often than middle and upper economic groups. In addition, low economic status is related to the ability to provide nutritious food, low maternal education level, high stress levels and inaccurate stimulation at home.

If income increases, consumption patterns will be more diverse so that consumption of food with high nutritional value will also increase (Kemenkes RI, 2018).

The Relationship between Exclusive Breastfeeding and the Incident of Stunting in Toddlers

Exclusive breast milk is the most beneficial water for babies because breast milk contains all the nutrients and fluids needed to complete all the baby's nutrition in the first 6 months. When a baby is born until it is several months old, the baby cannot develop complete immunity on his own. The baby's ability to support his immune system develops slowly and results in gaps in his immune system. This immune gap can be corrected by giving breast milk to babies(Roesli, 2012).

Breast milk is a food that is very appropriate for the condition of the baby's digestive tract and to fulfill the needs of the first months of life (Maryunani, 2010). If a child does not receive exclusive breast milk, there is a risk of experiencing a lack of nutrients that the child needs for the growth process(Al-Anshori & Nuryanto, 2013).

This research shows that there is a relationship between exclusive breastfeeding and the incidence of stunting. Mothers who provide exclusive breast milk can help meet the nutritional needs of toddlers and provide body defense for toddlers when they have not been immunized to avoid diseases that can cause infections, thus causing stunting.

According to (Aridiyah et al., 2015), the incidence of stunting in children under five is influenced by the variable of exclusive breastfeeding. The low level of exclusive breastfeeding is one of the triggers for stunting in children under five which is caused by past events and has an impact on the future of children under five. On the other hand, good breastfeeding by mothers will help maintain the child's nutritional balance so that normal child growth is achieved.

CONCLUSION

Based on the results and discussion, the conclusion is: there is a relationship between knowledge factors, parenting patterns, socio-economics, exclusive breastfeeding and the incidence of stunting in toddlers. There is no relationship between access to sanitation and the incidence of stunting in toddlers. Parents of toddlers are expected to increase their knowledge about the impacts and ways to prevent stunting. Mothers are expected to improve their parenting patterns in feeding, personal hygiene and taking their children to health facilities if they are sick.

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