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RETROSPECTIVE STUDY: ANALYSIS OF STUNTING RISK FACTORS IN THE WORK AREA OF ABELI HEALTH CENTER, KENDARI CITY

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Abstract

Stunting remains a critical public health challenge in Indonesia, with Kendari City reporting a prevalence of 19.6%, significantly exceeding the national target of 14%. Identifying specific determinants is essential for optimizing prevention strategies. This study aimed to analyze the risk factors associated with stunting among toddlers within the Abeli Public Health Center's working area in Kendari. A retrospective analytical study was conducted involving 78 toddlers (39 stunted and 39 non-stunted), selected via purposive sampling. Data were derived from medical records and structured surveys. Statistical analysis employed chi-square tests and logistic regression at a 95% confidence level. Significant determinants of stunting included maternal education (0.040), family economic status (0.022), maternal height (0.029), low birth weight (LBW) (0.044), and exclusive breastfeeding (0.012). Conversely, immunization status (0.068) and history of infectious diseases (0.389) showed no significant association. LBW, exclusive breastfeeding, education, and maternal height emerged as the strongest predictors. Conclusion: Stunting in this region is multifaceted, driven by maternal, neonatal, and socioeconomic factors. Targeted interventions focusing on maternal nutrition, improved feeding practices, and enhanced health service accessibility are recommended.

BACKGROUND

Stunting is defined as a manifestation of chronic undernutrition resulting from persistent nutrient deficits that impede linear growth and physiological development during childhood. This condition

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Signifies a failure to meet anthropometric and developmental benchmarks during the first 1,000 days of life, a critical window of vulnerability and is primarily driven by the synergistic interaction between inadequate nutrition and recurring infections. (1). The short-term sequelae in children under five involve increased risk of disruption of cognitive and motor functions, disruption of metabolic processes and increased expenditure on health costs when children are sick. At the same time, the long-term impacts are early-life insults result in irreversible deficits across physical, cognitive, and intellectual domains. (2).

According to WHO, approximately 150.8 million children globally—representing 22.2% of the pediatric population—are affected by stunting. This condition contributes to an estimated 2.2 million under-five deaths worldwide. Within the Southeast Asian region, Indonesia ranks as the third highest in terms of stunting prevalence. In 2018, the national average prevalence of stunting in Indonesia was reported at 36.4%. (3).

The findings from the 2022 Indonesian Nutrition Status Survey (SSGI) indicate a decline in the prevalence of stunting, decreasing from 27.2% in 2019 to 24.4% in 2021, and further reducing to 21.6% in 2022. Although this stunting rate is decreasing, it is still considered high, considering that WHO targets the stunting rate to be no more than (20%).. (4).

Southeast Sulawesi Province ranks 9th with the highest prevalence of stunting in Indonesia at (27.2%) in 2022. Southeast Sulawesi consists of 15 districts and two municipalities. Central Buton is the district with the highest number of cases (41.6%), Bombana (35.3%), South Buton (32.6%), and the lowest is Kendari City (19.6%). Although Kendari City is the region with the lowest number of cases, it is still above the national target of (14%) (Southeast Sulawesi Provincial Health Office, 2020). Data from the Kendari City Health Office (2022) showed that the highest prevalence was in Abeli Sub-district at 2.7%, followed by West Kendari Sub-district at 2.6% and in third place were Kendari Sub-district and Wua-wua Sub-district at 2.3% each. (Dinkes Kota Kendari, 2022)

According to WHO, the primary determinants of childhood stunting can be classified into three principal categories: inadequate nutrition, repeated infections, and insufficient psychosocial stimulation. Malnutrition in young children is influenced by a range of socio-economic factors, including limited dietary diversity, inadequate infant feeding practices such as exclusive breastfeeding and complementary feeding, as well as maternal behaviors during pregnancy and adolescent health status. (3).

The preliminary study conducted from May 2 to May 5, 2023, within the Abeli Health Center Working Area of Kendari City, revealed several noteworthy findings. Specifically, it was observed that seven out of ten children had parents with low educational attainment. Additionally, these parents lacked knowledge regarding effective food processing techniques to enhance visual appeal when their children exhibited reluctance to eat. The study also found that two out of ten children had mothers with a waist circumference of less than 23.5 inches. Furthermore, four out of ten parents did not practice exclusive breastfeeding for their children. The data additionally indicated that the average income of the parents was below the regional minimum wage.

METHODS

This study used an observational with case-control design. It involves an initial assessment of stunting as the primary outcome (dependent variable), followed by a backward-looking evaluation of historical exposures or risk factors (independent variables). (5). This study will be held in the Abeli Health Center, Kendari City, working area from August to November 2023.

Participants were categorized into case and control populations involving children aged 12 to 59 months. The case population consisted of 106 toddlers in the Abeli Health Center operational area of Konawe Islands Regency who were stunted with a TB/U Z score value of < -2 SD with a case population of 106 toddlers while the control population consisted of 416 toddlers in the Abeli Health Center Working Area of Kendari City who were not stunted or normal (TB/U Z score value > -2 SD) with a control population of 416 toddlers. The sample withdrawal formula uses the lames show formula.

The sample size in the study had a 5% level of significance and 95% test strength based on the formula obtained, and the sample results for each group were 39 babies. In this study, case groups were selected, namely stunted babies and controls, namely non-stunted babies, in a ratio of 1:1. A total sample of 78 toddlers was enrolled, ensuring an equal distribution of 39 subjects per group. A gender-matching protocol was applied to the case-control selection process.

Participants were selected using a simple random sampling technique, ensuring that each member of the population had an equal probability of selection without prior stratification. The analytical framework focused on stunting as the dependent variable, investigating its association with several predictors: maternal height and education, family income, neonatal birth weight, immunization history, breastfeeding practices, and occurrences of infectious diseases. Height and

weight assessments were conducted using a microtoise stadiometer and standardized scales, respectively. Significant risk factors were subsequently identified via logistic regression analysis executed in SPSS software version 25.

RESULTS

Respondent Characteristics

Table 1. Frequency distribution of Respondents in the Working Area of Abeli Health Center Kendari City in 2023

No	Respondent Characteristics	Stunting				Total	
		Stunting		Normal			
		n	%	n	%	n	%
1	Gender of Toddlers						
	Male	22	56,4	22	56,4	44	56.4
	Female	17	43,6	17	43,6	34	43,6
2	Age of Toddler (Month)						
	12-23 month	11	28.2	11	28.2	22	28.2
	24-35 month	15	38.5	12	30.8	27	34.6
	36-47 month	9	23.1	10	25.6	19	24.4
	48-59 month	4	10.3	6	15.4	10	12.8
3	Mother's Age (Years)						
	Late teens (17-25)	12	30.8	13	33.3	35	31,3
	Early adulthood (26-35)	20	51.3	19	48.7	57	50,9
	Late adulthood (36-45)	7	17.9	7	17.9	20	17,9
4	Mother's Education						
	Elementary School	6	15.4	2	2.1	8	10.3
	Junior High School	15	38.5	12	30.8	27	34.6
	Senior High School	16	41.0	22	56.4	38	48.7
	Bachelor	2	5,1	3	7.7	5	6.4

5	Mother's Occupation						
	Housewife	27	69.2	26	66.7	53	67.9
	Self-employed	12	30.8	11	28.2	23	29.5
	Civil Servant	0	0,0	2	5,1	2	2,6

Source: Year 2023 Data Analysis

The Relationship between Income, Maternal Height, LBW, Exclusive Breastfeeding, Immunization History and History of Infectious Diseases with the Incidence of Stunting

Table 2. Relationship between Income, Maternal Height, LBW, Exclusive Breastfeeding, Immunization History and History of Infectious Diseases with the Incidence of Stunting in Toddlers in the Working Area of Puskesmas Abeli Kendari City in 2023.

Variables	**Category**	**Stunting**				**Total**		**p-value**	**OR 95% CI**
		Kasus		Control					
		n	%	n	%	n	%		
Education Level	Law	22	56.4	13	33.3	35	44.9	0,040	2,588
	High	17	43.6	26	66.7	43	55.1		1,033 – 6,486
Income level	Law	27	69.2	17	43.6	44	56.4	0,022	2,912
	High	12	30.8	22	56.4	34	43.6		1,150 – 7,372
Mother's Height	Short	17	43.6	8	20.5	25	32.1	0,029	2,994
	Normal	22	56.4	31	79.5	53	67.9		1,099 - 8,158
LBW	LBW	11	28.2	4	10.3	15	19.2	0,044	3,438
	Normal	28	71.8	35	89.7	63	80.8		0,987 – 11,969
Exclusive breastfeeding	No	27	69.2	16	41.0	43	55.1	0,012	3,234
	Yes	12	30.8	23	59.0	35	44.9		1,273 – 8,218
Immunization History	Incomplete	16	41.0	18	46.2	34	43.6	0,648	0,812
	Complete	23	59.0	21	53.8	44	56.4		0,331 – 1,989
History of Infectious Disease	At Risk	9	23.1	6	15.4	15	19.2	0,389	1,650
	Not at Risk	30	76.9	33	84.6	63	80.8		0,525 – 5,186

Source: Year 2023 Data Analysis

Multivariate Analysis

Candidate selection

Table 3. Probability Value (P-value) of Candidate Selection Results for Multivariate Modeling

No	Independent Variable	*p-value*
1	Education	0, 040*
2	Income	0,022*
3	Maternal height	0,029*
4	LBW	0,044*
5	Exclusive breastfeeding history	0, 012*
6	Immunization History	0, 468
7	History of infectious disease	0, 389

Notes: *Eligible for entry into multivariate test

Table 3 shows that the eligible variables ($p < 0.25$) to enter the logistic regression analysis are the variables of education, income, maternal height, LBW and exclusive breastfeeding history. In contrast, the variables of immunization history and history of infectious diseases are not included in the selection because the p-value > 0.25.

Multivariate Modeling

Table 4. Results of Multiple Logistic Regression Analysis of Factors Most Influential on the Incidence of Stunting in the Working Area of Puskesmas Abeli Kendari City

Variables	Sig	Exp (B) OR	95% CI for Exp (B)	
			Lower	Upper
Education	0,031	4,351	1,116	10,057
Maternal height	0,050	3,059	0,999	9,371
Exclusive breastfeeding	0,007	4,650	1,527	14,167
LBW	0,009	7,761	1,676	35,932

Constant	0,001	0,121		

Source: Year 2023 Data Analysis

The table above shows that LBW) as the most influential determinant of stunting (OR = 7.761), indicating that toddlers with a history of LBW face a 7.761 times greater than toddlers who do not experience LBW. The second most significant risk factor is exclusive breastfeeding (OR = 4.650), with non-exclusively breastfed children being 4.650 times more likely to be stunted. The third most significant risk factor is education level (OR = 4.351), meaning that toddlers whose mothers had lower educational attainment were at a 4.351 times greater risk of stunting than toddlers who have mothers with high education. The fourth risk factor was maternal height (OR = 3.059), meaning mothers with low height had a risk of giving birth to stunted children 3.059 times greater than mothers with average height.

DISCUSSION

The Relationship between Education and the Incidence of Stunting

Chi-square analysis obtained a p-value = 0.040 and the odds ratio test (OR = 2.588), meaning that toddlers with low education levels are at risk of 2.588 times greater stunting compared to toddlers with mothers with high education levels. The researcher assumes that the mother's education level affects their knowledge and understanding of stunting.

This finding is consistent with Alfian et al. (2021), who reported a significant association (OR = 6.096) noting that mothers with primary or junior high school education were six times more likely to have stunted children compared to mothers who have high levels of education, namely high school and university degrees. (6). Similarly, Purnamasari et al. (2022), identified maternal education as a key risk factor (0.004) particularly among those who did not complete primary school (elementary school). Some still need to graduate from elementary school. This study assumes that the mother's education level impacts their low knowledge of nutritional intake for toddlers. (7)

In this study, 17 respondents (43.6%) had high education but had stunted children; this was because the toddler child was born with LBW and also had a history of infectious diseases, so toddlers also did not get exclusive breastfeeding. Whereas in the control group, there were 13 respondents (33.3%) who had mothers with low education but did not have stunted children, it was assumed that mothers easily accessed sources of health information through counselling

posyandu cadres and also on social media. Hence, they had good knowledge about parenting toddlers.

Relationship between Income and the Incidence of Stunting

The chi-square test results obtained a p-value = 0.022 and the odds ratio test OR = 2.912. This means that respondents with low-income levels have a 2.912 times greater risk of their children being stunted than mothers with high-income status. Someone with a high income will quickly get the type of food that is nutritious for the needs of children under five.

This aligns with Tanzil and Hazriani (2021), who found a relationship between the family per capita income levels and stunted family members. It was found that most families with low income had a high percentage of stunted children (70%). This study also concluded that families who have less income per capita category are 13.222 times to have stunted children than toddlers with families with high income per capita. (8)

A study by Akbar and Ramli (2022) also supports this finding, showing that family income a critical determinant of stunting among children aged 6–59 months in Kotamobagu City. Their research indicates that the likelihood of stunting in lower-income families is three times higher than in households with greater financial stabilitys. (Akbar and Ramli, 2022). Communities experiencing low socioeconomic conditions face a 3.38-fold increased risk of childhood stunting compared to communities with higher socioeconomic status. (10)

This study also found that as many as (30.8%) had stunting status but had a high economy. This deficiency can be attributed to the mother's limited knowledge regarding nutritious foods, which results in the provision of inadequate or makeshift meals within the household. Additionally, there is a lack of proactive effort on the part of the mother to incorporate supplementary foods during pregnancy, such as prenatal nutritional supplements like pregnant milk. Furthermore, the mother does not consistently supply complementary foods for toddlers, relying instead on the expectation that health workers will provide such nutritional support during visits to the posyandu (integrated health service post).

In addition, as many as (43.6%) of children did not experience stunting despite having families with low income. This is because mothers practice good parenting for their babies; mothers still provide healthy and nutritious food to their children, obtained from the market, even from garden plants. In addition, mothers continue to provide exclusive breastfeeding and complete

immunization of their toddlers so that the health of children under five is maintained and they can grow healthy.

Family income serves as an indirect determinant influencing the adequacy of energy and protein intake among children, thereby impacting the prevalence of stunting. Economic resources are closely linked to household food security, encompassing aspects such as food provision, accessibility, and equitable distribution. Limited household income constrains the purchasing power necessary to acquire sufficient and nutritious food, which in turn hampers the fulfillment of the nutritional requirements of young children. Consequently, low income levels can contribute to nutritional deficiencies that predispose children to stunting. (11)

Relationship between Maternal Height and Incidence of Stunting

The chi-square test results obtained a p-value = 0.029, and the odds ratio test obtained an OR value = 3.059, meaning respondents with short height have a 3.059 times greater risk of their children being stunted than mothers with average height. Maternal height is closely related to the genes that will be passed on to their children, so short mothers have the potential to give birth to short children as well.

This study's results align with Hermawan and Akbar (2023); stunting toddlers and having mothers with height at risk is 18.4%. Toddlers who are not stunted and have mothers with risky height are 2.6%. Following statistical tests, it was concluded that there was a relationship between maternal height and the incidence of stunting (p = 0.004). This means that mothers with less height have a chance of 8.355 times giving birth to stunted children compared to mothers with average height. (12). Nuraeni and Diana's research (2019) also found the same thing, namely that maternal height is a risk factor for stunting. Mothers with height < 150 cm have the potential to give birth to stunted children by 4.032 times greater than mothers who have average height. (13)

The results also showed that as many as (56.4%) experienced stunting despite having mothers with average height. This is because children do not get good nutritional intake from the womb and 100 days of life. While (20.5%) of children do not experience stunting even though their mothers are short, mothers may not have genes that can be passed on to their children, and the child may inherit genes from his father.

Height is a hereditary determinant that contributes to stunting in early childhood. Parents with reduced stature, resulting from the inheritance of short chromosome carrier genes, are more likely to transmit this trait to their offspring. This phenomenon is associated with a genetic predisposition to growth hormone deficiency, which is linked to specific chromosomal variations. Without sufficient nutritional support to promote optimal growth, this genetic predisposition can lead to growth failure or stunting in the subsequent generation (14)

Relationship between LBW and the Incidence of Stunting

The analysis of the relationship, conducted via the chi-square test, yielded a p-value of 0.044. Additionally, the OR was calculated to be 7.761, indicating that toddlers with LBW history are approximately eight times to experience stunting compared to their counterparts without such a history.

This aligns with the results of research conducted by Setiawan, DDK (2018), which concluded that the Low Birth Weight factor is the most dominant risk factor for stunting in under-five children ($p = 0.015$; $OR = 5.634$). The characteristics of the baby at birth (LBW or normal LBW) determine the child's growth. Children with LBW history typically exhibit attenuated linear growth trajectories compared to those born with average LBW history. (15)

According to the findings of Fitriana et al. (2021), there is a correlation between LBW and stunting within a public health center setting. Their analysis reported a staggering OR of 33.833, indicating that infants born with LBW are nearly 34 times more predisposed to stunting than their counterparts born at normal weight. (16)

The stunted growth of the fetus during the womb experienced by LBW babies results in digestive problems such as reduced ability to suck and swallow, impaired oral movement function, and inability to absorb fat and protein optimally, which results in depletion of nutrient stores in the child's body. Children of the under-five group are in a period of rapid growth and metabolic processes. Hence, the fulfilment of inadequate child nutrition due to digestive obstacles results in nutritional disorders or problems. (17)

In addition, infants who have a history of LBW are more susceptible to various infectious diseases, such as diarrhoea and respiratory infections, which can increase the incidence of stunting. The mechanism is explained through the condition of the fetus that fails to grow, which

results in the process of organ formation and has an impact on the function of the organ's work.. (18)

A total of 4 respondents (10.3%) did not suffer from stunting despite being born with LBW; this is assumed because babies get exclusive breastfeeding and nutritious food intake from parents. While 28 respondents (71.8%) were born with average weight but suffered from stunting, this was due to the toddler's mother not providing nutritious food intake since the womb; this was exacerbated by the mother's low level of education so that the mother's knowledge of stunting prevention efforts in toddlers was also low.

The Relationship of Exclusive Breastfeeding to the Incidence of Stunting

The analysis using the chi-square obtained a p-value = 0.012, and the odds ratio test obtained an OR value = 3.234. It is concluded that exclusive breastfeeding were identified as a significant determinant of stunting among toddlers within the studied public health center jurisdiction. Specifically, children who did not receive exclusive breastfeeding (EBF) exhibited a 3.234-fold higher risk of stunting compared to their exclusively breastfed counterparts.

The findings of this investigation align with those reported by Husna and Farisni (2022), who identified the absence of exclusive breastfeeding elevated the risk of stunting by a factor of 47. Both studies emphasize the critical importance of early infant nutrition in mitigating the risk of long-term developmental delays. (19)

Exclusive breastfeeding for six months protects against gastrointestinal infections that can lead to severe malnutrition and stunting. Before six months of age, the neonatal gastrointestinal tract exhibits physiological immaturity, characterized by an incomplete complement of digestive enzymes and underdeveloped organ function. Consequently, infants in this age bracket lack the biological readiness to process non-breast milk dietary sources, necessitating exclusive breastfeeding to avoid metabolic strain. (20)

Breastfeeding constitutes an optimal form of nutrition tailored to meet the physiological requirements of infants, thereby supporting their growth and developmental processes, particularly during the critical period known as the "golden age." The carbohydrate predominantly present in breast milk is lactose, while its fat content primarily comprises polyunsaturated fatty acids. The principal protein component is lactalbumin, which is readily digestible and rich in essential vitamins and minerals. Additionally, breast milk contains various

bioactive substances with anti-infective properties, contributing to the infant's immune protection. Breast milk contains sIgA, the predominant antibody, while IgM and IgG are also found in breast milk. (21)

The results also showed that there were toddlers who were not exclusively breastfed and were not stunted as many as 16 (41.0%); this was due to several other factors that could have caused this, namely family income ≥ UMR so that they had a good enough nutritional intake capable of sustaining optimal pediatric growth, including linear height. Economically stable families are better positioned to support comprehensive child development, as they possess the financial capacity to fulfill both primary nutritional requirements and secondary developmental needs.

The results also showed that there were toddlers who were exclusively breastfed and experienced stunting as many as 12 (30.8%) respondents. The etiology of stunting is multifaceted and transcends isolated nutritional deficiencies in pregnant women and children under five. This condition arises from a complex interplay of multi-dimensional determinants, ranging from biological predispositions to broader environmental influences. Several factors cause stunting can be described, namely the situation of mothers / prospective mothers, the situation of toddlers, the socio-economic situation and the situation of sanitation and access to drinking water.

Hubungan Riwayat Imunisasi terhadap Kejadian Stunting

The bivariate analysis using the chi-square test obtained a p-value = 0.648 and OR = 0812. So, it is concluded that immunization is not a risk factor but a protective factor against stunting in toddlers. Although this study does not provide evidence of the risk of immunization on the incidence of stunting, immunization is a protective factor. It is very important to be given to children under five to prevent several infectious diseases in children, which may eventually cause children to be malnourished and stunted.

In line with research conducted by Syam et al. (2019), which states that there is no relationship between incomplete immunization and the incidence of stunting in toddlers at Puskesmas Buntu Batu Enrekang Regency, with a p-value of 0.056 and a risk of only 1.14. (Syam, Yulianita and Annisa, 2019). Likewise, the results obtained by Venuz et al. (2020) found that incomplete immunization was not a risk factor for stunting at the Oipoi Health Center, with an OR value of 1.07. Immunization is not directly related to the occurrence of stunting. This is because stunting is related to feeding patterns. (10)

The researcher assumes that there is no relationship between immunization and the incidence of stunting in toddlers because immunization status is not a factor that significantly affects the growth of toddlers. After all, immunization is only a complement to the growth of toddlers but does not affect their nutritional status. As some theories mention, the function of immunization itself is that giving immunization to children has an important goal, namely reducing the risk of morbidity (morbidity) and mortality (mortality) of children due to diseases that can be prevented.

Providing complete basic immunizations dramatically affects children's growth and development. The provision of basic immunizations is expected to prevent children from growth and development disorders, as well as diseases that often cause disability or death with basic immunizations that must be obtained from the age of 0-9 months, such as hepatitis B, BCG, polio / IPV, DPT-HB-HiB, and measles immunizations. In addition, preconception immunization in mothers is also one of the critical factors in maintaining the health of the child and mother, starting from intrauterine (Atifa & Kurniawan, 2023).

Relationship between History of Infectious Disease and Incidence of Stunting

The chi-square test results obtained a p-value = 0.389, and the odds ratio test obtained an OR value = 1.650, meaning that infectious diseases are not a risk factor for the incidence of stunting in toddlers in the Abeli Health Center work area. It is assumed that the frequency of infectious diseases influences stunting, the duration of infectious diseases, and nutrient intake during the infectious disease episode.

This study's results align with research conducted by Setiawan et al. (2021), which found no relationship between the history of infectious diseases and the incidence of stunting with a p-value = 0.062. (15). This study is also in line with that obtained by Estherina (2021), who found no relationship between toddlers suffering from one of the infectious diseases and the incidence of stunting. (24)

The results of this study are in line with Putri's research (2021), which states that there is no significant relationship between the frequency of ARI and the incidence of stunting because the incidence of stunting is not influenced only by the frequency of infectious diseases, but can also be caused by other factors such as nutritional adequacy before, during, and after experiencing illness. (M. G. Putri dkk., 2021).

Although infectious diseases are not associated with stunting, stunting is common in children with infectious diseases. The average child who experiences this infection, of course, has a decreased appetite. If the child has pneumonia, the child's food intake is greatly disturbed by asthma and coughing; then, because there is nausea, vomiting and diarrhoea, the child will also experience dehydration so that the absorption of food in the body is not optimal. (25).

A history of infectious diseases can also affect a child's growth because when a child is sick, the child's immune system will be weakened, and the child will become more susceptible to disease. When the child is sick, the appetite will decrease, and this will be followed by a weakened immune system, which will quickly infect the child with other diseases, and the child's growth will be disrupted. Infectious diseases in the child's body will influence the child's nutritional state. (26)

Based on the study's results, in the case group, 23.1% of toddlers had a history of infectious disease. This is because some toddlers do not have a complete immunization status in their MCH book. According to the theory that efforts to gain immunity against infectious diseases are made by immunizing, in the case group, there were also 76.9% of toddlers with no history of infectious disease. This is because even though the toddler has no history of infectious disease, other factors can stunt the development of toddlers, such as genetic factors and nutritious food intake. The control group found that as many as 15.4% of toddlers suffered from infectious diseases; this was due to good food intake carried out by mothers.

LIMITATIONS OF THE STUDY

In this study, no analysis was carried out on the duration of the incidence of ARI and diarrhoea, so the data obtained needed to be completed to determine the relationship between the risk factors for the history of ARI and diarrhoea and the incidence of stunting.

CONCLUSION

Based on data analysis and discussion in this study, there are several conclusions that stunting incidence was significantly associated with socioeconomic and biological determinants, specifically maternal education, height, income, LBW, and EBF. In contrast, clinical variables such as immunization coverage and infectious disease history showed no significant statistical correlation with stunting outcomes. Among the significant variables, LBW and exclusive breastfeeding, followed by maternal education and stature, were identified as the primary

predictors with the highest magnitude of influence on pediatric growth trajectories in the Abeli Health Center area of Kendari City.

It is expected to increase support and motivation by assisting mothers and families since pregnancy so that maternal nutrition can remain controlled and mothers can provide exclusive breastfeeding until the baby is six months old and then continue breastfeeding until 24 months with complementary foods. The health centre can provide a paper containing a list of daily activities pregnant women must do by regularly ticking and monitoring.

It is expected that pregnant women will increase their awareness by conducting active pregnancy checks at the posyandu or puskesmas at least four times during pregnancy for parents who have babies to pay attention to the health of children under five, mainly by providing exclusive breastfeeding, immunization and healthy and nutritious breastfeeding food. In addition, it is also expected that parents fulfil their nutritional status, especially during pregnancy and during pregnancy, by consuming nutritious foods.

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