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RISK FACTORS OF STUNTING IN CHILDREN AGED 12-59 MONTHS IN THE WORKING AREA OF THE LANGARA PUSKESMAS DISTRICT, KONAWA ISLANDS, 2022

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ABSTRACT

Background: Stunting is a global health problem because it increases the risk of morbidity and mortality in children. Indonesia is the third largest country in Southeast Asia with the number of cases (21.6%), while the Konawe Islands Regency (32.2%). **Objective:** To analyze the factors that influence the incidence of stunting in toddlers in the working area of the Langara Public Health Center, Konawe Islands Regency. **Methods:** This study used a case-control study design with a total sample of 112 respondents consisting of 56 cases and 56 controls. Samples were taken using simple random sampling technique, where control cases have the same right to be respondents. Measuring tools used to measure stunting are the Infantometer/Length board and microtoise, chronic energy deficiency is measured using maternal and child health books, while social status is measured using a questionnaire that has been tested for validity and reliability. The results of variable measurements were then analyzed using the odds ratio test. **Results:** history of maternal chronic energy deficiency ($p = 0.013$; OR = 3.316; 95% CI = 1.256-8.750), socioeconomic ($p = 0.007$; OR = 2.885; 95% CI = 1.319-6.307). **Conclusion:** chronic energy shortages, and socio-economic risk of stunting in toddlers in the work area of the Langara Public Health Center, Konawe District, Islands

Keywords: *Stunting, history of chronic energy, socioeconomic*

INTRODUCTION

Stunting is a condition of failure of child growth and development in the first 1000 days of life (HPK) which is caused by chronic malnutrition and/or chronic or recurrent infectious diseases as indicated by a Z score for height for age (TB/U) of less than - 2 standard deviations (SD), characterized by a shorter stature than children of their age, low body weight for their age, and delayed bone growth⁽¹⁾. The short-term consequences caused by stunting in toddlers are disruption of physical, mental, intellectual, and cognitive development².

The World Health Organization (WHO) states that 150.8 million children (22.2%) in the world are stunted and are the cause of 2.2 million under-five deaths worldwide. More than half of the stunted toddlers in the world come from Asia (55%) while more than a third (39%) live in Africa. Of the 83.6 million stunted children under five in Asia, the highest proportion came from South Asia (58.7%), Southeast Asia (53.5%) and the least proportion from Central Asia (0.9%). Indonesia is included in the third country with the highest prevalence in the Southeast Asia region, namely (21.6%)³.

The results of the 2022 Indonesian Nutrition Status Survey (SSGI) show that there has been a decrease in the prevalence of stunting from (27.2%)

in 2019 to (24.4%) in 2021 and to decrease again to (21.6%) in 2022. Even though the stunting rate has decreased, it is still above the government's target of 14% in 2024⁴.

The Province of Southeast Sulawesi (Southeast Sulawesi) ranks 9th with the highest prevalence of stunting in Indonesia by (30.2%) in 2022. Konawe Islands Regency is one of the regions that ranks 5th with the largest stunting cases in Southeast Sulawesi Province, namely 32, 3%⁵. Data from the Konawe Islands District Health Office (Konkep) show that stunting cases have continued to increase in the last 3 years where in 2019 there were 487 cases (28.4%), in 2021 it increased to 513 cases (29.2%) and in 2022 it soared drastically to 612 cases (32.3%). The highest number of stunting toddlers in the Konawe Islands District was in the Langara Health Center Working Area with a total of 124 cases⁶.

The cause of children experiencing stunting is a multidimensional factor, namely malnutrition experienced by pregnant women and toddlers, lack of knowledge of mothers about health and nutrition before and during pregnancy and during childbirth, low provision of MPASI, low ANC services, lack of access to nutritious food, lack of access to clean water and sanitation⁷. Of the various factors that can cause children to become stunted, WHO classifies them into



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3 main causes of stunting, namely: poor nutrition, repeated infections and lack of psychosocial stimulation. Malnutrition of toddlers caused by economic factors, lack of variety of food, exclusive breastfeeding, MP-ASI, poor maternal behavior since pregnancy and adolescent health. Recurrent infections can be caused by two things. First, the lack of access for mothers and children to health care facilities. Second, unhealthy lifestyles, such as difficulty accessing clean water or living in unclean places³.

The results of a preliminary study conducted on 2-5 July 2022 in the Work Area of the Langara Health Center found that 7 out of 10 children had parents with low education, the parents of children did not know how to process food in an attractive appearance if the child did not want to eat, 2 out of 10 children had mothers with arm circumference <23.5, 4 out of 10 parents do not give exclusive breastfeeding to their children. As well as the average parental income below the UMR.

METHODS

This research is an analytic observational study using a case-control study design with a total sample of 112 respondents consisting of 56 cases and 56 controls, this was done with the assumption of an odds ratio of 1:1. Samples were taken by simple random sampling technique, where the control cases had the same right to be respondents.

This research was conducted in the work area of the Langara Public Health Center, Konawe Islands Regency, starting from April 13 2023 to May 13 2023. The variables in this study were mother's knowledge about nutrition, history of toddler immunization, history of exclusive breastfeeding, history of chronic energy deficiency, and socioeconomic

Measuring tools used to measure stunting are using an Infantometer/Length board and microtoise, while the variables of knowledge, immunization, exclusive breastfeeding, chronic energy deficiency, and social status are measured using a questionnaire combined with notes in the Maternal and Child Health book (MCH). The results of variable measurements were then compiled and then analyzed using multiple logistic regression tests

RESULTS

Characteristics of respondents

Table 1. Characteristics of Toddlers and Mothers of Toddlers in the Working Area of the Langara Health Center

Characteristics of Respondents	Status stunting			
	Stunting		Normal	
	n	%	n	%
Gender				
Male	34	60,7	34	60,7
Female	22	39,3	22	39,3
Age Group				
12-23 months old	11	19,6	13	23,2
24-35 months old	24	42,9	19	33,9
36-47 months old	15	26,8	16	28,6
48-59 months old	6	10,7	8	14,2
Mother's age				
17-25 years old	20	35,7	15	26,8
26-35 years old	27	48,2	30	53,6
36-45 years old	9	16,1	11	19,6
Education				
Elementary school	14	25,0	11	19,6
Junior high school	23	41,1	19	33,9
Senior high school	16	28,6	20	35,7
Bachelor	3	5,4	6	10,7
Work				
Housewife	38	67,9	45	80,4
Sels-emploted	18	32,1	8	14,2
Civil servant	0	0,0	3	5,4



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Bivariate Analysis

Table 2. Analysis of Stunting Risk Factors in Toddlers in the Work Area of the Langara Health Center, Konawe Islands Regency, in 2023

Variable	Nutritional status				Total		p-value	CI 95%
	Stunting		Normal		n	%		
	n	%	n	%				
Chronic energy deficiency								
CED	18	32,1	7	12,5	25	22,3	0,013	3,316
Normal	38	67,9	49	87,5	87	77,7		(1,256-8,750)
Socioeconomic								
Low	40	71,4	26	46,4	66	58,9	0,007	2,885
Tall	16	28,6	30	53,6	46	41,1		(1,319-6,307)

The table above shows that a history of chronic energy deficiency, and socioeconomic factors are risk factors for stunting in toddlers because the p-value is <0.05 , namely (013;0.007).

DISCUSSION

Relationship between Chronic Energy Deficiency and Stunting

The results of univariate analysis found that in the case group, there were 18 respondents (32.1%) experiencing chronic energy deficiency (CED), and 38 respondents (67.9%) did not experience CED (normal). Whereas in the control group there were 7 respondents (12.5%) with chronic energy deficiency (CED), and 49 respondents (87.5%) did not experience CED (normal). It can be concluded that most of the respondents were mothers with normal nutritional status (not KEK) of 87 respondents (77.7%). This is of course in accordance with the target set by the central government where the achievement of normal pregnant women (not KEK) is 80%.

The results of bivariate analysis using the chi-square test obtained a p-value = 0.013 and OR = 3.316, which means that there is a relationship between maternal chronic energy deficiency and the incidence of stunting in toddlers in the working area of the Langara Public Health Center, Konawe Islands District. Respondents (mothers under five) who experience chronic energy deficiency (CED) are at risk during pregnancy will be 3.316 times more likely to have their child affected by stunting than mothers who do not experience chronic energy deficiency (CED). This is supported by the results of multivariate analysis which found that chronic energy

deficiency during pregnancy was associated with a risk of hild stunting with an OR value of 3.257.

The results of this study are in line with what was obtained by Apriani and Aprilia who found that there was a relationship between a history of chronic energy deficiency (KEK) of the mother and the incidence of stunting in toddlers in the work area of the Karang Jaya Health Center, North Musi Rawas Regency. This study concluded that mothers who suffer from CED during pregnancy have a 14.481 times greater risk that their child will be stunted compared to mothers who do not suffer from CED during pregnancy¹⁶. This research is also in line with research conducted by Trisnawati, et al (2021), which found a relationship between a history of chronic pre-pregnancy energy deficiency and the incidence of stunting in toddlers at the Gunung Sari Health Center, Pesawaran Regency¹⁷.

Chronic energy deficiency causes the reserves of nutrients needed by the fetus in the womb to be insufficient to meet the physiological needs of pregnancy. Meanwhile, the fetus is growing and developing in utero. Malnutrition in utero and early in life causes the fetus to make adjustments in parallel these adjustments include slowing growth by reducing the number and development of body cells. The results of adjustment reactions due to malnutrition are expressed in adulthood in the form of a short body¹⁸.

Although this study provides evidence of the influence of a history of CED in pregnant women on the incidence of stunting in children under five, this study also found that 38 respondents (67.9%) experienced stunting even though their mothers did not suffer from CED. This is because some toddlers often get sick as a result of not getting complete immunizations. It is known that a sick child has



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difficulty in absorbing the food that enters his body, so that the nutrients contained in toddler food are not properly absorbed by the body. In addition, this study also found 7 respondents (12.5%) with chronic energy deficiency (CED) but did not suffer from stunting. This is because even though the mother suffers from CED, the mother is concerned about for her child to provide a nutritious diet for her child. In addition, mothers are also very concerned about the health of their children by ensuring exclusive breastfeeding and complete immunization of infants.

Socio-Economic Relations with Stunting Incidents

The results of the univariate analysis found that in the case group, there were 40 respondents (71.4%) who had a low economy, and only 16 respondents (28.6%) had a high economy. Meanwhile, in the control group, 26 respondents (46.4%) had a low economy, and 30 respondents (53.6%) had a high economy. Overall, 66 respondents (58.9%) have low economic status and 46 respondents (41.1%) have high economic status. The high number of low-income respondents is due to the fact that most of the respondents work as fishermen, farmers and entrepreneurs. Work as a fisherman is carried out by the respondent's family only to meet their daily needs. We all know that a small income will limit the access of respondents to nutritious food.

The results of the bivariate analysis obtained p -value = 0.007 and OR = 2.885, meaning that socioeconomic status is a risk factor for stunting in toddlers in the working area of the Langara Health Center. It was concluded that respondents (mothers under five) with low socioeconomic status were at risk of 2.885 times more likely that their children were stunted than mothers with high socioeconomic status. Researchers assume that the higher a person's economic status, the greater the person's access to nutritious food. This was also reinforced by the results of the multivariate analysis which found that low socioeconomic status was a risk factor for stunting in children under five with an OR value of 2.445.

The results of this study are in line with research conducted by Tanzil and Hazriani (2021), in his research he found that the percentage of family per capita income that was less was more stunted in the toddler group (70%) compared to the normal toddler group (15%). Statistical tests show that low per capita

family income is a risk factor for stunting, where toddlers with a less than 13,222 per capita family income are at risk of experiencing stunting compared to toddlers with sufficient family per capita income¹⁹. Akbar and Ramli's research (2022), also provides similar evidence, where the results of the research obtained are that family income factors influence the incidence of stunting in children aged 6-59 months in Kotamobagu City. Family income is less at risk 3 times more likely for their child to be stunted than families who have sufficient or more income²⁰. Research by Lema et al (2019), also supports this research, where the results show that there is a relationship between factors of family economic status and the incidence of stunting at the Oepoi Health Center. The results of the odds ratio test concluded that people with less economic risk of their children being stunted were 3.38 times greater than people who had high economies¹⁰.

Families with high economic status will be able to obtain better public services such as education, health services, high purchasing power for various types of nutritious food, while low family income causes reduced purchasing power of families for good nutritious food, causing macronutrient deficiencies. or micro. The higher one's income will affect one's level of consumption. High income allows all family members to meet the nutritional needs of food. Conversely, low-income levels result in a lack of household food purchasing power. When food purchasing power is low, it leads to a lack of meeting of the nutritional needs of toddlers²¹.

Although this study provides evidence of a relationship between socioeconomic status and the incidence of stunting in children under five, this study also found that 16 respondents (28.6%) were stunted but had high economic status. This is because the mother's knowledge of nutritious food is not good, so the mother only provides potluck food that is in the house, there is no effort from the mother to consume supplementary food during pregnancy such as pregnancy milk, besides that, the mother also does not provide supplementary food for toddlers, mothers only expect supplementary food for breast milk provided by health workers when participating in posyandu. In addition, this study also found 26 respondents (46.4%) with low economic status but did not suffer from stunting. This is because the mother takes good care of her baby, even though the



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child is not given supplementary food, the mother still provides healthy food obtained from the market. In addition, the mothers also provide exclusive breastfeeding and carry out immunizations so that the health of toddlers is maintained, and they can grow healthy.

CONCLUSION

This study concludes that history of CED, and socio-economic factors are factors that influence the incidence of stunting in toddlers USI 12-59 months in the working area of the Langara Health Center, Konawe Islands Regency.

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