



Factors Related to Stunting Incidence in Children Under-Five at Dosay Health Center, West Sentani, Jayapura Regency, Papua Province

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Abstract

Background: Stunting or short children under-five experiencing growth disorders with the third highest national prevalence of 29.5% in 2021 will increase to 34.6% in 2022. **Objectives:** The aim of this research is to know the factors related to stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province. **Methods:** This type of research is observational with a case control approach. The population of children under-five is 436 and the sample is 161 stunting cases and 161 controls using purposive sampling. Data were obtained from cohort registers and questionnaires. Data then analyzed using chi square, odds ratio and binary logistic regression. **Result:** The results of the study showed that the factors that had a significant relationship with the incidence of stunting in children under five were ethnicity (p-value 0.000 < 0.05); OR 17.807; 95% CI (4.574–13.326), parity (p-value 0.000 < 0.05) ; OR 63.489; CI 95% (19.473 – 207.375), family income (p-value 0.000 < 0.05); OR 2.913; CI 95% (1.852 – 4.582), size of family (p-value 0.000 < 0.05); OR; 0.030; CI95% (0.013 – 0.068), exclusive breastfeeding (p-value 0.000 < 0.05); OR 64.315; CI95% (15.410 – 268.423), body weight (p-value 0.000 < 0.05); OR 42.835; CI95% (5.784 – 317.195), history of infectious diseases (p-value 0.000 < 0.05); OR 5.810; CI95% (3.548 - 9.516), while the factor that had a non-significant relationship with the incidence of stunting in children under-five was education (p-value 1.000 > 0.05); OR 1.046; CI95% (0.580 - 1.886). The most dominant risk factor with stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province is parity.

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Keywords: Risk Factors; Stunting; Children under-five.

1. Introduction

Health development is focused on four priority programs, namely reducing maternal and infant mortality, reducing the prevalence of stunting, controlling infectious diseases and controlling non-communicable diseases. Efforts to improve the nutritional status of the community, including reducing the prevalence of stunting under five, are one of the national development priorities [1].

According to the World Health Organization (WHO) in 2021, the prevalence of stunting under five becomes a public health problem if the prevalence is 20% or more. Therefore the percentage of stunted children under five in Indonesia is still high and is a health problem that must be addressed. Compared to several neighboring countries, the prevalence of stunting under five in Indonesia is also the highest compared to Myanmar (35%), Vietnam (23%), Malaysia (17%), Thailand (16%) and Singapore (4%). The 2017 Global Nutrition Report shows that Indonesia is included in 17 countries, among 117 countries, which have three nutritional problems, namely stunting, wasting and overweight in children under-five.

The Indonesian Ministry of Health's Indonesian Nutritional Status Survey (SSGI) noted that in 2021 stunting cases in Indonesia amounted to 29.9%, consisting of 10.1% very short and 18.8% short, with the highest percentage of 34 provinces being East Nusa Tenggara Province at 41.9%, while Papua Province is in the ranking 19 with a percentage of 29.5%. Increase in 2022 to rank 3 on the national scale with a stunting prevalence of 34.6%.

Stunting or impaired linear growth can result in children not being able to reach their genetic potential, indicating a long-term occurrence and the cumulative impact of inadequate consumption of nutrients, inadequate health and parenting conditions. In addition, stunting in early childhood can cause Intelligence Quotient (IQ) disturbances, psychomotor development, motor abilities, and neurosensory integration. Stunting is also related to mental capacity and performance at school, both in moderate to severe cases often causing a decrease in work capacity in adulthood [2].

The nutritional status of children under five due to the economic crisis is influenced by various interrelated factors, especially food intake and infectious diseases. Both of these factors are influenced by family purchasing power, family size, eating habits, parenting patterns, child care and pregnancy, basic health services, sanitation and other environmental and social factors [2]. The problem of stunted children under-five illustrates the existence of chronic nutritional problems, influenced by the condition of the mother/prospective mother, the fetus, and the period of infancy/toddler, including diseases suffered during infancy. As with other nutritional problems, it is not only related to health problems, but is also influenced by various other conditions that indirectly affect health [3].

Sari's research (2017), revealed that there was no relationship between education and stunting in children under-five [4]. Meanwhile, Anisa's research (2012) revealed that there is a relationship between maternal education and stunting in children under-five [5]. A higher level of maternal education has a relationship with good

parenting for children, such as: the use of iodized salt, administration of vitamin A capsules, complete immunization and good sanitation [6].

Mothers who act as housewives usually have better parenting styles for the growth and development of children under-five than mothers who have jobs outside the home, mothers can focus more on raising children (Septiana, 2018).

Research conducted by Aridyah (2015), revealed that there is no relationship between education and stunting in children under-five [7]. In addition, Aridyah's research (2015) revealed that family income has an effect on the incidence of stunting in children under five in rural and urban areas [7].

According to Nabuasa (2016), low parenting will lead to low child malnutrition. Insufficient parenting patterns were also reflected in some mothers after their babies were 6 months old, giving only empty porridge, to babies aged 6 months without vegetables or anything else. This is a culture for mothers in feeding their children who think that food has nothing to do with health [8].

According to Data from the Jayapura District Health Office, the stunting incidence rate in February 2022 was 15.64%, spread across 22 health center areas and the Dosay Health Center, West Sentani district, ranked first where out of 436 children under-five who were measured, 161 children under-five with stunting status (39.17%), the highest compared to 21 other existing health centers in Jayapura Regency [9].

Based on the description of the problem above, the writer is interested in conducting research with the title "Factors Associated with Stunting in Children under-five at the Dosay Health Center, West Sentani, Jayapura Regency."

2. Methods

This type of research is a type of observational study in which two groups that differ in results are identified and compared based on several supposed causal attributes.

Case control studies are contrasted with cohort studies, where exposed and non-exposed research subjects are observed until the results of the study. The case-control study was initially analyzed by testing whether there was a significant difference in the proportion of exposed subjects between cases and controls.

This research was conducted from January 2022 to February 2023 at the Dosay Health Center, West Sentani, Jayapura Regency. The population in this study was all children under-five at the Dosay Health Center, totaling 436 children.

The sample size in this study was a 1:1 ratio for the number of stunting cases of 161 children under-five and 161 children under-five for controls so that the total sample was 322 samples. Data were collecting from cohort registers and questionnaire, then analyzed using chi-square test, odds ratio, and binary logistic regression with a significant level of 5%.

3. Results

3.1. The Relationship between mother's education and stunting in children under-five

Table 3.1: The Relationship between mother's education and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Mother's Education	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Low	27	16.8	26	16.1	53	16.5
High	134	83.2	135	83.9	269	83.5
TOTAL	161	100	161	100	322	100

P-value = 1.000; OR=1.046; CI 95% (0.580-1.886)

Source: Primary data, 2022

Table 3.1 shows that in stunting children under-five, there are 27 mothers (16.8%) with low education, and as many as 134 mothers (83.2%) with high education. The results of the chi square test obtained a p-value of 1.000 > 0.05; indicating that the relationship between maternal education and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province, was not significant. The odds ratio test results obtained OR 1.046; CI95% (0.580 - 1.886). Because the lower and upper values contain the number 1, so the risk of maternal education is not significant with the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.

3.2. The Relationship between mother tribe and stunting in children under-five

Table 3.2: The Relationship between mother tribe and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Mother tribe	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Papuan	137	85.1	68	42.2	205	63.7
Non-Papuan	24	14.9	93	57.8	117	36.5
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=7.807; CI 95% (4.574-13.326)

Source: Primary data, 2022

Table 3.2 shows that among stunted children under-five, there were 137 mothers from the Papuan tribe (85.1%), and as many as 24 people (14.9%) came from mothers with non-Papuan tribes. Chi square test results obtained

p-value 0.000 <0.05; OR 17,807; CI95% (4.574– 13.326). This shows that water has a significant relationship between maternal ethnicity and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province. With an OR of 17,807 it can be interpreted that children under-five from Papuan mothers are at risk of experiencing stunting by 17.807 times higher than mothers from non-Papuan tribes.

3.3. The Relationship between parity and stunting in children under-five

Table 3.3: The Relationship between parity and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Parity	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
> 3 children	88	54.7	3	1.9	91	28.3
≤ 3 children	73	45.3	158	98.1	231	71.7
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=63.489; CI 95% (19.473-207.375)

Source: Primary data, 2022

Table 3.3 shows that in stunting children under-five, there were 88 mothers (54.7%) with parity > 3 children, and as many as 73 mothers (45.3%) with parity < 3 children. Chi square test results obtained p-value 0.000 <0.05; OR 63,489; CI95% (19.473 – 207.375).

This shows that water has a significant relationship between parity and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency. With an OR of 63,489, the interpretation is that mothers with parity > 3 children are at risk of having children under five experiencing stunting by 63.489 times higher than mothers with parity ≤ 3 children.

3.4. The Relationship between family income and stunting in children under-five

Table 3.4: The Relationship between family income and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Family income	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Low	104	64.6	62	38.5	166	51.6
High	57	35.4	99	61.5	156	48.4
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=2.913; CI 95% (1.852-4.582)

Source: Primary data, 2022

Table 3.4 shows that in stunting children under-five, there are 104 people (64.6%) with low family income, and as many as 57 people (53.4%) with high family income.

Chi square test results obtained p-value 0.000 <0.05; OR 2,913; CI95% (1.852 – 4.582).

This shows that there is a significant relationship between family income and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency.

With OR 2.913 with the interpretation that families with low income are at risk of having children under five experiencing stunting by 2.913 times higher than families with high income.

3.5. The Relationship between number of family members and stunting in children under-five

Table 3.5: The Relationship between number of family members and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Number of family members	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Big	64	39.8	154	95.7	218	67.7
Small	97	60.2	7	4.3	104	32.3
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=0.030; CI 95% (0.013-0.068)

Source: Primary data, 2022

Table 3.5 shows that in stunting children under-five, there are 64 people (39.8%) with large family members, and as many as 97 people (60.2%) with small family members. Chi square test results obtained p-value 0.000 <0.05; OR 0.030; 95% CI (0.013 – 0.068).

This shows that water has a significant relationship between the number of family members and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency.

With OR 0.030; 95% CI (0.013 – 0.068) indicates that the number of family members is a protective factor against stunting in children under-five.

3.6. The Relationship between exclusive breastfeeding and stunting in children under-five

Table 3.6: The Relationship between exclusive breastfeeding and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Exclusive breastfeeding	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Not Exclusive	72	44.7	2	1.2	74	23.0
Exclusive	89	55.3	159	98.8	248	77.0
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=64.315; CI 95% (15.410-268.423)

Source: Primary data, 2022

Table 3.6 shows that among stunted children under-five, there are 72 people (44.7%) who are not given exclusive breastfeeding, and as many as 89 people (55.3%) are exclusively breastfed. Chi square test results obtained p -value $0.000 < 0.05$; OR 64,315; 95% CI (15,410 – 268,423). This shows that there is a significant relationship between water and exclusive breastfeeding with the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency. With an OR of 64.315, the interpretation is that children under-five who are not exclusively breastfed are at risk of experiencing stunting by 64.315 times higher than children under-five who are exclusively breastfed.

3.7. The Relationship between Birth weight and stunting in children under-five

Table 3.7: The Relationship between Birth weight and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

Birth weight	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Low birth weight	34	21.1	1	0.6	35	10.9
Normal	127	78.9	160	99.4	287	89.1
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=42.835; CI 95% (5.784-317.195)

Source: Primary data, 2022

Table 3.7 shows that in stunted children under-five, there are 34 children under-five (21.1%) with low birth weight (LBW) and as many as 127 children under-five (78.9%) with normal birth weight. The results of the chi square test obtained a p -value of 0.000 or < 0.05 ; OR 42,835; CI95% (5.784 – 317.195). This shows that water has a significant relationship between birth weight and the incidence of stunting in children under five at the

Dosay Health Center, West Sentani, Jayapura Regency. With an OR of 42.835, the interpretation is that children under-five born with LBW are at risk of experiencing stunting by 42.835 times higher than children under-five born with normal weight.

3.8. The Relationship between History of infectious disease and stunting in children under-five

Table 3.8: The Relationship between History of infectious disease and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency in 2022.

History of infectious disease	Stunting in children under-five				Total	%
	Stunting		Normal			
	n	%	n	%		
Exist	98	60.9	34	21.1	132	41.0
Not exist	63	39.1	127	78.9	190	59.0
TOTAL	161	100	161	100	322	100

P-value = 0.000; OR=5.810; CI 95% (3.548-9.516)

Source: Primary data, 2022

Table 3.8 shows that in stunting children under-five, there were 98 children under-five (60.9%) with a history of infectious diseases, and as many as 63 children under-five (39.1%) had no history of infectious diseases.

Chi square test results obtained p-value 0.000 <0.05; OR 5,810; 95% CI (3.548 – 9.516).

This shows that water has a significant relationship between the history of infectious diseases and the incidence of stunting in children under five at the Dosay Sentani Barat Health Center, Jayapura Regency, Papua.

With an OR of 5.810, the interpretation is that children under-five with a history of infectious diseases are at risk of experiencing stunting by 5.810 times higher than children under-five who have no history of infectious diseases.

3.9. Multivariate Analysis

Multivariate analysis is used to obtain the dominant risk factors related to the incidence of stunting in children under-five, so it is necessary to carry out bivariate analysis and proceed to multivariate tests.

The independent variables that meet the requirements to be included in the multivariate analysis are mother's ethnicity, parity, family income, family size, exclusive breastfeeding, birth weight, and history of infectious diseases. Backward LR method was used in the multiple logistic regression multivariate tests.

The result of the analysis can be seen in Table 3.9.

Table 3.9: Analysis of Multiple Logistics Regression with Backward LR Method on the risk factor of stunting incidence.

Variables	B	p-value	OR	95% C. I. for Exp (B)	
				Lower	Upper
Mother's ethnicity	2.669	0.000	14.428	4.447	46.811
Parity	4.284	0.000	72.520	14.594	360.373
Family income	1.504	0.003	4.498	1.694	11.946
Family size	-3.146	0.000	0.043	0.013	0.146
Exclusive breastfeeding	3.215	0.001	24.897	3.457	179.560
Birth weight	4.211	0.000	67.430	6.345	716.560
History of infectious diseases	1.270	0.008	3.561	1.387	9.144
Constant	-25.85	0.000	0.000		

Source: Primary Data, 2022

Table 3.9 shows that the most dominant risk factor for stunting in children under-five is parity, it can be seen from the lowest p value, and the highest OR value.

4. Discussion

4.1. The Relationship between mother's education and stunting in children under-five

The results of the study showed that there was no significant relationship between maternal education and stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province. This shows that both mothers with elementary, junior high, high school and tertiary education levels have stunted children under-five. The incidence of stunting occurred more in mothers with higher educational levels, there were 134 mothers (83.2%). This shows that the mother's education level is not the basic cause of the problem of stunting and there are many other factors that can influence the incidence of stunting. This research is in line with research conducted by Ni'mah and Nadhiroh (2015), that maternal education is not related to the incidence of wasting and stunting in children under-five [10].

Education is a process of changing the attitude and behavior of a person or group of people in an effort to mature humans through teaching and training efforts [11]. In this study it was found that education is not related to stunting in children under-five because education is influenced by other factors, namely knowledge. Higher education affects one's comprehension or thinking power. However, this depends on the source of information obtained by the mother. Because mothers with higher education do not always have good knowledge, because formal education in this case increases thinking ability, so that if mothers are not exposed to good information about toddler nurses, it causes a lack of knowledge of mothers which has an impact on parenting patterns for their children in providing nutrition [11]. According to Sulistyaningsih (2017), that information supports mother's knowledge in acting, the higher the exposure to the information she gets, the higher her knowledge [12]. The low level of education is closely related to the inactivity of mothers who have children under-five to provide nutritional nutrition. The low level of mother's education affects the reception of information so that knowledge about nutrition is hampered or limited [13].

4.2. The Relationship between mother tribe and stunting in children under-five

The results showed that there was a significant relationship between maternal ethnicity and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province. Children under-five from Papuan mothers are at risk of experiencing stunting by 7.807 times higher than mothers from non-Papuan ethnic groups. However, it is not only the Papuan ethnic group but also those from other tribes who have stunted children. From the results of this study, several things that are closely related to ethnicity are family size and parity. The kinship and family relations of the Papuan people are very strong, so that according to respondents' statements, there are children who, even though they are married and have a family, still live with their parents and other families, and even their living expenses are still borne by their parents and or vice versa. The results of this study also show that parity is also one of the factors that influence the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.

In line with Nesa's research (2019) at the Arso III Health Center, Keerom Regency, the incidence of stunting in children under-five is more experienced by children under-five who come from the Papuan tribe because energy intake is the most dominant factor affecting stunting in the Papuan tribe.

According to Sari and his colleagues (2019), revealed that there is a relationship between ethnic differences and the incidence of stunting in children under-five [4]. Research from Ibrahim and his colleagues (2021), which discusses the relationship between ethnic culture and the incidence of stunting in children under-five, states that there is a relationship between ethnic culture that causes malnutrition and stunting in children under-five [15].

4.3. The Relationship between parity and stunting in children under-five

The results showed that there was a significant parity relationship with the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province, with the interpretation that mothers with parity > 3 children are at risk of having children under five experiencing stunting by 63.489 times higher than mothers with parity ≤ 3 children.

Previous research by Rahayu (2019) showed that mothers with parity primiparas and multiparas (having children less than 4) have a lower risk of having stunting children under-five compared mother with grandemultipara parity (having more than 4 children) 4 times [16].

Parity is an indirect factor in the occurrence of stunting, because parity is closely related to parenting and meeting the nutritional needs of children, especially if it is supported by poor economic conditions. Children born to mothers with multiple parity have a greater chance of getting poor parenting and not meeting nutritional needs during their growth period. Children who have a large number of siblings can cause growth retardation due to competition for limited available nutritional resources at home [12].

4.4. The Relationship between family income and stunting in children under-five

The results of the study showed that there was a significant relationship between family income and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province. Low income is at risk of having children under five experiencing stunting by 2.913 times higher than children under-five with high family income.

Nasikhah's research (2012) shows that the level of per capita income shown in spending on spending is a risk factor for stunting in children under-five in East Semarang with a risk of 7.21 [17]. Similar research by Agustin (2020) states that family food expenditures that are low or below the Minimum Wage have a 6 times greater risk of experiencing stunting than families with high expenditures [18].

The distribution of children under-five at the Dosay Health Center for stunting children under-five with low incomes is 104 families (64.6%) and as many as 57 families (53.4%) with high incomes. The results of the odds ratio test show that families with low income are at risk of having children under five experiencing stunting by 2.913 times higher than families with high incomes.

4.5. The Relationship between number of family members and stunting in children under-five

The results of the study showed that the relationship between the size of family members was significant with the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province. In line with Widiastuti's research (2021) in the East Manokwari District that the size of a family member has an influence on the incidence of stunting [19]. Other research shows that children under-five who live with more than 4 family members are at greater risk of experiencing stunting than children under-five who live with 2-4 family members [20]. The frequency distribution of stunting in children under-five with large family members is 64 people (39.8%) and as many as 97 people (60.2%) with small family members. However, from the results of the odds ratio test, the size of family members is not a risk factor for stunting in children under-five.

This agrees with Berg (2010) that increasing spending on consumption is not always followed by improvements in food consumption patterns. Even though a person tends to spend most of his income on consumption, this does not necessarily reflect that what he eats is good in nutritional quality. In addition, the family's ability to buy food is not only influenced by the amount of income but the price of foodstuffs. Some expensive food prices tend not to be selected and purchased, so in families these types of food are rarely served so that they are still lacking in fulfilling nutritional needs [21].

4.6. The Relationship between exclusive breastfeeding and stunting in children under-five

The results of the study showed that there was a significant relationship between exclusive breastfeeding and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province, with the interpretation that children under-five who were given exclusive breastfeeding were at risk of experiencing stunting by 64.315 times higher than children under-five who were given exclusive breastfeeding. In line with Pratama research (2022) that breastfeeding is a risk factor for stunting in children under-five [22]. Giving Mother's Milk (ASI) is a nutritional intake that fits the needs of babies and will help the growth and

development of children under-five especially at the age of the golden period. The link between exclusive breastfeeding and stunting is that children who are not exclusively breastfed for a full 6 months will affect the child's immunity against infectious diseases. Children under-five who do not get adequate nutritional intake and are infected with chronic diseases such as diarrhea and repeated ISPA will result in stunted children.

4.7. The Relationship between Birth weight and stunting in children under-five

The results of the study obtained that there was a significant relationship between birth weight and the incidence of stunting in children under-five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province, Papua with the interpretation that children under-five born with LBW are at risk of experiencing stunting by 42.835 times higher than children under-five born with normal weight.

According to Prawirohardjo (2017), normal birth weight babies > 2500 grams and low birth weight are newborns whose weight since birth is less than 2500 grams. Low birth weight babies will have an effect on the growth and development of children under-five [23].

Research conducted by Paudel in Nepal (2012) showed that low birth weight is a risk factor for stunting, children under-five with low birth weight have a 4.47 times greater risk of stunting than children under-five with normal birth weight. Apart from birth weight, birth length is another risk factor for stunting [24].

The impact of babies who have low birth weight will continue from one generation to the next. In the future, LBW children will have less anthropometric measurements in adulthood. For women born with low birth weight, they have a big risk of becoming stunted mothers so that they will tend to give birth to babies with low birth weight like themselves. Babies born to stunted mothers will also be stunted children and will form the same cycle as before [5].

4.8. The Relationship between History of infectious disease and stunting in children under-five

The results of the study obtained that there was a significant relationship between a history of infectious diseases and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province with the interpretation that children under-five with a history of infectious diseases are at risk of experiencing stunting by 5.810 times higher than children under-five who have no history of infectious diseases.

Research conducted by Solin and his colleagues (2019) revealed that infectious diseases such as diarrhea, ARI have a relationship with the incidence of stunting in children under five and in Limanto's study (2018), revealed that malaria in children is at risk for children's nutritional status [26].

4.9. The most dominant risk factor that influences the incidence of stunting in children under-five

The results of the multivariate test for stunting at the Dosay Health Center, Jayapura Regency, Papua Province, are parity. In line with Palino's research (2017) in the working area of the Puuwatu Public Health Center,

Kendari City, he found parity to be a determinant factor for stunting in children under-five aged 12-59 months.

Mothers with multiple parities tend to have children who experience stunting. This is because families who have many children, especially those with poor economic conditions, will not be able to provide adequate attention and food to all their children. Children who are in a period of growth, especially a period of rapid growth such as at the age of 1-2 years, really need attention and stimulation for brain development besides needing complete nutrients for their physical growth.

Disorders of growth and development tend to be experienced by children who are born late, because the burden on parents is greater the more children they have [27].

5. Conclusion

Based on the results of the discussion it can be concluded as follows:

- a. There is no significant relationship between mother's education and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- b. There is a significant relationship between maternal ethnicity and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- c. There is a significant relationship between parity and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- d. There is a significant relationship between family income and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- e. The relationship between the size of family members is significant with the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- f. There is a significant relationship between exclusive breastfeeding and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- g. There is a significant relationship between birth weight and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- h. There is a significant relationship between a history of infectious diseases and the incidence of stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province.
- i. The most dominant risk factor in stunting in children under five at the Dosay Health Center, West Sentani, Jayapura Regency, Papua Province is parity.

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