


History of Infectious Diseases with the Incidence of Stunting in Children of Toddlers at Mamajang Public Health Center and Cendrawasih Public Health Center, Makassar

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Article Info	ABSTRACT
<p>Keywords: Disease Infection, stunting, Lust Eat</p>	<p>Stunting or short stature is a condition where happen fail grow on toddler consequence deficiency nutrition chronic on 1,000 days First life (HPK) child. According to data from (WHO) on year 2022 percentage of children affected by stunting at the age of under 5 years by 22.3%. Disease infection is disease Which happen consequence exposure accompanied by the proliferation of microorganisms. Toddler age is an age that is very susceptible to infectious diseases, this is because at the age of toddlers the immune system has not formed properly. When a child is infected with an infectious disease, appetite will decrease, and the absorption of food that occurs is inadequate, so that there can be disturbances in the growth and development of children (Stunting). The research design used is research with an analytical method, using a cross-sectional design sectional study is a study that aims to determine the relationship between each variable. The data collection technique used is by collecting stunting data and then re-measuring and conducting interviews. Using Fisher's analysis Exact Test]. From 62 samples in this study, the incidence of stunting in children, it often occurs at the ages of 24 months and 36 months with a percentage of each each 22.6% And 17.7%. On study This there is connection between History of infectious diseases with stunting events where the p value : 0.022 , and there is a relationship between appetite and the incidence of stunting where the p value : 0.000 . There is a relationship between a history of repeated infections, appetite in children with the incidence of Stunting .</p>
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INTRODUCTION

Time toddler or called also as time *golden age* a children , this is because during the toddler period the growth and development process on a child very active formed, will but in time This also child vulnerable caught problem status nutrition. ¹ Problem status Nutrition in toddlers, one of which is *stunting* , *stunting* or short stature is something condition Where happen fail grow on toddler due to chronic malnutrition in the first 1,000 days of a child's life (HPK), based on the results of measuring body length or height according to age Good use standard WHO

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or measurement anthropometry.^{2,3} There are many impacts that can arise from children who have a body length that is not appropriate compared to a normal body of the same age, including disruption of a child's physical growth, *stunting* which occurs due to chronic malnutrition causes disruption of brain cell growth so that brain development in children is disrupted and will have an impact on a child's intelligence.^{1,4,5} According to data from *the World Health Organization Organization (WHO)* in 2022 the percentage of children affected by stunting at the age of under 5 years was 22.3%.⁶

Based on data survey status nutrition Indonesia (SSGI) Ministry of Health In 2022, stunting is still a problem in Indonesia because the incidence rate is still quite high at 21.6%. South Sulawesi is in the top 10 highest incidence of stunting . The decrease number incident stunting from 2021 And 2022 in Sulawesi south only linked 0.2%, Where on 2021 number incident stunting in South Sulawesi is 27.4% while in 2022 the percentage decrease is very small at 27.2%.^{7,8}

Disease infection Still become Wrong One problem in part major health sector in both developed and developing countries. Infectious diseases are diseases that occur due to exposure accompanied by the growth of microorganisms (bacteria, fungi, parasites , and viruses) in the body, causing damage to the host body which causes various clinical symptoms. Toddler age is an age that is very susceptible to infectious diseases, this is because in age toddler system immune Not yet formed with mature.^{9,10} *Stunting* can occur due to many things, both directly and indirectly, factor direct Which can cause incident stunting are inadequate food intake, infectious diseases, low birth weight (LBW), and genetics , while indirect factors causing stunting are the environment and society.¹¹ Research conducted by Maine A, et al. on year 2022 show There is a relationship between a history of infectious diseases, especially diarrhea and acute respiratory infections, with the incidence of stunting in children.¹¹ When a child is affected by an infectious disease, their appetite will decrease and food absorption will be inadequate, so that there may be disturbances in the child's growth and development, although there is a relationship lead come back between disease infection with *stunting* , Where Children with malnutrition can cause decreased immunity, causing children to often experience recurrent infectious diseases.^{10,11}

Based on the description above, researchers are interested in conducting research on the Relationship between History of Infectious Diseases and the Incidence *of Stunting* in Toddlers at the Mamajang Health Center and the Cendrawasih Health Center in Makassar. The purpose of this study was to determine the relationship between the history of infectious diseases and the incidence of stunting in toddlers at the Mamajang Health Center and the Cendrawasih Health Center in Makassar. This study is expected to provide a deeper understanding of the effect of infection on child growth and become a basis for efforts to prevent and treat stunting at the primary health care level.

RESEARCH METHODS

This study uses an analytical design with a *cross-sectional approach*. *Sectional* , which aims to determine the relationship between the history of infectious diseases and the incidence of

stunting in toddlers at the Mamajang Health Center and the Cendrawasih Health Center in Makassar. This approach allows data collection at a certain time without any intervention, so that it can provide an overview of the relationship between the variables studied. The data collection technique was carried out by collecting data on stunting conditions in children and the history of infectious diseases that had been experienced previously.

This study was conducted in two main locations, namely the Mamajang Health Center located at Jl. Baji Minasa No. 10, Tamarunang Village, Mariso District, and the Cendrawasih Health Center at Jl. Opu Daeng Risadju No. 404, Sambung Jawa Village, Mamajang District, Makassar City. The selection of these locations was based on the number of recorded stunting cases and accessibility in data collection. The study took place from November to December 2024, with a sample collection duration of approximately one month.

The population in this study included all child patients in both health centers who had been diagnosed with stunting and those who had not. experiencing stunting. The sampling technique uses the *Total Sampling method*, which means that the entire population that meets the inclusion criteria will be used as a research sample. The inclusion criteria in this study include toddlers who experience stunting or who do not experience stunting, and are willing to be respondents. Meanwhile, the exclusion criteria include children who have genetic diseases or are unwilling to participate in the study.

The variables studied in this study consisted of independent variables, namely the history of infectious diseases in children, dependent variables in the form of stunting events, and intermediate variables that include disorders of food intake and food metabolism. The data obtained were analyzed using univariate and bivariate analysis with *the Chi-Square test* and *Fisher's Exact Test* to see the relationship between infectious disease history and stunting incidence. All data were analyzed using a categorical scale so that the research results are more structured and easy to interpret.

Data processing was carried out retrospectively, where data on stunting incidents in 2023 were collected, then re-measurements and interviews were conducted with parents or guardians of children to trace the history of infectious diseases experienced by children. Data collection involved various tools such as patient medical records, height measuring devices, scales, and stationery for recording interview results. With this method, the study is expected to provide a clear picture of the influence of infectious diseases on stunting incidents, so that it can be the basis for more effective health interventions in the future.

RESULTS AND DISCUSSION

Results

Based on the results of research conducted at the Mamajang Health Center and the Cendrawasih Health Center in Makassar, it is known that the incidence of stunting in toddlers reached 50.0%, with the number of stunted children being 31 out of a total of 62 samples. Likewise, the number of children who did not experience stunting was the same, namely 31 children (50.0%). From the aspect of infectious disease history, it was found that 46.8% of children had experienced recurrent infections, while 53.2% did not have such a history. More

specifically, 41.9% of children had a history of recurrent Acute Respiratory Tract Infections (ARI), while the other 58.1% did not experience conditions. In addition, cases of recurrent diarrhea are also quite significant, with 27.4% of toddlers recorded as having experienced diarrhea repeatedly.

In addition to infection factors, this study also observed aspects of children's appetite. The results showed that most toddlers in the study area had a good appetite, namely 36 children or 58.1%, while the rest, 41.9%, had poor appetite. This finding indicates a relationship between a history of infectious diseases and children's nutritional conditions, where children with repeated infections tend to be at higher risk of experiencing growth disorders. With a fairly high incidence of stunting, the results of this study reinforce the importance of preventing infectious diseases and fulfilling optimal nutrition for toddlers to reduce the risk of stunting in the area.

Bivariate Analysis

Connection History Infectious Diseases with Stunting

Table 1. Connection History Disease Infection Repeated with Incident *Stunting*

Variables		Stunting		No Stunting		Total		P Value
		n	%	n	%	n	%	
History	Yes	19	30.7	10	16.1	29	46.8	.022
Infection	No	12	19.3	21	33.9	33	53.2	
Total		31	50.0	31	50.00	62	100	

(Data Primer, 2024)

Based on table 1 regarding the relationship between History of Infectious Diseases and *Stunting* It was found that 30.7% of stunted children had a history of recurrent infections, and 16.1% of children were not *stunted*. have a history of recurrent infectious diseases. In some children it was also found that as much as 19.3% child *stunting* No own history disease recurrent infections, and 33.9% of children were not *stunted* have no history of recurrent infectious diseases.

Based on Analysis with test statistics Fisher's Exact Test obtained mark p: 0.022 ($p < 0.05$) so H1 accepted H0 rejected, This proves that there is a significant relationship between a history of infectious diseases and the incidence of *stunting*. in children.

Connection Lust Eat with Stunting

Table 2. Relationship Lust Eat with Incident *Stunting*

Variables		Stunting		No Stunting		Total		P Value
		n	%	n	%	n	%	
Lust	Good	11	17.8	25	40.3	36	58.1	.000
Eat	Not enough	20	32.2	6	9.7	26	41.9	
Total		31	50.0	31	50.00	62	100	

(Data Primer, 2024)

Based on table 2. regarding the relationship between appetite and *stunting* it was found that there were 17.8% of children *with stunting* own lust Eat Which Good, as well as as much as 40.3% child no *stunting* own lust Eat Which Good also. On a number of children found that 32.2% of children *were stunted* have poor appetite, and only 9.7% of children are not *stunted* who have poor appetite. Based on Analysis with test statistics Fisher's Exact Test obtained mark p: 0.000 ($p < 0.05$) so H1 accepted H0 rejected, This proves that there is a significant relationship between appetite in children and the incidence of *stunting* in children.

Discussion

Based on the research results, the incidence of *stunting* in toddlers is highest in the age group of 24 to 36 months, with a *stunting* percentage of 22.6% at the age of 24 months and 17.7% at the age of 36 months. This is in line with WHO data which shows that *stunting* often occurs in toddlers under the age of five (12-59 months). Research by Tseng S, et al. (2024) also shows that *stunting* occurs frequently in the age group of 13-48 months. In addition, research by Sutarto, et al. (2021) and Lusina VH, et al. (2021) revealed that *stunting* occurs more frequently in children aged 24-36 months. *Stunting* is caused by chronic reduction in nutritional intake, which can occur from in the womb to the early stages of a baby's life. This lack of nutritional intake causes disruption of energy formation which has an impact on a child's growth. The impact of *stunting* usually begins to appear after the age of 12 months, and if nutritional needs are not met as we age, the risk of *stunting* will increase.

In addition to age factors, this study also shows that *stunting* is more common in girls, which is 33.9%. This result is in line with research conducted by Trisiswati M, et al. (2021), which shows that girls experience *stunting* more. However, this finding contradicts research by Masriadi, et al. (2021), which states that *stunting* is more common in boys. This difference may be due to higher nutritional needs in boys, because they have larger body proportions and faster gross motor development. However, in the first two years of life, girls are more susceptible to *stunting*, which is thought to be caused by differences in parenting patterns and growth patterns.

Regarding the relationship between the history of infectious diseases and the incidence of *stunting*, it was found that as many as 30.7% of *stunted* children had a history of recurrent infections. Bivariate analysis with Fisher's statistical test Exact The test shows a p value < 0.05 , which means there is a significant relationship between the history of infectious diseases and the incidence of *stunting*. These results are in line with research conducted by Cono EG, et al (2021), Novikasari L, et al (2021), and Manieny A (2022), which shows that toddlers are more susceptible to infectious diseases. Infectious diseases increase the need for nutrition to form the immune system, while at the same time, infection can cause decreased appetite due to the body's response to the immune system. The repeated cycle between infection and lack of nutritional intake can interfere with a child's growth, increasing the risk of *stunting*. In addition, research by Solin AR, et al (2019) and Sutarto, et al (2020) shows that prolonged diarrhea and ARI can cause metabolic disorders and nutrient absorption, which contribute to the incidence of *stunting*.

The relationship between appetite and *stunting* was also found to be significant in this

study, where as many as 32.2% of children with poor appetite experienced stunting . Results of the analysis using the Fisher's test Exact The test shows a p value <0.05 , which means there is a significant relationship between appetite and stunting . This result is in line with the research of Dhamir FA, et al (2024), which shows that children with good appetite have a lower risk of stunting , while children with less appetite are more vulnerable because they experience long-term nutritional intake disorders. However,

This study differs from the findings of Khadijah S, et al. (2017), which stated that there was no relationship between appetite and stunting . The study emphasized that providing good nutrition and proper eating patterns by parents can help children catch up on lagging growth (catch-up). growth), so that even though appetite is lacking, the risk of stunting can be minimized with appropriate intervention.

CONCLUSION

Based on the results of the study, there is a significant relationship between the history of infectious diseases and the incidence of stunting in toddlers, as well as the relationship between children's appetite and the risk of stunting . In the work areas of the Mamajang Health Center and Cendrawasih Health Center, the incidence of stunting in toddlers reached 50%, while the incidence of infection was 46.8%, with ARI as the highest type of infection (41.9%), followed by diarrhea (27.4%). This study shows that children with stunting tend to have a history of repeated infections and decreased appetite. The cycle between infectious diseases and lack of nutritional intake has a strong reciprocal relationship in affecting children's growth and development. When children often experience infections, their nutritional needs increase, but if their appetite decreases due to illness, then nutritional intake is insufficient, contributing to stunting.

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