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Factors related incidence of stunting in children aged 0-60 months in Bulo, Wori District, North Minahasa

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ABSTRACT
Stunting is a picture of prolonged malnutrition during the most critical period of growth and development in early life. This can be interpreted as toddlers aged 0-59 months who have a height according to age below minus 2 standard deviations and minus 3 standard deviations from the median growth standard of toddlers. This study was to determine the factors associated with the incidence of stunting in children aged 0-60 months in Bulo Village, Wori District. This study used an observational analytic method with a cross sectional design. The sampling technique used was simple rundom sampling. The number of samples in this study were 26 samples which included: 13 case groups and 13 control groups. The data were processed and analyzed using the chi-square $p<0.05$ test in the SPSS program. The results showed that there was no significant relationship between maternal height, p-value 0.420 (CI 0.387-9.601), maternal education, p-value 0.431 (CI 0.937-2.185), exclusive breastfeeding, p-value 0.018 (CI 0.762-1.268), type sex p-value 0.695 (CI 1.850-1.234). The incidence of stunting in toddlers 0-60 months did not have a significant relationship with maternal height, mother's education, breastfeeding, birth weight, and gender. Keywords: Stunting, Maternal education level, Exclusive breastfeeding, Birth weight, Gender.

RESEARCH METHODS
Type of Research
This type of research is an analytical observational research with case control study design.
Location and Time
The research was conducted in Bulo Village, Wori District, North Minahasa. This research was conducted on June – Juli 2022
Population and Sample
Population
The population in this study were all children under five in the Bulo Village, Wori District, North Minahasa Regency, total sampling 46 children.
Sample
The sample in this study is children under five years old 0-60 months who meet inclusion and exclusion criteria.
1. Inclusion criteria
   a. All toddlers who were present during the research
   b. Toddlers who have KIA books
   c. Mothers of toddlers are willing to be respondents

2. Exclusion criteria
   a. Not present during the research
   b. Don't have KIA book
   c. Parents of toddlers are not willing to be respondents

Research Variables

Dependent variable : the incidence of stunting Independent variables : mother's height, mother's education level, breastfeeding birth weight, gender

Research Places and Instruments

The tools and materials used in this research are: microtoise, scales, questionnaire

Data Collection Techniques

Primary Data

Collecting this data by conducting direct interviews by using a questionnaire given to mothers who have children under five. The primary data in this study is the provision of Breastfeeding to children and the level of education of mothers,

Secondary Data

This data collection was obtained from the child's MCH handbook, and journals that are relevant to the research topic. Secondary data in research These are the gender, birth weight and height of the mother, which are recorded in the the child's KIA book.

Place and Data Processing And Analysis

Data Analysis

The data analysis used in this research is Chi-square.

The data obtained will be tested with chi-square, if meet the requirements of chi-square test, that is, there is no expected value less than 5. If the chi-square test conditions are not met, then it can be The alternative test is the Fisher's Exact Test. Second the tested variables are said to have a significant relationship if with a 95% confidence level, the p-value is obtained less than 0.05.

RESULTS AND DISCUSSION

Description

Bulo Village is one of the villages in the Wori District, West Sumatra Regency North Minahasa, North Sulawesi Province with an area of ± 296. The population of Bulo Village comes from the Bajo tribe 75%, Sangir 24% and others 1% with a total of 845 people consisting of 423 men, 422 women people. Geographically, Bulo Village is in the position of 01˚35ʻ 29.19”U and 124˚ 50'16, 22”T with an altitude of 350 m above sea level. Topographical shape Bulo village is flat and hilly. Bulo Village is bordered by: North of the Sulawesi Sea and the village of Ponto, East of Ponto and Warisa Villages, South of Darunu Village, Northwest of Sulawesi.

Table 1. Frequency distribution of subjects based on mother's height

Mother's height	Stunting			Normal	
	n	%	n		%
≤ 150 cm	6	46.1	4		30.7
>150 cm	7	53.9	9		69.3
Amount	13	100	13		100

Results of the analysis of the relationship between maternal height and the incidence of stunting found that toddlers were stunted and had mothers with a high risk of height, which was 53.9%. Toddlers who are not stunted and have mothers with high risk are 69.3%. Statistical test results obtained p-value 0.420 means it can be concluded that there is no relationship between maternal height with Stunting Incidence. Stunting had a 1.929 times chance (95% CI 0.387–9.601) in infants born to mothers with a height of less than 150cm compared to infants born to mothers with a height of more than 150cm.
Results of the study contradicted the results of Miko's research (2017), it was found that the mother's height was significantly related to the incidence of stunting with a p value of 0.048 and the father's height obtained a p value of 0.023 which means it has a significant relationship with the incidence of stunting. (Andari, *et al*, 2020).

Table 1, it can be seen that the height of the mother of stunted children who are less than 150 cm is 7 people (53.9), while for normal children there are 9 people (69.3%) who have a mother's height > 150cm.

Table 2. Frequency Distribution by Mother's Education Level

Education Level	Stunting		Normal	
	n	%	n	%
Primary school	**6**	**46.1**	**3**	**23.1**
Junior high school	**5**	**38.5**	**6**	**46.2**
Senior High School	**2**	**15.4**	**4**	**30.7**
Amount	**13**	**100**	**13**	**100**

Table 2 above can be seen that the education level of mothers of stunting children with an elementary education level of 6 people (46.1%), junior high school as many as 5 people (38.5%) and high school as many as 2 people (15.4%). Meanwhile, the education level of mothers of normal children with elementary education level is 3 people (23.1 %), junior high school is 6 people (46.2%) and high school is 4 people (30.7%).

This research is in line with the research conducted by Cholifatun (2015). Who reported that there was no relationship between maternal education level and the incidence of stunting (p=0.581 and 0.605) (Ramdahni, *et al*, 2021).

Table 3. Distribution of Frequency Based on Exclusive Breastfeeding

Exclusive breastfeeding	Stunting		Normal	
	n	%	n	%
Exclusif	**9**	**69.3**	**3**	**23.1**
Non exclusif	**4**	**30.7**	**10**	**76.9**
Amount	**13**	**100**	**13**	**100**

Table 3 clearly shows that exclusive breastfeeding for stunting children is 4 (30.7%). While for normal children, 10 (76.9%) are exclusively breastfed.

Results of the analysis of the relationship between exclusive breastfeeding and the incidence of stunting showed that there were 9 children (69.2%) who experienced stunting and did not receive exclusive breastfeeding, while 3 people (23.1%). The statistical test results obtained a p-value of 0.018 which means that it can be concluded that there is no relationship between exclusive breastfeeding and the incidence of stunting. Stunting is 0.133 times (95% CI 0.762-1.268) in infants who are not exclusively breastfed compared to those who are exclusively breastfed.

This study challenges the research of Indrawati (2017) The relationship between exclusive breastfeeding and the incidence of stunting in toddlers 2-3 years. Where obtained -value = 0.000 with a significance level of 5%.

Table 4. Frequency Distribution by Birth Weight

Birth Weight	Stunting			Normal	
	n	%	n		%
≤2500g	1	76	0	0.0	
>2500g	12	92.4	13	100	
Amount	13	100	13	100	

Table 4 above can be explained that stunting children whose birth weight is >2500grams amounted to 12 people (92.4%).While in normal children there were 13 people (100%) whose birth weight was >2500grams.
The results of this study are similar to the results of Nasikhah's (2012) study, namely birth weight is not a risk factor for stunting with a P value of 1,000. (Winowatan, *et al*, 2017)

Results of Chi-Square Analysis on sample characteristics of Stunting Incidence in Toddlers in Bulo Village, Wori District, North Minahasa Regency. Statistical test results obtained p-value 0.431 means that it can be concluded that there is no relationship between maternal height and the incidence of stunting. Stunting had a 1.929 times chance (95% CI 0.387–9.601) in infants born to mothers with a height of less than 150cm compared to infants born to mothers with a height of more than 150cm. Statistical test results obtained p value of 0.431 means that it can be concluded that there is no relationship between maternal education level and the incidence of stunting. Stunting is 1,867 times (95% CI 0.937-2.185) in children under five born to mothers with a low level of education compared to infants born to mothers with a high level of education.
The statistical test results obtained a p-value of 0.018 which means that it can be concluded that there is no relationship between exclusive breastfeeding and the incidence of stunting. Stunting is 0.133 times (95% CI 10.762-1.268) in infants who are not exclusively breastfed compared to those who are exclusively breastfed.
Statistical test results obtained p-value 0.300 means that it can be concluded that there is no relationship between birth weight and the incidence of stunting. Stunting has a chance of 2,083 times (95% CI 1.385-3.133) in infants born with less birth weight than infants born with sufficient birth weight.

Statistical test results obtained p-value 0.695 means that it can be concluded that there is no relationship between gender and the incidence of stunting. Stunting has a 0.735 times (95% CI 1.850-1.234) probability in male toddlers compared to female toddlers.

The results of the analysis of the relationship between gender and the incidence of stunting found that there were 6 children under five who experienced stunting and male sex (46.1%). Toddlers who did not experience stunting and were male, as many as 7 people (53.8%). Statistical test results obtained p-value 0.695 means that it can be concluded that there is no relationship between gender and the incidence of stunting. Stunting has a chance of 0.735 times

CONCLUSION AND RECOMMENDATION

Conclusion

No significant relationship between the incidence of stunting in infants 0-60 months which has been proven from the results of the chi-square test between maternal height with p = 0.420, mother's education level with p value = 0.431, exclusive breastfeeding with p value = 0.018, Birth weight with p value = 0.300, Gender with p value = 0.695.

Recommendation

1. Health agencies and health workers are expected to improve routine monitoring of supplementary feeding and provide counseling on stunting.
2. Mothers are expected to increase awareness, especially on maternal and child health to prevent stunting.
3. Future researchers are expected to pay more attention to other, more complex variables that can affect stunting.

REFERENCES

Andari, W., Siswati, T., &Paramashanti, B. A. (2020). Mother's height as a risk factor for stunting in children aged 24-59 months in Pleret and Pajangan sub-districts, Bantul district, Yogyakarta. Journal of Nutrition College, 9(4), 235-240.

Indrawati, S., &Warsiti, W. (2017). The relationship between exclusive breastfeeding and stunting in children aged 2-3 years in Karangrejek village, Wonosari, Gunungkidul (Doctoral dissertation, Universitas' Aisyiyah Yogyakarta).

Faiz, Aiman, et al. (2021) "A Review of Critical Analysis of Inhibiting Factors in Character Education in Indonesia." Basicedu Journal 5.4 (2021): 1766-1777.

Febriani, C. A., Perdana, A. A., &Humairoh, H. (2018). Factors in the incidence of stunting for toddlers aged 6-23 months in Lampung Province. Journal of Public Health, 7(3).

Journal of Instek (2017). Monitoring the development and nutritional status of toddlers Martha, Ayu Agustin.(2019). Analysis of Mother's Social Demographic Determinants of Stunting Incidence in Toddler Age Children in the Health Center Area Surabaya Kenjeran. Diss. STIKES HANG TUAH SURABAYA, 2019.

Miko, A., & Al-Rahmad, A. H. (2017). The relationship between the weight and height of parents and the nutritional status of children under five in Aceh Besar District. Nutrition Indonesia, 40(1), 21-34.

Minister of Health of the Republic of Indonesia in 2020. Child anthropometry standards.

Ramdhani, A., Handayani, H., & Setiawan, A. (2021, February). Connection
Mother's Knowledge With Stunting Incidence. In Proceedings of the LPPM UMP National Seminar (pp. 28-35).

Savita, R., & Amelia, F. (2020). Relationship between Mother's Occupation, Gender, and Exclusive Breastfeeding on Stunting Incidence in Toddlers 6-
59 Months in South Bangka The Relationship of Maternal Employment, Gender, and Exclusive Breastfeeding with Incident of Stunting in Toddler Aged 6-59 Months. Journal of Health PoltekkesKemenkes RI Pangkalpinang, 8(1), 6-13.

Supriyanto, Y., Paramashanti, B. A., &Astiti, D. (2018). Low birth weight is associated with stunting in children aged 6-23 months. Indonesian Journal of Nutrition and Dietetics, 5(1), 23-30.

Stella Safitri tribunmanado.co.id (4/4/2022). Data on Stunting at the Minahasa Utara Health of Office.

Tsaralatifah, R. (2020) 'Factors Relating to Stunting Incidents in Baduta in Ampel Village, Surabaya City Determinants of Stunting Children Under Two Years Old in Ampel Village, Surabaya', (December 2018).

UNICEF. (2017). The Second Highest Stunting Prevalence of Indonesian Toddlers in ASEAN,

Winda, S. A. (2021). Mother's Height Against Stunting Incidence in Toddlers: Literature Review. Journal of ProNers, 6(1).

Winowatan, G., Malonda, N. S., &Punuh, M. I. (2017). The relationship between birth weight of children and the incidence of stunting in toddlers in the working area of the Sonder Health Center, Minahasa Regency. Public Health, 6(3).