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Identification of Socio-Demographic Factors with the Incidence of Stunting in Elementary School Children in Rural Enrekang

Nur Abri[1]*
[1] Health Polytechnic, Ministry of Health, City of Samarinda, East Kalimantan, Indonesia
*Corresponding author, contact: abrijoto05@gmail.com

Abstract
Stunting is a major health emergency in most developing countries, including Indonesia. The total number of stunting children in 2019 in Enrekang Regency is quite high at 44.8%. Therefore, this study aims to determine the relationship between maternal knowledge, maternal education level, and the number of family members with the incidence of stunting in elementary school children in rural Enrekang, South Sulawesi. An analytical observational study with a cross sectional approach. The subjects of the study were the mother and her child aged 6-12 years. Data collection using microtoa and questionnaires. 100 total samples were collected based on purposive sampling method. Data analysis using chi-square. This study shows the proportion of stunted children 72.0%, maternal knowledge less 90.0%, low maternal education 66.0%, family size 95.0%. The results of statistical tests showed a significant relationship between maternal knowledge (p = 0.027) and the incidence of stunting. Meanwhile, the level of maternal education (p = 0.992) and the number of family members (p = 0.919) are not related to stunting events. There is a significant relationship between maternal knowledge and stunting events. Increasing health knowledge and nutritional awareness in mothers through health promotion, stunting education with posters and the distribution of leaflets on sustainable stunting is a toll road in tackling chronic nutrition in children in rural Enrekang.

Keywords: Stunting, Primary School Children, Knowledge, Education, Number of Family Members

Key Messages:

- Knowledge about stunting is very necessary for a mother because the mother's knowledge about stunting that is lacking can cause children to be at risk of stunting
- Increasing health knowledge and nutritional awareness in mothers is one of the toll roads to overcome chronic malnutrition of children in rural Enrekang

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1. Introduction

Nutritional problems that occur in school-age children are very worrying, including stunting (1). Stunting characterized by a z-score <-2SD is a global health problem that affects the potential for linear growth in children (2). This condition is a manifestation of chronic malnutrition. And it is widely experienced in children in developing countries (3). Globally, in 2019, it was reported that around 144 million toddlers (21.3%) were stunted. Of the 144 million toddlers in the world who are stunting, more than half are from lower middle-income countries and only a quarter are from low-income countries. It is estimated that 1 in 4 children under five are stunting.

Indonesia is one of the developing countries with a high prevalence of stunting. The prevalence of stunting toddlers in 2018 was 30.8% (4). The latest report from the 2019 Indonesian Toddler Nutritional Status Study shows the prevalence of stunting based on Height/Age of 27.3%. There has been a 3.5% decline in the past year. The 2019 SSGBI in South Sulawesi showed a prevalence of stunting toddlers of 30.1%. By district, the highest stunting prevalence is in Enrekang Regency, which is 44.8%.

Stunting of older children is a legacy of malnutrition during early childhood (5). Stunting in children of primary school age is one of the health and nutritional problems in Indonesia (1). Stunting in early childhood has been shown to increase the risk of dying from childhood illnesses, impair cognitive development, decrease educational performance and reduce employment opportunities later in life. Stunting can later be accompanied by excessive weight gain, thereby increasing the risk of obesity and non-communicable disease (NCD) as an adult (6). Nutrition of schoolchildren is an index and prerequisite of national investment in the development of a nation's social capital in the future. Nutrition will determine his lifelong health, strength, and intellectual vitality (7). Based on data and the impact of stunting on children, it is very important to conduct a study of stunting risk factors so that strategies can be designed to overcome these problems.

Therefore, this study aims to determine the relationship between maternal knowledge, education, and the number of families with the incidence of stunting in elementary school children.

2. Methods

This study used a mixed method. The approach used in this research was a quantitative approach to design This study is an observational analytic with a cross sectional design. The subjects of this study were the mother and her child aged 6-12 years. 100 total samples were obtained by purposive sampling. This research was conducted from August to September 2021 located in Buntu Batu District, Enrekang Regency, South Sulawesi, Indonesia in 3 villages (Buntu Mondong Village, Potokullin Village, and Latimojong Village). The dependent variables in the study were the incidence of stunting, while the independent variables were maternal knowledge, maternal education, and the number of family members. Height data were obtained using microtoa and data on maternal knowledge, maternal education, and the number of families using validated questionnaires.

The data were analyzed using the SPSS program with univariate, bivariate tests. The chi-square test is used to see the relationship of variables. Health Research Ethics Commission, Faculty of Public Health, Hasanuddin University on October 14 with the number: 9190/UN4.14.1/TP.01.02/2021

3. Results

Table 1 shows that maternal characteristics by age are most found in the age group of 31–40 years 45.0%. The mother's last education was dominated at 34.0% primary school graduation. The majority of mothers do not work/housewives 53.0%. The majority of mothers of the thorn tribe 90.0%. Mothers have the most 3 children, which is 30.0%.

Table 2 shows that most children are 10 years old ie 31.0%. Gender is dominated by men, namely 51.0%. Meanwhile, the nutritional status of children showed the majority of stunting was 72.0%. Table 3 shows that maternal knowledge p=0.027. These results showed that H_a was accepted and H_0 was rejected, so it was concluded that there was a significant relationship between maternal knowledge and stunting events. This finding was corroborated because there were 90 mothers with less knowledge likely to have stunting children, namely 68 children (75.6%) compared to 4 well-informed mothers who only had 4 children (40.0%) who were stunting.

Table 1 Characteristics of Mothers from School Children

Characteristics of Mothers	n	%
Age (years)		
21 – 30	17	17,0
31 – 40	45	45,0
41 – 50	33	33,0
51 – 60	5	5,0

Characteristics of Mothers	n	%
Education		
Not Finished Elementary School	5	5,0
Graduated elementary school	34	34,0
Graduated junior high school	27	27,0
Finished High School	18	18,0
Finished diploma	16	16,0
Occupation		
Housewife	53	53,0
Planters/Farmers	27	27,0
Merchant/Seller	4	4,0
Day Laborer	2	2,0
Craftsmen	1	1,0
Private Employees	2	2,0
State civil apparatus	9	9,0
Other	2	2,0
Tribe		
Duri	90	90,0
Bugis	10	10,0
Number of Children		
1	5	5,0
2	18	18,0
3	30	30,0
4	22	22,0
5	11	11,0
6	8	8,0
7	5	5,0
10	1	1,0
Total	**100**	**100,0**

Table 2 Characteristics of Children

Child Characteristics	n	%
Age (Years)		
7	11	11,0
8	15	15,0
9	26	26,0
10	31	31,0
11	15	15,0
12	2	2,0
Gender		
Man	51	51,0
Woman	49	49,0
Stunting Incident		
Stunting	72	72,0
Normal	28	28,0
Total	**100**	**100,0**

Table 3 Bivariate Analysis

Variable	Stunting Incident				Total		p
	Stunting		Normal				
	n	%	n	%	n	%	
Mother's Knowledge							
Less	68	75.6	22	24,4	90	100,0	0.027*
Good	4	40,0	6	60,0	10	100,0	
Maternal Education							
Low	47	71,2	19	28,8	66	100,0	0.992**
High	25	73,5	9	26,5	34	100,0	
Number of Family Members							
Big	69	72,6	26	27,4	95	100,0	0.919**
Small	3	60,0	2	40,0	5	100,0	

* Chi-square test, Fisher's Exact Test

** Chi-square test, Continuity Correction

4. Discussion

Level of Knowledge

The preparation of balanced nutritious food is an important factor for improving the nutritional status of family members. This will only be achieved when the family, especially the mother, has sufficient knowledge about nutrition. Knowledge, attitudes, and good behavior in the selection of foodstuffs, food preparation, including food security for families will have a significant impact on stunting prevention (8). The results showed a significant relationship between maternal knowledge and stunting incidence (p= 0.027). We found knowledgeable mothers were less likely to give birth to stunting children compared to well-informed mothers.

Knowledge is the initial capital of a mother that is used to provide adequate care to her children. Lack of comprehensive knowledge can be one of the causes of stunting. Based on the answers from the distribution of knowledge questionnaires, it is known that most mothers 90.0% with insufficient knowledge. This is based on the fact that the majority of mothers do not know what stunting is, the characteristics of stunting children, stunting factors, causes of stunting, the impact of stunting, how to prevent stunting, even some mothers think that stunting is not a health problem. Knowledge about stunting is very necessary for a mother because the mother's knowledge about stunting that is lacking can cause children to be at risk of stunting. Knowledge is usually obtained from formal education information and other information such as radio, television, internet, newspapers, magazines, counseling and so on. These findings are in line with studies Simanjuntak et al (2019) in Bengkulu showing that maternal nutritional knowledge (p=0.031) is related to height index in children (9). The same findings by a study Bustami & Ampera (2020) in Aceh that showed the incidence of stunting in children included maternal knowledge (10).

Knowledge is influenced by many factors, one of which is the level of education (11). Based on the analysis of field data obtained as many as 66 mothers with low levels of education (did not finish elementary school, graduated from elementary and junior high school). It is assumed that mothers with low education will have less knowledge. The low level of maternal education affects family knowledge and personal hygiene, as well as nutrition. Mothers play an important role that determines the health status of their children, so the mother's level of education makes her more selective and creative in choosing, preparing, and serving food for her child (8). Another influence that affects the low knowledge of mothers is the lack of information, education, and health promotion, causing most mothers to still be less familiar with the term stunting. Another factor that can influence is the lack of updates of respondents on social media regarding health information. This kind of continuous life cycle without new things, so we suspect this will affect the lack of knowledge. Low maternal knowledge will have an impact on the limitations of the child's nutritional parenting, this will affect the nutritional status of the child. Raising awareness of nutritional balance and nutritional-related health issues is one of the important avenues to reduce chronic malnutrition of children in developing countries.

Mothers are the first caregivers of children with the main goal of avoiding nutritional problems in

children in order to achieve optimal growth and development. The knowledge, attitudes and practices of the mother influence the change in the child's diet. Mothers with good knowledge will apply good feeding practices, thus, their children will be free from malnutrition, in turn, this can help children have good health while following better dietary practices. Furthermore, this will help mothers in changing their family's behavior and eating habits (9). Various factors that cause low maternal knowledge, indirectly the condition causes stunting. However, this study is not in line with the findings Bukari et al (2020) which showed no association between knowledge and stunting (p=0.781) in children in Tamale Metropolis, Ghana. The level of knowledge of monitoring maternal growth and development is high, but it has no effect on stunting. (12)

Education Level

What is meant by the mother's level of education is the last formal education achievement completed by the mother which is seen based on the last diploma, this can be seen when the mother shows her family card / last diploma. The results showed that the level of maternal education was not related to the incidence of stunting in children (p = 0.992). We found mothers with low levels of education were more likely to give birth to stunted children compared to highly educated mothers. Mothers with low levels of education also have more children of normal height. This finding is supported by a study Wahid et al (2020) in Indonesia that showed no relationship between maternal education and the incidence of stunting in toddlers (p= 1,000) (13). Our study revealed that highly educated mothers had fewer stunted children than low-educated mothers. The mother's educational background is closely related to how positive attitudes and behavior patterns of mothers in preparing to provide nutritious food to children. An educated mother will have a better nutritional impact on the child compared to the father. Facts show that educated mothers can be the driving force of any change because educated mothers will be able to make decisions that are closely related to the prevention of nutritional problems in children from an early age such as the ideal age for marriage, regulating the distance of pregnancy and birth and the use of health services (14).

Studies in Indonesia found that stunting opportunities decreased significantly among children whose parents were more educated (15). Highly educated mothers have a better knowledge of their child's nutritional health, are more aware of their child's health, and provide better parenting. It can be concluded that the higher the mother's education, the better the mother's knowledge about the health status of her child and the lower the incidence of stunting in children (11).

We assume that with higher education, the person will also have a wider knowledge. Low education does not guarantee that a mother does not have sufficient knowledge about the nutrition of her family. The existence of high curiosity can affect mothers in obtaining information about a good lifestyle for children and the right nutritional needs for children. The increase in knowledge is not absolutely obtained from formal education alone, but can be obtained through non-formal education. A person's knowledge of an object contains two aspects, namely the positive aspect and the negative aspect. These two aspects will determine the attitude of a person, the more positive aspects and and objects are known, it will give rise to a more positive attitude towards a particular object, and this is what will determine the actions taken by a person.

Our study found 58.0% were not employed even with a higher level of education. Mothers with a higher education (high school) level stay at home more and have more opportunities to prepare their children to eat, while mothers who are highly educated and have careers have more opportunities to work and spend their time outside the home. This increases their workload and reduces the time they have to spend with their children, thus affecting biological qualities such as motherhood, reproduction, parenting, preparing food, and others (16). This study is not in line with the review study Mediani (2020) in Indonesia which shows a relationship between parental education and stunting in children (17). Recent studies in Ethiopia show maternal education is significantly associated with severe stunting in children (18). The lower a mother's education, the more limited her ability to take care of her children (19).

The mother's educational background is one of the components that is often considered to study the factors that cause stunting in children. Some studies show significance between the relationship between educational background and stunting incidence and others show no significance. The insignificant relationship between the mother's educational background and the incidence of stunting in Enrekang Regency in this study shows that the level of formal education taken by mothers cannot be used as the main reference for stunting

events. This is due to other factors as found in other signification relationships in this study.

Number of Family Members

The intended number of family members is the total family members consisting of the head of the family, wife/husband, children and other people or adopted children who live in the same house and are still dependent/supported by the parents. The results showed that there was no relationship between the number of family members and the incidence of stunting in children (p = 0.919). We found that many families also have children of normal height. The same findings by Wahid et al (2020) in Saronggi Subdistrict, Indonesia showed that there was no relationship between stunting events and the number of household members (13). The same study in Sri Lanka found family size did not contribute to stunting (6).

The number of family members directly and indirectly will also affect the fulfillment of nutrition in the child. The smaller the number of family members, the greater the ability to provide diverse food because it does not require large enough costs to buy a variety of foods when compared to medium or large family members. However, if the number of large family members is not balanced with the uneven distribution of food, it will cause children in the family environment to suffer from malnutrition. Children with a small number of family members are not necessarily free from stunting.

We also found 27.4% of children of normal height came from large families. A large number of household members when balanced with adequate nutritional intake will prevent and reduce the risk of stunting. The food consumed daily must be diverse and contain a balanced nutritional value, besides that the processing of food must be correct so as not to damage the nutrients contained in the food. The number of family members who do not significantly affect the incidence of stunting can be caused by other factors such as economic factors where the needs spent are not in accordance with income so that families with low economies but having small families do not necessarily fully provide good nutrition to their children because the lack of income makes them provide simple and sober food even though they are less nutritious. On the other hand, families with an adequate economy may not necessarily be able to divide equally the nutritional needs of each child causing a less significant number of family members with stunting in Buntu Batu district, Enrekang Regency.

This research is contrary to the review study Mediani (2020) in Indonesia that there is a relationship between family size and stunting children (17). The same study in Aceh showed that the number of household members had an effect on the incidence of stunting in children (p=0.017 with OR=1.2), so that the number of family members had a 1.2 times chance of causing children to be stunting compared to families with few family members (10).

5. Conclusion

There is a significant relationship between maternal knowledge and stunting. Meanwhile, education and the number of family members are not related to stunting. It is very necessary for the contribution of the government to be the driving force of education to stop stunting through health promotion, the installation of posters about stunting in the center of the crowd, and the continuous distribution of stunting leaflets. Increasing health knowledge and nutritional awareness in mothers is one of the toll roads to overcome chronic malnutrition of children in rural Enrekang.

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References

1. Lestari S, Fujiati II, Keumalasari D, Daulay M. The prevalence and risk factors of stunting among primary school children in North Sumatera, Indonesia. IOP Conference Series: Earth and Environmental Science. 2018;125(1):7–14.

2. Ryadinency R, N S, Patmawati TA. Analysis of Determinant Factors in Stunting Children in Palopo, Indonesia. Journal Wetenskap Health. 2020;1(2):77–82.
3. Bahagia Febriani AD, Daud D, Rauf S, Nawing HD, Ganda IJ, Salekede SB, et al. Risk factors and nutritional profiles associated with stunting in children. Pediatric Gastroenterology, Hepatology and Nutrition. 2020;23(5):457–63.
4. Kemenkes RI. Riset Kesehatan Dasar (Riskesdas). Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI; 2018.
5. Kumar Dey A, Bhusan Nath A. Nutritional Status of School Going Children (6-15 Years) in a Semi-Urban Area of Cachar District, Assam. Journal of Evolution of Medical and Dental Sciences. 2017;6(54):4057–62.
6. Sathiadas G, Annieston A, Arunath V, Kasthuri T, Wickramasinghe VP. Nutritional status of school children living in Northern part of Sri Lanka. 2020;4–11.
7. Rahaman SN, Das S, Dash SK, Giri B, Ali KM. Nutritional status of primary school children in different parts of India: A review. International Journal of Current Research and Review. 2019;11(7):1–4.
8. Mutiarasari D, Miranti M, Fitriana Y, Pakaya D, Sari P, Bohari B, et al. A determinant analysis of stunting prevalence on under 5-year-old children to establish stunting management policy. Open Access Macedonian Journal of Medical Sciences. 2021;9:79–84.
9. Simanjuntak BY, Haya M, Suryani D, Khomsan A, Ahmad CA. Maternal Knowledge , Attitude , and Practices about Traditional Food Feeding with Stunting and Wasting of Toddlers in Farmer Families. 2019;14(2):58–64.
10. Bustami B, Ampera M. The Identification of Modeling Causes of Stunting Children Aged 2 – 5 Years in Aceh Province , Indonesia (Data Analysis of Nutritional Status Monitoring 2015). 2020;8:657–63.
11. Yunitasari E, Pradanie R, Arifin H, Fajrianti D, Lee BO. Determinants of stunting prevention among mothers with children aged 6–24 months. Open Access Macedonian Journal of Medical Sciences. 2021;9:378–84.
12. Bukari M, Abubakari MM, Majeed M, Abizari AR, Wemakor A, Atosona A. Effect of maternal growth monitoring knowledge on stunting , wasting and underweight among children 0 – 18 months in Tamale metropolis of Ghana. BMC Research Notes. 2020;1–6.
13. Wahid A, Hannan M, Ratna S, Dewi S, Hidayah RH. Journal of Health Science Faktor-Faktor yang Berhubungan dengan Kejadian Stunting pada Balita. 2020;V(Ii):92–102.
14. Alderman H, Headey DD. How Important is Parental Education for Child Nutrition? World Development. 2017;94:448–64.
15. Wicaksono F, Harsanti T. Determinants of Stunted Children in Indonesia : A Multilevel Analysis at the Individual , Household , and Community Levels. 2020;15(64):48–53.
16. Getaneh Z, Melku M, Geta M, Melak T, Hunegnaw MT. Prevalence and determinants of stunting and wasting among public primary school children in Gondar town, northwest, Ethiopia. BMC Pediatrics. 2019;19(1):1–11.
17. Mediani HS. Predictors of Stunting Among Children Under Five Year of Age in Indonesia: A Scoping Review. Global Journal of Health Science. 2020;12(8):83.
18. Dewau R. Severe stunting and its associated factors among children aged 6 – 59 months in Ethiopia ; multilevel ordinal logistic regression model. 2021;8:1–10.
19. Amaha ND, Woldeamanuel BT. Maternal factors associated with moderate and severe stunting in Ethiopian children : analysis of some environmental factors based on 2016 demographic health survey. 2021;6:1–9.