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THE FACTORS RELATED TO STUNTING IN TALAUD ARCHIPELAGO REGENCY NORTH SULAWESI

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Abstract: Stunting is a child's height growth which is not appropriate for their age. The prevalence of stunting in Talaud Islands is 37.5%. This study aims to determine the factors related to stunting in toddlers in Talaud Islands. This study is a *cross sectional study* to 163 toddlers aged 6-24 months with *purposive sampling technique.*The results showed that 56.4% of mothers in low education. 85.3% of mothers were married at ≥18 years old and 69.9% gave birth at 20-35 years old. The mother's height was 66.9% in the normal category. Toddlers with normal birth weight were 95.1%. Toddlers who received early initiation of breastfeeding were 53.4%. Toddlers who have no exclusive breastfeeding were 58.9%. Toddlers who received inappropriate complementary breastfeeding were 55.2%. Toddlers with normal nutritional status category were 52.8%, toddlers with stunting category were 47.2%, short toddlers were 27.6%, very short toddlers were 19.6%.The results of statistical tests using *chi square* showed that there was correlation between education of mothers (p= 0.018), age at give birth (p= 0.045), height of mothers (p= 0.030) and nutritional status of toddlers and stuning toddlers in Talaud Islands. These factors shows that there is correlation between weight at birth (p= 0.019), BMI (p= 0.000), exclusive breastfeeding (p= 0.002), complementary breastfeeding (p= 0.000) with stunting toddlers in Talaud Islands. The society participation is needed, especially mother of toddler in integrated service post and optimal cross-sectoral in order to the prevention and management of stunting in Talaud Islands.

Keywords: Stunting, mother, toddler

INTRODUCTION

Stunting is a problem related to public health nutrition that is experienced by almost all countries in the world. Stunting in a child is characterized by a height that does not suit to their age. The prevalence of stunting in the world in 2019 in children under 5 years according to the World Health Organization is 21.3% where 54% of stunted children are in the Asian region and 40% are in the African region[1]. Based on a survey of the nutritional status of children under five in 2019, it is known that the prevalence rate of stunting in Indonesia in 2018 for children aged 0-59 months reached 30.8% and decreased to 27.67%. The prevalence of stunting in children under 5 years of age in North Sulawesi Province is 25.5%, where 15.7% categorized as short and 9.8% as very short[2]. Monitoring data on nutritional status in North Sulawesi Province in 2017 found that the prevalence of stunting in Talaud Islands Regency is 37.5%. Stunting can be categorized as a serious public health problem if its prevalence is in the range of 30-39%[3]. The World Health Organization (WHO) has declared the resolution of global targets on maternal and child nutrition as a priority. The main target is to aim to reduce stunting in children by 40% globally or a 3.9% decrease annually from 2012 to 2025[1].

The short-term effects of stunting include an increase in morbidity and mortality, sub-optimal cognitive and motor and verbal development, and an increase in health financing. In addition, stunting also has long-term impacts, including increasing the risk of obesity and other diseases, reducing reproductive health, learning capacity and less than optimal performance at school, productivity and work capacity that are not optimal, besides having an impact on posture that is not optimal as an adult[4].

Factors causes stunting are multi-dimensional, not only due to nutritional factors, both mothers and toddlers themselves, but also other factors outside of nutrition. Poor parenting practices starting before and during pregnancy and after delivery include maternal knowledge about health and nutrition, exclusive breastfeeding (ASI), early initiation of breastfeeding (IMD), complementary feeding (complementary feeding) are factors that cause stunting outside of nutrition. Other factors that influence stunting include the low participation of people visiting posyandu and lack of access to clean water and sanitation[5]. A conclusion is obtained from a literature study on the causes of stunting in developing countries that the occurrence of stunting in developing countries is consistently caused by socio economic family status (family income), maternal education, low birth weight (LBW), preterm birth, non-exclusive breastfeeding, birth length, macronutrient and micronutrient deficiencies[6].

Some of the efforts to prevent stunting that have been carried out by the government in Indonesia are through the implementation of the National Movement program to increase the acceleration of nutrition by focusing on handling stunting in the age group of the first 1000 days of life as this period is a critical period as the beginning of stunting which can then have a long-term impact and possibly recur in the life cycle[7]. The purpose of this study was to determine the factors of mothers and toddlers associated with stunting in children under five in Talaud Islands Regency.

RESEARCH METHODS

This research was an analytical survey research with cross sectional design carried out in 4 working areas of the Public Health Center. These Public Health Center are Public Health Centers of Rainis Sub District, Melonguane, Essang and South Essang. This research was conducted from May to October 2019. The research sample was determined by a sample determination formula then using purposive sampling technique for 163 mothers who have toddlers aged 6-24 months. The criteria for the inclusion of this study were children under five who are cared for by the mother herself, the mother is willing to be the respondent. Exclusion criteria in this research are toddlers who were sick during the past two weeks and had congenital defects that prevented weight and height measurements. Interviews and stunting measurements were carried out through visits to integrated health post in collaboration with nutrition officers of the public health center.

RESULTS

Description of Study Location

Talaud Islands is one of the districts in North Sulawesi Province with capital city of Melonguane, located in 271 nautical miles from the capital of North Sulawesi Province (Manado), which can be reached by water transportation (around 13-14 hours) and by flight (around 30-40 minutes).

Talaud Islands is Archipelago, with 5 island clusters namely Miangas Island Cluster (2 islands), Nanusa Island Cluster (7 islands), Karakelang Island Cluster (3 islands), Salibabu Island Cluster (3 islands) Kabupdate Island Cluster (2 islands) with 7 inhabited islands, and 10 other uninhabited islands.

The study was conducted in three public health centers in Talaud Islands, namely Melonguane Public Health Center, Rainis Public Health Center, Essang and South Essang Public Health Center. They are located on one of the largest inhabited islands in Talaud Islands, namely Karakelang Island.

Characteristics of Respondents

The characteristics of respondents, namely the education level when they get married, age at birth and height of mothers can be seen in the table below.

Table 1. Distribution of Respondents Based on Characteristics

Characteristics of Respondents	n	%
The mother's education		
High	71	43,6
Low	92	56,4
The age when firstly married		
Enough	139	85,3
Early	24	14,7
The age when giving birth		
Not Risky	114	69,9
Risky	49	30,1
The mother's height		
Normal	109	66,9
Short	54	33,1

The data in table 1 shows that most of respondents have low education level, namely the highest level at junior high school of 56.4%. The average age of the respondents who got married was mostly in the middle age group, namely > 18 years old about 85.3%. The age at gave birth in appropriate age as the highest percentage about 69.9%. The average height of respondents in the normal category is 66.9%.

Characteristics of Subjects

The characteristics of subjects based on age, sex, birth weight, BMI, exclusive breastfeeding, complementary breastfeeding and nutritional status can be seen in the table below.

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Table 2. Distribution of Subjects Based on Characteristics

Characteristics of Subjects	n	%
Age (Years)		
6-12	45	27,6
12-18	60	36,8
18-24	58	35,6
Sex		
Male	97	59,5
Female	66	40,5
Birth Weight		
Normal	155	95,1
BBLR	8	4,9
IMD		
Yes	87	53,4
No	76	46,6
Exclusive Breastmilk		
Yes	67	41,1
No	96	58,9
MP ASI		
Suitable	73	44,8
Unsuitable	90	55,2
Nutrient Status of PB/U		
Not Stunting		
Normal	86	52,8
Stunting		
Short	45	27,6
Very Short	32	19,6

The data in table 2 shows that 36.8% of respondents are 12-18 years old and 59.5% of the them are male. The data on birth weight showed 95.1% of them were born with normal birth weight. There were 53.4% of subjects getting BMI but 58.9% of subjects did not receive exclusive breastfeeding. The data on complementary breastfeeding shows that 55.2% of subjects do not get complementary breastfeeding according to age and type of complementary breastfeeding. Nutritional status data based on the PB / U index shows that there are 47.2% of them are stunting, with details of 27.6% of toddlers are short and 19.6% are very short.

Maternal Factors Affecting Stunting

Table 3. The Correlation Between Education Level, Age of Marriage, Age at Childbirth, Maternal Height and Stunting Toddlers

Variable	Stunting		Not Stunting		*P-value*
	n	%	n	%	
The Mother's Education					
Low	41	57,7	30	37,5	0,018
High	36	39,1	56	60,9	
Married Age					
Early	14	58,3	10	41,7	0,238
Enough	63	45,3	76	54,7	
Age When Giving Birth					
Risky	29	59,2	20	40,8	0,045
Not Risky	48	42,1	66	57,9	
The Mother's Height					
Short	32	59,3	22	40,7	0,030
Normal	45	51,5	64	57,5	

Table 3. Maternal factors in the result of statistical test show that there is correlation between education level of mother, birth age and height of mother with stunting toddlers in Talaud Islands.

Toddler Factors That Affect Stunting

Table 4. The Correlation Between Birth Weight, BMI, Exclusive Breastfeeding, Complementary Breastfeeding with Stunting Toddlers.

Variable	Stunting		Not Stunting		*P-value*
	n	%	n	%	
Birth Weight					
BBLR	7	87,5	1	12,5	0,019
Normal	70	45,2	85	54,8	
IMD					
No	52	68,4	24	31,6	0,000
Yes	25	28,7	62	71,3	
Exclusive Breastmilk					
No	55	57,3	41	42,7	0,002
Yes	22	32,8	45	67,2	
MP ASI					
Unsuitable	58	64,4	32	35,6	0,000
Suitable	19	26,0	54	74,0	

The results of statistical tests using Chi-Square showed that there was a correlation between birth weight, early breastfeeding, exclusive breastfeeding and complementary breastfeeding and stunting in toddlers in Talaud Islands.

DISCUSSION

The Overview of Stunting

Based on anthropometric indicators of body length according to age (BL / A) related to nutritional status data, 52.8% of children under five in Talaud Islands Regency have normal nutritional status, 27.6% have short body length and 19.6% are very short. This data indicates that children under five who experience stunting are 47.2%. The results obtained from this study have a higher prevalence of stunting (19.3%) and very short (11.5%) compared to basic health research data in 2018.[8]

Maternal Factors Associated with Stunting

The results found that mothers who have low education categories and had children under five were stunting by 57.7%, while mothers with high education categories had children who were not stunting as much as 60.9%. The statistical test showed that there was a correlation between maternal education and stunting in children under five. The results of research conducted in the work area of the Andalas Public Health Center, East Padang Sub District, Padang City in 2018 stated that there was a significant relationship between maternal education and stunting. Parents with good socioeconomic conditions tend to have higher education. Higher education make mothers easier to access information through various media easily and quickly. Besides it also helps them to absorb information for children's growth and development easier[9].

It is obtained information from this research that the percentage of early marriage in the Talaud Islands Regency is 14.7%. Mothers who got married for the first time in the early age category had children under five who were stunted at 58.3%. Mothers who were married in the moderate age group and had children under five were stunting at 45.3% and 54.7% were not stunting. The statistical test did not find a relationship between the age of the first mother married and the stunting that occurred in children under five. The United Nation Children's Fund (Unicef) states that the ideal age of marriage is 18 years and over. Marriage under this age is a violation of human rights[10]. There are 1.2 million marriages under the age of 18 for women aged 20-24 years in Indonesia, while 61.3 have had their first marriage before the age of 15. thousand women. This figure indicates that Indonesia is one of the 10 countries in the world that has a large number of women who perform early marriages. The impact of early marriage is related to health consequences and lack of participation in health maintenance, for example exclusive breastfeeding or early initiation of breastfeeding[11].

There is 59.2% of mothers with childbirth at the risk category who have children under five are stunted. Statistical tests found a relationship between maternal age at childbirth and stunting in toddlers. The report on the study of child marriage in Indonesia states that one of the consequences of early marriage is the possibility of problems with pregnancy and the risk of early childbirth. Babies born to women who are married under the age of 18 have a greater risk of death and more than double the risk of dying before reaching 1 year of age compared to children born to a mother who is twenty years and over. Pregnancy and giving birth at an early age have a risk of death, premature birth and stunting. Pregnant at a young age is also prone to bleeding, miscarriage, pregnancy and premature pregnancy during pregnancy and can even affect the wrong parenting of children due to limited knowledge of motherhood in psychology[12]. The findings of this study are in line with research conducted in Temanggung Regency in 2017 which states that there is a tendency that the younger the mother is when she gets married, the more the percentage of stunting and malnourished children increases. However, statistically, there was no relationship between the age of early marriage and the nutritional status of children under three years of age[13].

The mother with short stature who had a stunted toddler found in this study was 59.3%, while mothers with normal height who had a toddler who was not stunting were 57.5%. Statistical tests found a relationship between maternal height and stunting in toddlers. The results of research conducted in Ratahan District, Southeast Minahasa Regency stated that maternal height is a risk factor for the incidence of stunting in children under five[14].

Toddler Factors Associated with Stunting

Toddlers with low birth weight (LBW) who experienced stunting were 87.5%. Meanwhile, 53.8% of children under normal birth weight did not experience stunting. Based on the results of statistical tests, there was no relationship between under-five's weight at birth and stunting. Research conducted in Hulu Sungai Utara District found that low birth weight is the most dominant risk factor associated with stunting. Children with LBW had 5.87 times the risk of experiencing stunting[15].

Toddlers who did not get early initiation of breastfeeding who were stunted were 68.4%, while children under five who received early initiation of breastfeeding who were not stunted were 71.3%. The results of statistical tests found a relationship between early initiation of breastfeeding and stunting in toddlers. Toddlers who do not receive exclusive breastfeeding who are stunted are 57.3%, while 67.2% of children under five who receive exclusive breastfeeding are not stunting. Statistical tests show that there is a relationship between exclusive breastfeeding and stunting in children under five. One of the factors that influence nutritional status is exclusive breastfeeding. Research on toddlers conducted in Boyolali Regency in 2016 revealed the results of their research that there was a relationship between early initiation of breastfeeding, exclusive breastfeeding and the incidence of stunting. Toddlers who did not receive early initiation of breastfeeding were 2.63 times more likely to be stunted. Children under five who did not receive exclusive breastfeeding had a risk of stunting by 7.68 times higher than those who received exclusive breastfeeding[16].

Toddlers who received complementary feeding in the unsuitable category were stunted by 64.4%, while underfives who received complementary feeding in the appropriate category who were not stunted were 74.0%. The results of statistical tests show that there is a relationship between complementary feeding with stunting in toddlers. This research is in line with research conducted in Jember Regency in 2013 which states that complementary feeding is one of the factors associated with the incidence of stunting in both rural and urban areas. Complementary feeding seen is related to the age of giving and the type of food given[17]. Research on complementary feeding and stunting in Maron District, Probolinggo Regency, states that there is a correlation between complementary feeding related to age of giving and the incidence of stunting[18].

CONCLUSION

The findings of the study found that the incidence of stunting in children under five caused by factors originating from the mother is education, maternal age and maternal height. On the other hand, the age of marriage is not related to the incidence of stunting in children under five in Talaud Islands Regency. Factors originating from toddlers associated with stunting in Talaud Islands Regency are birth weight, early initiation of breastfeeding, exclusive breastfeeding and complementary feeding. Community participation, especially mothers of children under five, in Integrated Health Post activities and more optimal cross-sectoral management is needed, which aims to prevent and overcome stunting problems in Talaud Islands Regency.

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