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FACTORS RELATED TO STUNTING IN PRESCHOOL CHILDREN IN KINDERGARTEN, BUBON DISTRICT, WEST ACEH REGENCY

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ABSTRACT

Stunting is a chronic nutritional deficiency caused by inadequate nutritional intake in the long term, and will affect the child's height. Children who experience stunting from an early age experience mental, psychomotor and intelligence disorders. The purpose of this study was to determine the factors associated with stunting in preschool children in Kindergarten, Bubon District, West Aceh Regency. The design of this research uses analytical survey design, with a cross sectional approach. The population in this study were mothers who had pre-school age children totaling 57 people using total sampling. The research was conducted in August 2020 in Kindergarten in Bubon District, West Aceh Regency, namely Permata Hati Kindergarten, State 3 Bubon Kindergarten and Bungong Melati Kindergarten. Data were collected using a questionnaire. Methods Data analysis is univariate using frequency distribution and bivariate with Chi-Square test. The results of the chi square test showed that gender (0.003), home environment (0.000), family economy (0.038), breastfeeding (0.008), birth weight (0.000) were associated with stunting in preschool children. Respondents can provide food intake in sufficient quantity, quality and maintain children's health so that they can achieve cath-up growth.

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1. Introduction

Stunting is a chronic nutritional deficiency caused by inadequate nutritional intake in the long term, and will affect the child's height (1). According to the Ministry of Health, stunting indicators are children under five with a Z-score of less than -2SD/Standard deviation (stunted) of -3SD. Malnutrition occurs since the baby is in the womb and in the early days after the baby is born, but stunting is only seen after the baby is 2 years old (2). The period 0-24 months can determine the quality of a child's life and is often referred to as the golden period. This period is a sensitive matter because the impact on babies is permanent and cannot be corrected (3)

Indonesia is ranked 5th out of 81 countries with the number of stunted children in the world in 2011 and has a higher number than some African countries, such as Ethiopia, Republic of Congo, Kenya, Uganda and Sudan(4). Based on Riskesdas data in 2018, the prevalence of stunting in Indonesia was 30.8% and in 2019 there were still 27.7% of toddlers experiencing stunting in Indonesia (5). Stunting cases in Aceh are ranked 3rd out of 34 provinces in Indonesia with a prevalence of 37.3%, which means 1 in 3 children under five in Aceh is stunted. The prevalence of

stunting in Aceh is higher than the provinces of Papua, Maluku and other eastern provinces(6).

Children who experience stunting from an early age can also experience disorders due to chronic malnutrition such as mental, psychomotor and intelligence disorders (7). In addition, stunting has an impact on toddlers in the short and long term. The short-term impact is that toddlers are at risk for deadly infectious diseases and the long-term impact is increasing the risk of chronic diseases such as cardiovascular (8). Chronic malnutrition prevention programs have been carried out for several years, but do not seem to have specifically addressed chronic malnutrition that causes stunting. Realizing the impact of stunting on children's future, it is necessary to find the causes and ways to prevent stunting(7).

Several factors cause children to experience stunting, including the child's sex(9)(10), environment (11)(12), economy (13), breastfeeding (1)(14) , and birth weight(15)(16). Based on the results of research by Sugianti, Mulyadi, Anam and Najah (2018) in Sukorejo sub-district, Blitar City, male sex is more likely to experience stunting than female, while research conducted by Amin and Julia (2014) in Bantul states that gender does not have a positive outcome. which means the incidence of stunting (17). The environment that can cause stunting in children, namely cleanliness, water, and sanitation. Lack of sanitation, improper waste disposal by the community, unhealthy house floors, and burning solid fuel indoors are associated with stunting (11). Economic limitations lead to insufficient nutritional intake, which hampers the growth process and has the potential to increase the prevalence of stunting in children (13).

Babies born with low weight have a greater risk of being stunted compared to children with normal weight. Babies born with an average weight (< 2500 g) still look long at birth, but will experience growth failure during childhood and into adolescence (15). Stunting can be prevented by optimizing the growth of children in the first 1000 days of life by providing balanced micro and macro nutritional needs which can be obtained through exclusive breastfeeding for 6 months and complementary feeding after the baby is over 6 months old. Exclusive breastfeeding is useful for protecting babies from bacterial, viral and parasitic infections because breast milk contains special proteins for the immune system in children. Breast milk is an important nutrient for infants to increase growth so that growth failure does not occur which can cause stunting (14).

Based on a preliminary study in Bubun District Kindergarten in 2020, there were 57 students in several kindergartens, including Permata Hati Kindergarten (35 students), Bubon 3 Kindergarten (12 students) and Bungong Melati Kindergarten (10 students) experiencing stunting and an average height average below 90 cm, with more girls than boys, namely 29 people. Ten mothers from Kindergarten children in Bubon sub-district showed that 4 mothers (40%) gave exclusive breastfeeding and 6 mothers (60%) did not give exclusive breastfeeding, the average family economy was in the low category so that they were unable to meet the nutritional needs of their children.

2. Research Methods

This study uses an analytical survey design with a cross sectional approach. The population in this study were mothers who had pre-school age children totaling 57 people using the total population technique, namely the entire population as a sample. The research was conducted in August 2020 in Kindergarten in Bubon District, West Aceh Regency, namely Permata Hati Kindergarten, State 3 Bubon Kindergarten and Bungong Melati Kindergarten. Data were collected using a questionnaire. Methods Data analysis is univariate using frequency distribution and bivariate with Chi-Square

3. Result And Discussion

3.1 Result

a. Univariate analysis

TABLE 1
FREQUENCY DISTRIBUTION OF CHILD'S GENDER, HOME ENVIRONMENT, FAMILY ECONOMY, BREASTFEEDING, BIRTH WEIGHT AND STUNTING IN PRESCHOOL AGE CHILDREN

Variable	f	%
Gender of Child		
Male	36	63,2

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Variable	f	%
Female	21	36,8
Home Environment		
Unhealthy	30	52,6
Healthy	27	47,4
Family Economy		
< District minimum wage	39	68,4
≥ District minimum wage	18	31,6
Breastfeeding		
No Exclusive Breastfeeding	35	61,4
Exclusive Breastfeeding	22	38,6
Birth Weight		
LBW (<2500 grams)	36	63,2
Normal (≥2500 grams)	21	36,8
Stunting		
Stunting	32	56,1
Normal	25	43,9

The results of the univariate test in table 1 show that of the 57 respondents the majority are male (63.2%), most of the home environment is not healthy (52.6%), the majority of the family economy is < district minimum wage of the mother (68.4 %), and most were not given exclusive breastfeeding (61.4%), the majority of birth weight were low birth weight (<2500gram) (63.2%) and most of the children were stunted (56.1%)

b. Bivariate Analysis

TABLE 2
CROSS TABULATION CHILD SEX, HOME ENVIRONMENT, FAMILY ECONOMY, BREASTFEEDING, BIRTH WEIGHT WITH STUNTING IN PRESCHOOL AGE CHILDREN

Variable	Stunting				Sum		*Sig.α*
	Stunting		Normal				
	f	%	f	%	F	%	
Gender of Child							
Male	26	45,7	10	17,5	36	62,2	0,003
Female	6	10,5	15	26,3	21	36,8	
Home Environment							
Unhealthy	25	43,9	5	8,8	30	52,7	0,000
Healthy	7	12,3	20	35	27	47,3	
Family Economy							
< District minimum wage	26	45,7	13	22,8	39	68,5	0,038
≥ District minimum wage	6	10,5	12	21,0	18	31,5	
Breastfeeding							
No Exclusive Breastfeeding	25	43,9	10	17,5	35	61,4	0,008
Exclusive Breastfeeding	7	12,3	15	26,3	22	38,6	
Birth Weight							
LBW (<2500 grams)	28	49,1	8	14,1	36	63,2	0,000
Normal (≥2500 grams)	4	7,0	17	29,8	21	36,8	

Based on the bivariate test, it was found that out of 36 male pre-school children who experienced stunting 26 people (45.7%) and 10 people (17.5%) were not stunted, from an unhealthy home environment 30 people who were not stunted. experienced stunting 25 people (43.9) and not stunting 5 people (8.8%), from the family economy with income < District minimum wage 39 people who experienced stunting 26 people (45.7%) and 13 people were not stunted (22.8 %), of the 35 children who were not given exclusive breastfeeding who experienced stunting 25 people (43.9%) and who were not stunted 10 (17.5%) and birth weight with low birth weight (<2500 grams) 36 stunted 28 people (49.1%) and not stunting 8 people (14.1%). The results of the chi square showed that gender (0.001), home environment (0.000), family economy (0.018), breastfeeding (0.003), birth weight (0.000) were associated with stunting in preschool children.

3.2 Discussion

Relationship between Child Sex and Stunting in Preschool Age

Based on statistical results obtained from 36 male preschool children who experienced stunting 26 people (45.7%) and 10 people were not stunted (17.5%). The results of the bivariate analysis

showed that there was a relationship between the sex of the child and stunting (p-value 0.003). Gender is one of the factors that influence the incidence of stunting in toddlers. Women contain more fat in their bodies and less muscle tissue than men. This causes proportionally muscle requires higher energy than fat so that proportionally muscle will require higher energy than fat, thus, men and women with the same height, weight and age have different body compositions, meaning that their energy needs are different. and their nutrition will also be different (18)

This is in line with research by Angelina, Perdana, Humairoh (2018) in Lampung Province which shows that children aged 6-23 months have a higher proportion of stunting found in 22 male toddlers (27, 2%) with a P value of 0.043, which means that there is a sex relationship with stunting (19). Other research is also supported by research conducted by Hamal, Nursyarofah, and Qualifa (2018) in Majenen Regency, West Sulawesi Province, showing that babies with male genitalia tend to be at risk of stunting by 1.15 times compared to female babies. Then babies with abnormal body length or <48 cm at birth, are at risk of stunting as much as 2.65 times compared to babies born with normal body length (20)

According to the researcher, gender is one of the factors that influence the incidence of stunting in toddlers because gender determines the amount of nutritional needs for children so that there is a relationship between nutritional status and gender. The difference in the amount of nutritional needs is influenced by differences in body composition between men and women so that the intake consumed must be more.

Relationship between Home Environment and Stunting in Preschool Age Children

Based on statistical results obtained from 30 unhealthy preschool children experiencing stunting 25 people (43.9%) and not stunting 5 people (8.8%). The results of the bivariate analysis showed that there was a relationship between the home environment and stunting (p-value 0.000). Unfavorable environmental conditions cause various respiratory tract infections and diarrhea. Environmental sanitation is related to the availability of clean water, the availability of latrines, the type of floor of the house and the cleanliness of each family's eating utensils. Matters related to sanitation are firstly ventilation that does not meet the requirements to allow disease transition, secondly lighting, especially sunlight which is useful for lighting, eradicating mosquitoes, killing germs that cause disease, thirdly houses with soil floors with higher humidity than plastered ones, fourth the walls of the house must be clean, dry and strong, the fifth density of residents causes disease, the sixth is the provision of clean water whose quality meets health requirements and can be drunk after cooking, the seventh is the disposal of human waste in the latrine, the eighth disposal of waste water or garbage that is not good will become a nest disease and the atmosphere of the house will become humid (21)

Research conducted by Tasnim, Dasvarma and Mwanri (2017) in Konawe district, Southeast Sulawesi showed a lack of clean water availability ($p < 0.001$), lack of availability of latrines at home ($p < 0.001$), poor quality roof ($p<0.02$) is related to n with underweight (22). Another study conducted by Rahayu, Pamungkas and Wekadigunawan (2018) in Tulang Bawang Barat Regency stated that lack of clean water ($p= 0.002$) and poor sanitation ($p= 0.004$) were associated with stunting (23)

The home environment is one of the factors which results in stunting. A home environment with unhealthy living behavior can lead to stunting, due to inadequate child activities, inadequate water sanitation, and inappropriate household food allocation.

Relationship between Family Economics and Stunting in Preschool Age Children

Based on the statistical results obtained from 39 parents of preschool children with income below the district minimum wage who experienced stunting 26 people (45.7%) and 13 people were not stunted (22.8%). The results of the bivariate analysis showed that there was a relationship between family economy and stunting (p-value 0.038). The socio-economic level affects the family to meet the nutritional needs of toddlers, the ability to choose types of additional food and the provision of food and healthy living habits so that it affects the incidence of stunting (Ngaisyah, 2015). The purchasing power of the family also increases so that the family's access to food will increase as purchasing power increases. Families with good economic status can get better public services such as education, health services, road access and others. In addition, the family's access to food will be better because the family's purchasing power increases (24). This study is in line with research

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conducted by Ni'mah and Nadhiroh (2015) in the working area of Tanah Kali Kelinding Health Center, Surabaya which showed that economic factors (p value 0.044) were associated with stunting in children under five (25). This is supported by Aridiyah's research that there is a significant relationship between family income and the incidence of stunting in children under five, both in rural and urban areas. When viewed from the characteristics of family income, the root of the problem is the impact of the baby's growth and development various other nutritional problems, one of which is caused by the economic crisis. Most children under five who experience growth disorders have a low economic status (26)

According to the researcher's assumptions, low economic status is due to income only coming from the head of the family, most of whom work as farmers and traders whose income is limited and uncertain, while mothers only work as farmers. housewife. This causes families to need more money for their daily needs compared to buying additional nutritious food for toddlers.

Relationship between Breastfeeding and Stunting in Preschool Age Children

Based on statistical results, it is known that from 35 children who were not given exclusive breastfeeding, 25 were stunted (43.9%) and 10 were not stunted (17.5%) with a p value of 0.008 which means There is a relationship between breastfeeding and stunting. Mother's milk (ASI) is the best food for babies. Exclusive breastfeeding can reduce child morbidity and mortality. According to the Government Regulation of the Republic of Indonesia Number 33 of 2012 concerning Exclusive Breastfeeding, exclusive breastfeeding is breast milk that is given to a baby since birth for six months without adding and replacing it with other food or drinks (27). Toddlers who do not receive exclusive breastfeeding are more at risk of stunting due to the incidence of infectious diseases such as diarrhea which often occurs in infants under 6 months who are given food other than breast milk. Infectious diseases can cause decreased appetite, impaired absorption of nutrients and increased metabolism so that nutrients are not sufficient for children's growth (28)

The results of this study are in line with research by Larasati et al. There is a relationship between exclusive breastfeeding and the incidence of stunting (p = 0.003) where Toddlers who do not receive exclusive breastfeeding have a 3.23 times tendency to experience stunting compared to toddlers who receive exclusive breastfeeding (OR=3.23)(29). This research is also supported by research by Angelina, Perdana, Humairoh (2018) that the proportion of stunting in toddlers 6-23 months is more found in toddlers who are not exclusively breastfed (26.6%) compared to toddlers who are exclusively breastfed (11.4%).). The results of the chi-square test obtained p value = 0.028, so it can be concluded that there is a significant relationship between exclusive breastfeeding and the incidence of stunting for toddlers aged 6-23 months in Lampung Province (19)

According to the researcher, exclusive breastfeeding for less than six months is one of the factors which results in stunting because breast milk is a nutritional intake that is in accordance with the needs of children so that it has an impact on the growth and subsequent development of children.

Relationship between Birth Weight and Stunting in Preschool Age Children

Based on statistical results obtained from birth weight with low birth weight (<2500 grams) 36 people who suffer from stunting 28 people (49.1%) and 8 people who are not stunted (14.1%). The results of the chi square test showed that birth weight (0.000) was associated with stunting in preschool children. This study is in line with research conducted by Blake et al that there is a significant relationship between LBW (<2.5kg) and the incidence of stunting in toddlers (p value <0.001) with an OR of 3.82 (95% CI 2.29-6 ,37)(30). Research conducted by Rachmi et al also found that there is a significant relationship between LBW and the incidence of stunting under five in Indonesia (p value = 0.047)(31)

Low birth weight is a picture of maternal health problems with long-term malnutrition, poor health, and lack of health care during pregnancy. It is an important predictor of newborn survival and is associated with a high risk in the child (32). LBW will have less anthropometric measurements in their development (23). Low birth weight significantly increases the risk of stunting for up to 2 years of a child's life and increases chronic disease later in life (16).

Birth weight has a major impact on the growth and development of children as adults. Normal birth weight is influenced by maternal health during pregnancy. Therefore, antenatal care visits are very

important to prevent the risk of low birth weight births.

4. Conclusion

There is a significant relationship between the sex of the child, family economy, home environment, breastfeeding, birth weight and stunting in Kindergarten, Bubon District, West Aceh Regency.

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