Key Factors Related to Stunting in Indonesia

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Abstract *Stunting prevalence in Indonesia each year has increased prevalence. Stunting is one of the chronic malnutrition problems caused by a lack of nutritional intake for a long time due to food insecurity that is not in accordance with the required nutritional adequacy. Stunting occurs from the fetus and will appear when the child is two years old. Nutritional deficiencies that have occurred in early childhood can cause frequent illnesses, and can even cause infant and child death. If the child is often affected by the disease, it can interfere with the process of metabolism of nutrients in the body which will cause the child to have a posture that is not optimal in adulthood. There are many factors that cause children to be stunted, among them are diet, parenting and environmental sanitation. The purpose of this study is to find out how diet, parenting, and environmental sanitation can affect stunting in children. The method used is literacy studies. The results of this study are the existence of diet, parenting and environmental sanitation can affect the incidence of stunting in children.*

1 INTRODUCTION

Nutrition is one of the most important factors needed both in individuals and in society. How to assess nutritional status in a person can be done by measuring anthropometry, clinical, biochemical, and biophysical. Anthropometry measurement can be done in various ways, namely measurement of body weight, height, upper arm circumference and others (Alamsyah, Mexitalia, & Margawati, 2015).

Indonesia is ranked fifth in the world for the number of children in stunting conditions. Stunting prevalence in Indonesia is higher than other countries in Southeast Asia, such as Myanmar by 35%, Vietnam by 23%, and Thailand by 16%, while Indonesia has a stunting prevalence of 37.2%. This was different in 2010 (35.6%) and 2007 (36.8%) (MCA-Indonesia & Mursalin, 2016). Therefore, stunting really needs better attention from the government, especially the attention of the community. Stunting at the age of 0-23 months in Indonesia currently can reduce the quality of Human Resources as evidenced by the Ranking of Indonesia's Human Development Index (HDI) in 2011 ranked 124 of 187 countries, in contrast to Malaysia 61, Thailand 103, and the Philippines 112 (Briawan, 2014).

On the other hand, the World Bank's research results in 2017 showed that losses due to stunting reached 3-11% of the Gross Domestic Product (GDP) ("Buku Saku Desa dalam Penanganan Stunting," 2017).

Nutritional deficiencies that occur today are often assumed to be due to food insecurity, while according to data from many countries food is not the only cause of malnutrition (Briawan, 2014). There are many factors that cause stunting to occur in children, including knowledge of maternal nutrition, cholesterol and hygienic behavior, parenting, breastfeeding, complementary feeding, nutrition, access to health services, sources of clean water, and sanitation (Briawan, 2014) (Tamtomo & Anantanyu, 2017).

The impact of stunting can be to increase in the amount of Indonesian government spending, especially on national health insurance. In addition, when they grow up, children who are stunting will be more susceptible to attacks by degenerative diseases

such as heart disease, stroke, diabetes, and kidney (Buku Saku Desa dalam Penanganan Stunting, 2017). In addition, children who are stunted will be reduction in intelligence levels by 5 - 11 points, so that this will also be a threat to the people of Indonesia ("Buku Saku Desa dalam Penanganan Stunting," 2017).

2 METHOD

Research Sites

The method in this study is literature study using descriptive method of secondary data that has been obtained through previous researches by describing and interpreting the data. Analysis of the study was carried out through a literature review related to nutrition, stunting, environment, breastfeeding, complementary feeding, low birth weight, and others. Literature review is carried out from various perspectives, theories and journals to study the determinants and risk factors associated with stunting (Aryastami, 2017).

3 RESULT AND DISCUSSION

Stunting and Environment

Malnutrition in chindren can manifest in different ways, malnourished children can be underweirght or obese, or their height can be stuned. And now, stunting is the top priority (Schmidt, 2014).

Environment is one of the important factors that can cause stunting in children (Briawan, 2014) This is related to sanitation, clean and healthy living behavior, and access to clean water. All of that, if it is not fulfilled it will cause children to tend to get sick often, especially diarrhea and Acute Respiratory Infection (ARI). Environmental sanitation is closely related to the provision of clean water, the availability of latrines, the type of floor of the house, the cleanliness of eating utensils, house cleanliness, lighting and ventilation (Alamsyah et al., 2015).

The data shows that 1 in 5 households in Indonesia still defecate in open space, and 1 in 3 households do not have access to clean drinking water (Buku Ringkasan Stunting, 2017). These conditions indicate that environmental sanitation is bad. The lack of a sewage system that is sufficiently associated with a child's height deficit is 0.9 cm at the age of 24 months (Checkley et al., 2008).

The obligation to maintain environmental health is urgent, because the environment acts as a breeding agent for life that carries various kinds of diseases (Alamsyah et al., 2015). Some examples of diseases caused by the environment are Acute Respiratory Infection and diarrhea (Astuti, 2009).

ARI and diarrhea rarely do not even cause death, but this disease is quite serious if it is affected by children because it can cause disruption of child growth and development due to reduced food consumption and cause nutritional disorders in children (Widjaja, 2002).

Child health is characterized by good physical growth and is not susceptible to various diseases, especially ARI and diarrhea which often affects children. Both types of disease can be related to malnutrition (Checkley et al., 2008). This means that children who are sick will lose their appetite and vice versa children who are less fed will be more susceptible to disease (Astuti, 2009).

The results of research conducted by Astuti (2009) showed that there was a relationship between growth of children 1-5 years with a history of ARI and diarrhea ($p < 0.05$) with an OR value of 18.947. These results indicate that children with a history of ARI and daire have an opportunity of 18,947 times experiencing growth that is not in accordance with their age compared to children who do not have a history of ARI and diarrhea (Astuti, 2009).

Clean and healthy behavior (PHBS) indirectly influences the incidence of stunting through a medical history suffered in children with a coefficient of 0.056 and a large value of influence of 0.31% (Tamtomo & Anantanyu, 2017). Thus, the low quality of sanitation and environmental hygiene towards disease occurrences results in energy which is basically needed for growth to be diverted and used to fight the disease (Schmidt, 2014).

Stunting and Nutrition

Nutrition has a positive and significant effect on the incidence of stunting with a large influence of 0.397 (39.7%) (Tamtomo & Anantanyu, 2017). Malnutrition as a direct cause, especially in children, has a short-term impact on increased morbidity. In Indonesia, people often assume that stunting is a hereditary factor, whereas heredity only accounts for 15% of stunting, while the biggest factor is nutrient intake, growth hormone and recurrent infectious diseases (Aryastami, 2017).

Indicators of nutritional status in the Sidemen Health Center work area in 2014 found that 14% of children aged 0-59 months had malnutrition and 86% of infants with good nutritional status, with a high prevalence of stunting at 35%. This illustrates that the overall nutritional state during pregnancy and as a maninfestation due to lack of intake during pregnancy occurs (Hidayat & Pinatih, 2017).

Nutritional status is also influenced by the behavior of family nutrition conscious nutrition (KADARZI). KADARZI behavior has a significant effect on stunting with an OR value of 1.22 (Cl 95% 1.01 - 1.47) (Hariyadi & Ekayanti, 2011). This shows that the behavior of KADARZI that is not good has the opportunity to increase the risk of stunting in children under five by 1.21 times greater than the good behavior of KADARZI.

Stunting and Breast Feeding

The period of the first 1000 days of life (1000 HPK) is a common thread as the beginning of the occurrence of stunting growth, which in turn has a long-term impact until it repeats itself in the life cycle (Aryastami, 2017).

Exclusive breastfeeding is strongly associated with a reduced risk of stunting (Victora, et all., 2008). This is supported by the results of several studies that exclusive breastfeeding for the first six months and appropriate MPASI is an effort that can reduce stunting rates and improve children's survival. On the other hand, the results of a survey of eight countries in Africa and Asia showed that only two countries (Ethiopia and Kenya) showed significant results in the relationship between stunting and exclusive breastfeeding (Bove I, et all., 2012).

The results of bivariate analysis showed that exclusive breastfeeding tended to be positively associated with the incidence of stunting (OR = 1.19; 95% CI: 1.06 - 1.33) (Paramashanti, Hadi, & Gunawan, 2016).

The timing of exclusive breastfeeding which is too long associated with the risk of stunting. This is same with the research by Padmadas that children with exclusive breastfeeding for more than 6 months have a risk of 1.36 times more to be stunting than children who are exclusively breastfeed less than 6 months (Andiani, 2013). Exclusive breastfeeding given too long will delay the provision of MPASI. As a result, children will receive inadequate nutrient intake for their growth and development. After the age of 6 months, breastfeeding must be accompanied by MPASI because if only breastfeeding is not able to meet the energy and nutrient needs (Hambidge et al., 2012).

Pre-lacteal feeding was a significant risk factor for stunting in children 0-23 months (OR = 1.47, p <0.05). Muchina and Waithaka's (2010) study showed that children who received pre-lacteal food were more at risk of stunting (OR = 1.80; p <0.05).

Milk powder is the most common type of pre-lacteal food found in this study (53%). Villalpando and Lopez Alarcon (2000) stated that the incidence of diarrhea and the prevalence of diarrhea were more common in infants given formula milk, almost double that of infants given ASI. Overall growth is negatively related to the number of occurrences of diarrhea. Anorexia that occurs due to illness is more common in infants given milk powder. In Indonesia, there is a tendency that there is a tendency for higher levels of education and economic status, the higher the percentage of prelacteal feeding in the form of milk.

Conversely, the lower the level of education and economic status, the higher the percentage of non-dairy prelacteal feeding (water, sugar water, starch water, coconut water, fruit juice, sweet tea, honey, bananas, rice / porridge, etc.). Pre-lacteal feeding problems are found in households with low or high socioeconomic status. Teshome et al. (2009) found a high prevalence of stunting (43.2%) in the area of food surplus in Ethiopia, precisely in West Gojam. The high level of pre-lacteal feeding in West Gojam was a risk factor for stunting (OR = 1.80, p <0.05). Pre-lacteal feeding has a bad systemic effect is limitation breastfeeding initiation time, giving MP-ASI too early, and at risk of wasting colostrum and inhibiting successful breastfeeding until the child is susceptible to infection.

Stunting and MP ASI

If we give MP ASI that is right after the first six months of birth will reduce the risk of stunting in children and can increase the continuity of the child's life (Bove I et al., 2012).

Stunting is often not realized, and after just two years it appears that the toddler is short. There are 18.08% of children in Bantul Regency suffer from stunting. The cause of stunting in children aged 6-23 months is closely related to the first time complementary feeding of ASI (MP-ASI) and the intake of nutrients (energy and protein) in inadequate food (Dwi Puji Khasanah, et all., 2015).

When starting the provision of MP-ASI, children aged 6-23 months were divided into 2 categories, namely appropriate and inappropriate. The appropriate time period for MP-ASI is (6 months 29 months) and the time category for giving MPI ASI is not age (<6 or> 6 months). Children aged 6-23 months in Sedayu District received the first MP-ASI at 6 months (43.2%) and for MP-ASI before 6 months and more than 6 months (56.8%).

The results showed that there was a relationship between the time of starting MP-ASI and the nutritional status of children aged 6-23 months based on body length according to age (PB / U) (OR 2.867, CI = 1.453-5.6656).

The majority of children who get MP-ASI that are not in accordance with the time to start giving MP-ASI have a 2.8 times risk of being a stunting (Zscore < 2). This means that the time to start MP-ASI is significantly associated with the incidence of stunting.

It is same with researched in Jember about the factors that affect the incidence of stunting in children in rural and urban areas, that the results of the analysis of the relationship of the first age of MP-ASI with stunting in children showed the practice of giving complementary feeding to children is one of the factors that influence the occurrence of stunting in rural and urban areas.

This study is in accordance with the Ministry of Health which states that the growth disturbance at the beginning of the baby's life period is caused by malnutrition from infancy, giving MP-ASI too early or too slow, MP-ASI is not sufficiently nutritional according to the baby's needs or poorly given age patterns and inadequate baby care (AL-Rahmad, Miko, & Hadi, 2013).

Stunting and Low Birth Weight (LBW)

Children born with low birth weight (<2,500 g) have a risk of 1.77 times higher to be stunting compared to children born with normal weight (> 2,500 g) (Paramashanti, Hadi, & Gunawan, 2016).

LBW is the most dominant factor at risk of stunting in children (OR = 2.21; 95% CI: 1.01-4.86, p <0.05) (Briawan, 2014). Similar results were also found by Fitri (2012) in his study of 126 toddlers in Sumatra where it was found that the most dominant risk factor for stunting was LBW (OR = 1.71; 95% CI: 1.22-2.39).

Likewise, the cohort study by Schmidt et al. (2002) in West Java shows that linear growth is more determined by the environment during pre-natal than post-natal factors. The intended pre-natal environment includes growth during the fetal period, the indicator of which can be seen from body weight at birth (p = 0.000). Most LBW is caused by factors from the mother, the biggest factor is anemia during pregnancy (67%). Factors of pregnancy itself, the biggest factor is complications during pregnancy (22%), while other factors, namely genetic only 7% (Sujianti, 2017).

4 CONCLUSIONS

1. There is a relationship between stunting and the environment.
2. There is a relationship between stunting and nutrition intake.
3. There is a relationship between stunting and breast feeding.
4. There is a relationship between stunting and the water of the complementary feeding.
5. There is a relationship between stunting and low birth weight.

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