

MATERNAL KNOWLEDGE REGARDING THE FIRST 1000 DAYS OF LIFE WITH THE INCIDENCE OF STUNTED CHILDREN UNDER THE AGE OF FIVE IN THE WORKING AREA OF SUKOMULYO COMMUNITY HEALTH CENTER

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ABSTRACT

Background: Stunting is a global and national health problem. The World Health Organization (WHO) determines that the prevalence of stunting is between 30-39%. Based on the reports of Riskesdas in 2010, it was reported that 35.6% of Indonesian children under five were stunted. Stunting is a condition that describes a linear growth disorder characterized by height that is below normal standards for age and sex that is commonly associated with malnutrition and chronic (non-endocrine) infections. The stunting intervention was focused on the 1000 *Hari Pertama Kehidupan* (HPK) period, which is a golden period of a child and if not utilized appropriately, permanent damage could occur.

Objective: To determine the correlation between maternal knowledge levels regarding 1000 HPK and the incidence of stunting in children under five.

Methods: This study used an observational analytic method with a cross-sectional design. Sampling was done with consecutive sampling techniques. This study will be examined for body length using a stadiometer. After that, the mother will be interviewed to find out the correlation between the mother's knowledge regarding 1000 HPK and the incidence of stunting in toddlers. Then the stunting and normal children will be grouped based on the standardized WHO growth chart.

Result: Kendall's *tau-b* statistical test showed a significant relationship ($p = 0.000$) with a positive moderate strength correlation ($\tau = 0.442$).

Conclusion: There is a significant relationship and a moderate strength positive correlation between the mother's level of knowledge regarding 1000 HPK and the incidence of stunting.

Keywords: *maternal knowledge of 1000 HPK, stunted, children under five*

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INTRODUCTION

Stunting is a health problem according to the World Health Organization (WHO) if the prevalence is 30-39%, it means the area is experiencing severe problems, and if more than 40% it shows serious problems. Riskesdas 2010, it was reported that 35.6% of Indonesian children under five were in the short stature category, while in 2018 in East Java Province it was 15% and very short was 20%.^{1,2}

Short stature / stunted is a condition where the height is below normal according to age and gender, which is below -2 Standard Deviation (SD), and is said to be severely stunted / very short if it is less than -3 SD. Stunting is associated with malnutrition and chronic (non-endocrine) infections. Stunting itself is part of short stature, but not all short stature is stunting. Stunting is a condition of failure to thrive in children due to chronic malnutrition that occurs since the baby is in the womb until the age of 2 years, so the child is too short for his age.^{1,2}

The direct causes of stunting are family and household factors, inadequate complementary feeding, breastfeeding, and infection. In the family and household factors, there are sub-elements, that as maternal factors such as nutritional disorders during pre-conception, pregnancy, to lactation; maternal short stature, infection, early pregnancy, Intra Uterine Growth Restriction (IUGR), and hypertension. The sub-elements of the home environment include inadequate sanitation and water sources, up to a poor level of caregiver education.³

The elements of inadequate complementary foods are low food quality such as poor micronutrient quality, low animal protein intake, and low calories in complementary foods. On elements of inadequate performance, such as infrequent feeding, either during or after infection. The last element is water and food safety such as contaminated food or drink. Breastfeeding is one of the factors for stunting due to delays in early initiation of breastfeeding,

lack of exclusive breastfeeding, and early termination.

Based on WHO, infection is one of the causes of stunting in the form of intestinal infections, respiratory infections, malaria, decreased appetite due to infection, and incomplete immunization.³ Nutritional disorders that occur during pregnancy and childhood will have short-term impacts in the form of disruption of the metabolism of glucose, fat, hormones, receptors, and genes, growth and muscle mass, as well as body composition, and brain development. The long-term impact is the permanent disruption of physical, mental, and intellectual growth and development of children, low immunity and work productivity, and risk of suffering from chronic diseases such as diabetes mellitus, coronary heart disease, and hypertension.²

Child growth is influenced by the state of weight at birth. Normal birth weight is a good starting point for the child's growth and development process, as well as a guide for the quality of life in the future. Birth weight is an indication of fetal growth, which reflects the nutritional state of the mother and affects the subsequent growth of the child.¹

The stunting intervention was focused on the First 1000 Days of Life period. The First 1000 Days is a period of one thousand days from conception until the child is 2 years old. Pregnant women, breastfeeding mothers, newborns, and children under the age of two are the target groups to improve the quality of life in the First 1000 Days of Life.

The First 1000 Days of Life period is a golden period in which if not utilized properly, permanent damage can occur. The Indonesian government has a stunting prevention movement through sensitive nutrition interventions, that are cost-effective activities, to overcome nutritional problems, especially stunting and specific nutrition interventions, such as various development program activities that affect the nutritional status of the community,

especially the First 1.000 Days of Life group.¹

Due to the impact of stunting that can affect the long-term growth and development of children and the importance of stunting interventions that can be carried out in the golden period, specifically the First 1000 Days of Life period, it is necessary to know the level of knowledge of mothers about the First 1000 Days of Life in the work area of the Sukomulyo Health Center and the relationship between the level of knowledge and the incidence rate of stunting at the age of under five years (toddlers).

Based on these problems, the researchers wanted to conduct research on "The Correlation of Maternal Knowledge related to the First 1000 Days of Life with Stunting Incidence Rates in Toddlers in the Sukomulyo Community Health Center Work Area".

METHOD

This study used an observational analytic epidemiological research design, the study design used was a cross-sectional method. The population in the case of this study were children under 5 years old (toddlers) who were in Sukomulyo Village, Manyar District, Gresik Regency from April 22 to April 29, 2022. The sample in this study were all children under five who were in the working area of the Sukomulyo Health Center from April 22 to April 29, 2022, who met the inclusion and exclusion criteria.

The sampling technique used was non-probability sampling, that is consecutive sampling. The inclusion criteria of this study were children under five, who were willing to be the sample, had data on birth weight, had data on weight and height when they were under five years old by measuring repeated more than once, and complete basic data, while the exclusion criteria were children with congenital abnormalities or physical disabilities and children with genetic disorders.

The procedure used in this study was started by taking a history and asking about the mother's willingness as a respondent by

asking for approval through informed consent. Children who met the inclusion criteria were interviewed by mothers related to their knowledge of 1000 HPK according to the questions that had been prepared. Furthermore, a physical examination related to stunting was carried out by measuring the child's body length or height using an infantometer or stadiometer and classifying the child's body length or height according to age into anthropometry based on WHO 2018. Based on the results of the examination, they were grouped into mothers with good, sufficient, and less knowledge about 1000 HPK in toddlers with stunting and good, sufficient, and less knowledge about 1000 HPK in toddlers with normal height or body length.

RESULTS

Basic Characteristics of Research Subjects

Based on the results of interviews related to the basic data of respondents, the data obtained are gender, age group of children, gestational age, mode of delivery, birth weight, child's history of illness, father's last education, father's occupation, father's last education, mother's occupation, mother's last education as follows :

Based on gender, the highest incidence of stunting occurred in 14 (21.9%) girls and 13 (20.3%) boys. Meanwhile, the incidence of severe stunting was more prevalent in males amounting to 3 (4.7%), and in females amounting to 2 (3.1%). Based on the age group, children who experience stunting are more common in the age group of 13-36 months, that is 18 (28.1%), while in the 37-59 month age group there are 5 (7.8%), and 0-12 months are 4 (6.3%).). Meanwhile, severe stunting was more common in the 13-36 month age group, amounting to 3 (4.7%) while the 0-12 and 37-59 months group had the same number, that is 1 (1.6%).

Based on gestational age, stunting was more at term, amounting to 21 (32.8%) while at preterm there were 5 (7.8%) and at gestational age more than 1 (1.6%). At a

severe gestational age, stunting is more common at term, which is 4 (6.3%) while at preterm it is 1 (1.6%) and not at later months. Based on the mode of delivery, there was more stunting in spontaneous births, which amounted to 20 (31.3%) while SC births were 7 (10.9%) and severe stunting only occurred in spontaneous births, which amounted to 5 (7.8%).

Based on birth weight, stunting was more common in those who did not experience LBW, amounting to 25 (39.1%) while those with LBW 2 (3.1%), while those who experienced severe stunting only occurred in those who did not experience LBW, which amounted to 5 (3.1%). 7.8%). Based on a history of illness, children who experienced stunting were more common in those who did not have a history of illness, that is 12 (18.8%) while those who had experienced ARI were 7 (10.9%) and those who had experienced diarrhea and ARI were 5 (7.8%) and only 3 (4.7%), while those who experienced severe stunting with a history of ARI and those without a history had the same incidence rate of 2 (3.1%) and those who had experienced diarrhea and ARI were 1 (1.6%).

Based on the last education, fathers who experienced stunting mostly occurred in the high school group, amounting to 14 (21.9%), while in the undergraduate group, there were 7 (10.9%), and in the elementary school group there were 5 (7.8%), and the junior high school group was 1 (1.6%). While those who experienced severe stunting were more common in the SMA group, that is 3 (4.7%), and in SD and SMP the number was the same, that is 1 (1.6%). Based on the work of fathers who experience stunting, most of them occur in private jobs, that is 17 (26.6%), in labor jobs amounting to 7 (10.9%), in fisher jobs amounting to 2 (3.1%), and in employee jobs amounting to 1 (1.6%), while those who experienced severe stunting only occurred in the private group, that is 5 (7.8%).

Based on the last education, mothers who experienced the most stunting in the

high school group were 12 (18.8%) while the undergraduate group was 8 (12.5%), and in the junior high school group there were 5 (7.8%) and the elementary school group was 2 (3.1%), while the experienced the most severe stunting in the high school group, which amounted to 12 (18.8%). While based on the characteristics of the last education of mothers in stunting children, the highest data were obtained for mothers with high school education of as many as 12 people (18.8%), then for the job characteristics of mothers with stunting children obtained data Most of the mothers with housewife work as many as 24 people (37.5%).

Correlation of Mother's Knowledge Level to First 1000 Days of Life with Stunting Incidence

The correlation analysis of maternal knowledge level with the incidence of stunting was tested using Kendall's tau-b test, the value of $\alpha = 0.05$ was determined so that the relationship between variables was considered significant if the p -value < 0.05 . this study shows that there is a significant relationship between the mother's level of knowledge and the incidence of stunting in children under five in the working area of the Sukomulyo Health Center.

Differences in Mothers' Knowledge Level Before and After Getting Counseling Regarding the First 1000 Days of Life.

The results showed that before and after attending the counseling, the data distribution was not normal, so *the Wilcoxon* non-parametric test said that there is a significant difference ($p < 0.05$) between the mother's level of knowledge before and after receiving counseling.

DISCUSSION

Essential Characteristics of Research Subjects

This study found that the percentage of children born prematurely in stunted children was slightly lower than normal children. However, this result is different from the research conducted in Banjarmasin by Sari et al., who found that premature

children had a 3.7 times risk of suffering from stunting.⁴

From the study, it was found that all children born with LBW suffered from stunting. This situation happens because the digestive tract is not functioning correctly, so the absorption of food becomes poor and can experience electrolyte disturbances. A study conducted by Aryastami et al. stated that children who suffer from LBW have an increased risk of 5.6 times for stunting until two years. A study in Guatemala found that in infants born with a median length of 2 cm (-1 SD), this difference increased to 9 cm (-2 to -2.7 SD) when the infant reached two years of age.^{5,6}

In children who do not experience LBW, stunting can also occur in the future due to insufficient consumption of nutrients in children. Research conducted by Ni'mah and Siti shows that children born without LBW can also suffer from stunting because many factors have a more significant influence on the incidence of stunting.⁷

This study found that children who experienced stunting also experienced more diarrhea and ARI; this is in line with what was done by Desyanti and Nindya, who stated that children with diarrhea had a 3.7 times greater risk of experiencing stunting compared to children who had diarrhea.⁸

However, in this study, children with stunting who had experienced diarrhea and ARI together were fewer than children with average growth. This condition is in line with research conducted by Halim et al., who found that children with stunting who had experienced diarrhea and ARI together were few.⁹ The different resistance of each child can cause this incident. During diarrhea, children experience malabsorption of nutrients, so children are dehydrated and also malnourished. Malnutrition, if not addressed immediately, will cause growth disorders in children. ARI can cause stunting because the symptoms of infection that occur will affect the child's appetite, which can reduce the nutritional status of the child, which, if it lasts for a long time, will impact the child's growth.^{9,10}

This study found that most of the mothers' last education in stunting children was high school education. A mother's education level influences stunting. This discovery is also explained in research by Husnanniyah et al. in 2020, which concluded that a low level of maternal education was associated with a high incidence of stunting. Mothers have an essential role in determining the food consumed by the family, especially nutrition for children.

Mothers will reflect knowledge in preparing food ingredients in the nutrition obtained by children. Mothers who have good nutritional knowledge can provide food with the type and amount according to the child's age so that the child can grow optimally.¹¹ Research from Hizni et al. in 2010 stated that mothers with low education are at risk of having children with stunting 2.22 times greater than mothers with higher education.¹²

Theoretically, the type of mother's work correlates with stunting. This statement is different from the results obtained in this study which showed that the dominance of the mother's work in stunted children and normal children was homemakers. This discovery is supported by research conducted by Sulastri and Maynarti, which concludes that there is no correlation between the type of mother's work and stunting in children.^{13,14}

Working mothers will have adequate income, which will affect the ability to fulfill family nutrition, especially for children. This discovery is supported by research conducted by Dewi et al. that income from a mother's work correlates with the incidence of stunting.

The factor of working mothers has not played a role as the leading cause of nutritional problems in children.⁴⁸ Mothers who do not work will receive a smaller income than working mothers which will impact the nutritional status of their children.^{13,14}

Analysis of Correlation Between Maternal Knowledge Regarding 1000 HPK and Incidence of Stunted Children Under Age of Five

Based on the results of statistical tests using *Kendall's tau-b correlation test*, the p -value = 0.000 ($p < 0.05$) indicates that there is a significant relationship between maternal knowledge regarding 1000 HPK and the incidence of stunted children under the age of five. The correlation coefficient value ($\tau = 0.442$) states that the correlation coefficient shows a positive correlation with moderate strength, this explains that the significant relationship and positive correlation indicate the higher the maternal knowledge related to 1000 HPK, the better the height-for-age resulting in lower stunting incidence and on the contrary, if the maternal knowledge is lacking, then the resulting height-for-age will be lower resulting in higher stunting incidence.

The results obtained in this study are by the research conducted by Fentiana, et al. in Tanjung Baru Village, Batang Lubu Sutam Subdistrict, Padang Lawas Regency stated that 55% of toddlers in Tanjung Baru Village were stunted and 61.7% of mothers had knowledge of 1000 HPK in the low category. The results of the test analyzed with the chi-square test concluded that there was a relationship between knowledge of 1000 HPK and stunting in children under five in non-priority stunting villages ($p < 0.005$).¹⁵

According to research conducted by Mubasyiroh, et al. in Sidategal Village, Larangan District, Brebes Regency regarding the relationship between knowledge and maternal behavior in fulfilling nutrition in children during the first 1000 days of life or golden period stated based on the results of statistical tests using chi-square obtained $p = 0.003 < (0.05)$, it can be concluded that there is a relationship between knowledge and behavior of mothers in fulfilling nutrition in children in the first 1000 days of life with nutritional status of children under five. Mothers who have good behavior in

fulfilling nutrition in children in the first 1000 days of life result in children with normal nutritional status (70.8%), compared to mothers who don't apply similar behavior (29.2%). This explains that there is a tendency that the better the mother's behavior in fulfilling nutrition in the first 1000 days of life, the better the nutritional status of her toddler.¹⁶

Analysis of Differences in Knowledge Levels After Getting Counseling

Based on the results of statistical tests using the Wilcoxon non-parametric test, the value of $p = 0.000$ ($p < 0.05$), indicates that there is a significant difference between maternal knowledge levels before and after receiving counseling. The results obtained in this study are supported by research conducted by Dianna, et al. at the Saigon Health Center, East Pontianak District, which stated that there was a significant difference in knowledge before and after being given counseling using booklet media with the median difference between pre-test and post-test of 3 and p -value = 0.001 ($p < 0.05$).¹⁷

Maternal knowledge about nutrition will affect the behavior of mothers in providing food for children. Mothers who have good nutritional knowledge can provide the right type and amount of food to support the growth and development of children under five. Many factors influence mothers' knowledge, such as lack of participation in Posyandu activities every month, lack of reading educational magazines and information on nutritional knowledge of toddlers, lack of counseling from health workers, and having an active job outside the home.^{18,19,20}

Research Limitations

This study has limitations that can affect the results of the study, such as not factoring in the genetic aspects of the child's parents, hormonal disorders and endocrine disorders in children, and the economic status of the parents.

CONCLUSION

Based on the results of the research that has been carried out, it is concluded that there is a correlation between mothers' knowledge regarding 1000 HPK with the incidence of stunting in children under five in the working area of the Sukomulyo Community Health Center. This study also proves that there is a significant difference between the mother's level of knowledge regarding 1000 HPK before and after receiving counseling.

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