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The Correlation of Parents Height Characteristics and Maternal Nutritional Status During Pregnancy Based on Upper Arm Circumference (UAC) and Stunting Incidence of Toddlers Aged 24-59 Months in the Working Area of Berbek Community Health Center Nganjuk Regency

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Abstract

Stunting in Indonesia was the fifth ranks in the world, influenced by many factors, some of which are the height of the parents and the nutritional status of the mother during pregnancy. The purpose of this research was to determine the correlation of parent height characteristics and maternal nutritional status during pregnancy based on Upper Arm Circumference (UAC) with stunting incidence in toddlers aged 24-59 months in the working area of the Berbek Public Health Center Nganjuk Regency. The research design used correlation analytic research design with observational method with case control approach. The independent variables consisted of parental height characteristics and maternal nutritional status during pregnancy based on UAC, and the dependent variable was stunting incidence. The population was 2266 respondents of under-five children aged 24-59 months. The sampling technique used quota sampling consisted 96 respondents. The instrument used height measurement tool, the Mother's Child Health book and the Public Health Center Weigh Activity Report, 2011. This research was conducted from 22 July to 22 August 2019 in three selected villages namely Sumberurip, Sumberwindu and Semare villages. Data analysis used chi-square test α (0.05).The results showed that almost all mothers and fathers had normal height characteristics, almost all respondents had the nutritional status of the mother during normal pregnancy. Analysis of height, circumference of the mother, and nutritional status of the mother during pregnancy based on Upper Arm Circumference (UAC) was obtained ρ value = 0.036; 0,000 and 0,000 < α 0,05. It meant that there was a correlation between parental height characteristics and maternal nutritional status during pregnancy based on Upper Arm Circumference (UAC) with the incidence of stunting in children aged 24-59 months in the Berbek Public Health Center Nganjuk

Regency Parental height and nutritional status of the mother during normal pregnancy, it will have the opportunity to have a child with good growth.

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INTRODUCTION

Stunting is a condition in which toddlers have less length or height when compared to age. This condition is measured by a length or height that is more than minus two standard deviations from the WHO median growth standard for children. Toddler stunting includes chronic nutritional problems caused by many factors such as socioeconomic conditions, maternal nutrition during pregnancy, illness in infants, and lack of nutritional intake in infants. Toddlers with stunting in the future will have difficulty achieving optimal physical and cognitive development (Budijanto, 2018).

The problem of stunting is one of the problems faced in the world today. According to data from the Joint Child Malnutrition estimated that in 2017 there were 22.2% or around 150.8 million children under five in the world who were stunted. Half of the stunted children under five in the world are from Asia (55%), while more than a third (39%) live in Africa. Of the 83.6 million stunted children under five in Asia, the highest proportion came from South Asia (58.7%) and the lowest proportion in Central Asia (0.9%).

Poor and developing countries also experience stunting, one of which is Indonesia (Unicef, 2013). Indonesia is the fifth rank in the world with the highest number of stunted children (Trihono, et al, 2015). Stunting is a problem associated with an increased risk of illness and death, sub optimal brain development so that motor development is delayed and mental growth is inhibited (Nurkarimah, 2018).

The results of the Basic Health Research (Riskesdas) in 2018 showed the national prevalence of stunting in 2013 was (37.2%), while in 2018 the prevalence of stunting was (30.8%), which means a decrease, but still above the 2019 RPJMN target value. amounting to (28%). The success in reducing the prevalence of stunting nationally doesn't mean that it has been completed and successful, but it is still a common task to achieve the national stunting reduction target (28%). Although the incidence of stunting has decreased nationally, Indonesia is still in problem because the decline is still above the standard stunting prevalence rate set by WHO, the prevalence is 30%.

According to data on the selection of 10 priority villages in 100 districts / cities in Indonesia, by the National Team for the Acceleration of Poverty Reduction (TNP2K) in 2017, Nganjuk District, the incidence of stunting was number 49 out of 100 districts / cities in Indonesia in 2013, the prevalence of stunting 44.33 % and the number of children under five with stunting in that year was 36,970 people. In the 1,000 priority villages for stunting in 2018, based on the calculation, 10 villages were selected in each district / city, and Nganjukdistrict was included in one of the 1,000 priority villages, where the villages classified include Mojoduwur, Patranrejo, Sumber Urip, Bodor, Cengkok, Mojokendil, Sumberksatria, Sukoharjo, Perning, and Lumpang Kuwik (Budijanto, 2018).

The risk of stunting increased in several ways. The height of the parents can have an impact on the linear growth of the next generation during the growth period. This influence includes genetic and non-genetic factors, the effect of intergenerational nutrition which affects growth where there is a barrier to attainment of height according to genetic potential, especially in low or middle income people (Supariasa, 2014)

Based on the research of Amalia Miftakhul Rochmah and Enny Fitriahadi (2017) in the working area of the Wonosari I, The Public Health Center, mothers who had short stature and have stunting children in the working area of Public Health Center

Wonosari I were 68.4% (26) people. Another research by Zottareli (2014), in Egypt that mothers who had a height <150 cm were more at risk of having a stunted child than mothers with a height > 150 cm. In addition, according to Naik R and R Smith (2015), women who have been stunted since childhood will grow up with various types of growth disorders including reproductive disorders, complications during pregnancy, difficulty in childbirth, and even perinatal death. Birth length is closely related to the height of the parents. Mothers with short stature are more likely to give birth to short children (Kusuma, 2014). A mother who is stunted has the potential to give birth to a child who will be stunted. Another research, Kisye, et al (2018), in the Tombatu Utara District, Southeast Minahasa Regency, that as many as 25 parents have short bodies, where there are 20 children who are stunted (80.0%) and 5 children are not stunted (20.0 %). Parents who have normal height are 50 people, where there are 11 stunted children (22.0%) and 39 children who are not stunted (78.0%), this shows that there is a correlation between the parents' height and the incidence. stunting.

Apart from the risk factors for the height of the parents, another thing, namely the nutritional status of the mother during pregnancy affects the growth and development of the fetus. Pregnant women Mothers who experience Chronic Energy Deficiency (CED) or anemia during pregnancy give birth to babies with low birth weight (WHO, 2010). Research Sukmawati, et al. (2018) in the working area of the Bontoa Public Health Center, Maros Regency, that the nutritional status of mothers with Chronic Energy Deficiency (CED) of normal child nutritional status based on height / age is 6.3% and the nutritional status of mothers with Chronic Energy Deficiency (CED) with children's nutritional status based on height / age (stunting) is 22.1% while the normal nutritional status of mothers based on Upper Arm Circumference (UAC) with the nutritional status of children based on height / age (normal) was 44.2% and normal nutritional status of mothers based on Upper Arm Circumference (UAC) with nutritional status of children based on height / age (stunting) was 27.4%. Based on the statistical test, it was obtained that the value of p = (0.01) was smaller than the value of (0.05), which means that there was a correlation between maternal nutritional status based on Upper Arm Circumference (UAC) and the incidence of stunting.

Other risk factors are consumption of malnutrition, infectious diseases / chronic diseases, endocrine problems, chromosomal abnormalities, knowledge factors, Cushing syndrome, parental education, employment and economic status, low birth weight (LBW), gender and age.

Management related to the incidence of stunting is by providing the fulfillment of nutritional adequacy for toddlers, a program of Supplementary Foods has been established, especially for stunting infants, if the body weight is in accordance with the calculation of body weight according to height, then Supplementary Foods for stunting toddlers can be stopped and continued with balanced food nutrition of the family (Budijanto, 2018). In addition to this, according to the research journal Nurkarimah (2018), namely by Scaling Up Nutrition by intervening in giving breast milk only (exclusive breastfeeding) to infants up to 6 months of age. Whereas in the Village Pocket Book in Handling Stunting 2017, stunting can be intervened in 10 ways, including; Pregnant women receive a blood supplement of at least 90 tablets during pregnancy, supplementary feeding for pregnant women, nutritional fulfillment, delivery with an expert doctor or midwife, Early Initiation of Breastfeeding (IMD), exclusive breastfeeding for babies up to 6 months of age, provide complementary feeding (MP-ASI), provide complete basic immunization and vitamin A, monitor the growth of toddlers at the related Posyandu, conduct Clean and Healthy Behavior (PHBS) (Sandjojo, 2017). The problem caused by the incidence of stunting is insufficient nutritional intake for a long time, due to feeding that is not in accordance with nutritional needs. Stunting occurs when the fetus is still in the womb and only appears when the child is two years old.

Based on the a for mentioned background, researchers interested in conducting this research due to health problems, especially in children who were stunted, given the importance of health for children because it was one of the human resource assets in the future, researchers interested in conducting research on the factors that caused stunting. in the working area of the Public Health Center Berbek, Nganjuk Regency.

METHODS

The research design used correlation analytic with observational method and case control approach. The independent variables was the

characteristics of the parents' height and the nutritional status of the mother during pregnancy based on Upper Arm Circumference (UAC) and the dependent variable was the incidence of stunting. The total population was 2266 respondents of children under five aged 24-59 months. The sampling technique used quota sampling and obtained 96 respondents as the sample. The instruments were height measurement tools, MCH books and 2019 Health Center Weighing Month Activity Reports. The standard of normal and abnormal height based on the Indonesian Ministry of Health (2019) with the threshold of normal adult male height was ≥155 cm and short was <155 cm, whereas the threshold for normal adult female weight was ≥150 cm and for short was <150 cm. The standard measure of Upper Arm Circumference (UAC) (in centimeters) during pregnancy with the criterion for under nutrition/ Chronic Energy Deficiency (CED) was <23.5 cm while the good nutrition/ normal was ≥ 23.5. The incidence of stunting used the standard height for age (height / age) based on the Z-score. This research was conducted from 22 July to 22 August 2019 in three selected villages, namely Sumberurip, Sumberwindu and Semare villages. Data analysis used the chi-square test á (0.05)

RESULT

The Specific data tabulation were presented in the form of tables which described the correlation of parents' height and maternal nutritional status during pregnancy based on Upper Arm Circumference (UAC) and the incidence of stunting in toddlers aged 24-59 months at Public Health Center Berbek, Nganjuk Regency as follows:

Table 1 Frequency Distribution of Height of the Parents (Father) at Public Health Center Berbek, Nganjuk Regency, from July 22 to August 22 2019

No	Height (Father)	Frequency	Percentage (%)
1	Normal	95	99
2	short	1	9
	Total	**96**	**100**

Based on the Table 1 it can be explained that the results of the research of a total of 96 respondents showed that almost all of the respondents were in normal height as many as 95 respondents (99%).

Table 2 Frequency Distribution of Parents (Mother) Height at Public Health Center Berbek, NganjukRegency, from 22 July to 22 August 2019

No	Maternal Height	Frequency	Percentage (%)
1	Normal	73	76
2	short	23	24
	Total	**96**	**100**

Table 3 Frequency Distribution of Maternal Nutritional Status During Pregnancy Based on Upper Arm Circumference (UAC) at Public Health Center Berbek, Nganjuk Regency, from 22 July to 22 August 2019

No	Mother's Nutritional Status during Pregnancy	Frequency	Percentage (%)
1	Good/normal nutrition	78	81.2
2	Poor nutrition / Chronic Energy Deficiency (CED)	18	18,8
	Total	**96**	**100**

Based on the Table 2 it can be explained that almost all of the 73 respondents (76%) were in the category of normal height criteria.

Based on Table 3, it can be explained that the results of the research of a total of 96 respondents showed that almost all of the respondents/ as many as 78 respondents (81.2%) had good nutritional status during pregnancy

Table 4 Frequency Distribution of Stunting at Public Health Center Berbek, Nganjuk Regency, from 22 July to 22 August 2019

No	Criteria for Stunting Incidence	Frequency	Percentage (%)
1	Not stunting	78	81,2
2	Stunting	18	18,8
	Total	**96**	**100**

Table 5 Cross Tabulation of the Correlation of the Height of the Parents (Father) and the Incidence of Stunting in Toddlers Ages 24-59 Months at the Public Health Center Berbek, Nganjuk Regency, from July 22 to August 22, 2019

No.	Height (Father)	Total Stunting Incidence				Total	
		stunting		Not stunting			
		f	%	f	%	f	%
1	short	1	1	0	0	1	1
2	Normal	17	17,7	78	81,2	95	99
	Total	**18**	**18,8**	**78**	**81,2**	**96**	**100**
ρ 0,036 < α 0,05		OR : 0,179		(r) 0,209		CI : 0,116 – 0,275	

Based on Table 4 it can be explained that the from a total of 96 respondents, almost all/ 78 respondents (81.2%) did not experience stunting

Table 5 shows that from 96 respondents, it was found that parents (father) who had short stature was 1 respondent (1%). There was an incidence of stunting by 1 respondent (1%). On other side, almost all the respondents as many as 95 respondents (99%) had normal height and there was no incidence of child stunting as many as 78 respondents (81.2%)

The analysis of the research on the correlation of the height of the parents (father) and the incidence of stunting in toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk Regency, using the Chi-Square statistical test obtained the value of ρ value = 0.036 < α 0.05, which meant there was a correlation between height of parents (father) and the incidence of stunting in toddlers aged 24-59 months at Public Health Center Berbek, Nganjuk Regency. The results of the risk estimation, the OR (Odds Ratio) value = 0.179 meant that parents (fathers) who had short stature had the opportunity to experience the incidence of stunted children 0.179 times compared to parents who had normal height. The coefficient correlation value of 0.209 was included in the low level of correlation. Meanwhile, the CI value of 95% (Confidence Interval) = 0.116-0.275, which meant that parents (fathers) who had short stature affected the incidence of stunting by 0.116-0.275 times.

Table 6 shows that from 96 respondents, it was found that parents (mothers) who had a short height. A small proportion of 23 respondents (24%) had an incidence of stunting with 18 respondents (18.8%). While parents who had normal height, almost all of the respondents/ 73 respondents (76%) showed there was no incidence of stunting, 73 respondents (76%).

The results of the analysis on the correlation between the characteristics of the parents' height and the incidence of stunting in toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk Regency, used the Chi-Square statistical test obtained the value of ρ value =0.000 < α 0.05, which meant that there was correlation between height of parents (mother) and incidence of stunting in toddlers aged 24-59 months in Public Health

Table 6 Cross Tabulation of Parents' (Mother) Height and Incidence of Stunting in Toddlers Aged 24-59 Months at Public Health Center Berbek, Nganjuk Regency, from July 22 to August 22, 2019

No.	Maternal Height	Total Stunting Incidence				Total	
		stunting		Not stunting			
		f	%	f	%	f	%
1	short	18	18,8	5	5,2	23	24
2	Normal	0	0	73	76	73	76
	Total	**18**	**18,8**	**78**	**81,2**	**96**	**100**
ρ 0,036 < α 0,05		OR : 4,600		(r) 0,650		CI : 2,118 – 9,989	

Table 7 Cross Tabulation of the Correlation of Maternal Nutritional Status during Pregnancy Based on Upper Arm Circumference (UAC) and the Incidence of Stunting in Toddlers Ages 24-59 Months at the Public Health Center Berbek, Nganjuk Regency

No.	Maternal nutrition status during pregnancy	Incidence of stunting				Total	
		stunting		Not stunting			
		f	%	f	%	f	%
1	Poor Nutrition/ Chronic Energy Deficiency (CED)	14	14,6	4	4,2	18	18,8
2	Good/Normal nutrition	4	4,2	74	77,1	78	81,2
	Total	**18**	**18,8**	**78**	**81,2**	**96**	**100**
ρ 0,000 < α 0,05		OR : 0,234		(r) 0,588		CI : 0,099-0,557	

Center Berbek, Nganjuk Regency. In the results of the risk estimation, the OR (Odds Ratio) value = 4,600 meant that parents (mothers) who had short stature had a chance to experience the incidence of stunting 4,600 times compared to parents (mothers) who had normal height. The value of the coefficient correlation of 0.650 was included in the level of a strong correlation. Meanwhile, the CI value of 95% (Confidence Interval) = 2.118-9.989, which meant that parents (mothers) who had short stature had an effect on the incidence of stunting by 2.118-9.989 times

Table 7 shows that from 96 respondents, it was found that almost all of the respondents as many as 78 respondents (81.2%) parents had good/ normal nutrition. There was no stunting incident for 74 respondents (77.1%). I other and, parents who had malnutrition / Chronic Energy Deficiency (CED) were 18 respondents (18.8%) and 14 respondents (14.6%) were stunting.

The results of research analysis on the correlation between the nutritional status of mothers during pregnancy based on Upper Arm Circumference (UAC) and the incidence of stunting in toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk Regency, using the Chi-Square statistical test obtained the value of ρ value = 0.000 < α 0.05, which meant there was a correlation between Maternal nutritional status during pregnancy based on upper arm circumference Upper Arm Circumference (UAC) and the incidence of stunting in toddlers aged 24-59 months at Public Health Center Berbek, Nganjuk Regency. The value of the coefficient correlation was 0.588, and the level of the correlation was medium. The results of the risk estimation the OR (Odds Ratio) was value = 0.234 meant that parents who had poor nutritional status/ Chronic Energy Deficiency (CED) had the opportunity to experience the incidence of stunting 0.234 times compared to parents who had normal nutritional status. Meanwhile, the CI value of 95% (Confidence Interval) = 0.099 had .557, which meant that parents who had low nutritional status / Chronic Energy Deficiency (CED) had an effect on the incidence of stunting by 0.099-0.557 times.

DISCUSSION

Based on the results of the research, the height of the fathers from a total of 96 respondents showed that almost all of the respondents/ 95 respondents (99%) were in the category of normal height..

The results of the analysis on the correlation between the characteristics of parents' height and the incidence of stunting of toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk Regency, using the Chi-Square statistical test, obtained the value of ρ value = 0.036 <α 0.05, which meant that there was a correlation between the characteristics of parents' height (father) and the incidence of stunting in children aged 24-59 months at the Public Health Center Berbek, Nganjuk Regency. In the results of the risk estimation, the OR (Odds Ratio) value = 0.179 meant that parents (fathers) who had short stature had the opportunity to experience the incidence of stunted children 0.179 times compared to parents who had normal height. The coefficient correlation value of 0.209 was included in the low level of correlation. Meanwhile, the CI value of 95%

(Confidence Interval) = 0.116-0.275, which meant parents (fathers) who had short stature affected the incidence of stunting by 0.116-0.275 times.

The characteristics of the body height of the parents where one or both parents of the child had a short height, the normal maternal height threshold was more than 150 cm and less than 150 cm. Fathers with normal stature had a height over 155 cm, while short stature was less than 155 cm tall. Short stature (stunting) was an index of nutritional status where body length/ height by age was below the normal line. Basically, the definition of stunting was relative, depending on the height of the parents and the growth pattern of the local population. The population was related to a certain race or class.

Based on the results of the research, it was found that almost all parents (father) had the characteristics of normal height criteria. This was due to the parents (Father) height that was 155 cm more, as can be explained that the height of the parents was in normal height, however in this research there was also a small proportion of parents who had abnormal height, namely Mr. X which had height less than 155 cm.

According to Khoirun Ni'mah and Siti Rahayu Nadhiroh (2015), the height of the father and mother which a factor that was closely related to the cause of stunting. Parents who had short stature were at risk for their children being stunted. Characteristics of the height of the parents in which one or both parents of the child were short. Fathers of normal stature had a height of more than 155 cm, while short stature had less than 155 cm. The threshold for normal maternal height was more than 150 cm, short was less than 150 cm. Short statures (stunting) were an index of nutritional status where body length / height by aged below the normal line. Basically, the definition of stunting was relative, depending on the height of the parents and the growth pattern of the local population. The population in question was related to a certain race or group.

Height was a form of genetic expression, and a factor that passed on to children and associated with the incidence of stunting. Children with short parents, either one or both, were more at risk of growing short than children with parents of normal height. Parents who were short because the genes on the chromosomes carry the short trait are likely to pass on the short trait to their children. But if the short trait of parents due to nutritional or pathological problems, then the short trait will not be passed on to the child (Supariasa, 2014).

Based on results of the research, it can be explained that mother's height showed almost all respondents 73 respondents (76%) had normal characteristics.

The results of the analysis of the research on the correlation between the characteristics of the parents' height and the incidence of stunting in toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk Regency, used the Chi-Square statistical test obtained the value of ρ value = 0.000 < α 0.05, which means that there was correlation between height of parents (mother) and incidence of stunting in toddlers aged 24-59 months in Public Health Center Berbek Nganjuk, Regency. In the results of the risk estimation, the OR (Odds Ratio) value = 4,600 meant that parents (mothers) who had short stature have a chance to experience the incidence of stunting 4,600 times compared to parents (mothers) who had normal height. The value of the coefficient correlation of 0.650 included in the level of a strong correlation. Meanwhile, the CI value of 95% (Confidence Interval) = 2.118-9.989, which means that parents (mothers) who had short stature have an effect on the incidence of stunting by 2.118-9.989 times.

The incidence of stunting influenced by several factors, such as genetic factors (Nurkarimah, 2018). Genetic factors such as short birth length caused by genetic factors, namely the height of the parents. Birth length was closely related to the height of the parents. Mothers with short stature are more likely to give birth to short children (Kusuma, 2014).

The results of research conducted by Khoirun Ni'mah and Siti Rahayu Nadhiroh (2015) also shown that maternal height had a factor that was closely related to the causes of stunting. The same results were also shown in a research conducted by Kristina (2015) that maternal height had a significant correlation with the incidence of stunting in toddlers with a p-value = 0.01, and OR = 0.04, which means that 2 times the risk of experiencing stunting. . In a research conducted by Mongkolchati (2010), maternal height had a significant correlation with the incidence of stunting with a p-value = 0.001 (p <0.05).

The presence of respondents with normal height who had not stunted and the height of the parents (mother) had stunted, this shows that it was true that the height of the parents (mother) contributes to the incidence of stunting in children, as illustrated in this research there is a correlation between height. parents (mother) with the incidence

of stunting in toddlers aged 24-59 months, this can be seen from the significant value ρ-value 0.000 < α value 0.05 with a strong level of correlation

The research found the height of the parents (mother) with the incidence of stunting of toddlers aged 24-59 months that almost all respondents (mother) had normal height and there was no incidence of stunting. Whereas parents who had short stature had incidence of stunting this showed that the height of the parents (mother) had an impact on the occurrence of stunting in children. Although it was not proven for all respondents as a risk factor, mothers and fathers who had short stature were found some stunted children compared to normal elderly people who had less likely to experience stunting. This showed that there was a tendency that short parents had short children as well.

Based on the results of the research, it was explained that the results of the research of a total of 96 respondents showed that almost all 78 respondents (81.2%) had nutritional status during pregnancy with good / normal nutrition criteria.

Nutritional intake in children under five was very important in supporting growth according to the growth chart so that growth faltering was not occur which can cause stunting. The same thing was also expressed by Kusuma (2014) where the lack of fulfillment of nutrients during pregnancy. Short birth length in children indicates a lack of nutrients that the mother takes during pregnancy, so that the growth of the fetus was not optimal which results in newborn having a short birth length.

Respondents in this research had nutritional status during pregnancy, as most respondents had nutritional status during pregnancy with good / normal nutrition criteria, this meant that during pregnancy the parents have received the fulfillment of nutrients during pregnancy. The nutritional status of the mother had good as a sign that the mother fulfills the nutrients that the mother receives so that it affected the condition of her baby during pregnancy, fetal growth can be optimal if the mother's nutrition was properly fulfilled, on the other hand, the growth of the fetus can be disturbed and growth less than optimal if the mother got it. good nutritional intake.

Based on the results of the research, it was explained that from a total of 96 respondents, it was indicated that almost all 78 respondents (81.2%) did not experience stunting

According to Soetjiningsih (2016) Stunting (short stature) is an index of nutritional status where body length / height by age is below the normal line. Stunting is a chronic condition that describes stunted growth due to long-term malnutrition. Stunting according to the WHO Child Growth Standard is based on the index of body length for age (length / age) or height for age (height / age) with a limit (z-score) of less than -2 SD. Stunting in toddlers needs special attention because it can hinder children's physical and mental development. Stunting is associated with an increased risk of illness and death as well as stunted development of motor and mental abilities.

Stunting in toddlerhood needs special attention, including children aged 2-3 years. The growth process at the age of 2-3 years tends to experience a slowdown so that the chances of catching growth are lower than at the age of 0-2 years. Age 2-3 years is the age of children experiencing rapid development. Maximum physical conditions are needed to support this development, where in children who are stunting the development of motor and cognitive abilities can be impaired. Children at this age also need more attention in terms of intake because of higher energy needs and more varied dietary needs compared to those aged 0-2 years (Yupi Supartini, 2014)

In this research, where the respondents showed that most of them did not experience stunting, this because the respondents did not experience short stature, that were, the respondents had a normal body length which illustrates that they were not stunted. This shows that they had short and very short stature. This made clear from the 2019 Public Health Center weigh month activity report that researchers used as a research measurement tool. However, there was still a small proportion of respondents who experience stunting which influenced by various factors such as the characteristics of the parent's height, the nutritional status of the mother during pregnancy, which had an impact on the occurrence of stunting.

The results of the analysis on the correlation between the characteristics of the parents' height and the incidence of stunting in toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk, Regency, using the Chi-Square statistical test, obtained the value of ρ value = 0.036 < α 0.05, which meant that there was a correlation between the characteristics of the height of the parents (father) with the incidence of stunting of toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk, Regency. In the results of the

risk estimation, the OR (Odds Ratio) value = 0.179 meant that parents (fathers) who had short stature had the opportunity to experience the incidence of stunted children 0.179 times compared to parents who had normal height. The coefficient correlation value of 0.209 included the low level of correlation. Meanwhile, the CI value of 95% (Confidence Interval) = 0.116-0.275, which meant that parents (fathers) who had short stature affected the incidence of stunting by 0.116-0.275 times.

Research conducted by Kisye (2018) also shows that there was a significant correlation between the characteristics of the father's height and the incidence of stunting with a value of ρ-value = 0.006 (α = <0.05).

The presence of respondents with normal height who were not stunted and the stature of short parents stunted, this showed that was true that the height of the parents contributes to the incidence of stunting in children, as illustrated in this research there was a correlation between the height of the parents The incidence of stunting in children aged 24-59 months can be seen from the significant value α-value 0.036 < α value 0.05 with a strong correlation.

This research found that the characteristics of the height of the parents (father) with the incidence of stunting in toddlers aged 24-59 months, found that almost all of the respondents' parents (father) had normal height and there was no incidence of stunting children. While the parents (father) who had short stature, there was a small proportion of the incidence of stunting children, this shows that the height of the parents (father) has an impact on the occurrence of stunting in children, although it was not proven for all respondents as a risk factor, the parent (father).Normal children were found to be not stunted compared to normal parents (fathers) who were stunted. This showed that there was a tendency that short children had short parents (fathers).

The results of the analysis of the research on the correlation between the characteristics of the parents' height and the incidence of stunting in toddlers aged 24-59 months at the Public Health Center Berbek, Nganjuk, Regency, using the Chi-Square statistical test obtained the value of ρ value = 0.000 < α 0.05, which meant that there was the correlation between the height of parents (mother) and the incidence of stunting in toddlers aged 24-59 months in Public Health Center Berbek, Nganjuk, Regency. In the results of the risk estimation, the OR (Odds Ratio) value = 4,600 meant that parents (mothers) who had short stature had a chance to experience the incidence of stunting 4,600 times compared to parents (mothers) who had normal height. The value of the coefficient correlation was 0.650 included in the level of a strong correlation. Meanwhile, the CI value of 95% (Confidence Interval) = 2.118-9.989, which meant that parents (mothers) who had short stature have an effect on the incidence of stunting by 2.118-9.989 times.

Research conducted by Khoirun Ni'mah and Siti Rahayu Nadhiroh (2015) also shows that maternal height is a factor that is closely related to the causes of stunting. The same results were also shown in research conducted by Kristina (2015) that maternal height had a significant correlation with the incidence of stunting in toddlers with a value of ρ-value = 0.01, and OR = 0.04, which means that 2 times the risk of experiencing stunting. In a research conducted by Mongkolchati (2010), maternal height had a significant correlation with the incidence of stunting with a value of ρ-value = 0.001 (ρ <0.05).

The presence of respondents with normal height who were not stunted and the stature of short parents who were stunted showed that it was true that the height of the parents contributed to the incidence of stunting of toddlers. As illustrated in this research, there was a correlation between the height of the parents and the incidence of stunting of toddlers aged 24-59 months. This can be seen from the significant value ρ-value 0.000 < α value 0.05 with a strong correlation level.

This research showed that the height of the parents with the incidence of stunting among toddlers aged 24-59 months found that most of the parents who had normal height had no incidence of stunting. In other hand parents (mothers) who had short stature had the incidence of stunting. This showed that the parents' height had an impact on the occurrence of stunting in toddlers. Although it was not proven for all respondents as a risk factor, shorter mothers were found to have more stunted children compared to normal parents (mothers) who were less likely to experience stunted children. This result showed that there was a tendency that short parents had short children as well.

The results of the research analysis on the correlation between the nutritional status of mothers during pregnancy based on Upper Arm Cicurference (UAC) and the incidence of stunting of toddlers aged 24-59 months at the Public Health

Center Berbek, Nganjuk, Regency, using the Chi-Square statistical test obtained the value of ρ value = 0.000 < α 0.05, which meant there was a correlation between maternal nutritional status during pregnancy based on LILA with the incidence of stunting in toddlers aged 24-59 months at Public Health Center Berbek, Nganjuk, Regency. The value of the coefficient correlation was 0.588 with the level of the correlation was medium. In the results of the risk estimation, the OR (Odds Ratio) value = 0.234 meant that parents who had poor nutritional status / Chronic Energy Deficiency (CED) had the opportunity of experiencing the incidence of stunted children 0.234 times compared to parents who had normal nutritional status. Meanwhile, the CI value of 95% (Confidence Interval) = 0.099-0.557, which meant that parents who had low nutritional status/ Chronic Energy Deficiency (CED) had an effect on the incidence of stunting by 0.099-0.557 times.

Groups prone to nutritional problems were infants, children under five years of age, pregnant women and the elderly. Pregnant women who had one of the groups that was vulnerable to nutrition need to get good and quality health services so that these women can have a healthy pregnancy (Ministry of Health RI, 2018)

According to Budijanto (2018), he states that nutrition obtained from birth greatly affects his growth, including the risk of stunting, not implementing adequate nutrition a factor in the occurrence of stunting. Nutritional intake, lack of fulfillment of nutrients during pregnancy. Short birth length in children indicates a lack of nutrients taken by the mother during pregnancy, so that the growth of the fetus was not optimal, which results in babies born having a short birth length.

This research supported by previous research conducted by Fajrina N., (2016) The results of the Chi Square statistical test obtained a p value of 0.005 or α <0.05, there is a correlation between the nutritional status of mothers during pregnancy and the incidence of stunting p-value = 0.01 (<0.05). This research also in line with that conducted by Sartono (2013) which also showed that there was a significant correlation between chronic energy deficiency in pregnancy (Chronic Energy Deficiency) and the incidence of stunting with a value of ρ = 0.042 <0.05.

According to the opinion of the research analysis, it was found that there was a correlation between the nutritional status of mothers during pregnancy based on upper arm circumference (LILA) and the incidence of stunting in toddlers aged 24-59 months. impact on the less than optimal fetal growth so that after birth, the child was stunted. Mothers who experience Chronic Energy Deficiency (CED) nutrition tent to be at risk for their children experiencing stunting. The more mothers experiencing Chronic Energy Deficiency (CED) nutrition, the more risk of stunting, this made clear from the OR (Odds Ratio) value = 0.234 means that parents who have low nutritional status / Chronic Energy Deficiency (CED) likely to experience the incidence of stunted children 0.234 times compared to parents who had normal nutritional status, which means that parents who had low nutritional status / Chronic Energy Deficiency (CED) had an effect on the incidence of stunting.

CONCLUSIONS

Based on the results of the research at Public Health Center Berbek, Nganjuk Regency, about the correlation of parental height and maternal nutritional status during pregnancy based on Upper Arm Circumference (UAC) and the incidence of stunting in toddlers aged 24-59 months; showed almost all of the respondents had normal height criteria. Almost all of the respondents had a good / normal nutritional status during pregnancy. Based on the results of the statistical tests, there was a strong correlation between the height of the parents and the incidence of stunting in toddlers aged 24-59 months. There was a moderate correlation between the height of the parents and the incidence of stunting in children aged 24-59 months in the working area of Public Health Center Berbek, Nganjuk Regency.

SUGGESTIONS

For Respondents

It is recommended for respondents / parents that supplementary food (PMT) from the Health Center should be given to their children as well as adequate nutrition for children, providing stimulation for children's growth and development by inviting them to play while learning and eating. It is also recommended for respondents who want to have more children, to prepare preconception to avoid Calorie Energy Deficiency (CED) by preparing future nutritional requirements so that the mother's

based on upper arm circumference (UAC) size is within normal limits

Share the research place

It is better if the research site continues to strive for prevention and management of stunting, namely by informing women during pregnancy counseling to improve nutrition so that it has an impact on the development of the fetus for the better and in the end the child after birth does not experience stunting, with the efforts of village midwives with villages or cross-sectors to work together to reduce and complete the incidence of stunting in the village, by providing stunting classes for toddlers, and giving rewards to mothers of toddlers who can reach the normal height threshold for their toddlers.

For Educational Institution researchers

It is recommended that educational institutions provide additional material in classroom learning materials for their students related to the causes of stunting so that educational institutions provide support in preventing stunting.

For future researchers

It is suggested that further researchers be able to develop research with different methods, such as prospective methods, then add independent variables such as sanitation factors, parenting factors, and incidence of infection by mentioning the infections that have been experienced.

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