RELATIONSHIP BETWEEN MATERNAL NUTRITIONAL STATUS DURING PREGNANCY AND THE INCIDENCE OF STUNTING AMONG TODDLERS IN THE PATEBON II HEALTH CENTER AREA

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Abstract

Prevalence of stunting in Kendal regency to the Kendal Health Office in 2023 was 8.3%, the prevalence of stunting in Patebon District according to Patebon II health center data in 2023 was 22%. Several factors that can cause stunting are the nutritional status of pregnant women , history of infectious diseases, maternal parenting patterns, history of exclusive breastfeeding, low birth weight (LBW), and family income levels. Stunting in toddlers is included in chronic nutritional problems where one of the factors that has the potential to cause stunting is the nutritional status of pregnant women. If pregnant women experience malnutrition in the early stages of the first life for the fetus, this will have an impact on their later life. Objective: Knowing the nutritional status of mothers during pregnancy with the Hemoglobin (Hb) indicator, knowing the nutritional status of mothers during pregnancy with the Upper Arm Circumference (LILA) indicator, knowing the nutritional status of mothers during pregnancy from stunted toddlers, knowing the relationship between maternal nutritional status during pregnancy and the incidence of stunting in the Patebon II Health Center work area.From the results of the calculation of the sample size, the number of samples was 88. From Donosari sub district 12 samples were taken, from Bulugede sub district 16 samples were taken, from Tambakrejo sub district 29 samples were taken and from Purwokerto sub district 31 samples were taken. Based on the results of the Gamma statistical test, the significance value of $\rho = 0.120$ with a significance level of $\rho = 0.16$ ($\alpha > 0.05$) can be concluded that the results indicate that there is no relationship between maternal LILA during pregnancy and the incidence of stunting in the work area of Patebon II Health Center.Based on the results of the Gamma statistical test, the significance value of $\rho = 0.039$ with a significance level of $\rho = 0.16$ ($\alpha > 0.05$) can be concluded that the results indicate that there is no relationship between maternal Hb during pregnancy and the incidence of stunting in the Patebon II Health Center work area.

Keywords: Nutritional status during pregnancy, stunting, toddlers

1. INTRODUCTION

Stunting has both short term and long term impacts of stunting is reduced cognitive ability, while the long term impact of stunting that is not handled properly will cause non communicable diseases such as hypertension, diabetes and cancer (Ministry of health, 2018).

The prevalence of stunting in the world according to WHO in 2024 was 22% or 149.2 million, the prevalence of stunting in Indonesia based on the 2018 Basic Health Research Data (Riskesdas) showed that the prevalence rate of stunting toddlers in Indonesia was 30.8%, while the prevalence of stunting in Central Java Province according to the Ministry of health in 2023 was 20%, the prevalence

of stunting in Kendal regency to the Kendal Health Office in 2023 was 8.3%, the prevalence of stunting in Patebon District according to Patebon II health center data in 2023 was 22% (Data From Patebon II Health Center In 2023).

Several factors that can cause stunting are the nutritional status of pregnant women , history of infectious diseases, maternal parenting patterns, history of exclusive breastfeeding, low birth weight (LBW), and family income levels. Stunting in toddlers is included in chronic nutritional problems where one of the factors that has the potential to cause stunting is the nutritional status of pregnant women. If pregnant women experience malnutrition in the early stages of the first life for the fetus, this will have an impact on their later life, for example, fetal growth will be delayed, the baby's birth weight will be low, short, thin, small, low immunity and will be at risk of death (Alfarisi, et al., 2019).

The nutritional status of pregnant women is said to be normal if the Upper Arm Circumference (MUAC) in the mother is more than 23.5 cm. If the Upper Arm Circumference (MUAC) in the mother is less than 23.5 cm, it is included in the nutritional status of pregnant women. The nutritional status of pregnant women who are less will be at risk of experiencing Chronic Energy Deficiency (CED) which is caused by an imbalance in nutritional intake between energy and protein so that this will cause the needs of the pregnant woman's body to not be met. If the pregnant woman has experienced CED, she will also be at risk of giving birth to a low birth weight (LBW) baby. Babies born with low birth weight if not treated immediately as well as possible, the baby will be at risk of stunting (Nurmalasari, et al., 2019). Based on this, the researcher is interested in conducting research with the title, "The Relationship between Maternal Nutritional Status During Pregnancy and the Incidence of Toddler Stunting in the Patebon II Health Center Work Area"

2. METHODOLOGY RESEARCH DESIGN

The design used in this study is an analytical correlation research design with a retrospective cohort approach.
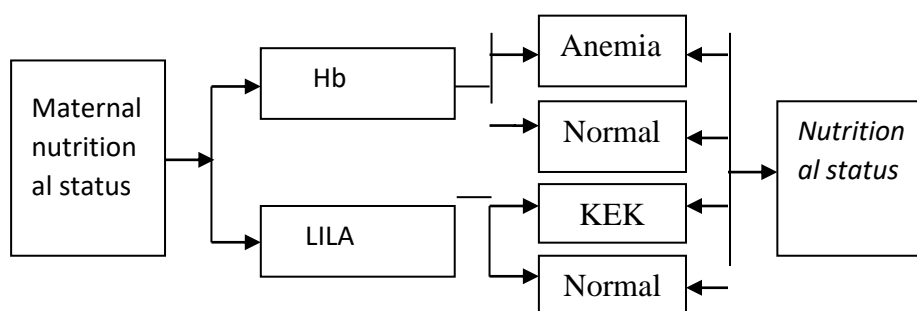
Population and Sample

The population in this study were toddlers aged 0-60 months in the working area of Patebon II Health Center totaling 2,168.

From the results of the calculation of the sample size, the number of samples was 88. From Donosari sub district 12 samples were taken, from Bulugede sub district 16 samples were taken, from Tambakrejo sub district 29 samples were taken and from Purwokerto sub district 31 samples were taken.

Research variables

In this study there are two variables, namely the independent variable (Independent) and the dependent variable (Dependent). The independent variable in this study is the nutritional status of mothers during pregnancy in the work area of Patebon II Health Center. The dependent variable in this study is the incidence of stunting in toddlers aged 0-60 months in the work area of Patebon II Health Center

Materials and Tools/Research Instruments

The research instruments used in data collection used two instruments, namely demographic questionnaire sheets and observational sheets. The questionnaires given to respondents included:

1. Demographic Questionnaire

The demographic questionnaire contains demographic data of respondents including: age, income, and mother's education.

2. Independent Variables

The independent variables were measured using observational sheets. Observations were carried out by researchers by making observations to match the nutritional status of mothers during pregnancy with the incidence of stunting. Researchers used observation sheets by looking at the KIA books owned by mothers and the midwife posyandu cohort.

3. Dependent Variables

The dependent variables were measured using a tool to measure the length of the baby, namely an infantometer and a microtoice. The results of the baby's length will be matched using the WHO z-score standard table

Data Analysis

In this study, the first variable uses an ordinal scale and the second variable uses an ordinal scale so that the statistical test with the Spearman Rho Correlation Statistical Test is carried out using computerized techniques using SPSS 16.0. The level of significance used is 0.05, which means that if $p < 0.05$, the hypothesis is accepted, which means that there is a relationship between maternal nutritional status during pregnancy and the incidence of stunting in toddlers in the Patebon II Health Center work area

3. RESULTS

Data collection was conducted on September 5-29, 2023 and obtained 88 respondents. The results section describes data on the general description of the research location, observational data. Observational data include maternal age during pregnancy, maternal Hb during pregnancy, maternal LILA during pregnancy

1.1 Respondent Characteristics

Table 1. Respondent Characteristics

Characteristics	N	%
Age		
Not at Risk (20 - 35 th)	77	87.5
At Risk (>35 th)	11	12.5

Based on table 1, the characteristics of the mother's age during pregnancy are that most of them are not at risk, as many as 77 people (87.5%), while a small portion of the mother's age during pregnancy is at risk, as many as 11 people (12.5%).

Table 2. Distribution of Mothers During Pregnancy Based on Mother's Education

Characteristics	N	%
Education		
NoSchooling	9	10.2
ElementarySchool	15	17.0
Junior HighSchool	26	29.5
Senior HighSchool	24	27.3
College	14	15.9
Total	**88**	**100.0**

Based on table 2, the characteristics of mother's education are mostly junior high school (26 people) (17.0%), while a small number of mothers did not attend school (9 people) (10.2%)

Table 3. Distribution of Mothers During Pregnancy Based on Mother's Occupatio

Characteristics	N	%
Occupation		
Housewife	73	83.0
Civil Servant	5	5.7
Private Employee	10	11.4
Total	**88**	**100.0**

Based on table 3, the occupational characteristics of most housewives are 73 people (83.0%), while a small portion are private employees, 10 people (11.4%).

Table 4. Distribution of Mothers During Pregnancy Based on Mother's Income

Characteristics	N	%
Income		
<UMR of Kendal City	**50**	**56.8**
According to UMR of Kendal city	**26**	**29.5**
>UMR of Kendal city	**11**	**12.5**
Total	**88**	**100.0**

Based on table 4 income characteristics, most have incomes less than UMR of Kendal City as many as 50 people (56.8%), while a small portion have incomes more than UMR of Kendal City as many as 11 people (12.5%)

1.1.1 Relationship between Maternal LILA During Pregnancy and the incidence of toddler stunting in the work area of Patebon II Health Center

Tabel 5. *Maternal LILA During Pregnancy and the incidence of toddler stunting in the work area of Patebon II Health Center*

LILAduring pregnancy	Status of toddlers			
	Normal	stunted	Very stunted	Total

	N	%	N	%	N	%	N	%
low	20	23.0	1	1.1	0	0.0	21	24.1
Normal	48	55.2	9	10.3	2	2.3	59	67.8
very	6	6.9	1	1.1	0	0.0	7	8.0
Total	74		11		2		88	100.0
Statistik Gamma ρ=0,120 (α=>0,05)								

Based on table 5, it shows that from 88 toddlers aged 0-60 months in the Patebon II Health Center Working Area, data was obtained that the relationship between maternal LILA during pregnancy and the incidence of stunting in children aged 0-60 months in the Patebon II Health Center working area and the results obtained from 88 respondents, maternal LILA during pregnancy was lacking with the incidence of short stunting as many as 1 person (1.1%), the category of maternal LILA during pregnancy was lacking with the incidence of normal stunting as many as 20 people (23.0%), the category of maternal LILA during pregnancy was lacking with the incidence of very short stunting as many as 0 people (0.0%). The category of maternal LILA during normal pregnancy with the incidence of short stunting as many as 9 people (10.3%), the category of maternal LILA during normal pregnancy with the incidence of normal stunting as many as 48 people (55.2%), the category of maternal LILA during normal pregnancy with the incidence of very short stunting as many as 2 people (2.3%). Based on the results of the Gamma statistical test, the significance value of ρ = 0.120 with a significance level of ρ = 0.16 (α>0.05) can be concluded that the results indicate that there is no relationship between maternal LILA during pregnancy and the incidence of stunting in the work area of Patebon II Health Center.

1.1.2 Relationship between maternal Hb during pregnancy and the incidence of stunting in toddlers in Thepatebon II Health Center work Area

Table 6. *maternal Hb during pregnancy and the incidence of stunting in toddlers in Thepatebon II Health Center work Area*

Hbduring pregnancy	Status of toddlers							
	Normal		stunted		Very stunted		Total	
	N	%	N	%	N	%	N	%
Short very	54	61,4	10	11,4	2	2,3	66	75,0
Normal	21	23,9	1	1,1	0	0,0	22	25,0
Total	75		11		2		88	100.0
Statistik Gamma ρ=0,039 (α=>0,05)								

Based on table 6, it shows that out of 88 toddlers aged 0-60 months in the Patebon II Health Center Work Area II, data was obtained that the relationship between maternal Hb during pregnancy and the incidence of stunting in children aged 0-60 months in the Patebon II Health Center work area and the results obtained from 88 respondents had low maternal Hb during pregnancy with the incidence of short stunting as many as 10 people (11.4%), the category of low maternal Hb during pregnancy with the incidence of normal stunting as many as 54 people (61.4%), the category of low maternal Hb during pregnancy with the incidence of very short stunting as many as 2 people (2.3%). The category of normal maternal Hb during pregnancy with the incidence of short stunting as many as 1 person (1.1%), the category of normal maternal Hb during pregnancy with the incidence of normal stunting as many as 21 people (23.9%). Based on the results of the Gamma statistical test, the significance value of ρ = 0.039 with a significance level of ρ = 0.16 (α> 0.05) can be concluded that the results indicate that there is no relationship between maternal Hb during pregnancy and the incidence of stunting in the Patebon II Health Center work area.

4. CONCLUSIONS

1. Mothers who have toddlers aged 0-60 months in the Patebon II Health Center work area, as many as 21 people (23.9%) experienced low Hb during pregnancy.

2. Mothers who have toddlers aged 0-60 months in the Patebon II Health Center work area, as many as 42 people (47.7%) experienced low LILA during pregnancy.

3. Mothers who have toddlers aged 0-60 months in the Patebon II Health Center work area had low LILA during pregnancy with normal toddler nutritional status as many as 20 people (23.0%), while the LILA of mothers during pregnancy was normal with short toddler nutritional status as many as 9 people (10.3%).

4. Mothers who have toddlers aged 0-60 months in the Patebon II Health Center work area have low Hb during pregnancy with normal toddler nutritional status as many as 54 people (61.4%) and low maternal Hb during pregnancy with stunted toddler nutritional status as many as 10 people (11.4%), while maternal Hb during pregnancy is normal with stunted toddler nutritional status as many as 1 person (1.1%). 5. There is no relationship between maternal LILA during pregnancy and the incidence of stunting in the Patebon II Health Center work area with a value of $\rho = 0.120$ and there is no relationship between maternal Hb during pregnancy and the incidence of stunting in the Patebon II Health Center work area with a value of $\rho = 0.039$.

5. It is hoped that other researchers will examine other variables, for example parenting patterns, exclusive breastfeeding and sanitation.

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