Jurnal Gizi dan Dietetik Indonesia
(Indonesian Journal of Nutrition and Dietetics)
Vol.11, Issue 3, 2023: 143-151

Available online at: http:ejournal.almaata.ac.id/index.php/IJND
DOI : http://dx.doi.org/10.21927/ijnd.2023.11(3).143-151

Relationship between cleanliness and sanitation and antenatal care with stunting in toddlers age 24-59 months

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ABSTRAK

Latar Belakang: *Stunting merupakan salah satu gangguan masalah kesehatan pada anak yang menyebabkan peningkatan morbiditas anak, kematian dini, meningkatkan penyakit tidak menular dan obesitas saat dewasa. Pola asuh kebersihan dan sanitasi serta antenatal care* adalah contoh dari beberapa factor yang mempengaruhi stunting. Saat ini, kejadian stunting pada anak-anak balita masih tinggi di Indonesia.
Tujuan: *Tujuan penelitian ini adalah mengidentifikasi hubungan antara pengasuhan kebersihan dan sanitasi dan antenatal care (ANC) terhadap kejadian stunting pada balita usia 24-59 bulan.*
Metode: *Jenis penelitian yang digunakan adalah observasional analitik, desain case control selama satu bulan (Februari-Maret) dengan sampel penelitian adalah ibu yang memiliki anak balita berjumlah 124 orang dengan usia 24-59 bulan di Kabupaten Kuburaya, Kalimantan Barat. Kelompok kontrol adalah balita normal dan kelompok kasus balita stunting. Teknik pengambilan data yang digunakan kuisioner, wawancara, dan dokumentasi. Variabel bebas adalah pengasuhan kebersihan dan sanitasi dan antenatal care (ANC) dan variabel terikat kejadian stunting. Teknik analisis data yang digunakan adalah analisis statistic bivariat*
Hasil: *Hasil penelitian ini mengungkapkan bahwa sebagian besar responden memiliki pengasuhan kebersihan dan sanitasi kurang baik (58,1%) dan ANC tidak teratur (38,7%). Hasil analisis bivariat menunjukkan bahwa terdapat hubungan yang signifikan antara pengasuhan kebersihan dan sanitasi dan antara antenatal care (ANC) dengan kejadian stunting pada balita usia 24-59 bulan dengan nilai signifikansi 0,000 < 0,05.*
Kesimpulan: *Terdapat hubungan antara pengasuhan kebersihan dan sanitasi dan antenatal care (ANC) terhadap kejadian stunting pada balita usia 24-59 bulan.*

KATA KUNCI: *antenatal care; pola kebersihan; sanitasi; stunting; balita*

ABSTRACT

Background: *Stunting is a health problem in children that causes increased child morbidity, premature death, increased non-communicable diseases, and obesity in adulthood. Cleanliness, sanitation parenting patterns, and antenatal care are examples of several factors that influence stunting. The incidence of stunting among children under five is still high in Indonesia.*
Objectives: *This research aims to identify the relationship between hygiene and sanitation care and antenatal care (ANC) on the incidence of stunting in toddlers aged 24-59 months.*
Methods: *The type of research used was analytical observational, case-control design for one month (February-March). The research sample was mothers with 124 children under five aged 24-59 months in Kuburaya Regency, West Kalimantan. The control group was normal toddlers, and the case group was stunting toddlers. The data collection techniques used were questionnaires, interviews, and documentation. The independent variables are hygiene and sanitation care and antenatal care (ANC), and the dependent variable is the*

incidence of stunting. The data analysis technique used is bivariate statistical analysis.
Results: *This study revealed that most respondents had poor hygiene and sanitation care (58.1%) and irregular ANC (38.7%). The bivariate analysis results show a significant relationship between hygiene and sanitation care and between antenatal care (ANC) and the incidence of stunting in toddlers aged 24-59 months, with a significance value of 0.000 <0.05.*
Conclusions: *There is a relationship between hygiene and sanitation care and antenatal care (ANC) on the incidence of stunting in toddlers aged 24-59 months.*

KEYWORDS: *antenatal care; cleanliness care; sanitation; stunting; toddler*

Article info:
Article submitted on June 20, 2023
Articles revised on July 25, 2023
Articles received on August 21, 2023

INTRODUCTION

Stunting is one of the disorders that can cause increased child morbidity, premature death, and increased non-communicable diseases and obesity as adults (1). The main factor that causes stunting is nutrition that does not meet the needs of children under five (2). Stunting also causes children's health and cognitive abilities to be disrupted and decrease (3). Stunting is an urgent problem nowadays because it can cause pain, hinder children's mental growth and motor development, and even cause death (4).

Based on research reports, Globally there are 149.2 million children aged less than 5 years experiencing physical stunting in 2020 (5). Furthermore, Indonesia's stunting ranking is 115 out of 151 countries based on JME data from the UNICEF Data Bank in 2020. WHO says Indonesia is one of the countries with a high prevalence of stunting (6). Data on the incidence of stunting in West Kalimantan province obtained from the Indonesian Nutrition Status Study (SSGI) in 2021, it is 29.8%, and in Kuburaya Regency, it is 40.3% (7). Additionally, the findings of a field survey conducted in February 2022 by researchers in the Kuburaya District revealed stunting statistics above 10%, including Puskesmas Sungai Ambawang 12,3%, Puskesmas Lingga 11,8%, Puskesmas Punggur 10,5%, and Puskesmas Sungai Durian 10,1% (8).

In 2022 the cause of the stunting problem is because it is influenced by sanitation and hygiene patterns in North Moyo (9). Good parenting behaviors include keeping children clean, maintaining sanitation in the child's environment and the mother's actions in using health services (10). Environmental cleanliness and sanitation, especially environmental health status with various criteria, such as healthy housing criteria, accessibility of basic sanitation facilities such as restrooms, clean water facilities, trash bins and household wastewater disposal sites, as well as residents' behavior are additional factors that contribute to stunting (11). Another risk factors that trigger stunting are the number of visits or the quality of each antenatal care (ANC) visits during pregnancy (12).

Cleanliness and sanitation in the body, food and living environment have a major role in maintaining health which will prevent

infectious diseases as a factor that causes a decrease in children's nutritional status(13). A quality standard of care for pregnant women (ANC) is needed to detect the risk of pregnancy complications so that they can find out the nutritional status of pregnant women and prevent stunting(14).

This study aimed to determine the relationship between hygiene and sanitation patterns and antenatal care with stunting in toddlers aged 24-59 months. The results of this study will be useful in preventing and reducing the incidence of stunting in children under five.

MATERIALS AND METHODS

The research method used is quantitative. The research approach used is analytic observational with a case-control design. Matching is carried out based on age, gender, parents education level, parents income, parents occupation.This approach is carried out by analyzing causal relationships using reverse logic, namely determining the disease that occurs first, then identifying the cause of the disease (15). The sample of this study was mothers with toddlers totaling 124 people aged 24-59 months in Kuburaya District, West Kalimantan. The gender of the subjects of this study was 56 female and 68 male.

Data collection techniques used questionnaires, interviews, and documentation. The research instrument indicators used in this study included stunting using data and interviews on the height condition of children under five aged 24-59 months who were not age-appropriate height for age obtained from the Kuburaya District Health Center. The indicators for the hygiene and sanitation upbringing questionnaire consist of personal hygiene with the sub-indicators bathing, brushing teeth, cutting nails, washing hands, cleaning the house, sources of clean water and drinking water, household waste management, and wastewater disposal facilities. The indicator for antenatal care visits (ANC) is seen from the regularity of pregnant women carrying out pregnancy care visits according to predetermined standards. If the respondent answers at least 2 ANC visit in the first trimester, 2 time in the second and 2 times in the third trimester, it is categorized as regular. In contrast, it is categorized as irregular if it is not appropriate.

This data validity technique uses the Pearson Product Moment correlation. Data reliability using Cronbach's Alpha. The results of testing the validity of the hygiene and sanitation patterns obtained the r count value for all items greater than r table 0.312 with a Cronbach's Alpha value of 0.938 to be said to be valid and reliable. The validity and reliability of the antenatal care (ANC) and stunting instruments were obtained through open-ended questions during the FGD.

The data analysis technique used is bivariate statistical analysis. This analysis used the statistical Chi-Square Test or Fisher's Exact Test with the help of the SPSS application as an alternative test to ascertain the relationship between the independent variables of hygiene and sanitation care and antenatal care (ANC) with the dependent variable stunting. This study complied with research ethics according to documents approved by the Research Ethics Committee

of the Faculty of Medicine, Universitas Sebelas Maret No.14/UN27.06.11/KEP/EC/ 2023 with protocol number 05/02/01/2023.

RESULTS AND DISCUSSION

Based on the results of data collection and analysis that have been carried out, the following research results are obtained:

Table 1. General characteristics of respondents

Characteristics of respondents	Case(n=62)		Control(n=62)	
	(n)	(%)	(n)	(%)
Sex				
Male	28	22.6	28	22.6
Female	34	27.4	34	27.4
Mother's Last Education				
Did not finish elementary school	0	0	2	1.6
Graduated from Elementary School	10	8.1	8	6.5
Graduated from junior high school	17	13.7	17	13.7
Graduated from high school	35	28.2	32	25.8
College graduate	0	0	3	2.4
Father's Last Education				
Did not finish elementary school	1	0.8	3	2.4
Graduated from Elementary School	7	5.6	9	7.3
Graduated from junior high school	16	12.9	12	9.7
Graduated from high school	38	30.6	34	27.4
College graduate	0	0	4	3.2
Mother's Job				
Housewife	61	49.2	57	46
Farmers/ labour	1	0.8	1	0.8
Private employees/employees	0	0	2	1.6
Regional honorary	0	0	2	1.6
Father's Job				
Not permanent/labour	28	22.6	17	13.7
Farmer	12	9.7	10	8.1
Trader/Businessman	19	15.3	19	15.3
Private employees	1	0.8	10	8.1
Regional honorary	2	1.6	4	3.2
Government employees/Police/ Soldiers	0	0	2	1.6
Mother's Average Income				
Rp. 0	58	46.8	57	46
Rp. 500.000 - Rp.1.500.000	3	2.4	3	2.4
Rp. 1.500.000 - Rp. 3.000.000	0	0	2	1.6
Rp. 3.000.000 - Rp. 5.000.000	1	0,8	0	0
Father's Average Income				
Rp. 500.000 - Rp. 1.500.000	13	10.5	2	1.6
Rp. 1.500.000 - Rp. 3.000.000	35	28.2	39	31.5
Rp. 3.000.000 - Rp. 5.000.000	14	11.3	19	15.3
> Rp. 5.000.000	0	0	2	1.6

Source: Primary Data (2023)

Based on **Table 1**, as many as 124 research subjects found that half of the respondents under five who participated in this study were 54.8% female and 45.2% male. Most of the parents of toddlers had their last education, namely graduating from high school, where the mother's last education was 67 people or 54% and the father's last education was 72 people or 58.1%. Parental education can affect nutritional status, one of which is the incidence of stunting. It is reinforced by research showing that low parental education increases the likelihood of children experiencing nutritional problems compared to parents with high levels of education (16). Based on the parents work characteristics, most of the mother's work was as a housewife 95.2% or 118 people and the father's work was as a laborer/not permanent as many as 45 people or 36.3%. The average income level of parents of toddlers where the income of fathers and mothers is below or <Rp. 3,000,000. Furthermore, the results of the bivariate analysis regarding the relationship between environmental hygiene and sanitation care patterns and antenatal care on the incidence of stunting are presented in **Table 2** below.

Table 2. Results of bivariate analysis of the relationship between hygiene and sanitation parenting and antenatal care (ANC) visits with stunting incidents

Variable	Nutritional status of toddlers 24 - 59 months				*p*	OR (CI 95%)
	Stunting		Normal			
	n	%	n	%		
Hygiene and Sanitation Parenting						
Not good	50	80.6	22	35.5	0.000 [b*]	7.57
Good	12	19.4	40	64.5		(3.34 - 17.15)
Antenatal Care (ANC) Visit						
Irregular	48	77.4	0	0	0.000[b*]	-
Regular	14	22.6	62	100		

Source: Primary Data (2023)

[*]) There is a significant relationship (p <0.05)

[b]) Continuity Correction

Based on **Table 2** shows that with poor hygiene and sanitation, 50 children under five aged 24-59 months who experience stunting or 80.6% are stunted. Meanwhile, with poor hygiene and sanitation, children with normal nutritional status are 22 or 35.5%. Furthermore, for parents with good hygiene and sanitation, stunted children are 12 children or 19.4% and normal children are 40 children or 64.5%. The data shows that good hygiene and sanitation parenting styles will reduce the incidence of stunting in children under five aged 24-59 months. The relationship between hygiene and sanitation parenting styles on stunting shows a significant value (p = 0.000 <0.05), so statistically, there is a significant relationship between hygiene and sanitation parenting styles and stunting events.

This study's results align with previous research studies which revealed a positive and significant relationship between hygiene

and sanitation parenting styles and the incidence of stunting in toddlers (10,17). This is because parents, especially mothers, who pay attention to children's hygiene and sanitation conditions will improve the nutritional status of children. After all, if mothers accustom their children to clean behavior, such as washing their hands before eating, the nutritional content of food will be maintained and optimal. This will affect the nutritional status of children's bodies. In addition, if the child's living environment is dirty, it will increase the risk of health problems in children so that the quality of health decreases, it will result in children under five experiencing health problems or illness and the child's appetite will decrease significantly. This will cause the daily need for calories and nutrients not to be fulfilled properly, resulting in stunted growth or stunting (17). Other studies have also revealed that one of the factors that causes and influences stunting is sanitation parenting (18). Other studies also reveal that based on literature studies conducted in Ethiopia, India, India, Bangladesh, Tanzania, Peru, China, and Lesotho, water, sanitation, and hygiene (WASH) are related to stunting (19).

Healthy hygiene and sanitation parenting patterns are a strong foundation for children to continue to grow. This unhealthy sanitation will cause infectious diseases, thus impacting the disruption of the absorption process of nutrients and triggering malnutrition in toddlers (20). Poor environmental sanitation results in pollution, and as a living medium for pathogens, the risk of transmission of infectious diseases increases (21). These infectious diseases can cause decreased appetite and limited consumption of food, this will have an impact on the long-term continuous weight loss of toddlers and have an impact on declining nutritional status. When a child has an infectious disease, it also causes the nutrients that are supposed to be for growth to be used for the body's resistance to infection. Lack of continuous nutritional intake can hamper the growth process, so it will impact growth disorders, one of which is stunting (22).

Table 2 above also shows the state of stunting from the perspective of antenatal care visits (ANC). Regular antenatal care (ANC) visits can lead to fewer stunting events in children than irregular antenatal care (ANC) visits. Regular antenatal care (ANC) visits led to 14 children under five aged 24-59 months stunting or 22.6%. Meanwhile, in irregular antenatal care (ANC), there were 48 children or 77.4%. Then regular antenatal care (ANC) can lead to balanced child nutrition or a normal child condition of 62 children or 100%. On the other hand, irregular antenatal care (ANC) cannot produce normal children. The significance value in the bivariate analysis between ANC and stunting showed ($p = 0.000 < 0.05$) that statistically, there was a significant relationship between antenatal care visits (ANC) and stunting.

The findings of this investigation contradict earlier studies that found a connection between antenatal care history and the prevalence of stunting in children (23). It is because antenatal care (ANC) services are not evaluated based on quality but rather on the number of frequencies. Stunting will be impacted if it depends on the caliber of antenatal care (ANC) services. Other studies

that found no impact of the WASH intervention on child stunting support it(24).

However, the results of this study are consistent with previous research, which revealed a positive and significant relationship between antenatal care and stunting (14,25). The standard ANC visits during pregnancy are one visit in the first trimester (K1), one visit in the second trimester (K2), and two visits in the third trimester (K3) and (K4)(26). Examination of the upper arm circumference has been conducted since K1 in pregnant women to know whether pregnant women fall into the category of mothers with chronic energy deficiency (CED). This action is important for knowing pregnant women who are CED and detecting the possible risk of giving birth to stunting (27). The standard ANC visits during pregnancy are one visit in the first trimester (K1), one visit in the second trimester (K2), and two visits in the third trimester (K3) and (K4) (26). Examination of the upper arm circumference is carried out since K1 in pregnant women to know whether pregnant women fall into the category of mothers with chronic energy deficiency (KEK) or not. This action is important to know pregnant women who are chronically energy deficient and early detection of possible risks of stunting(27).

CONCLUSION AND RECOMMENDATIONS

The results of the study show that there is a significant relationship between hygiene and sanitation and antenatal care (ANC) with the incidence of stunting in toddlers aged 24-59 months. The results of this study recommend that the family, especially the mother, is needed to provide good hygiene and sanitation as well as regular antenatal care (ANC) visits to reduce the incidence of stunting in children under five. This research provides input and information to respondents regarding the importance of parenting, hygiene and sanitation, and antenatal care (ANC) to prevent stunting.

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