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Original Article

RELATIONSHIP BETWEEN FEEDING PATTERNS AND THE INCIDENCE OF STUNTING IN TODDLERS IN THE WORK AREA OF THE COMMUNITY HEALTH CENTER OF SUMOBITO, JOMBANG

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ABSTRACT

Background: Stunting is a condition where the index of body length compared to age (PB/U) or height compared to age (TB/U) is shorter than age. Simply put, stunting is a term for growth disorders in children.

Objectives: This study aimed to determine and analyze the relationship between feeding patterns and the incidence of stunting in toddlers in the Sumobito Community Health Center working area.

Design: This research method uses correlational analytics with a cross-sectional approach. The research population was 209 people. The research sample consisted of 41 respondents using random sampling techniques with data collection using questionnaires on the variables of feeding patterns and height observation. Statistical analysis in this study used the Spearman Rank correlation test.

Results: The research, results showed that the majority of respondents had appropriate feeding patterns, 21 respondents (51.2%), and the majority of respondents with very short stunting, 21 respondents (51.2%). Analysis of feeding patterns on the incidence of stunting showed a p-value of 0.002 < (0.05), which means that there is a relationship between feeding patterns and the incidence of toddlers in the Sumobito Jombang health center working area.

Conclusion: Proper feeding patterns carried out by mothers can influence the nutritional status of toddlers if nutritional status is met, toddlers will avoid stunting.

Keywords: Feeding Patterns, Stunting Incidence, Toddlers.

INTRODUCTION

Stunting is an indicator of chronic malnutrition due to insufficient food intake for a long time, poor food quality, increased morbidity, and an increase in height that is not appropriate for their age (TB/U) (Sutrisni et.al., 2020). Stunting is a condition in which the body length

index is compared to age (PB/U) or height compared to age (TB/U) with a limit (z-score) of less than -2 SD (Mouliza R & Darmawi, 2022).

In general, linear growth problems are usually ignored because they are considered normal as long as their weight meets the standards (Maryani, 2023). One of the causes of the high stunting rate is improper maternal eating behavior, feeding patterns in toddlers in the first 1000 days of life (HPK) can affect nutritional intake which can directly affect the occurrence of stunting (Utari Maulina & Ana Marfari, 2021).

Based on the publication of UNICEF, WHO and the World Bank Group (2023) entitled Levels and Trends in child malnutrition, globally in 2022, as many as 22.3% or 148.1 million children experienced stunting. Basic Health Research Data (Riskesdas) 2022 informs that the prevalence of stunting nationally is 21.6%. According to WHO, the prevalence rate is still quite high. If the stunting problem is above 20%, it is still a public health problem (Ministry of Health of the Republic of Indonesia, 2022).

The results of the 2022 Indonesian Nutrition Status Survey show that the prevalence of stunting among children under five in East Java reached 19.2% with 20 districts in this province reporting stunting rates above average, including Jombang which recorded 22.1%. In Sumobito Village, Jombang Regency, there will be 209 cases of stunting in 2023 (Sumobito Health Center Data, 2023). Good child quality is obtained from meeting the needs of growth and development, which is important for an optimal future. Malnutrition at this stage can lead to negative impacts that are difficult to correct later in life (Mouliza R & Darmawi, 2022).

Stunting is caused by various factors that affect each other and vary in each region. Indirect factors include access to and availability of food, sanitation, and environmental health, as well as the socioeconomic condition of the family, including income, parental education level, number of family members, and maternal knowledge about nutrition (Rosha et al., 2020).

One of the most important factors to reduce the incidence of stunting is the feeding pattern in children, the feeding pattern in children plays an important role in nutrition because the quality and quantity of food and drinks provided will later affect the level of health in children. Children's food plays a very important role in their growth because food contains a lot of nutrients.

Nutrition is essential for a child's growth, health, and intelligence. Nutritional deficiencies can cause infections and growth and development disorders, such as thin bodies, malnutrition, and stunting. Therefore, a good diet needs to be developed to prevent malnutrition (Arinaa Manasika Farida et al., 2024). To prevent stunting, mothers can ensure that the nutritional needs of toddlers are met by paying attention to the preparation of the right menu, processing, serving, and feeding, both in terms of type, quantity, and nutritional value (Mariam Nopitasari Fauziah et al., 2023). **Objective(s):** Based on the background, the researcher is interested in researching "The Relationship of Feeding Patterns to the Incidence of Stunting in Toddlers in the Working Area of the Sumobito Jombang Health Center".

METHODS

Study Design

In this study, the type of research used is correlational analysis using a cross-sectional approach. Cross-sectional is an approach in which data from several research variables are collected at one time.

Setting

The research site is in the working area of the Community Health Center of Sumobito in Sumobito Village. It was held for 2 days on July 4-5, 2024 with 41 respondents.

Research Subject

The sampling technique used in this study is the probability sampling technique with the random sampling method, which is a sampling technique taken by lottery like a lottery carried out in a social gathering by making scrolls of paper containing all the numbers of the population members. The sample in this study was toddlers in the Sumobito Health Center work area, consisting of 41 respondents.

Instrument

In this study, data was collected through a questionnaire that included feeding patterns and height observation using microtools for stunting incidence.

Data Collection

After obtaining research permits, researchers conducted research in the Sumobito Health Center area and preliminary studies with several integrated health service post cadres. After obtaining the data, the toddler had a height of ≤-2 elementary school from the health center. The researcher conducted research at the related integrated health service post and door-to-door.

Data Analysis

In this study, data analysis using a Spearman rank statistical test. The purpose of this test is to analyze the relationship between categorical variables that are ordinal-scale. If the result ρ-value ≤ α 0.05 is obtained, it means that there is a relationship, and vice versa if the result of ρ-value ≥ 0.05, there is no relationship (Dahlan, 2016).

Ethical Consideration

This study has received an ethical test certification with the main researcher: Puput Ufaidah, number: 0563-KEPKSHJ, titled "The Relationship of Feeding Patterns to the Incidence of Stunting in Toddlers in the Working Area of the Sumobito Jombang Health Center".

RESULTS

Characteristics of Toddlers

Table 1. Characteristics of Toddlers Based on the Age, Gender, and Order of Children in the Working Areas of the Community Health Center of Sumobito, Jombang on July 4-5, 2024.

Characteristics of Toddlers	Frequency (f)	Percentage (%)
Age (Months)		
12-36 months	27	65.9
37-59 months	14	34.1
Total	**41**	**100.0**
Gender		
Male	22	53.7

Female	19	46.3
Total	**41**	**100.0**
Order of Children		
1	21	51.2
2	14	34.1
> 2	6	14.6
Total	**41**	**100.0**

Sources: Research Data, 2024.

Based on Table 1, found that most of the respondents under five years old are 12-36 months old, 27 respondents (65.9%), and a small number of respondents under five years old, 14 respondents (34.1%). According to the data above, the majority of the male toddler respondents are 22 respondents (53.7%) and a small part of the female toddler respondents are 19 respondents (46.3%). Also, most of the respondents in the 1st child order are 21 respondents (51.2%), a small part of the 2nd child order respondents are 14 respondents (34.1%), and very few of the >2 child order respondents are 6 respondents (14.6%).

Characteristics of Mothers

Table 2. Characteristics of Mothers Based on the Age of Mother, Education Level, and Occupation of Mother in the Working Areas of the Community Health Center of Sumobito, Jombang on July 4-5, 2024.

Characteristics of Mothers	Frequency (f)	Percentage (%)
Age (Years Old)		
20-30	22	53.7
31-40	16	39.0
41-50	3	7.3
Total	**41**	**100.0**
Education Level		
Elementary School	3	7.3
Junior High School	8	19.5
Senior High School	23	56.1
University	7	17.1
Total	**41**	**100.0**
Occupation of Mother		
Housewife	32	78.0
Self-employed	6	14.6
Civil Servant	2	4.9
Others	1	2.4
Total	**41**	**100.0**

Sources: Research Data, 2024.

Based on the research data in Table 2, it found that most of the respondents in the 1st child order are 21 respondents (51.2%), a small part of the 2nd child order respondents are 14 respondents (34.1%), and very few of the >2 child order respondents are 6 respondents (14.6%). Most of the respondents aged 20-30 years old are 22 respondents (53.7%), a small number of respondents were 31-40 years old 16 respondents (39.0%), and very few of the respondents were 41-50 years old, and 3 respondents (7.3%). Also, most of the respondents with high school motherhood education are 23 respondents (56.1%), and very few of the respondents with elementary school motherhood education are 3 respondents (7.3%).

Examination of the Relationship Between Feeding Patterns and the Incidence of Stunting in Toddlers in the Working Areas of the Community Health Center of Sumobito, Jombang using Spearman's Rank Test

Table 3. The Relationship Between Feeding Patterns and the Incidence of Stunting in Toddlers in the Working Areas of the Community Health Center of Sumobito, Jombang using Spearman's Rank Test.

Feeding Patterns	Stunting				Spearman's Rank Test
	Very Short		Short		
	f	%	f	%	
Inappropriate	15	36.6	5	12.2	*p*-value =
Precise	6	14.6	15	36.6	.002; r =
Total	**21**	**51.2**	20	48.8	.464

Sources: Research Data, 2024.

Based on the research data in Table 3, it was found that most of the respondents with a proper feeding pattern are 21 respondents (51.2%), and a small part of the respondents with an inappropriate feeding pattern are 20 respondents (48.8%). Most of the respondents with very short stunting are 21 respondents (51.2%), and a small number of respondents with short editing are 20 respondents (48.8%). Based on the results of the Spearman's rank correlation test SPSS 16, the result of $p < \alpha$ ($\alpha = 0.05$) was obtained, which is a value of $0.002 < 0.05$, it can be concluded that Hı was accepted and Ho was rejected, which means that there is a relationship between Feeding Patterns to the Incidence of Stunting in Toddlers in the Sumobito Jombang Health Center Working Area.

Based on the output of SPSS, a correlation coefficient of 0.464** was obtained, meaning that the level of correlation between feeding pattern variables and stunting was included in the range of 0.400-0.600, namely the interpretation of medium relationships (Arikunto, 2013).

DISCUSSION

Feeding Patterns in the Working Area of the Community Health Center of Sumobito, Jombang

Based on the research data above, it shows that most of the respondents with the right feeding pattern are 21 respondents (51.2%), and a small part of the respondents with inappropriate feeding patterns are 20 respondents (48.8%).

Adequate and balanced nutrition can be achieved by paying attention to feeding patterns to get the nutritional intake needed by children. This is aimed at being able to maintain and restore children's health through food (substances) in the food consumed greatly affects health through the food given by their parents (Ludong, et al., 2021).

According to the Ministry of Health of the Republic of Indonesia (2019), a good diet is very important for the growth of toddlers because food is rich in nutrients that support health and intelligence. A poor diet can result in impaired growth, thin, short, and even malnutrition.

Facts and theories show that feeding patterns affect children's nutritional intake. With the right diet, nutrient intake will be sufficient. Parents are responsible for ensuring that children get enough nutrition, so they need to be selective in choosing the type, amount, and schedule of food according to the child's age.

Based on the order of children, the results were obtained for almost half of the respondents with the order of the 1st child as many as 12 respondents (29.3%).

According to Suhartono (2018), the number of family members in children with malnourished and malnourished status is mostly found in families with four children, namely 44.7% of children with malnourished status and as many as 28.9% of children with malnourished status.

Having many children can result in an uneven distribution of parental affection and attention, especially if the family has a low economic status. In such conditions, resources, including groceries, must be shared among all children (Prasetyo, 2018).

Based on the facts and theories above, it shows that there is no relationship between the order of the 1st child and the feeding pattern, if the 1st child with an inappropriate feeding pattern can be caused by several factors such as the mother's education and mother's work. Several factors affect feeding patterns, including Maternal Education. Based on maternal education, the results of mothers with high school education were obtained as many as 14 respondents (34.1%) applied the right feeding pattern.

Maternal education will affect childcare and knowledge of children's nutritional status. Educated mothers are more likely to have better health knowledge, practice proper child feeding, and engage in healthy activities during pregnancy and child growth and development (Mutaqin et al., 2022).

Maternal education affects the nutritional status of children, especially because mothers who directly take care of children are also responsible for preparing and providing food. The level of maternal education has a positive impact on children's growth, as a better understanding of health, family nutrition, and nutritional parenting helps create a healthy lifestyle, including choosing foods for toddlers (Shodikin & Mardiyati, 2023).

Based on the facts and theories above, show that the education of mothers with the right feeding pattern greatly affects the nutritional status of toddlers because the mother is the one who has the greatest relationship with the child. The knowledge that mothers have is the main key to fulfilling the nutritional needs of toddlers.

Based on the data from the research results, another factor that affects the implementation of feeding patterns other than education is influenced by the work factor of parents. Based on the maternal employment factor, almost half of the parents with a job as a housewife were obtained A total of 18 respondents (43.9%) applied the right feeding pattern.

According to Diana (2019), work is an important factor in determining the quality and quantity of food because it is related to income. Higher incomes usually improve health and nutritional status. The type of parental work affects the family's income, so it plays a role in the ability to meet the family's nutritional needs.

Facts and theories show that mothers who do not work are not always less able to meet the nutritional needs of their children. Working mothers tend to have limited time to take care of their children, which can affect the quality of parenting and the nutritional status of children. Mothers with morning to evening hours may not have enough time to supervise their children's food and nutritional needs.

Incidence of Stunting in the Working Areas of the Community Health Center of Sumobito, Jombang

Based on the research data above, it shows that most of the respondents with very short stunting are 21 respondents (51.2%), and a small number of respondents with short editing are 20 respondents (48.8%).

Stunting is a condition in which toddlers experience long-term malnutrition resulting in growth disorders such as height that is lower than the age standard. The causes of stunting include nutritional imbalances and health problems during the first 1000 days of birth (HPK). Stunting is usually indicated by short or very short height based on the PB/U or TB/U index in the assessment of children's nutritional status, with the measurement results being at the threshold (Z-Score) of <-2 SD for short and <-3 SD for very short (severely stunted) (Amalika et al., 2023).

Based on the facts and theories above, it shows that the cause of stunting is insufficient nutritional intake for a long period of time which results in lower nutrition than children of the same age. If it is left untreated and not handled properly, it can aggravate the condition of toddlers.

Based on table 1, shows that most of the respondents under five aged 12-36 months, a total of 27 respondents (65.9%), Based on the results of cross-tabulation results, it was found that almost half of the respondents aged 12-36 months were 16 respondents (39.0%) with a very short stunting category. According to (Welasih and Wirjatmadi, 2012 in Aprilia, 2021) stunting occurs mostly at the age of 12-36 months because at this age the diet changes from liquid food (breast milk) to solid food and young children often have difficulty adjusting to changes that affect their nutritional intake.

Facts and theories show that the age of toddlers affects the risk of stunting. At this age, the child is more active and interacts with a clean environment, but the baby is more susceptible to infection. Lack of food intake can lead to weight loss which, if not addressed, will affect the baby's height and make it inappropriate for his age.

Based on the Gender of Toddlers, the results were obtained that almost half of the respondents with a very short category were respondents with a male gender as many as 11 respondents (26.8%).

Gender affects a person's nutritional needs. Men generally need more nutrients because their bodies tend to be larger and have more muscle mass, which requires more energy than fat. This difference can affect growth if nutritional needs are not met (Maryati et al., 2023).

Facts and theories suggest that the sex of toddlers affects energy and protein needs, with males needing more nutrients than females. This is because men usually have heavier physical activity, so the risk of stunting is higher in them.

Based on maternal age, it was found that almost half of mothers aged 20-30 years, as many as 12 respondents (29.3%), had toddlers who experienced short stunting.

According to Winambo and Wartiningsih (2020), mothers who have an age range between 20-35 years have a lower risk of stunting, while mothers who are <20 years and >35 years old have a higher risk of stunting.

Facts and theories show that maternal age affects the risk of stunting in children. Factors such as maternal health during pregnancy, malnutrition, anemia, chronic diseases, access to services, as well as maternal nutrition, and genetic factors can also play a role in stunting.

Based on maternal education, the results were obtained that almost half of the respondent mothers with high school education as many as 12 respondents (29.3%) had toddlers with very short stunting.

According to (Suhardjo, 2007 in Salsabila et al., 2022) The level of education affects changes in attitudes and healthy living behaviors. A higher level of education will make it easier for a person to receive information and apply it in daily behavior and lifestyle, one of which is in terms of health.

Facts and theories show that there is no direct relationship between maternal education levels and stunting incidence. The level of maternal education does not always affect the risk of stunting in toddlers, because mothers with low education do not always have stunted toddlers, and conversely, mothers with higher education are not always free from stunting.

Relationship Between Feeding Patterns and the Incidence of Stunting in Toddlers in the Working Areas of the Community Health Center of Sumobito, Jombang

Based on the results of the Spearman's rank correlation test of SPSS 16, the significance of $p < \alpha$ ($\alpha = 0.05$), namely the value of $0.002 < 0.05$, it can be concluded that H_1 is accepted and Ho is rejected which means that there is a relationship between Feeding Patterns to the Incidence of Stunting in Toddlers in the Sumobito Jombang Health Center Work Area.

Based on the output of SPSS, a correlation coefficient of 0.464** was obtained, meaning that the level of correlation between feeding pattern variables and stunting was included in the range of 0.400-0.600, namely the interpretation of medium relationships (Arikunto, 2013).

According to Amreini (2021), a good feeding pattern for children will have an impact on children's growth development, and intelligence. The incidence of stunting in toddlers can be overcome, one of which is by implementing a good and correct feeding pattern.

A good child's diet involves serving foods that meet daily nutritional needs, following the "Fill My Plate" guideline. This guide divides meals into 50% staple foods and side dishes, with half of those portions consisting of 2/3 staple foods and 1/3 side dishes. The remaining 50% must be in the form of vegetables and fruits, with 2/3 vegetables and 1/3 fruits (Ministry of Health, 2018).

The results of this study are in line with research conducted by (Prakhasita, 2018) in the working area of the Tambak Wedi Surabaya Health Center which obtained the result that most of the respondents with feeding patterns were in the right category.

Research by Dayuningsih (2020) found that feeding parenting is the main factor affecting the incidence of stunting. Toddlers with poor parenting have a six-fold higher risk of stunting than those who receive good parenting.

CONCLUSION

Most of the respondents in the Working Areas of the Community Health Center of Sumobito, Jombang had the right feeding pattern as many as 21 respondents (51.2%), most of the respondents in the Working Areas of the Community Health Center of Sumobito, Jombang were in the very short Stunting category with 21 respondents (51.2%). The results of the study showed that there was a relationship between feeding patterns and the incidence of stunting in toddlers in the Working Areas of the Community Health Center of Sumobito, Jombang with an Asymp Sig (2-tailed) value of 0.002 < α (0.05). The value of the relationship between the two variables is 0.464** which means that the two variables have a moderate interpretation of the relationship. It is hoped that it can provide education in each integrated health service post by providing the type, amount, and feeding schedule in the toddlers according to their age. If the feeding pattern is done correctly, it can minimize the incidence of stunting in toddlers.

SUGGESTION

Stunting even with the right diet can be caused by other factors such as infectious diseases. Infections such as diarrhea, respiratory infections, and worms can interfere with health, reduce food intake, and nutrient absorption, ultimately leading to stunting. Prolonged health problems reduce immunity and worsen chronic malnutrition (Ministry of Health of the Republic of Indonesia, 2020).

Several facts from respondents show that stunted toddlers need consultation and nutritional assistance. Some toddlers only consume rice and vegetable gravy, with a less varied diet because mothers choose practical foods. Consumption of varied and nutritious foods is very important to meet the needs of the body and prevent nutritional deficiencies. A good diet should start early by providing varied meals and educating children about healthy eating times.

LIMITATION

This study was conducted freely, without any constraints or limitations that might influence the research process or outcomes.

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