

The Relationship Between Complementary Feeding with Breastmilk (MP-ASI) and the Incidence of Stunting in Under-Five Children

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Abstract:

Complementary feeding is required from 6 months of age to fulfill children's nutritional needs. Inadequate complementary foods both in quantity and quality will have an impact on child growth, one of which is the incidence of stunting. This study aims to determine the relationship between complementary feeding (MP-ASI) and the incidence of stunting in under-fives in Cilowong Village, UPTD Puskesmas Taktakan Working Area in 2023. This type of research uses a quantitative approach where researchers observe subjects without intervening using the questionnaire method. The design used was cross-sectional and all types of measurements were taken at once, the sample used was mothers who had under-five children totaling 100 samples. The results of this study indicate that there is a relationship between the timing of complementary food, type of complementary food, texture of complementary food, frequency of complementary food, and portion of complementary food with the incidence of stunting ($p=0.000$). There is a significant relationship between the provision of complementary foods and the incidence of stunting.

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INTRODUCTION

Children under two years old is a period known as the golden age. This is because at this age, human growth and development occurs rapidly. There are many factors that affect growth and development, and one of the factors that affect human growth and development is nutrition. Early childhood nutritional needs are important for growth and development, especially brain development. Brain development is highly dependent on the nutritional intake consumed. One of the effects of nutritional deficiencies is stunting (Yunita et al., 2020). Nutritional status is the condition of the body as a result of food consumption and use of nutrients (Afandi et al., 2023). The nutritional status of children under the age of five is influenced by direct factors such as nutrition and infectious diseases, and indirect factors such as parenting style and the provision of quality health services (Kurniyawan et al., 2023).

Stunting is a chronic malnutrition problem caused by malnutrition over a long period of time, resulting in impaired growth in children. Poor nutritional intake in children is the main cause of stunting. Lack of nutritional intake in toddlers under two years old is usually caused by inappropriate breastfeeding positions, not being given exclusive breast milk, and poor quality of complementary foods for breast milk (Puspitasari et al., 2023).

Complementary foods for breast milk are additional foods given to babies after they are 6 months old until they are 24 months old. Complementary breast milk food is different from weaning

food which is given when the baby no longer consumes breast milk. The role of complementary foods is not to replace breast milk at all, but only to complement breast milk. Breast milk must still be given to babies, at least until the age of 24 months (Novianti et al., 2021).

Suboptimal growth with age may be caused by problems transitioning from breastfeeding to complementary feeding. Child growth and development problems occur when continued breastfeeding is not accompanied by adequate complementary feeding at the appropriate age. When a child receives inadequate complementary foods with increased nutritional requirements, linear growth disorders in children can occur (Sargih, 2023).

This study aims to determine the relationship between complementary feeding (MP-ASI) and the incidence of stunting in under-fives in Cilowong Village, UPTD Puskesmas Taktakan Working Area in 2023.

METHOD

This type of research uses a quantitative approach where researchers observe subjects without intervening using the questionnaire method. The design used was cross-sectional and all types of measurements were taken at once. Complementary feeding patterns such as time of first complementary feeding, type of complementary feeding, texture of complementary feeding, frequency of complementary feeding, and portion of complementary feeding were identified as independent variables that were measured together with the prevalence of stunting in children aged 6 months 1 day - 24 months. This study was conducted in Cilowong urban village in the working area of Taktakan Community Health Center, Taktakan Sub-district, Serang City, Banten Province. It was conducted from May 6 to May 27, 2023. The sample used was mothers who had children aged 6 months 1 day - 24 months, totaling 100 samples.

Data collection techniques use primary data and secondary data, for primary data including data on maternal characteristics and sample identity, data on complementary feeding obtained using multiple choice questionnaires, and anthropometric data obtained using direct body length measurements using a length board, while for secondary data including data on the general description of the Taktakan Health Center, Taktakan District, Serang City obtained from the administration and the amount of data on infants in the Taktakan Health Center work area. This research instrument is a microtoice, which is to measure length/height, a questionnaire containing identity (Name), Characteristics (Age, Education, Parity), complementary feeding practices (Time, Type, Texture, Frequency, Portion). Data analysis used in this study used the SPSS application, which first conducted a univariate analysis test and then continued the bivariate test analysis using the Person ChiSquare test.

RESULT

In this study, univariate analysis was carried out to determine the description of subject characteristics and research variables, the results of which are shown in table 1. And bivariate analysis to determine the relationship between independent variables and dependent variables using the chi-square test, the results of which are shown in table 2.

Table 1. Characteristics, Complementary Feeding, and Percentage of Stunting

Variable	Frequency	Percentage
Age		
≤ 20 years	4	4
> 20-35 years	96	96
Parity		
≤ 4 children	82	82
> 4 children	18	18
Education		
Low	57	57
High	43	43
Timing of complementary feeding		
< 6 months	50	50
≥6 months	50	50
Type of complementary food		
Not suitable	35	35
As per	65	65
Texture of complementary food		
Not suitable	40	40
As per	60	60
Frequency of complementary feeding		
Not suitable	64	64
As per	36	36
Portion of complementary food		
Not suitable	57	57
As per	43	43
Incidence of Stunting		
Stunting	53	53
Not Stunting	47	47

In this study, it was found that subjects were dominated at the age of >20 - 30 years as much as 96%, then for parity the dominance of ≤ 4 children as much as 82%, then for education the dominance was in the low category as much as 57%. This is caused by most mothers living in rural areas so that parental attention, the environment, and low economy are factors in parents not continuing their children's education.

In this study, it was found that the first time giving complementary food was >6 months of age as much as 50%, then for the type of complementary food was dominated by the appropriate category as much as 60%, as well as the texture of complementary food was found to be dominated by the appropriate category as much as 60%, for the frequency of complementary food was found to be dominated by the inappropriate category as much as 64%, as well as the portion of complementary food was found to be dominated by the inappropriate category as much as 57%.

This study analyzed the relationship between the provision of complementary foods and the incidence of stunting in the cilowong village, UPTD puskesmas Taktakan working area. The results of chi-square analysis showed that there was a significant relationship between the timing of complementary feeding, type of complementary feeding, texture of complementary feeding, frequency of complementary feeding, portion of complementary feeding with the incidence of stunting in under-five children ($p=0.000$).

Table 2. Overview of characteristics, Complementary Feeding, and Percentage of Stunting

Variable	Stunting Status	Not Stunting	p-value
Timing of complementary food	< 6 months	36 (68%)	0.000
	≥ 6 months	14 (29.8%)	
Type of complementary food	Not suitable	7 (14.9%)	0.000
	Compliant	40 (85.1%)	
Texture of complementary food	Not suitable	7 (14.9%)	0.000
	Compliant	40 (85.1%)	
Frequency of complementary food	Not suitable	16 (34%)	0.000
	Compliant	31 (66%)	
Portion of complementary food	Not suitable	13 (24.5%)	0.000
	Compliant	34 (74.5%)	

DISCUSSION

Complementary feeding is additional food and fluid given to children aged 6 months 1 day-24 months because breast milk is not sufficient to meet the nutritional needs of children in this age group. Complementary feeding is important between the ages of 6 months 1 day-24 months, as the incidence of failure to thrive, micronutrient deficiencies and infections is highest at this age. Complementary feeding, and the amount of complementary feeding given (Wangiyana et al., 2020)

There are several studies that analyze the relationship between complementary feeding (MP-ASI) and the incidence of stunting. Research related to complementary feeding (MP-ASI) with the incidence of stunting conducted by Wangiyana et al. (2020), found that there was a significant relationship between the relationship between the provision of MP-ASI and the incidence of stunting but for the parameter of providing the texture of MPASI did not have a significant relationship.

Based on the results of this study, there is a significant relationship between the timing of complementary food given less than 6 months with the incidence of stunting ($p=0.000$) in under-five children in the Taktakan Health Center Working Area. Early feeding especially before 4 months may increase gastrointestinal risks, which may lead to micronutrient deficiencies, and susceptibility to digestive disorders, growth disorders, and susceptibility to infectious diseases during the first 2 years of life. Children who do not get age-appropriate complementary foods are prone to diarrhea and are at risk of dehydration. If the incident continues, it will affect growth behavior due to infection which causes loss of appetite, thus impacting on child growth.

Although MP-ASI has been given above 6 months, there is still an incidence of stunting due to several factors, one of which is the quality and diversity of MP-ASI that does not meet proper nutritional needs or is lacking in essential nutrients such as protein, iron, vit A, and other nutrients, limited knowledge and understanding of parents about good MP-ASI provision including the frequency of MP-ASI provision, causing ineffective MP-ASI provision and contributing to stunting.

In this study it was also found that there was a significant relationship between the type of complementary food given to the incidence of stunting ($p=0.000$). This is supported by Nurkomala's research (2019) that the variety of ingredients or types of complementary foods is related to the incidence of stunting, this is in line with Wahyuni's research (2019). The number of types of complementary food illustrates the quality of the complementary food itself, the diversity of complementary food affects the completeness of micro and macro nutrients needed for growth hormones as well as iron, zinc, and calcium. if the child receives the quality of food provided is not according to the standard, then the nutritional adequacy of the under-five cannot be fulfilled and if it happens for a long time, it will cause the under-five to stunting.

The food consumed every day must meet the nutritional needs needed according to the needs of each child, this statement is supported by research conducted by Yudianti et al. (2022), in her research, it was found that the percentage of children who consumed less varied types of food was more (80%) than those who consumed varied types of food, even though this is very important because the nutritional value that is not obtained in one type of food can be fulfilled by other types of food. As the consumption of animal side dishes that are rich in protein, in order for the protein to be well absorbed in the body, vitamins are needed, the source of which comes from vegetables and fruit.

The occurrence of stunting even though the types of complementary feeding are age appropriate can be caused by several factors such as the quality in the types of complementary feeding is still inadequate or lacking in essential nutrients such as protein, Vit A, and other nutrients. Insufficient composition and lack of variety increase the contribution of stunting, the next factor is poor sanitation and hygiene conditions. Contamination to food or drink can increase the risk of infection and digestive disorders that can affect nutrient absorption.

Based on the findings of this study, the results obtained ($p = 0.000$) mean that there is a significant relationship between the texture of complementary foods and the incidence of stunting. Infants who are not given food textures according to their age will be prone to diarrhea, which can indirectly affect their growth, including their linear growth. Providing inappropriate texture of complementary food will complicate the child's digestive process, starting from the process of chewing, swallowing until the food enters the stomach if the provision of inappropriate texture of complementary food is given continuously, it can increase the risk of digestive disorders. If the texture of the food given is not appropriate, it can have several impacts. If the texture of complementary food is too dense, then the child will need more time to chew, this causes the child to eat small amounts in a longer time so that their food intake will be less. On the other hand, if the child is given a food texture that is too liquid, then the risk of feeding difficulties will increase later. In addition, the ability of the baby's gastrointestinal system during development varies, so the texture of food for babies needs to be adjusted according to their age (Wangiyana et al., 2020).

The occurrence of stunting despite the provision of appropriate texture of complementary foods can be due to several other factors such as the diversity of types of complementary foods that do not meet daily nutritional needs and the frequency and portion of complementary foods that do not meet age-appropriate standards, these factors contribute to increasing the risk of stunting. In this study, the results were obtained ($p=0.000$), which means that there is a significant relationship between the frequency of complementary feeding with the incidence of stunting in children under 6-24 months at the Taktakan Community Health Center. This study is supported by research conducted by Wangiyana (2020) which shows that there is a significant relationship between the frequency of complementary food feeding with a 2 times greater risk of stunting in children who are given complementary food with inappropriate frequency. Children who are given complementary foods with a frequency below the maximum limit tend to be more at risk of stunting than children who receive complementary foods with the right frequency (Udoh & Amodu, 2019). The frequency of complementary foods is given according to the stage of development and growth of infants aged 6-24 months.

Age-appropriate frequency of complementary feeding is very important to achieve children's nutritional needs, this statement is supported by Wangiyana (2020) who stated that the frequency of complementary foods for children should be as frequent as possible because children can consume food little by little so that the need for calorie intake and other nutrients can be met. Sufficient or more frequency of complementary foods can fulfill the food consumption and nutrients needed by children according to their age.

The occurrence of stunting even though the frequency of complementary foods is appropriate can be caused by several other factors such as poor quality of complementary foods or unbalanced nutrition so that children's nutritional needs are not met, chronic infections and certain diseases that can affect nutrient absorption and metabolism so that it inhibits child growth, poor environment and sanitation also play a role in the incidence of stunting.

In this study, the results were found ($p=0.000$), which means that there is a significant relationship between the portion of complementary food given at each meal and the incidence of stunting in infants aged 6-24 months. This is in accordance with the research of Udoh and Amodu (2019) that there is a relationship between the provision of COMPLEMENTARY FOODS FOR BREAST MILK and stunting.

According to WHO, the daily amount of food is based on the energy needs of age, the child's gastric capacity, and the energy density of the food. Children need nutritional intake that is appropriate for their age because the older they get, the more nutrients they need (Abeshu et al., 2019). Providing portions of complementary foods that are given according to age greatly affects the adequacy of nutrients needed for child growth. Insufficient food portion sizes in children can cause insufficient energy intake, allowing the body to store energy, which can affect weight gain and linear growth disorders (Rambu Podu & Nuryanto, 2019).

CONCLUSION

There was a significant association between the timing of complementary feeding, type of complementary feeding, texture of complementary feeding, frequency of complementary feeding, and portion of complementary feeding with the incidence of stunting. The occurrence of stunting even though the provision of portions of MP-ASI is appropriate due to several factors, one of which is the quality and variety of portions of MP-ASI is still lacking so that children do not get enough nutrients and also cause children to lack nutrients so as to increase the risk contribution of stunting, economic limitations and food availability can also cause food limitations, which can have an impact on nutritional intake which causes the risk of stunting.

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