

THE EFFECT OF FEEDING TIME IN TODDLERS ON STUNTING IN INDONESIA: SYSTEMATIC REVIEW

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ABSTRACT

Stunting is a disorder of growth and development experienced by children as a long-term manifestation of malnutrition and recurrent infections. Previous research has shown that one of the problems in infant feeding is the cessation of breastfeeding and insufficient breastfeeding. The purpose of this study was to conduct a systematic study on the effects of premature breastfeeding on the incidence of stunting in Indonesia. This study was conducted by systematic review. Research data is sought from several indexing including: PubMed, Science Direct, Web of Science, Springer Link and Cochrane Database. By using the search keywords "complementary feeding AND Stunting", "supplementary feeding AND stunting", "complementary feeding AND children aged 6-24 months AND Stunting", "feeding time AND stunting AND children under 5 years". The results of the study to be selected are in the period 2018-2023. The review reported that 9 out of 10 articles had cited a significant association of premature breastfeeding MP with an increase in stunting incidence with the resulting odds ratio ranging from 1.6 to 8 times.

Keywords: feeding time; stunting; toddler

INTRODUCTION

Stunting is a disorder of growth and development experienced by children due to long-term manifestations of poor nutrition, repeated infections, and inadequate psychosocial stimulation (Widiastity, 2021). Stunting is caused by poor nutritional intake for a long time, generally due to food intake that does not meet nutritional needs (Niga, 2017). The incidence of short toddlers or commonly referred to as stunting is one of the nutritional problems experienced by toddlers in the world today (Alifariki L, 2020). Based on the report, it is estimated that as many as 22.2% or around 150.8 million toddlers in the world are stunted. However, this figure has decreased when compared to the stunting rate in 2000 which was 32.6%. Data on the prevalence of stunting children under five collected by the World Health Organization (WHO) released in 2018 states that Indonesia is included in the third country with the highest prevalence in the South-East Asian Region (50.5%) (Widiastity, 2021).

The PSG survey is held as a monitoring and evaluation of program activities and achievements. Based on the results of PSG in 2015, the prevalence of stunting in Indonesia is 29%. This figure decreased in 2016 to 27.5% (Resti, 2021). However, the prevalence of stunting again increased to 29.6% in 2017 and increased in 2018 to 30.8%, and in 2019 decreased to 27.7% (RI, 2019). Stunting has both short-term and long-term effects. Short-term such as increasing pain and death, impaired motor and sensory development, while long-term such as decreasing quality of life, health and economy, while reduced cognitive ability and mental development are also other impacts on children who are stunted (SJMJ, 2020) The factors of stunting are maternal education, sanitation, clean water, exclusive breast milk, complementary foods, immunization, low birth weight, food intake, health service facilities, family economy (Prakhasita, 2019). Other studies have also established specifically the importance of energy and protein consumption in growth and it is one of the factors that cause stunting. Protein and food function as new tissue builders during the growth

and development of the body, maintaining, repairing and replacing damaged tissues. Children who experience a deficiency in protein intake that lasts a long time even though their energy intake is sufficient will experience stunted height growth (Fitri, 2019).

Previous research has shown that one of the problems in infant feeding is the cessation of breastfeeding and insufficient breastfeeding. WHO recommends exclusive breastfeeding for the first 6 months of life and continued with the introduction of complementary foods by continuing to breastfeed until the age of 2 years. Children who are given MP-ASI too early (<4 months) are at risk of suffering from stunting events (Fitri, 2019). The relationship between the timing of breastfeeding and the incidence of stunting was also reported by (Khasanah, 2016) entitled "The timing of complementary feeding (MP-ASI) is related to the incidence of stunting of children aged 6-23 months in Sedayu District" stating that supplementary feeding too early will result in an almost 3-fold increase in stunting incidence and statistically significant (OR=2,867, 95% CI:1,453-5,656; (p=0.005). Based on this background, researchers are interested in conducting a systematic review of the relationship between the timing of supplementary feeding or complementary foods (MP ASI) to the risk of stunting events in Indonesia.

METHOD

This study was conducted by systematic review using secondary data from the results of previous research (Moher et al. 2015). Research data is sought from several indexing including: PubMed, Science Direct, Web of Science, Springer Link and Cochrane Database. By using the search keywords "complementary feeding AND Stunting", "supplementary feeding AND stunting", "complementary feeding AND children aged 6-24 months AND Stunting", "feeding time AND stunting AND children under 5 years". The results of the study to be selected are in the period 2018-2023. Articles published in English or Indonesian. Published between 2018 – 2023. Have a complete analysis such as adjusted odds ratio / odds ratio, confident interval, and p value. The variable assessed is complementary feeding of breast milk (breast milk) less than 6 months. The outcome or final condition studied is the incidence of stunting.

RESULT AND DISCUSSION

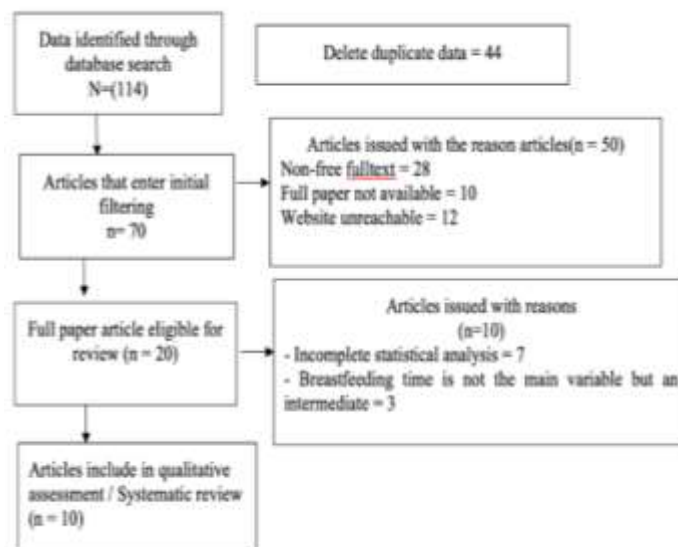


Figure 1. PRISMA Flow Diagram

Based on the results of data search, 114 articles that match keywords in various databases, after applying various inclusion criteria and abstract review, 10 articles were obtained that the author stated worthy of discussion in this systematic review.

Table 1.
Summary Source

Study	Assessed variables	Subject	Research location	Result
(Fitri, 2019)	Too early timing of breastfeeding	30 toddlers (15 stunting cases: 15 controls)	Pekanbaru	Of the 15 stunted toddlers, 13 (86.7%) toddlers received additional food other than breast milk before the age of 6 months (giving MP breast milk too early). The results of the analysis reported a significant relationship between breastfeeding too early and the incidence of stunting p value 0.000.
(Prihutama, 2018)	Too early timing of breastfeeding	104 children aged 2-3 years	Semarang, Central Java	There was a significant relationship between the variables of early breastfeeding and stunting (p = 0.000). In addition, there was an insignificant relationship in the variables of the type of MP-ASI, consistency of MP-ASI, and parental income
(Rangki, 2020)	The timing of giving MP breast milk is too early	108 samples (36 stunting and 72 controls)	Southeast Sulawesi	Breastfeeding too early will increase the likelihood of stunting up to 3 times (OR=3.1; 05%CI:1,327-7,389).
(LARASATI, 2018)	Non-exclusive breastfeeding (MP breastfeeding < 6 months)	58 toddlers	Central Java	A significant relationship was found between non-exclusive breastfeeding and the incidence of stunting in toddlers (p = 0.00) with an odds – ratio value of 3.23
(Siringoringo, 2020)	History of breast milk is not exclusive	69 samples	Semarang, Central Java	There was no effect between early breastfeeding and stunting p value of 0.462
(Hunggumila, 2020)	Time of breastfeeding according to the month	134 toddlers aged 24-36 months	Bali	Infants who have been given supplementary food at the age of 0-2 months will have an 8 times risk of becoming stunted (aOR: 8.0161; 95% CI: 16.05 – 37.80; p value 0.035. While babies who are fed at the age of 5 months are at risk of 4 times suffering from stunting.
(Noorhasanah, 2020)	The timing of breastfeeding is too early	50 people	Banjarmasin	History of partial breastfeeding mostly has a short body as much as 23 (57.5%) while children with a history of exclusive breastfeeding all have a short body as many as 10 people (100%).p value of 0.010, the value is statistically meaningful (p < 0.05) this shows that there is a relationship between history of exclusive breastfeeding and the incidence of stunting.
(Hidayah, 2021)	Premature feeding of MP breast milk	88 toddlers (22 cases and 66 controls)	Semarang, Central Java	The results showed a relationship between a history of giving MP-ASI too early with an increase in the incidence of stunting in toddlers with a value of p = 0.004; OR=4.929 (95% CI 1.745-13.936).
(Angkat, 2018)	The timing of breastfeeding is too early and the	53 stunted children and 53 normal children	Ferrain	The results showed that the type of MP-ASI (OR = 9.15, 95%CI:) the most influential on the incidence of stunting followed by the time of administration of MP-ASI (OR=7.62, 95%CI:0.78-74.6)

Study	Assessed variables	Subject	Research location	Result
(Hanum N. H., 2019)	type of MP breast milk Time of breastfeeding, type, and frequency	97 toddlers	Probolinggo	Toddlers who get MP-ASI before 6 months will increase the likelihood of stunting risk 1.6 times and statistically significant (OR: 1.6; p value 0.012).

Feeding during childhood is important for normal physical and mental growth as well as for health later in life. The International Breastfeeding Journal revealed that "Proper feeding practices early on are essential for normal physical and mental growth, to have normal development, optimal immunity, reduce atopic conditions, and train children in correct eating habits. It is well known that malnutrition and obesity in early childhood are associated with increased morbidity and mortality later in life (Hanum, 2019). In the practice of giving, a mother must pay attention to feeding baduta in terms of time, quality, and quantity. Babies who are exclusively breastfed have much lower morbidity and mortality compared to babies who are not exclusively breastfed. (Rusmil, 2019) (Arsyati, 2019). Based on the results of the review, 9 out of 10 articles have reported a significant relationship from premature breastfeeding to an increase in the incidence of stunting with the resulting odds ratio ranging from 1.6 to 8 times. These results show that giving additional food too early in infants of any type will increase the risk of stunting events at least 1.6 times and a maximum of up to 8 times. The results of this review are in line with a meta-analysis report published by which additional feeding is too early to have a linear relationship with an increased incidence of stunting, especially in middle-income and developing countries. Researchers assume that this is certainly true in Indonesia as a developing country with the average income of its population in the middle category. (Park, 2019)

Premature feeding is associated with stunting through several causalities, including: (1) susceptibility to various diseases because when the baby receives intake other than breast milk, the immunity / immunity received by the baby will decrease. Early breastfeeding risks opening the gate to the entry of various types of germs, especially if MP-ASI is not prepared hygienically. (2) The reaction that arises due to the baby's digestive system is not ready. When MP-ASI is given before the baby's digestive system is ready to receive it, the food cannot be digested properly and can cause various reactions, such as diarrhea, constipation, and flatulence or gas. The baby's body does not yet have complete digestive protein. Various enzymes such as amylase (carbohydrate-digesting enzyme) produced by the pancreas are not sufficiently available when the baby is not yet 6 months old. Similarly, other carbohydrate-digesting enzymes (such as maltase and sucrase) and fat-digesting (lipase). (3) Infants are at risk of suffering from food allergies. Prolonging exclusive breastfeeding reduces the rate of occurrence of food allergies. At the age of 4-6 months the baby's intestines are still "open". At that time antibodies from breast milk still work to coat the baby's digestive organs and provide passive immunity, reducing the occurrence of diseases and allergic reactions before intestinal closure occurs due to the production of antibodies and the baby's own body and intestinal closure occurs when the baby is 6 months old. (Vieira Borba, 2018) (Lee, 2020) (North, 2022)

CONCLUSION

Various disorders of food absorption and the possibility of disease infection in the future make giving MP-ASI too early has a poor prognosis that may be felt in the coming years, one of which is stunting which will be very difficult to handle.

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