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The relationship between exclusive breastfeeding and stunting in toddlers: A literature review

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Abstract

Introduction: Stunting is a chronic malnutrition problem caused by insufficient nutritional intake for a long time due to the provision of food that does not meet nutritional needs. Malnutrition at an early age increases infant and child mortality rates, causes sufferers to get sick easily and have less than optimal body posture as adults. Stunting is a condition when toddlers have a length or height that is less than their average age. This can be measured by length or height <-2 standard deviation of the median standard deviation of child growth from WHO. Many factors cause stunting, one of which is exclusive breastfeeding is also a direct factor causing stunting. ASI (Mother's Milk) is breast milk produced by the mother and contains nutrients needed by the baby for the baby's needs and development. Babies are only given breast milk, without additional fluids such as formula milk, orange juice, honey, tea, water and without additional solid foods such as bananas, papaya, milk porridge, biscuits, rice porridge and tim, for 6 months. The benefits of exclusive breastfeeding for babies include complete nutrition, increasing body resistance, increasing stable mental and emotional intelligence and mature spirituality followed by good social development, easy to digest and absorb, has a composition of fat, carbohydrates, calories, protein and vitamins, protection against infectious diseases, protection against allergies because breast milk contains antibodies, provides intelligence and nerve stimulation, improves health and intelligence optimally.

Method: This study is a literature review sourced from Google Scholar, PUBMED, and Science Direct, with a focus on research published between 2019 and 2024. This study only includes original research articles in English or Indonesian with all required components.

Result and Discussion: From the literature review, 10 studies were found that met the inclusion criteria. This study found a correlation between the relationship between exclusive breastfeeding and the incidence of stunting in toddlers.

Conslusion: Based on research, there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers.

Keywords: Stunting; Exclusive Breastfeeding; Toddlers; Malnutrion; Infant Mortality

1. Introduction

Stunting is a condition of failure to thrive in children under five (under 5 years old) due to chronic malnutrition so that the child is too short for his age. Malnutrition occurs since the baby is in the womb and in the early period after the baby is born however, the condition of stunting only appears after the baby is 2 years old (5). Stunting is a chronic nutritional problem caused by a lack of nutritional intake for a long time, this causes disorders in the future, namely experiencing difficulties in achieving optimal physical and cognitive development (1). The adverse effects resulting from nutritional problems in the near future can interfere with brain development, intelligence, physical growth disorders, and can

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disrupt metabolism in toddlers' bodies. Whereas in the future it will have an impact on the lack of cognitive ability and learning achievement, reduced immunity so that later it will be easily exposed to disease, and raises a high risk of diabetes, obesity, heart and blood vessel disease, cancer, stroke, and even can lead to stroke. cause disability in old age, as well as lead to uncompetitive work quality resulting in low economic productivity (6).

The high rate of stunting and the many factors that cause stunting require interventions that can reduce or prevent the incidence of stunting. One of the preventions that can be done to treat or prevent stunting is to provide exclusive breastfeeding (7). Exclusive breastfeeding is only providing breast milk or breastfeeding purely without any additional formula milk, tea, honey, water, or other foods such as porridge, biscuits, or rice (8). Breast milk plays a very important role in meeting the nutritional needs of toddlers because breast milk can increase the immune system or immunity so that toddlers are not easily affected by infectious diseases. The calcium content in breast milk is very much needed by the body for muscle and skeletal growth which will affect height. However, calcium absorption in breast milk is higher. Supports height growth in toddlers so that toddlers who are given exclusive breastfeeding will have a normal height according to their age and have a low risk of experiencing stunting (9).

This study aims to find out more about the relationship between exclusive breastfeeding and stunting in toddlers. The goal is to improve the understanding of health workers and parents, so that they can anticipate stunting in toddlers. Increasing awareness of this condition is very important to reduce its impact on toddler growth and development.

2. Material and methods

This article is a literature review that examines 10 selected articles based on certain inclusion criteria. The selected articles present original research findings on the relationship between exclusive breastfeeding and stunting in toddlers. Articles were published between 2019 and 2024 in English or Indonesian. Exclusion criteria were applied to all articles discussing the relationship between exclusive breastfeeding and stunting in toddlers using methods other than original research. Articles are sourced from several basic data including Google Scholar, PUBMED, and Science Direct. Each article presented will be analyzed descriptively, which includes the author and year of publication, research location, research method, research subject, and summary of research findings.

3. Results

Ten articles— six in Indonesian and four in English—have been reviewed and analyzed as follows.

Table 1 Results of Review of 10 Articles

No	Author	Research Title	Location	Method	Subject	Result
1.	Aureliyana, T,. & Sakinah, R. (2022)	The Relationship between Exclusive Breastfeeding and The Incidence of Stunting Toddlers	Desa Cemara Wetan Kabupaten Indramayu, Indonesia.	Quantitative research methods with analytical observational research design with a cross-sectional approach.	86 toddlers and mothers of children	Based on the data, it was also found that the majority of children under five (76.7%) were not breastfed for 2 years and had started complementary feeding for < 6 months (62.8%). That there was a significant relationship between exclusive breastfeeding and the incidence of stunting in children under five in Cemara Wetan Village, Indramayu Regency with (p = 0.012, OR = 0.304)
2	Umiyah, A., & Hamidiyah, A. (2020)	Exclusive Breastfeeding With Stunting	Banyuputih Health Center, Indonesia.	Quantitative study with a cross sectional design	274 toddlers in Banyuputih Health Center	The results of the exclusive breastfeeding statistical test obtained a value of P value = 0.025 (P ≤ 0.05), with a degree of significance α (5%), it could be concluded that the alternative hypothesis (Ha) was accepted or the null hypothesis (Ho) is rejected which showe relationship between exclusive breastfeeding and the incidence of stunting. With an OR of 2.451, it meant that toddlers who did not receive exclusive breastfeeding are 2.451 times more likely to be stunted than toddlers who receive exclusive breastfeeding.
3	SJMJ, A., et al. (2020).	Hubungan Pemberian ASI Eksklusif Dengan Kejadian Stunting Pada Balita	Kecamatan Buntu Malangka Kabupaten Mamasa, Indonesia.	Case control study	144 Respondents consisting of 72 case respondents and 72 control respondents, respondents were parents of	Toddlers who were not given exclusive breastfeeding and experienced stunting were 66 (91.7%) respondents. The results of this used chi-square test and odds ratio test. Chi square test results obtained p = 0.000 (0.000 < 0.05), this shows there is correlation of exclusive breastfeeding with the incidence of stunting in children. While in the odds ratio test the value of R = 61

					children who were diagnosed with stunting and non-stunting.	which means that children who are not exclusively breastfed are 61 times more likely to experience stunting than children who are exclusively breastfed.
4	Rifqi, P., et al. (2024).	Hubungan Pemberian ASI Eksklusif Dengan Kejadian Stunting Pada Balita Usia 2-3 Tahun	Desa Balerejo Kecamatan Dempet Kabupaten Dema, Indonesia.	Quantitative with correlational descriptive design and cross sectional approach	53 samples of toddlers aged 2-3 years	Toddlers who did not receive exclusive breastfeeding were 11 (20.8%) toddlers. Toddlers who experienced stunting were 8 (15.1%). A P-value of 0.000 (<0.05) was obtained, which means that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers aged 2-3 years in Balerejo Village.
5	Asprika, M., (2023)	Hubungan Pemberian ASI Eksklusif Dan Sikap Ibu Dengan Kejadian Stunting Pada Balita Usia 24-59 Bulan Di Wilayah Kerja Puskesmas Cecar	Puskesmas Cecar, Indonesia.	Quantitative research methods using a case control research design	Toddlers aged 24-59 months with a total sample of 164 subjects	There were 84 respondents who provided exclusive breastfeeding and 80 respondents did not provide exclusive breastfeeding. In the case group, there were 10 respondents (12.20%) who provided exclusive breastfeeding, 72 respondents (87.80%) who did not provide breastfeeding, while in the control group, there were 74 respondents (90.24%) who provided exclusive breastfeeding and only 8 respondents (09.76%) who did not provide exclusive breastfeeding. So it is known that the p-value is p = 0.000 (<0.05) which statistically there is a relationship between providing exclusive breastfeeding and the incidence of stunting in toddlers in the Puskesmas Cecar.
6	Malonda, A., et al. (2020)	History of Exclusive Breastfeeding and Complementary Feeding as a Risk Factor of Stunting in Children Age 36-59 Months in Coastal Areas	Sitaro Regency, Indonesia.	Descriptive analytic study with cross sectional approach	Children aged 36-59 months, who lived with their mothers in the coastal areas of the Sitaro Regency	The results showed that 67.2% or 137 children were not given exclusive breastfeeding, and found 36.5% or 50 children who experienced stunting. Chi-square statistical test results obtained p value 0.000 shows that there is a significant relationship between the history of exclusive breastfeeding with the incidence of stunting.
7	Sahdani, F., et al. (2021).	Association Between Exclusive Breastfeeding	Sidotopo Wetan Health Center,	Descriptive statistical analysis	141 children aged 24–60 month in	The results showed that the stunting proportion was 54.60%. There was a relationship between exclusive breastfeeding practice and the stunting incidence (p =

		Practice, Taburia Supplementation, and Stunting Prevalance Among Children Aged 24-60 Months In Sidotopo Wetan, Surabaya	Surabaya City, Indonesia.		Sidotopo Wetan Health Center	0.047). Children who did not provide exclusive breastfeeding had a higher risk 1.97 times of stunting.
8	Risnanto (2023)	Hubungan Pemberian ASI Eksklusif Dengan Kejadian Stunting Pada Balita	Desa Kalisapu, Indonesia.	Purposive Sampling	98 toddlers	The chi-square test result (x^2) showed a p- value of 0,004 (<α=0,05) and a calculated x^2hiting=8,144 is greater than the x^2tabel=3,841, which means that there is a significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers in Kalisapu Village.
9	Mawaddah, S., (2019)	Hubungan Pemberian ASI Eksklusif Dengan Kejadian Stunting Pada Balita 24-36 Bulan	Puskesmas Tampang Tumpang	Observasional analitik dengan pendekatan case-control retrospektif atau studi kasus-control retrosfektif	78 toddlers	The results showed that 8,97% of children under five who were exclusively breastfed with stunting and 41% of children who were not exclusively breastfed with stunting, the statistical test results showed p < 0,000 and an OR value of 29,558. There is a significant relationship between exclusive breastfeeding and the incidence of stunting at the age of 24-36 months.
10	Satria, A & Ningsih, M., (2023)	Hubungan PemberianASI Eksklusif Terhadap Kejadian Stunting Pada Balita Usia 24-59 Bulan Di Wilayah Kerja Puskesmas Pejeruk Tahun 2022	Puskesmas Pejeruk	Purposive Sampling	88 toddlers	The results of the analysis of the relationship between exclusive breastfeeding and the incidence of stunting in toddlers 24-59 months in the Pejeruk Health Center Work Area in 2022 with a value (p value = 0.000) < α 0.05. Which shows that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers aged 24-59 in the Pejeruk Health Center Work Area. kerja Puskemas Pejeruk Tahun 2022.

4. Discussion

4.1. The Relationship between Exclusive Breastfeeding and Stunting in Toddlers

Based on a review of 10 articles, it shows a significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers. All toddlers who experience stunting do not receive exclusive breastfeeding.

Research conducted in Cemara Wetan Village shows data that most toddlers (76.7%) did not receive breast milk for 2 years and had started to be given complementary foods for <6 months (62.8%). Regarding the significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers in Cemara Wetan Village, Indramayu Regency with (p = 0.012, OR = 0.304)(10). In line with that, according to Sampe et al also gave the result that there was a significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers with a risk factor value of 61 times (p = 0.000, OR = 61) (9). Likewise, research according to Alifariki et al also found that toddlers who did not have a history of exclusive breastfeeding had a significant effect on the incidence of stunting with a risk factor of 3, 1 time (p<0.05, OR=3.1) (11). Breast milk is an excellent nutrient for optimizing the rate of growth and development of infants compared to formula feeding (12) Breast milk is very necessary for the development of brain function, increasing immunity, accelerating linear growth and development of organ functions of toddlers (13). Problems that often occur are not giving exclusive breastfeeding, being late in exclusive breastfeeding and breastfeeding too long, which is more than 2 years old. According to Muldiasman, the study found that delays in breastfeeding were 1.3 times higher for toddlers suffering from stunting. born to look for the mother's nipple and train the sucking reflex (10).

Likewise, Umiyah & Hamidiyah's research, the results of the chi square statistical test showed that the value of Pvalue = 0.025 (P ≤ 0.05), with a degree of significance α (5%) indicating a relationship between exclusive breastfeeding and the incidence of stunting (14). The better exclusive breastfeeding, which was done by the mother for her child, was linear with the nutritional status of the child. Likewise, the less exclusive breastfeeding, the worse the child's nutritional status (stunting). This study also showed an OR value of 2.451, meaning that children who did not receive exclusive breastfeeding were 2.451 times more likely to be stunted than toddlers who received exclusive breastfeeding. This study was also linear with the theory that exclusive breastfeeding affects changes in nutritional status, namely short nutritional status due to the function of breast milk containing immunoglobulin (15). Toddlers who get full exclusive breastfeeding for 6 months can increase immunity, intelligence and children's development, besides that they can prevent infectious diseases and reduce the risk of nutritional problems. This is because breast milk is the best food for babies because it contains all the nutrients in an ideal ratio and contains immune power. Although there was a significant relationship between exclusive breastfeeding and the incidence of stunting, the quality of exclusive breastfeeding also needs special attention. Several other studies have shown that the total nutritional intake of breastfeeding mothers was lower than the nutritional intake during pregnancy. Even though the nutritional intake of breastfeeding mothers is an important point that needs to be a concern in efforts to overcome stunting because toddlers who receive exclusive breastfeeding do not get other nutritional intake apart from their mother's milk (16).

In the study by Rifqi et al the results of the study showed that 42 (79.2%) toddlers received exclusive breastfeeding and 11 (20.8%) toddlers did not receive exclusive breastfeeding. The prevalence of stunting in toddlers aged 2-3 years in Balerejo Village was 8 toddlers. The results of the Chi-square statistical test obtained a P-value of 0.000 (<0.05) (17). This is in line with the research conducted by Chyntaka & Putri which stated that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers (8). Breast milk is the only food that is very good for babies which is useful for the growth and development of babies. In addition, breast milk also contains colostrum which is useful for increasing children's immunity (18). Breast milk contains lactose which can be useful for increasing calcium absorption so that baby growth will be more optimal, especially height growth and can avoid the risk of stunting. This is because the calcium contained in breast milk is absorbed more quickly by the body compared to formula milk. Babies who are exclusively breastfed will generally have height growth according to their age (19). Research conducted by Latifah et al concluded that breast milk has an influence on the incidence of stunting because breast milk contains antibodies that function to increase the baby's immunity so that they do not get sick easily. The fulfillment of the baby's nutritional needs will be disrupted when sick and can cause balanced nutritional needs so that they are at risk of stunting (20).

5. Conclusion

Based on the review of various studies, exclusive breastfeeding plays a significant role in preventing stunting in toddlers. The studies consistently highlight that toddlers who do not receive exclusive breastfeeding are at a higher risk of

experiencing stunting due to inadequate nutritional intake and compromised immunity. Breast milk provides essential nutrients, antibodies, and colostrum that support optimal growth, development, and immunity, making it superior to formula milk. Moreover, exclusive breastfeeding for six months enhances a child's immune system, cognitive development, and overall growth, including linear growth that helps reduce the risk of stunting. However, the mother's nutritional intake also influences the quality of exclusive breastfeeding, emphasizing the importance of ensuring proper nutrition for breastfeeding mothers. This underscores the need for comprehensive approaches that focus on promoting exclusive breastfeeding and addressing maternal nutrition to combat stunting effectively.All the authors of must disclose the possible conflicts of interest/ Competing Interests they may have with publication of the manuscript or an institution or product that is mentioned in the manuscript and/or is important to the outcome of the study presented. Authors should also disclose conflict of interest with products that compete with those mentioned in their manuscript.

Compliance with ethical standards

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Disclosure of Conflict of interest

There is one finding that contradicts the theory.

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