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THE IMPACT OF COMPLEMENTARY FOOD INTERVENTIONS ON ADOLESCENCE STUNTING PREVENTION: A SYSTEMATIC REVIEW

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ABSTRACT

Introduction: The transition from exclusive breastfeeding to poor complementary food by feeding practices may put infants at higher risk of becoming stunting. This study aims to analyze complementary food interventions in early childhood for stunting prevention.

Method: This systematic review is using 16 journals, and the authors conducted a relevant literature review in various data using the keywords "complementary food, stunting, RCT". Data based on SCOPUS, Ebsco, WOS and Pubmed. The criteria consisted of full text published in criteria were five years limit journal (2017-2022) use article using English and live in lower middle income countries.

Results: In the first 1000 days of beginnings complementary food interventions are effective in preventing stunting. The incorporation of behavior change communication (BCC) education into the care programs offered to mothers and their families should be considered as a methods for gaining the most advantageous results.

Conclusion: There are many options for complementary foods in the first 1000 days of life and can be adapted to the characteristics of the place of residence. The combination of behavior change communication (BC) interventions provided by medical personnel in the community to mothers and families who are directly involved in childcare can optimize stunting prevention interventions.

Keywords: stunting prevention intervention, complementary food

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INTRODUCTION

In general, stunting is defined as a disorder of physical development characterised by a slowing of growth rate and resulting from nutritional imbalances. According to this explanation, the issue of stunting in developing nations such as Indonesia has not been resolved. Stunting is the result of measuring the nutritional status of infants based on the height/age indicator, which characterises the nutritional status as chronic, the problem has been present for an extended period of time due to numerous influencing factors (Ahmed et al., 2017).

There are numerous causes of stunting in infants, and one of them is the mother's factor. The mother's age during pregnancy can be a direct or indirect cause of foetal and toddler growth disorders (Agapova et al., 2018). Malnutrition during preconception, early pregnancy, mental health of the mother, premature birth, IUGR (Intra Uterine Growth Restriction), brief birth spacing, and hypertension are all maternal factors Bengkulu, (2021). The long-term effects of stunting problems can hinder the physical, mental, intellectual, and cognitive development of children due to these underlying causes.

World Health Organization (2020) estimates the prevalence of stunted children worldwide at 22% or 149.2 million. Meanwhile, based on the results of the Indonesian Nutrition Status Survey in 2021, the prevalence rate of stunting in Indonesia is 24.4%. Based on this data, it can be assessed that stunting

cases in Indonesia are still high. This study will focus on analyzing the incidence of stunting in terms of several factors including exclusive breastfeeding, complementary feeding, immunization status, and family characteristics (Kemenkes, 2022).

Lack of exclusive breastfeeding and early complementary feeding can increase the incidence of stunting in children under five. Complementary feeding should be given after the baby is six months old until the baby is one year old. Giving complementary foods to infants less than six months old can cause diarrhea and constipation compared to exclusively breastfed infants. However, late complementary feeding can also cause stunting in children, so proper complementary feeding is needed. This is in line with research conducted Amanda (2021), that the more appropriate the age of complementary feeding for toddlers, the lower the risk of stunting. Furthermore, in this study, the immunization status variable is one of the factors in the incidence of stunting.

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The importance of proper complementary feeding is that one of the biggest potential risks of impaired growth is during the transition from exclusive breastfeeding to complementary feeding. Complementary feeding refers to the provision of food, either manufactured or home-made, which is adapted to complement breast milk or formula, when an infant's nutritional needs are not being met.

METHOD

The literature search was conducted in August-October 2022. The data used in this study are secondary data derived from the results of research conducted by previous researchers and not from direct observation. Secondary data sources were obtained in the form of national and international reputable journal articles with predetermined themes. The literature used was obtained from the Ebsco, Scopus, Proquest, and PubMed databases. The keyword search used to find the article was stunting AND complementary food AND RCT (Table 1).

Based on the results of the literature search, the final results of 16 journals were obtained, which began by searching for references to MesH on Demand Tools using several keywords, namely Stunting AND Complementary Food AND RCT. Several articles were obtained from various database sources accessed by researchers including; scopus, ebsco, pubmed, WOS (Figure 1).

RESULTS

There are many studies related to complementary foods in stunting prevention efforts that are carried out both starting when the mother is pregnant and at the age of 6 months where the age is the start of complementary feeding in children. Research that has been conducted in the Philippines, shows that most or 82.0% of one-year-old babies do not have adequate nutritional intake, and 50.0% of these children do not have adequate micronutrient intake for growth and development Fahmida, (2020). Based on national nutrition survey data, there is a significant decrease in hemoglobin, iron, and zinc concentrations starting at six months of age, which coincides with the start of complementary feeding.

Deviations from recommended complementary feeding will increase the risk of child mortality and morbidity due to malnutrition and susceptibility to infectious diseases). Thus, the appropriate supplementary nutrition provided should be high in energy content and with a balanced protein composition (Stephenson et al., 2017). Nutritional interventions using complementary food have been implemented in many of these studies, including the provision of complementary food made by homemade or fortified production combined with the provision of behavior change communication (BCC) educational interventions on maternal nutrition during pregnancy and prenatal nutrition, as well as standard of care (SOC) education or not in order to maximize stunting prevention in respondents' families. Family support also provides an important indication at the beginning of program introduction (Campbell et al., 2021).

Complementary feeding is formulated to fill gaps in the nutritional intake of children at risk of stunting to support growth and development during the developmental period Kaimila, (2019). In a study conducted in Bangladesh, it was found that the reasons for inadequate complementary feeding were interconnected, including low maternal education, household decision-making mechanisms and customs in the region, including common recipes for children's

Table 1. Criteria PICOS

Criteria	Inclusion	Exclusion
Population	The first 1000 days of life for mothers who remember their HPHT	Having a congenital disease or in acute or chronic malnutrition conditions Mothers who do not remember their HPHT
Intervension	Providing one of the complementary food programs with or without additional programs	Participating in other nutrition intervention programs
Comparison	Control group and treatment group	No comparative factors
Outcome	Z-Score and micronutrient status	There is no outcome
Article of Study & type of publication	Randomized Control and Trial	Article review, cross-sectional
Year of publication	Post 2015	Pre 2015
Language	English	In addition to English

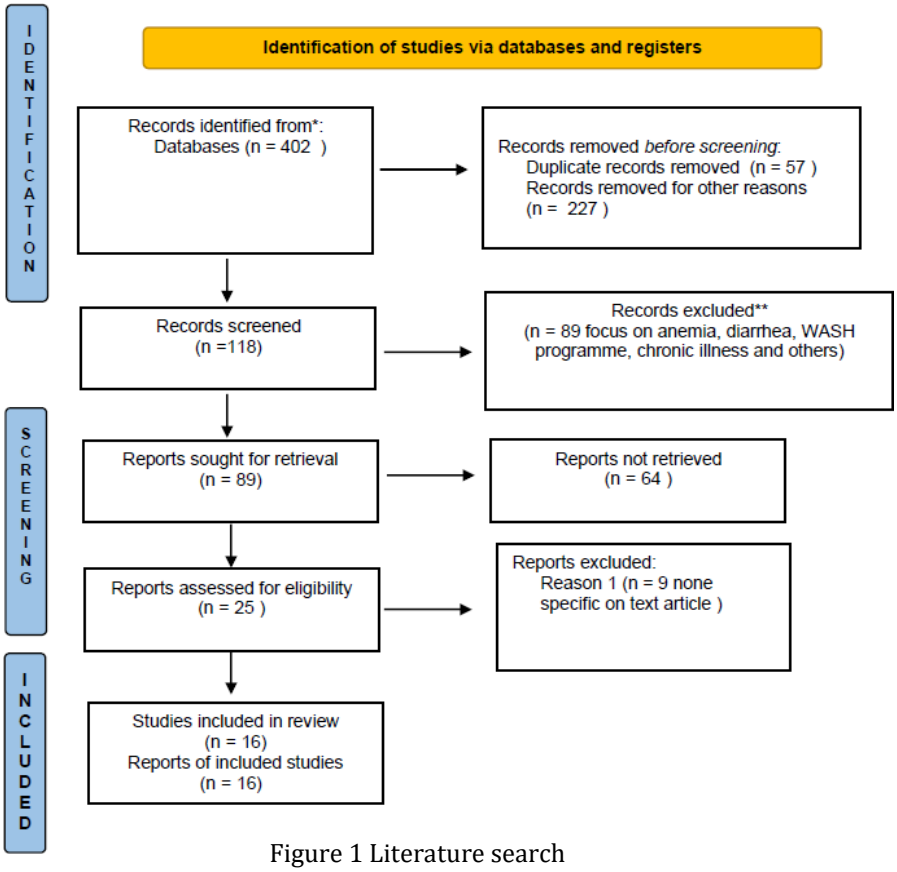

Figure 1 Literature search
http://www.prisma-statement.org/

food. The study González, (2022) , Black, (2018) and Fernald, (2016) also showed that widespread dietary intake in the area was inadequate without complementary foods and with the addition of complementary food supplements, children's nutritional intake came closer to meeting their nutritional needs (Som et al., 2021)

In the aim of optimizing stunting prevention, research by Shivakumar, (2019) and Rahman, (2022) showed that complementary food interventions combined with counseling for mothers 5 times delivered by community health workers resulted in 15.1% improvement of anemia in stunted children when compared to the control group which was only given complementary food in the form of supplements. The researcher concluded that the cause of the higher anemia cure rate among the intervention group was related to increased maternal knowledge about IYCF practices, as well as mothers paying more attention to their children's food intake.

Furthermore, the combined intervention provided to mothers of 6-month-old infants using behaviour change communication (BCC) education was conducted over 9 months to optimize IYCF, which is a global health priority to improve infant growth and health. By providing appropriate information on complementary feeding to increase caregiver feeding awareness, infant growth and morbidity were reduced. This intervention involves not only the mother but all members of the immediate family so that it will be more effective in improving infant growth and health. The results showed that the BCC intervention in IYCF had significantly higher weight gain (MD: 0.35 kg) and length gain (MD: 0.66 cm) than the control group. This combination of interventions also significantly reduced the stunting rate by 10% (Ayalew and Belachew, 2021).

Compared to the control group, infants born to pregnant mothers who had consumed complementary foods during the first 1000 days of life had a significantly lower incidence of stunting and a smaller head circumference. This intervention has the greatest potential among pregnant adolescent mothers who are underweight at the beginning of their pregnancies, and the combination of a low BMI and the young mother's age makes her pregnancy and childbirth extremely precarious (Wang et al., 2022)

DISCUSSION

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CONCLUSION

Based on the results of the review, it can be concluded that most articles show the results of complementary food interventions that are widely carried out for stunting prevention management that can be given to pregnant women and the first 1000 days of life as well as at the age of 6 months when complementary feeding begins. In order to optimize stunting prevention, the combination needs to be combined with behavior change communication education so that the results obtained will be more optimal.

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