

PREVENTION OF STUNTING IN EARLY CHILDHOOD THROUGH EARLY CHILDHOOD EDUCATION (PAUD) INSTITUTION IN INDONESIA

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ABSTRACT

Early childhood development and growth are confronted with various challenges and risks, especially in developing countries, such as Indonesia. One such challenge is the stunting. Stunting is defined as a condition in which an individual has a growth disability, such as a shorter height, compared with individuals of the same age. The establishment of early childhood education (PAUD) programs is an alternative for handling and preventing stunting that occurs during early childhood in Indonesia. This study aims to systematically identify early childhood education programs to reduce the prevalence of stunting in Indonesian. This research was conducted through a systematic literature review. Various references were collected from online databases including namely Harzing's Publish or Perish, Science Direct (sciencedirect.com), Elcit (elicit.org), and Google Scholar (scholar.google.com). The keywords used were "early childhood education," "literature review," "stunting," and "health education" . Based on the results of the literature review, this study found that early childhood education plays an important role in preventing stunting, and that PAUD can provide education to families in these countries so that they can maximally monitor and provide balanced nutrition to their children to avoid stunting, go through a good development period, and become the golden generation to advance their respective countries. Alternative research has been discussed as an effort to prevent one of the biggest problems in improving the QoL (quality of life) of Indonesian children.

Keywords: *early childhood education, literature review, stunting, health education*

1. INTRODUCTION

Children, particularly those in early childhood, face various risks during their growth and development. Children of this age are at risk of infection and even stunting (Mutapi et al., 2021). In addition, in some cases, early childhood is associated with dental and oral problems, such as caries and oral lesions (So et al., 2017). Malnutrition is a global challenge for children (Choge, 2022; Sotiraki et al., 2022). Poverty is also a challenge for child development, which can hinder or interfere with cognitive capacity Poh et al., (2019) as well as physical and emotional health (Morsy & Rothstein, 2019). Other factors, such as premature birth, anemia, lack of access to clean water, and sanitation, also pose challenges to child development, especially for motor and cognitive development (Sania et al., 2019).

In preschool or early childhood, ideally, children have stable development and development and growth both physically and cognitively (Alifariki, 2020). According to Erik Erikson's theory of psychosocial development (1950), at an early age, children develop several core personality characteristics, such as hope, will, and goals that will help them in their later years (Gillibrand et al., 2016). At this stage, children develop

expectations that the world is a safe place, develop autonomy and independence from their parents, and recognize the element of competitiveness in their activities. In addition, early childhood will experience rapid development of motor skills, ranging from being able to hold objects, walking, jumping, standing on and on one leg, and objects with both hands, to behaving better balance (Shaffer & Kipp, 2014). Children also develop language skills quickly, from being able to compose single sentences to compound sentences and their subordinate sentences (Jahja, 2011).

The golden age period in children is the most crucial in vulnerable human development because during this period, the basic growth of children takes place and will affect and determine their development at a later stage. If problems occur during the golden age, such as stunting, the child's development at a later stage will have a negative effect (Chang et al., 2002; Sadida et al., 2022). Problems faced by adults when experiencing stunting in childhood include decreased IQ, the emergence of chronic diseases, poor psychomotor development, and an increased probability of death (Beal et al., 2018; Black et al., 2013; Stewart et al., 2013).

Indonesia is one of 88 developing countries with a high prevalence of stunting, and is among the top five countries with the highest stunting cases (Unicef, 2017). In Indonesia, the problem of stunting is still a major problem that has not been resolved until now. In 2015, 37.8% of children in Indonesia experienced stunting, while in 2018 there was a decrease in stunting cases a percentage of 31% (Balitbangkes, 2018). Meanwhile, the Indonesian Nutrition Status Survey (SSGI) conducted by the Health Research and Development Agency (Balitbangkes) in collaboration with the Central Statistics Agency (BPS) shows that there was a decrease in the stunting rate in 2019 to 27.7% until the latest data was 24.4% in 2021 (Balitbangkes, 2021). In addition, the government is actively making efforts to reduce the stunting rate among toddlers in Indonesia.

In Indonesia, the government has made various efforts to prevent and overcome stunting. Some of these efforts include educating and socializing the community, especially prospective pregnant women; improving diet and parenting patterns for toddlers; improving aspects of sanitation and environmental hygiene; and providing adequate clean water facilities (P2PTM Kemenkes RI, 2018). In addition, the government has also provided immunizations that can be accessed for free through Posyandu and local health center . This is certainly aimed at realizing a nation's generation that has good, healthy, and superior growth and development.

However, the stunting rate in Indonesia is still far from the WHO standard of 20%. In this regard, the government is making efforts through programs aimed at reducing the stunting rate. One of them is implemented by the Population and Family Planning Agency (BKKBN) through the National Action Plan for the Acceleration of Reducing Indonesia's Stunting Rate (RAN PASTI) 2021-2024 (BKKBN, 2022). Through this program, the government aimed to reduce the prevalence of stunting by 14% by 2024. Other efforts were also made by the Southeast Asian Ministers of Education - Regional Center for Food and Nutrition (SEAMEO RECFON) to educate the public. This education was implemented through the preparation of Balanced Nutrition Guidelines Based on Local Food (PGS PL) (Kemdikbud 2022). It aims to provide guidance to the community regarding locally available foods to meet the nutritional intake needs of children. The fulfillment of this nutritional intake is expected to overcome the problem of stunting.

The COVID-19 pandemic can certainly be a challenge for the government to deal with stunting in Indonesia. Nevertheless, the government continues to make optimal efforts to prevent and manage stunting in Indonesia. Some of the efforts made by the government in dealing with stunting during the pandemic include education about balanced nutrition, application-based education, literacy for pregnant women, compiling electronic books and applications as a medium for stunting education, providing nutritious and healthy food, measuring the nutritional and health status of toddlers, counsel about health, and collaborating with influencers to conduct campaigns about stunting (Wibowo et al., 2022)

The early developmental period is the spearhead of an individual's development. If a child can maximize the learning process and development, then the individual can maximize its potential at the next stage of development (Anderson et al., 2003). Several studies have shown a positive relationship between providing early childhood education and cognitive development during school, productivity as employees and citizens, and social costs (Heckman, 2011; Paananen et al., 2015). This study examined the role of early childhood education (PAUD) in reducing stunting cases in Indonesia.

2. METHODS

This chapter discusses the process of searching for journals, the questions that serve as guidelines when conducting journal reviews, and the limitations in taking journals used in literature reviews. Journal searches were conducted using international and national journal provider applications and websites, namely Harzing's Publish or Perish, Science Direct (sciencedirect.com), Elcit (elicit.org), and Google Scholar (scholar.google.com). The keywords used were "early childhood education," "literature review," "malnutrition," "stunting, and "health education"" The articles were selected based on several characteristics. The first type of article characteristic used as a benchmark in the article selection process was the location of the research, which was held in developing countries to suit the research objectives of examining stunting cases in developing countries. Researchers have prioritized publication within the last ten years because it requires updated data from stunting cases in several developing countries.

Table 1. Table 1. Summary of articles on the role of institutions in preschool education to reduce stunting cases.

Study	Country	Methods	Result
(N et al., 2022)	Indonesia	Analytical observational with cross-sectional data design.	The role of PAUD has been successful in improving the nutritional status of students by implementing school feeding, providing nutrition and health education, and monitoring children's growth and development which significantly increased the weight and height of students.
(Huriah et al., 2021)	Indonesia	R&D (<i>Research and Development</i>), ADDIE (<i>Analysis, Design, Development, Implementation, and Evaluations</i>)	The development of audio-visual educational media in PAUD programs can prevent stunting in preschool children with indicators of increased food intake, PHBS hand-washing behavior and nutritional status.
(Kisriyanti & Dewi, 2022)	Indonesia	Literature review	PAUD is a facility for priority intervention in handling stunting by maximizing the delivery of training materials for families who have been affected by

			stunting to improve nutrition and nutrition so that there is a change in lifestyle and balanced nutrition.
(Rohmadh eny, 2018)	Indonesia	Qualitative, literature review.	Optimizing the implementation of PAUD programs based on holistic integration plays an important role in the success of efforts to anticipate and reduce the level of stunting in infants and toddlers in Indonesia.
(Astarani et al., 2020)	Indonesia	Pre-experimental pre post -test.	The education of parents regarding the stunting of children at preschool age is influential in changing behavior and habits, attitudes, and knowledge in providing balanced nutrition to children.
(Berhanu et al., 2018)	Ethiopia	Cross-sectional study	The high rate of stunting among preschool-aged children is strongly influenced by maternal education, maternal nutrition intake, and utilization of family planning services,

			nutrition, and utilization of family planning services. Therefore, preschool programs are an important intervention tool to address chronic nutrition problems among preschool children.
(Mahmood et al., 2022)	Malaysia	Literature review.	Children who are stunted have a huge impact on their cognitive, emotional, and literacy development. Therefore, preschool life is one of the keys to alleviating stunting cases, where the awareness and role of teachers, and parents in providing education about balanced nutrition contribute to preventing stunting in children from an early age.
(Gansaonré et al., 2022)	West Africa	Systematic-review, meta - analysis	One of the impacts of stunting in childhood is that it can hamper children's academic activities such as late entry into school, repeating classes,

			dropping out of school, and low schooling rates in developing countries. Therefore, policymakers need to work harder to prevent stunting and include health issues in education policy by establishing pre-school facilities.
(Migang & Manuntung, 2021)	Indonesia	R&D (research and development),	Teachers create student nutrition report cards to help them monitor nutritional status and screen to prevent stunting.
(Sopiah et al., 2021)	Indonesia	Descriptive qualitative	Early childhood learning management in handling stunting using an inter professional education approach through the management of two main activities, learning in PAUD to develop student character and health and activities to improve student nutrition through the four healthy five perfect program have been proven to have an

			impact on reducing stunting in the areas studied.
(Shapu et al., 2020)	Malaysia	Systematic review using meta-analysis guidelines (PRISMA)	Providing health and nutrition education interventions is effective for improving knowledge, behavior, and reducing stunting cases preventively.
(Oluwafisayo et al., 2022)	Nigeria	Cross-sectional study	Acute malnutrition (stunting) is high among preschool children. So what is being done is to try to educate their families, especially parents, to be aware of their children's health and development, whether or not nutrition is appropriate.
(Peveer & Muhammad, 2016)	Nigeria	Literature Review	Providing balanced nutrition is very important and should be emphasized from early childhood to achieve academic achievement, mental growth, and lifelong health and well-being. Achieving this requires the role of early childhood education involving teachers, parents, administrators

			, and the students themselves.
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3. RESULTS & DISCUSSION

3.1 Definition of PAUD, stunting, and its characteristics factors section

Early childhood education aims to provide facilities for children to develop their personalities (Margaret, 2007). To optimize the development of a child's personality, early childhood education must provide a variety of facilities to support children in developing cognition, language, social-emotional, physical-motor, and art (Wulandari, 2021). Based on the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 18 of 2018 concerning the Provision of Early Childhood Education Services, early childhood is defined as a child with an age range of 0–6 years. In addition, in Permendikbud Ristek RI Number 7 of 2022, early childhood education (PAUD) is carried out to prepare children to be ready to enter further education by providing stimulation to help their growth and development, both spiritually and physically.

Stunting is a condition in which an individual is shorter than individuals of the same age (MoV, 2017; MoH, 2018). Stunting can be referred to as chronic malnutrition (Global Nutrition Report 2018). Malnutrition occurs during the first 1,000 days of a child's life (HPK) (Trihono et al., 2015). Meanwhile, the World Health Organization (WHO) defines stunting as a condition of children under 2 years of age who are malnourished, which is characterized by length or height that is not in accordance with WHO standards for toddler height. According to WHO, children who are stunted are children under five with z-scores of less than -2SD / standard deviation (stunted) and less than -3SD (severely stunted) (WHO, 2008).

Stunting is identified as a condition of failure to thrive in children under the age of five years due to chronic malnutrition, resulting in a shorter height compared to their peers (Kiik & Nuwa, 2020). The comparison is based not only on the same age group but also on sex in a normal population (Oktaviani et al., 2022). Stunting not only inhibits physical growth but also impairs brain development and intelligence, and causes children to become easily ill (Khairani, 2020).

Children with stunting have the following characteristics: a) late signs of puberty; b) at the age of 8-10 years children become more reserved, not making much eye contact; c) stunted physical growth; d) late tooth growth; and e) poor performance on attention and learning memory tests (Rahayu et al., 2018).

3.2 Internal and external factors of stunting

Stunting is caused by many factors that do not only come from within the child. According to the World Health Organization (WHO, 2014), the actual causes of stunting in children are divided into four categories: family and household factors, which are further divided into maternal factors in the form of poor nutrition during the preconception period. Pregnancy, lactation, pregnancy that occurs during adolescence, and mental unpreparedness of parents. Home environmental factors include adequate stimulation

and activity of children, poor sanitation, food availability, and inadequate facilities.

According to Mugianti et al., (2018), parental education plays an important role in stunting. A mother with a lower level of education has a greater chance of having a stunted child than a highly educated mother (Laksono et al., 2022). This is because of the lack of parental knowledge about the aspects of fulfilling nutrition in children. Working mothers are also a factor in stunting children (Mugianti et al., 2018). In addition, exclusive breastfeeding is also one of the factors causing stunting (Komalasari et al., 2020; Ramadhan et al., 2018). Children who exclusively breastfeed have a lower risk of stunting than children who are not exclusively breastfed.

Thus, unemployment is also a factor that affects the occurrence of stunting in children (Ramadhan & Ramadhan, 2018). Clean water quality and household environmental sanitation are also risk factors for stunting in Indonesia (Beal et al., 2018; Torlesse et al., 2016). In addition, other studies have stated that the quality of drinking water sources and poor waste management are likely to cause stunting in children (Irianti et al., 2019). Children in a home environment with better sanitation have a 29% lower chance of stunting (Rah et al., 2020).

Other factors can also become risk factors or even cause stunting. These factors include a lack of adequate nutrition during pregnancy (Halimatunnisa et al., 2020), premature birth (Budiatstutik & Nugraheni, 2018), lack of complementary foods (Bustami & Ampera, 2020), weight at birth (Hanifah et al., 2018), lack of nutritional levels in children (2018), lack of nutritional levels in children (Arbie & Labatjo, 2019), behaviours related to children's diet (food restriction, desire to drink, and pressure to eat) (Dranesia et al., 2019), infectious diseases, and low family income (Ryadinency et al., 2020).

3.3 The role of early childhood education in reducing stunting

The implementation of early childhood development programs through integrated early childhood education (PAUD) institutions provides health education on the composition of nutrients that must be provided to children. Health education is one of the stages of dynamic human behaviour. Most cases of stunting are caused by the ignorance of mothers regarding the nutritional education that must be given to children to achieve healthy and ideal growth and development (Laksono et al., 2022).

According to (Huriah et al., 2021; Kisriyanti & Dewi, 2022; Migang & Manuntung, 2021; N et al., 2022; Rohmadheny, 2018; Shapu et al., 2020), the strategic role of PAUD in preventing stunting can be done with several things, namely: a) the quality or competence of PAUD teachers in terms of knowledge and skills regarding stimulation of early childhood growth and development, for example, providing sensory, motor, and cognitive stimulation by playing (learning by playing and playing for learning) to help children achieve optimal and ideal growth and development potential without pressure; and b) the existence of a curriculum that specifically explains stunting prevention, so that PAUD institutions are obliged to inform how to provide adequate nutrition for children, for example, by making special guidelines (books or videos) about balanced nutritional composition. c) The need to provide evaluation and monitoring by providing a nutrition report

card to facilitate PAUD teachers monitoring of nutritional status and screening. Every 3 months, there is an examination by health experts such as Posyandu or Puskesmas to conduct health screening and provide preventive measures such as teaching children to know and apply the four healthy 5 perfect menus, as well as a counselor for parents and PAUD teachers in terms of providing nutrition. This is considered effective in tackling cases of stunting that occur in early childhood because with the preschool or PAUD learning program, parents, especially mothers, are more aware of and pay more attention to balanced nutrition education to be applied to their children. (Astarani et al., 2020)

4. CONCLUSION

Stunting is a serious health and physical problem for humans in many developing countries worldwide. 88 developing countries currently face stunting problems. The 5th highest country facing stunting is Indonesia. However, in 2021, Indonesia succeeded in reducing its stunting rate from 27.7% to 24.4%. This decrease occurred because of the role of various relevant stakeholders in jointly educating the public to provide an understanding of the urgency of reducing stunting rates, which ideally are in the range of 20% and below, according to the standards set by the World Health Organization (WHO). Several developing countries, including Indonesia, have developed educational efforts to reduce stunting rates. Indonesia has realized this role by making and optimizing the role of early childhood education institutions as part of a holistic effort to prevent and intervene in reducing stunting rates by providing parents with sufficient knowledge about the impact of stunting and providing balanced nutrition based on four healthy five perfect schools. Ethiopia, Malaysia, and West Africa have begun to establish and organize preschool facilities that are similar to PAUD in the Indonesian context to provide education to families in these countries so that they can maximally monitor and provide balanced nutrition to their children to avoid stunting so that they can go through a good development period and become the golden generation to advance their respective countries.

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