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Implementation of Stunting Prevention Program in Indonesia: Literature Review

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ABSTRACT

Introduction: The health problem of stunting is still a crucial problem in various regions of the world. The reduction of stunting is one of the goals of the Sustainable Development Goal (SDG) target where in 2030 the expected target is 89 million people, but in fact, there is no maximum progress in achieving the World Health Assembly (WHA) global nutrition target in 2025. Various studies have been conducted out there that provide comprehensive facts related to various kinds of programs or methods in reducing the prevalence of stunting that can be taken into consideration by the government in making new policies related to stunting prevention.

Objective: This study aims to identify the various implementations of stunting prevention interventions in Indonesia.

Method: The research method uses a scoping review with the PRISMA approach. Literature research through three databases, namely PubMed, ScienceDirect, and Scopus. The inclusion criteria for this study were articles published from 2017 to 2023, articles that had free access and full text, research locations in Indonesia, and not systematic review and/or meta-analysis articles.

Result: The search results obtained 13 final articles that discuss variations in interventions in stunting prevention. The results of the review of 13 articles found that effective prevention of stunting can be done by various methods, such as providing education, counseling, therapeutic group therapy, practical demonstrations, and home visits through professional collaboration between health workers and health cadres to pregnant women and mothers with children less than five years old, as well as premarital education classes for prospective couples.

Conclusion: Implementation of effective stunting prevention interventions should be multisectoral and include family planning, premarital couples, and women with early pregnancies as the main target focus for stunting prevention.

Keywords: Stunting; Stunting Preventions; Stunting Program; Indonesia

INTRODUCTION

The health problem of stunting is still a crucial problem, stunting is a condition where a child's height is shorter than the standard height of other children of the same age based on anthropometric standards of nutritional status assessment [1]. Stunting is a condition of impaired child health and development caused by malnutrition in infants that occurs from pregnancy until they are less than two years old. Children who suffer from stunting may never reach their full height and their brains may never develop to their full cognitive potential [2].

Based on data from the World Health Organization (WHO) in 2022, it is known that as many as 148.1 million children aged less than five years (22.3%) are stunted, where stunting is most commonly found in Asian (52%) and African (43%) countries. Although the incidence of stunting has continued to decline every year since 2000 until 2022, faster progress is still needed to achieve the 2030 target. Furthermore, the Joint Malnutrition Estimates (JME) released in 2023 showed a lack of progress towards achieving the World Health Assembly (WHA) global nutrition target of 2025 and the two Sustainable Development Goal (SDG) targets of 2030. Only about one-third of countries are on track to halve the number of stunted children in accordance with the Sustainable Development Goal (SDG) targets by 2030, with an expected stunting incidence target of 89 million by 2030 [3].

The prevalence of stunting in Southeast Asia based on UNICEF, WHO, and World Bank Group data in the 2023 edition of the Joint Malnutrition Estimates (JME) is 26.4% or as many as 14.4 million children under the age of five are stunted. Indonesia is the country with the second highest prevalence of stunting in the Southeast Asia region, with 31% of the 14.4 million children under the age of five being stunted. Child stunting is a serious problem because it is closely related to several disease risks, high child mortality, early obesity, non-communicable diseases, and decreased productivity [4]. Malnutrition can cause stunting in children, this can be influenced by various factors, such as poverty or family economic status, climate change, social factors, the impact of the COVID-19 pandemic, availability of clean water, knowledge of pregnant women, parenting patterns, exclusive breastfeeding, complementary feeding, mineral and protein intake, genetics, and the biggest factor that greatly impacts the incidence of stunting is the condition of the mother due to early marriage, where the age of the pregnant mother is at a risky age, namely when the mother's reproductive organs are still not fully mature (aged <20 years) [5].

Due to the various factors that can cause stunting, all forms of malnutrition can be prevented. To suppress and stop the increase in stunting prevalence rates, creativity and innovation regarding stunting prevention and control programs are needed. In carrying out the implementation of stunting prevention and control interventions, of course, the government as a policyholder cannot only rely on one program from the results of one study, because in fact in Indonesia there are now many researchers who conduct research experiments in various kinds of efforts or methods that focus on stunting prevention and control. Therefore, the results of this study were conducted to *review* the results of research from various researchers focusing on stunting prevention programs which can later be used as a reference and consideration in creating a more appropriate, effective, and efficient stunting prevention and control program.

METHOD

The research method used in this study is a scoping review with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method approach which consists of four stages, namely; identification, screening, eligibility, and final article (include). The databases used for article searches are PubMed, ScienceDirect, and Scopus. The keywords used in this article search were arranged based on PICO which focused on several main aspects; stunting program, stunting prevention, and Indonesia. The inclusion criteria applied in this study consist of; (1) articles that have been published within 7 years, starting from 2017 to 2023, (2) articles that use Indonesian and English language, (3) articles that have free access, (4) articles that have research locations in Indonesia, and (5) the population is a recipient and/or provider of stunting prevention services. Then for the exclusion criteria applied in the preparation of this study include; (1) articles that have been published less than 2017, (2) articles that are case series, case reports, systematic reviews, and/or meta-analyses, (3) paid articles, (4) articles that have research locations not in Indonesia, (5) articles prepared other than using Indonesian and English language, and (6) articles that do not discuss stunting prevention interventions and/or programs. Articles that have passed and qualified as final articles will be analyzed using descriptive analysis techniques.

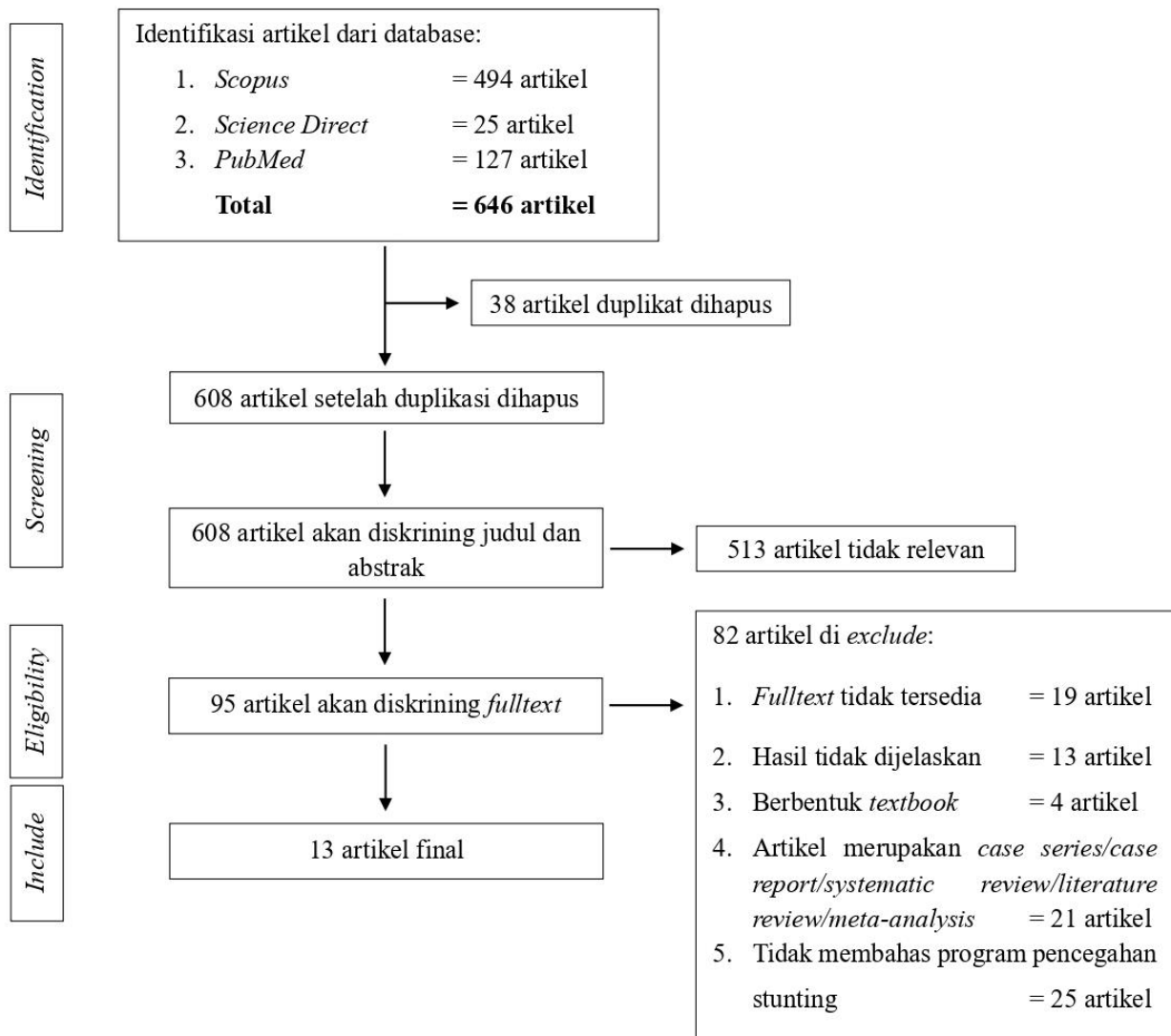


Figure 1. PRISMA diagram

RESULTS

Based on the search results on the databases used (Scopus, ScienceDirect, and PubMed) with the use of keywords and inclusion criteria that have been determined, the results obtained are 13 final articles that will be discussed in this study (Table 1), which consist of one qualitative research article, three pre-experiment research articles, seven quasi-experiment research articles, one true-experiment research article, and two randomized controlled trial (RCT) research articles. From the results of the review of all articles, it was found that several interventions or programs were carried out to prevent and reduce the incidence of stunting, including health education on nutrition and supplementary feeding for infants and children, therapeutic group therapy, counseling and counseling for mothers, cadres, and premarital couples, as well as home visit-based parenting practices.

Table 1. Article Summary of Journal Search Results

No.	Author	Title	Study Design	Intervention/ Program	Result
1.	Siswati et al., (2022)	Effect of a Short Course on Improving the Cadres' Knowledge in the Context of Reducing Stunting through Home Visits in Yogyakarta, Indonesia	Pre-Experiment with one-group pre-test and post-test	Short course for health cadres	There was an increase in cadre knowledge about monitoring child growth and development, child development, and infant and toddler feeding. Then the short course provided was able to increase self-efficacy, self-confidence, and the ability of cadres to assist parents and children with stunting through home visits.

2.	Muhamad et al., (2023)	Preliminary Study: The Effectiveness of Nutrition Education Intervention Targetting Short-Statured Pregnant Woman to Prevent Gestational Stunting	Quasi-Experiment	Nutrition education	The results showed that nutrition education by trained cadres significantly improved mothers' knowledge, attitudes, and actions regarding pregnancy care (including accessing pregnancy health services) and nutritional intake. Nutrition education for mothers involving trained cadres is a more effective way to prevent stunting through a sensitive approach.
3.	Oktaviana et al., (2022)	Effectiveness of Health Education and Infant Therapeutic Group Therapy on Baby Aged 0 – 6 Months to Prevent Stunting Risk Factors: Maternal Depression	Quasi-Experiment	Health education and therapeutic group therapy for mothers of infants 0 – 6 months old	There were significant changes in the intervention group after being given health education and therapeutic group therapy on postpartum depression, as one of the risk factors for stunting. Health education and therapeutic group therapy can improve the mental health of mothers and babies.
4.	Siswati et al., (2022)	Impact on an Integrative Nutrition Package Through Home Visit on Maternal and Children Outcome: Finding from Locus Stunting in Yogyakarta, Indonesia	True Experimental with pre-test post-test control group	Integrative nutrition package	The impact of the integrative nutrition package intervention consisting of health education and counseling on mothers' knowledge and practices regarding child growth, child development, and infant and young child feeding showed a consistently significant improvement during the follow-up period compared to the control group.
5.	Maryati et al., (2022)	The Effect of Interactive Education Program in Preventing Stunting for Mothers with Children Under 5 Years of Age in Indonesia: A Randomized Controlled Trial	Randomized Controlled Trial	An interactive educational program that includes parenting practices for mothers	There was a significant impact of the parenting program on disease, and as children aged, the risk of stunting decreased in all categories, and dietary diversity and more varied dietary practices increased, especially in the intervention group compared to the control group, with the magnitude of the impact on dietary diversity ranging from 0.30 to 0.53.
6.	Siregar et al., (2023)	The Effect of Pregnant Mother Assistance on Stunting Prevention Behaviour	Pre-Experiment with one-group pre-test and post-test	Maternal assistance (education and counseling to pregnant women)	There is a significant influence between assistance with knowledge and attitudes of pregnant women regarding stunting prevention. Maternal assistance in the form of health education and counseling is also able to increase the average score of knowledge, attitudes, and actions related to stunting prevention in pregnant women.
7.	Astuti et al., (2021)	The Effectiveness of the Interprofessional Collaboration (IPC) Program on the Attitude of Mothers and Health Cadres on Stunting at Puskesmas Karanganom Klaten Central Java Republic of Indonesia	Quasi-Experimental	Interprofessional collaboration program	There were differences in the attitudes of mothers and health cadres before and after the program was implemented, with the average results showing that the attitudes of mothers and health cadres towards stunting had increased. Inter-professional collaboration is effective in improving the attitudes of mothers and health cadres towards stunting.
8.	Tampake et al., (2021)	The Effectiveness of Training on Improving the Ability of Health	Quasi-experimental (non-randomized)	Health cadres training and education	The results of the training showed that before and after the intervention there were significant differences in the knowledge, attitudes, and skills of health cadres in early

		Cadres in Early Detection of Stunting in Toddlers	pre-test and post-test only control group)		detection and risk factors for stunting in children. The knowledge, attitudes, and skills of cadres have increased every week, so this shows that training and education for health cadres is effective in preventing stunting.
9.	Sirajuddin et al., (2021)	The Intervention of Maternal Nutrition Literacy Has the Potential to Prevent Childhood Stunting: Randomized Control Trials	Randomized Controlled Trial	Nutrition literacy (education, practice, and home visits)	The results of the maternal nutrition literacy intervention showed that there were changes in the nutrition status of mothers and children, and there was a significant decrease in the distribution of stunting in the intervention group, from 23.3% to 14%.
10.	Huriah et al., (2023)	Effect of Stunting Prevention Education Program Through Instagram on Literacy and Attitude of Pre-Marital Couples	Quasi-experimental (pre-test and post-test only control group)	Premarital education through Instagram	After receiving a premarital education program through Instagram, literacy and attitudes in premarital couples regarding stunting prevention have increased significantly.
11.	Prasetyanti & Fitriasnani (2020)	The Influence of Calender of Health As A Prevention of Stunting In Pre-Marriage Couples	Pre-Experiment	Health education using health calendar media	Providing health education using health calendar media has a significant effect on increasing knowledge and attitudes in premarital couples.
12.	Zubaeda et al., (2020)	Effect of The First 1000 Days of Life Module For Premarital Women Against Knowledge and Attitudes to Prevent Stunting	Quasi-experimental (pre-test and post-test only control group)	Educational classes and premarital modules	Providing premarital classes and modules affects increasing knowledge and attitudes in premarital women toward stunting prevention. Providing classes and modules has a more significant effect than premarital classes alone.
13.	Huriah et al., (2022)	Pre-Marital Education (PME) Program Through Online Media to Improve Behavior on Stunting Prevention	Quasi-Experiment	Premarital education through online media Instagram	Premarital education through online media increases the behavior of premarital couples in preventing stunting.

DISCUSSION

Stunting Prevention Efforts that Focus on Mothers as the Target of Intervention

Stunting is a chronic nutritional problem that can have a significant impact on children's growth and development, such as impaired physical growth, impaired brain development, delayed motor, cognitive, and verbal development, increased risk of infection and illness, and death. Stunting is caused by a lack of nutrition, unbalanced nutritional needs, and inappropriate feeding in children that has occurred gradually over a long time [6]. The problem of stunting can be caused by various factors, one of the crucial factors for stunting is the lack of nutritional intake during the period of the first 1000 days of birth (HPK), where the first 1000 days of birth is a golden period in child growth and development starting from conception in the womb until the child is two years old [7]. One of the factors in overcoming the problem of nutritional status in children is to increase maternal knowledge about balanced nutrition, where increasing maternal knowledge will affect maternal attitudes and behavior in parenting, choosing a balanced menu, good feeding practices, and improving or maintaining health.

Increasing knowledge of mothers can be done through health education. Nutrition education provided to mothers will provide an appropriate understanding of the nutritional status and intake and change maternal behavior towards improving or maintaining maternal and child health. Based on the review of all articles, six articles were obtained that discussed nutrition education programs for mothers in overcoming stunting. Based on the results of research conducted by Siregar et al., increasing the knowledge of pregnant women can be facilitated by comprehensive support, namely maternal assistance carried out by health workers every time the mother visits a health facility. Maternal assistance is assistance specifically designed for pregnant women by covering a variety of activities, including education, nutritional guidance, providing care and encouragement, providing advice and

solutions, offering services, and collaborating to empower pregnant women. Maternal mentoring has a significant impact on knowledge, attitudes, and actions regarding stunting prevention behaviors [8]. Increased knowledge of pregnant women, especially regarding nutritional knowledge, has an important impact on improving nutritional perceptions and behaviors.

Health providers also need to highlight the importance of promoting recommendations on dietary diversity for children, where changing feeding practices through educational interventions delivered by trained health workers can be part of routine preventive care whenever pregnant women and mothers of children less than five years old visit health facilities. The interactive education program could model a new approach to stunting prevention in Indonesia, having been developed based on the supplementary nutrition guidelines. The creative education program is health education that covers parenting practices related to nutrition education, parenting issues, child development, family well-being, diet (including responsive foods, varied food intake with animal foods, washing before eating and after defecation, and urination), communication skills, and play stimulation [9]. The results showed that the interactive education program was able to have a significant impact on changes in maternal attitudes and behavior regarding dietary diversity and more varied dietary practices, child growth and development, and increased child length with age, thus proving a reduced risk of stunting. The results of this study can provide an evidence base for health service policy improvements in community-wide prevention programs and generally provide training programs for the entire community through first-line health services.

The potential for stunting prevention can be maximized if various appropriate intervention efforts can be made. Solid feeding interventions through various means of micronutrient supplements or other feeding programs are highly recommended. To improve mothers' knowledge about exclusive breastfeeding and complementary feeding, breastfeeding education and practice are needed. Providing health education and practice simulation to mothers can not only be done in health services, but can also be done through other means, one of which is by conducting home visits. Research conducted by Sirajuddin et al., on maternal nutritional literacy focused on the mother's ability to breastfeed, hygiene and care activities with interventions in the form of classroom education on the basic principles of breastfeeding and complementary feeding, as well as simulations of breastfeeding and complementary feeding practices conducted through home visits for seven months. The results of the maternal nutrition literacy intervention showed that there were changes in the nutritional status of mothers and children and a decrease in the distribution of stunting from 23.3% to 14%. This shows that complementary feeding can improve children's nutrition and growth, so the maternal nutrition literacy intervention can be used as a way to reduce stunting in children aged 0-6 months [10].

Risk factors for stunting in children do not only come from the nutritional status of mothers and children, but maternal mental health also contributes greatly to the risk of stunting. The incidence of postpartum depression in mothers can be associated with stunting, this is because mothers who are depressed will usually refuse to breastfeed their babies, are less responsive to baby signals, and tend not to listen to the advice of health workers or their families. When the mother is depressed, the mother will neglect her health, her baby's health, as well as her baby's development. As a result, the child does not receive nutrition and is at risk of stunting. In addressing these problems, health education, discussions, and other interventions need to be carried out. In line with the results of research conducted by Oktaviana et al., providing education about stunting, nutrition, parenting, maternal depression, and therapeutic group therapy can reduce postpartum depression in mothers. Efforts to reduce the level of maternal depression are carried out by providing health education and discussion, as well as therapeutic group therapy. Therapeutic group therapy is a therapeutic group that allows members to share experiences, help each other, find solutions, and improve their ability to meet the health and development needs of infants [11].

Strengthening Stunting Prevention Through Health Cadres

In addition to the participation of health workers, health cadres have an important role in providing information related to optimal nutrition in preventing stunting and identifying risk factors for stunting. One form of effort to improve the ability of health cadres in early detection of stunting and risk factors can be done by providing training to health cadres. In a study conducted by Tampake et al., it was found that the knowledge, attitudes, and skills of health cadres in early detection and risk factors for stunting increased significantly after training and practical demonstrations [12]. The results of this study are linear with research conducted by Siswati et al., where health cadres were given short courses in the form of health education and simulation practices regarding child growth, child development, and feeding in infants and toddlers. The results of the analysis showed that the short course was able to increase the knowledge and understanding of cadres in implementing the knowledge gained from the short course through repeated home visits to the homes of mothers with infants and toddlers. In addition, the short course also improved the effective attitudes, perceived effectiveness, and self-efficacy of the health cadres [13].

Any training provided to health volunteers must be supported by direct implementation in the target population to increase the positive impact and improve the effectiveness of health programs, but creativity and innovation are

needed to create greater opportunities to reduce the prevalence of stunting in Indonesia. The interprofessional collaboration program is a program consisting of five health professions, namely doctors, nurses, midwives, nutrition, and environmental health that focuses on increasing community knowledge, especially among mothers with children under five and health cadres by providing health education or counseling on stunting according to their respective competencies and authorities [14]. Through the interprofessional collaboration program, it was found that there was a significant influence on the knowledge and attitudes of mothers and health cadres regarding stunting and child nutrition. The interprofessional collaboration program has the principle of increasing cooperation between health professionals so that every health worker has the same perception and concern about stunting. The same understanding and concern can help the community assess and give opinions about stunting to change people's perceptions or attitudes.

Health cadres are community institutions that have a major role in guiding and accompanying mothers under five in encouraging early breastfeeding initiation and promoting exclusive breastfeeding. Providing education and empowering pregnant women through cadre assistance and providing information about pregnancy services, available services, and providing necessary actions are also the roles of cadres. The implementation of health cadres based on their roles had a significant impact on improving knowledge, attitudes, pregnancy care actions, and knowledge of nutritional intake among pregnant women and mothers with children aged 0-6 months [15]. In line with research conducted by Siswati et al., the provision of an integrative nutrition package consisting of health education, nutritious feeding, and counseling conducted by health cadres to pregnant women and children is proven to be able to improve maternal knowledge and practices regarding child growth and development, child development, as well as increasing height, weight, and developmental scores in children. Home visits by health cadres can provide opportunities for greater interaction between cadres and mothers of children under five and can bridge the gap between ignorance and mistakes in maternal parenting practices on the health of children under five [16].

Premarital Education as Early Prevention in Reducing Stunting

Stunting prevention interventions are not only carried out for pregnant women and mothers with stunted children, but preparing a quality generation starts before pregnancy, starting from the first 1000 days of life, which is the most critical period and the best period (window of opportunity) for children's physical and cognitive development to prevent and improve stunting conditions. The premarital phase is the right phase to prepare themselves physically, psychologically, and socially. Premarital couples must prepare their physiology and psychology to understand the world of marriage, including all the possibilities in building a household. Premarital education plays an important role in increasing the knowledge of prospective brides about premarital health because with a sufficient understanding of premarital health, prospective brides can live a safe and healthy household life. One of the appropriate educational media that can be used as a means of self-learning for premarital women regarding the 1000 HPK period is through the provision of modules. Providing 1000 HPK modules and premarital classes has been proven effective in increasing the knowledge and attitudes of premarital couples regarding stunting prevention efforts [17]. The use of modules allows premarital couples to be more active in self-study at home, practice, and evaluate for themselves the extent of their ability to answer questions about stunting prevention efforts. In line with Prasetyanti and Fritriasnani's research on stunting prevention, where the Communication, Information, and Education (IEC) method was carried out through calendar media. Through calendar media, the level of knowledge in premarital couples has increased significantly, besides that there is a more positive attitude change regarding stunting prevention efforts in premarital couples. The use of health calendars can provide convenience in increasing knowledge and attitudes because it contains many pictures and writings that are easy to digest and easy to understand which can be read at any time [18].

Another effort to increase knowledge, attitudes, and motivation to change the behavior of premarital couples regarding stunting prevention is the use of social media, one of which is Instagram. Along with technological developments, social media as an educational medium is the right choice because it can facilitate the dissemination of information and access to health information management and can reach many targets that are not limited by space and time. The delivery of information through social media is also proven to increase one's knowledge, one of which is through the Instagram application. In a study conducted by Huriah et al., regarding the provision of premarital education using poster and video media through the Instagram application, it was proven that it could increase the motivation for behavior change of premarital couples regarding stunting prevention efforts [19]. These results are linear with Huriah et al., research, where the provision of premarital education programs through Instagram can improve the literacy and attitudes of premarital couples regarding stunting prevention. Providing education through social media that contains suggestive but credible messages is very important and must be done by premarital couples before entering pregnancy because the information provided will support one's beliefs and influence attitudes toward stunting prevention [20].

CONCLUSION

The review of all articles in this study concluded that stunting prevention can be effectively carried out by various methods, ranging from providing education, counseling, therapeutic group therapy, practical demonstrations, and home visits to pregnant women and mothers with children less than five years old, as well as premarital education classes to prospective couples through various parties such as health workers and community empowerment, such as health cadres. This is evidenced by increased knowledge, behavioral changes, and more positive attitudes as well as increased self-efficacy related to nutritional preparation and status, child development, and physical and psychological health in mothers, children, health cadres, and prospective brides. It is important to emphasize that nutrition intervention programs to prevent stunting should not only focus on pregnant women and mothers with children less than five years old, but should be focused from adolescence (preconception period) to the first 1000 days of life because this is the most critical and best period (window of opportunity) for the physical and cognitive development of prospective mothers and children to prevent and improve stunting conditions.

SUGGESTION

The expansion of nutrition programs in preventing stunting can be adapted from various studies that have been conducted by adopting various methods that have been proven effective in preventing and reducing stunting rates. In addition, the expansion of stunting programs must be carried out in an integrated and multisectoral manner by including family planning, premarital couples, adolescent women, and women with early pregnancies into the expansion of stunting program policies which will increase women's exposure and awareness of stunting prevention. In addition, collaboration with health offices and health centers throughout Indonesia is needed to incorporate health education on stunting, nutrition, parenting, maternal depression, therapeutic group therapy, and premarital education into posyandu programs as an early promotive and preventive effort against stunting in the hope that this collaborative action will continue to improve the physical and psychological health of mothers and children.

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