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Review Article

Functions of Agrarian Families in the Prevention of Stunting: A Literature Review

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Abstract

Aims: This research aims to identify factors related to the functions of agrarian families in rural areas that can contribute to the prevention of stunting.

Methods: This study employs a literature review design with keywords "family" "agriculture or rural" and "stunting." The selection of articles follows the PRISMA approach. Articles were selected using three search engines: PubMed, Sage Journals, and Google Scholar.

Results: This review summarizes eighteen articles. Nine articles discuss income and economic limitations within a family, ten articles explore food practices and dietary diversity (protein sources), three articles examine family size, four articles address maternal education and knowledge, three articles focus on exclusive breastfeeding, and two articles discuss parenting styles and early marriage culture, both considered influential in stunting within agrarian families in rural areas.

Conclusion: Results Optimizable family functions in stunting prevention include economic, healthcare, reproductive, and socialization functions. Affective functions were not consistently found in the reviewed articles, possibly due to the limited use of three search engines by the researchers. Future researchers are encouraged to explore similar research themes using other journal search engines to enrich the study.

Keywords:

Affective Function, Agriculture, Economic Function, Family, Stunting, Reproductive Function, Socialization Functions

INTRODUCTION

Childhood stunting is the most common form of global malnutrition and remains a significant issue in developing countries (1,2). In 2020, approximately 140 million children under the age of 5 in developing countries were recorded as experiencing stunting (3). In Indonesia, the prevalence of stunting in children was 21.6% in 2022, with a targeted reduction to 14% by 2024 (4).

Stunting is the result of chronic nutritional deficiencies and is a major concern for rural children (5). Suboptimal feeding practices during infancy and a high burden of

infectious diseases further exacerbate poor child growth (6). The long-term impacts of stunting affect cognitive abilities and locomotor skills in the brain compared to non-stunted children(2,6,7). Children experiencing stunting are at a greater risk of morbidity and mortality (8).

In Indonesia, most of the population work in the agricultural sector (9). Consequently, many families rely on agriculture as their primary source of income. Families play a crucial role in influencing growth patterns and are essential in providing nutrition for children (2,10). Family participation, functions, and support in providing nutritious food, as well as the

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socioeconomic status of the family, significantly influence the nutritional quality of children and health issues; these rely on the roles of parents and each family member (2). Given this background, the families must take actions to achieve a healthy condition, including optimizing family functions. Therefore, the objective of this study is to identify factors related to the functions of agrarian families in rural areas that can contribute to the prevention of stunting.

METHODS

This research employs the literature review design. Article searches were conducted using PubMed, Sage Journals, and Google

Scholar with the keywords family, agriculture, rural, stunting. Articles search using keywords and boolean operators (AND, OR NOT, or AND NOT). The study selection process followed the PRISMA approach. JBI assessment tool was utilized for article evaluation. Inclusion criteria for this research were: 1) nationally or internationally accredited reputable articles, 2) published after 2019, 3) mothers and children or families in agricultural or rural areas, and 4) stunted children. Family types and family size were also considered. Exclusion criteria for this study were: 1) literature reviews, 2) articles published before 2019, and 3) stunting in urban areas.

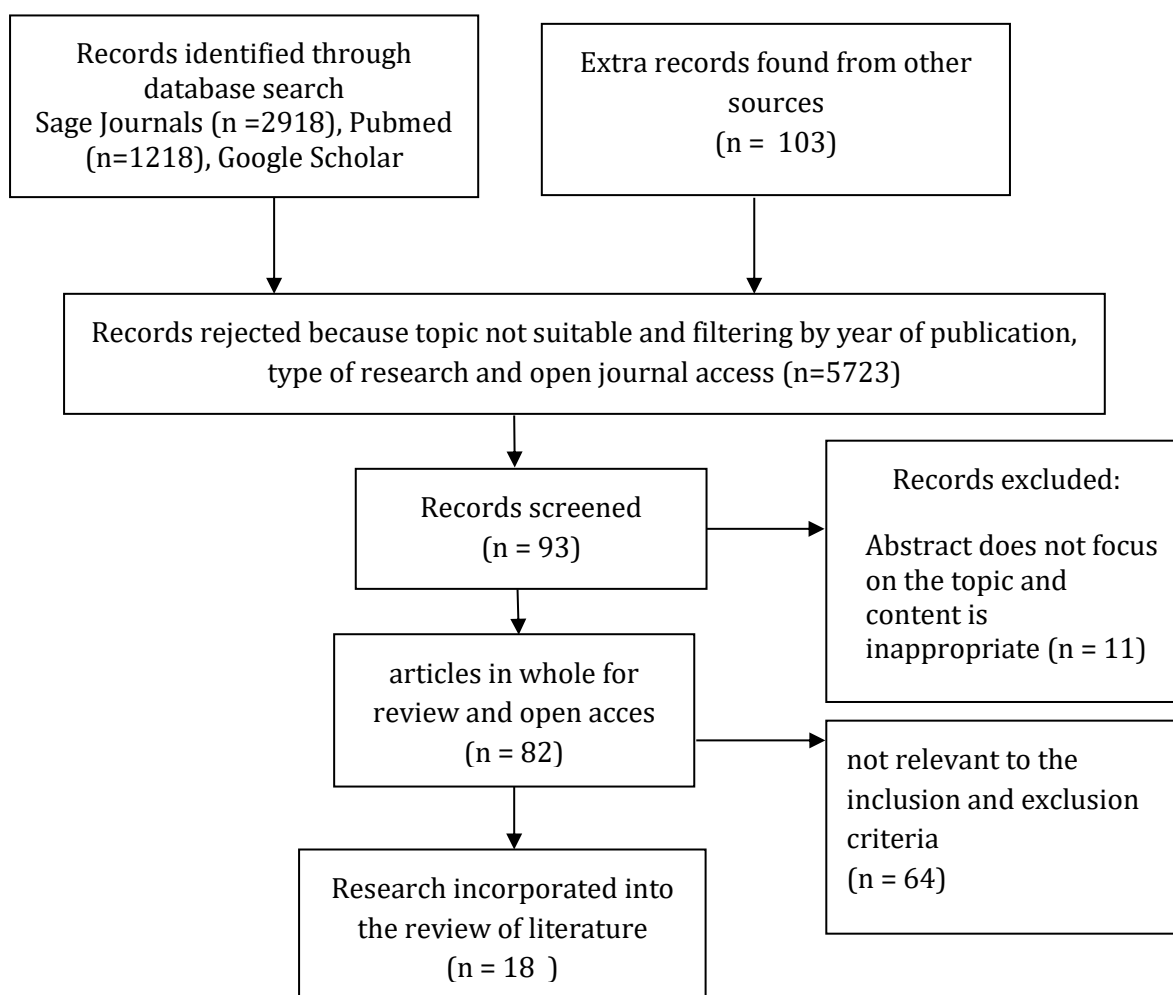


Figure 1. Selection of studies (PRISMA flow chart)

Tabel 1. Journal Analysis

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
1	Ali et al.(2022)	Evaluating the impact of Nutrition Counseling (NC) and Unconditional Cash Transfer (UCT) on children's growth and family food security in refugee camps in Somalia	Quasi-experim ental	Families with mild to moderately malnourish ed children aged 6 to 59 months	Interventions consisting of NC alone or combined with UCT (NC + UCT) in infant and young child feeding were provided to both intervention groups for three months (August–October 2017)	The results of this study indicate that NC or NC + UCT significantly affects food security, household expenses, stunting, underweight, and child wasting. In summary, NC had no effect on household food security or child growth, either alone itself or in conjunction with UCT. Thus, while developing interventions to lower malnutrition and food insecurity, culturally appropriate NC programs over a longer time period, augmented by cash transfers, may be helpful to take into account.
2	Murarkar et al.(2020)	Assessing the prevalence and determinants of malnutrition among children under five in Urban and Rural Maharashtra, India	Crossec tional study	Families with toddlers	Data collection was carried out through a interviewing mothers with children under five in a house-to-house survey	Acute diarrhea, family type, economic status, exclusive breastfeeding, child's gender, and birth order and maternal education have an influence on the child's nutritional status.
3	Omer et al.(2023)	Assess the impact of child-owned poultry rearing initiatives on young children's hemoglobin levels, anemia, simultaneous anemia and stunting, and morbidity status.	Randomi zed controlle d trial.	Mothers and children in the Halaba region, Hawassa District, the majority of whose income comes from the agricultural sector	Measurements are carried out using several methods and instruments. Hemoglobin levels were measured use a Hemocue Hb 301 handheld spectrophotometer. A fast diagnostic test (CareStart™ Malaria HRP2/pLDH Combo) was used to determine the presence of <i>P. falciparum</i> and <i>P. vivax</i> antigens. Intestinal worm infection was tested using a formal-ether sample concentration	Child-owned poultry farming treatments raised hemoglobin levels and reduced the prevalence of anemia as well as anemia and stunting simultaneously compared to the control group. Regardless of the starting nutritional state, stratification analysis demonstrated that the intervention had a positive impact on hemoglobin levels. Compared to the control group, children in the intervention group who suffered from anemia had a higher rise in

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
					technique in feces. In addition, anthropometric measurements such as weight and height are taken to assess nutritional status. Morbidity status is also measured by recording the incidence of eye, ear and other infections. Basic information was also collected on sociodemographic and economic variables, newborn and young child feeding methods, livestock production, and poultry raising procedures.	hemoglobin levels. Non-anemic children in the intervention group exhibited a lesser reduction in hemoglobin levels compared to the control group. Egg consumption and poultry rearing techniques were also enhanced by this intervention.
4	Siegal et al.(2023)	Recognize the elements linked to elevated levels of compliance in multi-faceted and complex nutrition-sensitive agriculture programs	Mix method	Participating farming families who have children aged 6-35 months	Assessing the effectiveness of a series of agricultural interventions (gradual agricultural inputs with training on good agricultural practices) and specific nutritional interventions (MNP, chickens to increase egg consumption, and seeds for growing shallots and native vegetables intended to increase vegetable consumption) and sensitive interventions (soap, chlorine, ORS and zinc for the treatment of acute diarrhea) on child growth compared with a control group that only received agricultural intervention.	Factors that influence families towards nutrition sensitive farming: Product compliance was unaffected by the child's age or gender, however caregivers who were not the child's biological mother were more likely to follow all product instructions. (most often the grandmother). Active reminders, engaging instruction, encouraging family members, and early proof of favorable outcomes all contribute to compliance.
5	Argaw et al.(2023)	To identify the protective effectiveness of daily Balance Energy Protein (BEP)	Randomized controlled trial.	Women or mothers who become pregnant at <21 weeks'	Pregnant women aged <21 weeks were divided into two groups that received BEP + IFA and the other group only received IFA	By extending the intervention to include the first 1,000 days of life, including supplementation of newborns and young

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
		supplementation in rural Burkina Faso during pregnancy and breastfeeding on the growth of the infant		gestation and are followed until 6 months postpartum	intervention. Measurements and interventions were carried out until 6 months postpartum and the final outcome measured was the Z score in children aged 6 months.	children during the supplemental feeding phase, BEP supplementation of linear growth can be completely utilized. Pregnancy-related BEP supplementation may help lessen the high prevalence of growth problems in offspring.
6	Wegmüller et al.(2022)	Identifying the effectiveness of a series of basic agricultural and specific nutritional interventions on child growth compared to basic agricultural interventions (control) whose final result is a Z score in children	Randomized controlled trial.	Farming Family in rural Kenya	Families with children aged 6-35 months from farming families were selected randomly. Every home that took part (control and intervention groups combined) received agricultural training on average every two weeks. Caregivers of the intervened children also received MNP (Micronutrient Powder) and zinc (zinc) together with oral rehydration solution to treat acute diarrhea. Ten MNP sachets are supplied each month, with a reminder to caregivers to administer one sachet every three days. All households also receive Eight hens, 600 g of soap monthly, and 500 ml of chlorine solution every six months. And get seeds and fertilizer for onions and native vegetables at the start of the growing season. Then at the end the anthropometry will be measured on the children in the family.	There was an increase in linear development when contrasted with just agricultural measures, demonstrating the need for varied and coordinated efforts to get bigger results.
7	Briaux et al.(2020)	Improving children's nutrition, health	Randomized controlled	Mothers with children aged 6-29	There are intervention and control groups. In each group, two distinct representative samples	UCT had a positive impact on consumption of animal source foods (ASF) in mothers and

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
		and protection	d trial.	months	of mothers and children between the ages of six and 29 months were surveyed: one two years before to the intervention in 2014 (control: n = 1,301, intervention: n = 1,357). after the intervention in 2016 (control: n = 996, intervention: n = 1,035). Difference-in-differences (DD) impact after accounting for clustering, estimates were computed.	children but had no effect on the reported morbidity of children.. UCT combined with Behavior Change Communication (BCC) and integrated community casework for children illnesses and acute malnutrition (ICCM-Nut), has the potential to improve children's growth and reduce financial barriers to seeking health services for sick children in at-risk populations in Togo. For its positive impact on various efforts to combat stunting to be efficient, interventions must address several determining factors at the same time.
8	Permatasari et al.(2023)	Examining the impact of sanitation, nutrition, and sociodemographics on stunting in rural areas with the main livelihoods of agriculture, livestock and the private sector	Cross-sectional study	Family with mother and toddler	The measurement used a maternal nutritional knowledge questionnaire that was developed. The questionnaire has been tested as valid and reliable. There are 20 questions with a choice of right or wrong answers. Characteristics of children using anthropometry and categorization of nutritional status using child growth standards according to WHO.	Stunting is primarily related to maternal height, according to binary logistic regression analysis. in toddlers. Apart from that, the child's age, balanced diet, house building materials (healthy house indicators) are also related to stunting in toddlers.
9	Berhanu et al.(2022)	To identify the severity of stunting and associated variables in children of school age in rural areas of Mulo, Ethiopia	Studi cross-sectional	Families or households with children aged 5-14 years	Using standard questionnaires translated into local languages. Nutritional measurements use anthropometry.	Stunting affects a significant number of school-age youngsters. Age, sex, quantity of family members, and accessibility of toilets, monthly income and frequency of eating are factors that are

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
						significantly connected to the incidence of stunting.
10	Maulidiana & Sutjiati (2021)	To ascertain the quantity of essential amino acid (EAA) intake and other risk factors for stunting in toddlers in Malang City, East Java	Case control	Children between the ages of 24 and 59 months	The measurements used a questionnaire that had been validated and tested previously, then analyzed using multiple logistic regression. Stunting measurement uses anthropometric measurements,	23 children who are stunted (HAZ <-2 SD) and 57 children who are normal (HAZ ≥-2 SD). Stunting is significantly increased by several risk factors, such as a monthly family income below the regional minimum wage, less than six months of breastfeeding, and a lack of essential amino acid (EAA) methionine intake.
11	Jubayer et al.(2022)	Identifying the frequency and contributing variables of malnutrition in rural children under five St. Island. Martin	Cross-sectional study	Identifying the frequency and contributing variables of malnutrition in children younger than five in rural St. Island. Martin	The questionnaire has been tested on 10% of the sample. Measurements were made of height/length, weight, and upper arm circumference. using portable scales and measuring scales for toddlers who can lie on their backs for ages under 2 years and regular height measurements for older toddlers.	Stunting (34.4%), wasting (17.6%), and underweight (18.9%) prevalence, and overweight (6.9%). Compared to women, men are more likely to undergo wasting, the rate of stunting and wasting is higher in poor groups compared to the richest groups. the diversity of children's diets, and food security and birth order are also elements that have a strong correlation with malnutrition.
12	Jubayer et al.(2022a)	Examining the association between WASH practices and The weight-for-age (WAZ), height-for-age (HAZ), and weight-for-height (WHZ) z-scores of children under five on a rural	Cross-sectional study	homes with younger than five children	Categorizing Mothers' or primary caregivers' handwashing habits, as well as household access to WASH facilities monitored by the Joint Monitoring Program (JMP) with a score of 1 (good) and 0 (not improving). Variables such as water use, sanitation,	On average, children from homes where WASH conditions improved had greater HAZ. It was discovered that HAZ significantly correlated with scores for household wealth, gender, age of children, and food security in the home.

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
		island St. Martin			handwashing facilities, and water facilities at the household level, mother's handwashing habits, The child-sensitive WASH composite score was determined utilizing a total of 19 variables, yielding a score range, in addition to child-specific WASH practices. of 0 to 19.	
13	Ningrum (2019)	Analyze resilience households in Stunting rates in rural Klaten, Central Java are impacted by cultural, social, and economic factors that also affect food access.	Mix method	Mothers who have children aged 2-5 years	<ol style="list-style-type: none"> 1. Questionnaire with several questions such as socio-demographic characteristics of the family home, economic resources, use of clean water and sanitation facilities, family food access, family consumption patterns. 2. Qualitative data was obtained through interview methods with 10 mothers who had stunted children. 	changes in family consumption behavior in accessing and managing family food which are influenced by modernization in rural areas, namely the increasing culture of buying cooked food and changes in agriculture output to monoculture. Additionally, the largest issue facing the population in fulfilling nutrition is economic limitations which do not allow them to buy a variety of nutritious and varied foods. These economic limitations have a direct effect on varied eating habits, particularly for households with stunted toddlers who don't like a wide range of foods, especially vegetables and seafood.
14	Pramitha sari & Sefrina (2022)	Analyzing the impact of parental parenting styles and family traits on the prevalence of stunting	Cross-sectional study	Parents of toddlers	The questionnaire contains family characteristics and parental parenting practices. Apart from that, stunting is measured using anthropometry	There is no discernible connection between the quantity of family members, the mother's level of knowledge, history of breastfeeding and MP-ASI administration and cases of stunting. However, two additional variables: maternal

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
						education level (p value 0.035) and feeding practices (p value 0.044) have a p value < α , which indicates a significant link between the independent and dependent variables.
15	Indrastuti et al.(2020)	Describe the features of toddler families and their eating habits in the Polewali Mandar Regency's stunting area.	Cross-sectional study	Families with toddlers aged <59 months	Questionnaire to determine the traits of young children and families. The nutritional status of toddlers is measured using weight/age indicators according to the WHO's definition of nutritional status	There are toddlers who experience poor and deficient nutritional status. Toddler food consumption such as animal protein, staple meals, fruits, vegetables, and snacks are often categorized as low consumption items, but food consumption in the form of veggies protein is in the sufficient category.
16	Triratnawati & Yuniati (2023)	Identifying obstacles to community customs in reducing numbers stunting in rural Central Sulawesi	Studi etnografi	Keluarga dengan balita stunting dan non stunting	The interview process was carried out at the local posyandu for mothers with stunted toddlers and mothers with toddlers without stunting. There were 22 informants. Data analysis uses cultural anthropology and health anthropology approaches.	Social aspects and cultural customs that hinder the handling of stunting include patriarchal culture, the local community's habit of marrying off children at an early age, economic limitations, party activities being prioritized over education, unequal gender relations, early provision of additional food by parents. , as well as parenting patterns
17	Naibaho & Aritonang (2022)	Analyzing the connection between family food security and maternal nutrition knowledge and income in Central Tapanuli Regency's coastline area	Cross-sectional study	Families with stunted toddlers	Interviews using questionnaires as primary data and secondary data were obtained from BPS Central Tapanuli Regency	Maternal income and nutritional knowledge have a significant relationship with family food security in Central Tapanuli Regency's coastal area.
18	Nadhirohet	Identifying the potential for	Cross-sectional	Families	Utilizing the form F/I/PK/21, data is	Underprivileged families have the

NO	Authors	Aims of study	Desaign	Subject	Measure	Main finding
	al.(2022)	toddlers at risk of stunting in East Java and examining how it relates to pre-prosperous family markers	study		instantly entered through a smartphone application during house visits.	potential risk of stunting children which is only concentrated in certain areas. Indicators of underprivileged families that are related to the potential risk of Stunting families include those with children aged 7 to 15 who do not attend school, those without a family member who makes enough money each month to cover basic necessities, those in which no family member consumes "diverse foods" at least twice a day, and prajsehtera households.

RESULTS

This review summarizes 18 articles that meet the predefined inclusion criteria. The literature review reveals a relationship between family and stunting, particularly the impact of low family income in Berhanu, Maulidiana & Sutjiati, Nadhiroh et al, Naibaho & Aritonang (11–14) affecting the economic status or constraints of a family in Jubayer et al, Murakrar et al, Naibaho & Aritonang, Ningrum, Triratnawati & Yuniati (13,15–18). Consequently, families face difficulties in accessing or purchasing nutritious food, leading to an inability to implement balanced feeding practices, including dietary diversity for children in Indrastuti et al, Jubayer et al, nadhiroh et al, Ningrum, Permatasari et al (14–16,19,20) and a balanced protein source, including the routine consumption of eggs in Argaw, Indrastuti et al, Maulidiana et al, Omeret al, Wegmuller et al (12,20–23) crucial for a child's growth period. Family type and size in Berhanu et al, Jubayer et al, Murakrar et al (11,15,18), also significantly contribute to the association with stunting in a family. Other factors such as maternal education

and knowledge in Murakrar et al, Naibaho et al, Pramitasari & Sefrina, Triratnawati & Yuniati (13,17,18,24), commitment to exclusive breastfeeding in Maulidiana, Murakrar et al, Triratnawati & Yuniati (12,17,18), parenting style, and early marriage culture in Triratnawati & Yuniati (17) are closely related to stunting in agrarian families in rural areas.

DISCUSSION

The results of the literature review indicate several factors closely associated with stunting in agrarian families in rural areas. A family's physical health and well-being are optimized when family functions operate effectively. Friedman (2003) in Susanto (25) outlines family functions as: 1) affective function; 2) socialization function; 3) reproductive function; 4) economic function; 5) health care function.

The literature review identified a relationship between small family income and economic status with stunting in agrarian families in rural areas, impacting their economic status. Consistent with prior research (26), the highest stunting rates

occur in economically disadvantaged households. Three countries have successfully improved child nutrition health and reduced stunting rates by implementing cash assistance programs for poor and orphaned families. Cash assistance is expected to provide options for accessing nutritious food. Children raised in low socio-economic families struggle to meet their nutritional needs fully (27) due to the family's unstable purchasing power, hindering access to the required nutritional sources.

Friedman (2003) in Susanto (25) describes the economic function in a family as the ability to provide sufficient economic resources for the family and allocate them adequately for necessities such as clothing, food, and shelter. Inadequate financial resources in a family indicate suboptimal economic family function. Families unable to afford nutritious food due to poverty may benefit from cash assistance programs, offering a potential solution. On the other hand, comprehensive education for all societal layers is crucial for enhancing resource quality, impacting a family's cognitive abilities in earning a good income, aligning with research from Inoue (29) showing that low household education increases the risk of poverty.

The literature review also indicates that parenting practices, including balanced food provision, dietary diversity, balanced protein sources, and exclusive breastfeeding, play a significant role in stunting in rural families. Considering the concept of family functions according to Friedman (2003) in Susanto (25), the health care function in a family involves providing physical needs such as adequate food, appropriate clothing, health care, and protection from hazards. Varied food provision, including balanced protein intake, is an effort to meet the nutritional needs of family members, serving the health care function and preventing stunting in toddlers. In line with research by (30,31), there is a connection between nutritional

patterns, including breastfeeding and introducing complementary foods, with stunting occurrences. The health care function, encompassing food provision practices, is interrelated with other family functions. Agrarian families cannot effectively provide health care, particularly in terms of food provision and protein intake for toddlers, when the means and resources for promoting the health and well-being of family members require sufficient economic resources. Consequently, one family function cannot be separated from another.

Another finding in this literature review is the relationship between family type and size with stunting. An increasing number of family members will impact the suboptimal continuity of family functions, particularly related to the reproductive function of a family. According to Friedman (2003) in Susanto (25), families also play a crucial role in controlling population growth by managing the births of new family members. A larger family size is also linked to stunting (2) and close birth intervals within a family indicate inadequate family planning. According to (32), 55.36% of women in Indonesia used Family Planning (KB) methods in 2022. Despite this, families in Indonesia have not fully implemented planning and programming efforts to control family size, including in rural areas, to ensure the health and well-being of all family members.

The last finding of this literature review is the association between early marriage culture and stunting. In line with the research findings of (2), social-cultural orientation influences stunting, and early marriage is documented in the data from the Ministry of Women's Empowerment and Child Protection (33), with 55 thousand requests for child marriages in 2022. Examining it from the perspective of family functions, these findings are related to the socialization function within a family. According to Friedman (2003) in, as the family serves as a teacher, it instills beliefs,

values, and attitudes, providing guidance in problem-solving. Families hold values believed by all members, and cultural practices in a region, embraced by the majority, become internalized in a family. This conviction strengthens when a family is a settled, generational community, including early marriages.

The limitation of this article is that various types of previous research have not specifically discussed the elements of family function, so the team had difficulty in comprehensively summarizing the elements of family function in preventing stunting. In this article, researchers try to build a puzzle from the factors found in changing family functions related to stunting.

CONCLUSION

Factors which contribute to stunting have been identified and synthesized within various family functions. The agrarian families in rural areas serve as a means in the effort to prevent stunting. Optimizable family functions in stunting prevention include economic, health care, reproductive, and socialization functions. While some journals may not explicitly discuss family functions in their research, a thorough identification and understanding reveal that variables influencing stunting can be categorized within family functions, aligning with the definitions and research findings of each article. Consequently, this review provides novel insights into the research.

The affective function has not been explicitly addressed in some reviewed articles, likely due to researchers limiting their search to only three research engines. Future researchers are encouraged to explore the same research theme using other journal search engines to enrich their studies.

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