



Mothers' Knowledge, Attitudes, And Behavior In Stunting Prevention Efforts: A Scoping Review

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ABSTRACT

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Background: Stunting is a global nutritional problem that has long-term effects on children's physical growth and cognitive development. Mothers' knowledge, attitudes, and behaviors play a crucial role in stunting prevention; however, prevention practices are also influenced by family support, access to health services, social conditions, and the intervention context. Previous studies have been limited in mapping the integrated relationship between mothers' knowledge, attitudes, and behaviors in stunting prevention. This study aims to map the scientific evidence regarding mothers' knowledge, attitudes, and behaviors in stunting prevention and to identify research gaps and directions for intervention development.

Method: This study employed a scoping review using the Arksey and O'Malley approach and the PEOS framework. The study population consisted of mothers, with exposure defined as mothers' knowledge, attitudes, and behaviors regarding stunting prevention, and the outcome as stunting prevention efforts. The study designs included quantitative, qualitative, and mixed-methods. Literature was obtained from PubMed, ScienceDirect, EBSCO, Wiley, Neliti, and Google Scholar, with criteria including primary articles, full text, in Indonesian or English, and published between 2015 and 2025. Article selection was conducted using Rayyan and reported via a PRISMA flowchart. Article quality was assessed using the Joanna Briggs Institute (JBI) for quantitative and qualitative studies, and the Mixed Methods Appraisal Tool (MMAT) for mixed-methods studies.

Result: Of the 292 identified articles, 10 met the inclusion criteria. Findings indicate that while some mothers possess basic knowledge about stunting, their understanding of its causes and impacts remains limited. Mothers' attitudes are influenced by education and employment status. Educational media interventions and culturally sensitive community-based education have proven effective in improving mothers' knowledge, attitudes, and behaviors regarding stunting prevention.

Conclusion: Mothers' knowledge, attitudes, and behaviors play a crucial role in stunting prevention. Therefore, strengthening maternal education should be a policy priority in integrated efforts to improve long-term child health.

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INTRODUCTION

Stunting is a serious problem of chronic malnutrition that can significantly impact a child's physical growth and cognitive development. Stunting is a growth disorder caused by an imbalance between nutritional needs and inadequate nutrient intake, occurring primarily during the first 1,000 days of life (World Health Organization, 2023). Stunting not only hinders children's physical growth and cognitive development but can also permanently impair brain development, which impacts educational attainment and economic productivity in the long term (UNICEF, WHO, and the World Bank, 2023).

Globally, stunting remains a serious public health issue. This is consistent with a report from the World Health Organization's "Global Nutrition Report 2024", which indicates that approximately 150 million children under five worldwide are stunted equivalent to more than one in five children. Although global trends show a decline in stunting prevalence compared to a decade ago, this rate of decline is not fast enough to meet the global target by 2030, particularly in developing countries. In Indonesia, for instance, the stunting prevalence stands at 19.8%, though it has decreased from the previous year; this issue remains far from the national target of 14% by 2024 (Ministry of Health of the Republic of Indonesia, 2025).

Preventing stunting requires a comprehensive approach, such as community and family involvement, particularly on the part of mothers. Mothers play a key role in stunting prevention efforts through providing appropriate nutrition, exclusive breastfeeding and complementary feeding, monitoring child growth, and utilizing health services (WHO, 2024). Mothers' knowledge, attitudes, and behaviors regarding child health significantly influence the success of stunting prevention. This aligns with research findings indicating that mothers' knowledge of nutrition and child health coverage is associated with more effective and appropriate stunting prevention efforts (Arnita, 2020).

Although research on the role of mothers in stunting prevention has expanded, previous studies still tend to address specific aspects separately. Findings from the study (Saleh et al., 2021) indicate the importance of the mother's role in stunting prevention from the preconception phase, through pregnancy, infancy, toddlerhood, and into the child's growth period; however, these studies still focus on the maternal role in general. (et al., 2025) identified various predictors of stunting, such as maternal education, socioeconomic status, sanitation, exclusive breastfeeding, and complementary feeding practices; however, they have not specifically mapped the relationship between mothers' knowledge, attitudes, and behaviors as components of stunting prevention behavior. This study aligns with "Global Nutrition Report 2024", which indicates that maternal nutrition education and knowledge contribute to children's nutritional status; however, the focus remains limited to educational aspects and has not comprehensively integrated dimensions of attitudes, behaviors, social factors, intervention strategies, and the parenting context.

Based on this, the primary gap in the literature lies in the limited mapping that specifically integrates mothers' knowledge, attitudes, and behaviors in stunting prevention. This gap is significant because increased maternal knowledge does not always automatically result in optimal preventive behaviors if not supported by positive attitudes, family support, access to health services, socioeconomic conditions, and interventions appropriate to the community context. Therefore, this scoping review was conducted to map the scientific evidence regarding mothers' knowledge, attitudes, and behaviors in stunting prevention efforts, identify patterns of findings and research gaps, and provide a foundation for the development of more comprehensive, context-specific, and evidence-based stunting prevention interventions.

METHOD

Research Design

This scoping review utilized the " framework to identify research questions using the PEOS framework (Population, Exposure, Outcome, Study Design). The Population (P) consists of mothers; Exposure (E) refers to mothers' knowledge, attitudes, and behaviors regarding stunting prevention efforts. The Outcome (O) examined is stunting prevention efforts; the Study Design (S) employs quantitative, qualitative, and mixed-methods approaches. The scoping review search was conducted across several databases, including PubMed, ScienceDirect, EBSCO, Wiley, Neliti, and Google Scholar. Subsequently, the researchers searched for relevant articles, selected appropriate articles, collected data, organized, summarized, and reported the results of the scoping review.

Search Strategy

The literature search strategy for this scoping review was developed based on the PEOS framework and conducted systematically by combining Boolean operators, truncation techniques, and Medical Subject Headings (MeSH) according to the characteristics of each database. The keywords used included: ("mother*" OR "women") AND ("knowledge" OR "attitude*" OR "practice*") AND ("stunting prevention" OR "growth faltering") AND ("child*" OR "toddler*"). All search results were exported to Rayyan for duplicate identification and the selection process.

Inclusion Criteria

Inclusion criteria include primary research articles published between 2015 and 2025, written in Indonesian or English, and available in full text. Selected articles must address one or a combination of aspects of mothers' knowledge, attitudes, and behaviors in stunting prevention efforts, and use quantitative, qualitative, or mixed-methods research designs.

Exclusion Criteria

Exclusion criteria include articles that do not explicitly address mothers' knowledge, attitudes, and behaviors in stunting prevention or that only discuss stunting in general without focusing on the role of mothers. Articles that only discuss treatment or rehabilitation interventions without a direct link to the role of mothers in stunting prevention, and articles involving mixed populations without specific data separation for mothers.

Study Selection

Article selection was conducted in two stages. The first stage involved screening titles and abstracts based on inclusion and exclusion criteria. The second stage involved assessing the full text to ensure the articles aligned with the review's focus. Articles meeting all criteria were then included in the data extraction process. The selection process was reported using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart to enhance reporting transparency.

Data Charting and Extraction

The data charting process was conducted using a data extraction form designed based on the objectives of the scoping review and the PEOS framework. The information extracted included article code, author names, year of publication, article title, country of study, population and respondent characteristics, sample size, study design, exposure, outcome, type of intervention (if available), primary results, authors' conclusions, and relevant methodological notes.

Data extraction was performed by the first author and reviewed by another author to ensure the information aligned with the original articles. If there were differences in

interpretation, discussions were held until consensus was reached. The data charting process was conducted iteratively so that the extraction format could be adjusted if important information relevant to the objectives of the scoping review was identified.

Quality Assessment

Article quality assessment was conducted using the Joanna Briggs Institute Critical Appraisal Tools for quantitative and qualitative studies, and the Mixed Methods Appraisal Tool for mixed-methods studies. This assessment aimed to evaluate the methodological strengths and limitations of each included study, thereby enabling the results of this scoping review to be interpreted more transparently.

Data Analysis

The authors organized the scoping review into a comprehensive and structured report. This scoping review presents the results obtained from the selected articles, evaluating patterns and trends emerging in the literature regarding mothers' knowledge, attitudes, and behaviors in stunting prevention efforts. Additionally, the authors identified existing gaps in current research and provided proposed recommendations to address these gaps. These findings and recommendations are expected to make a significant contribution to the development of more effective evidence-based policies and interventions for stunting prevention, particularly by involving the role of mothers.

RESULTS AND DISCUSSION

Results

Data analysis was conducted on ten selected articles to identify the research objectives, study designs, sample sizes, and results obtained. Based on the results of the mapping of the ten selected articles, the research designs used were highly varied but complementary. There were quantitative observational studies with cross-sectional and prevalence designs to map the relationships between variables, while quasi-experimental studies were used to test the effectiveness of educational interventions provided by researchers, and qualitative and mixed-methods studies were employed to explore mothers' perceptions in depth. Most of the articles originated from Indonesia (8 articles), while the other two articles came from Tanzania and Malawi, providing a global perspective on stunting prevention within different social and cultural contexts. Figure 1 presents the PRISMA-ScR flowchart, illustrating the systematic process conducted for article identification, screening, eligibility assessment, and final inclusion in this scoping review.

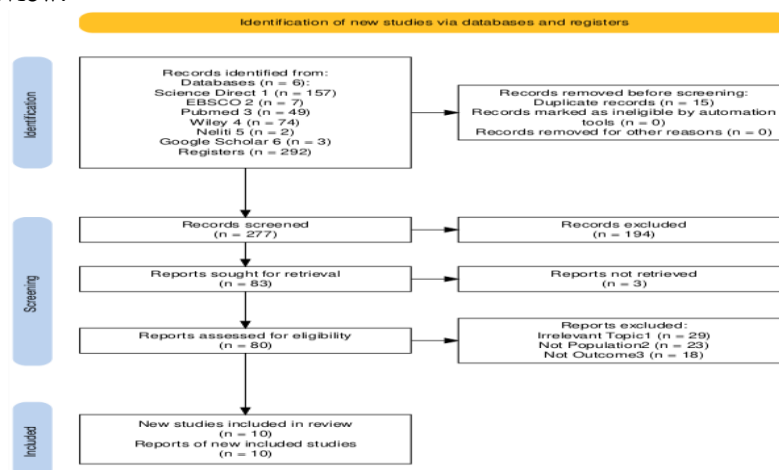


Figure 1. PRISMA-ScR Flowchart

The literature search identified 292 articles from various databases, such as ScienceDirect (n = 157), EBSCO (n = 7), PubMed (n = 49), Wiley (n = 74), Neliti (n = 2), and Google Scholar (n = 3). During the initial identification phase, 15 articles were identified as duplicates and removed, leaving 277 articles for screening based on titles and abstracts. Of these, 194 articles were excluded for being irrelevant to the inclusion criteria. A total of 83 articles were subsequently retrieved for full-text access; however, 3 articles could not be accessed or were locked. Consequently, 80 articles underwent full-text screening. At this stage, several articles were excluded due to irrelevant topics (n = 29), inappropriate study populations (n = 23), and inappropriate outcomes (n = 18). After completing all selection stages, 10 articles met the inclusion criteria and were included in this scoping review.

To ensure transparency and consistency in the selection process, the PRISMA 2020 Flowchart was used as a reporting tool. The Instructions for Systematic Reviews and Meta-Analyses provide a structured framework that documents each stage of the review, including study identification, screening, eligibility assessment, and final inclusion. The use of this tool ensures that the selection process is conducted systematically, transparently, and accountably, enhancing the clarity and credibility of the review and ensuring methodological rigor. Through this approach, only high-quality studies were considered in this scoping review.

After article selection was completed, the researchers conducted a critical appraisal to evaluate the methodological quality of each selected study design. The researchers concluded that factors such as internal validity, relevance, and generalizability of the research findings were assessed to determine their contribution to the topic of stunting prevention. This assessment used a rating system categorized into three quality levels: Very Good (Grade A), Good (Grade B), and Fair (Grade C), which was applied to the ten articles that passed the eligibility assessment stage. The results of this assessment indicate that the majority of the selected articles possess Very Good methodological quality, with some of them receiving a Good rating.

Table 1. Article Quality Assessment

| Article Code | Author (Year) | Critical Appraisal | Grade |
|--------------|-------------------------|---|-------|
| A1 | (Irwanti, 2020) | JBI Critical Appraisal Checklist for Prevalence Studies | A |
| A | (Salim, 2023) | JBI Critical Appraisal Checklist for Prevalence Studies | A |
| A3 | (Juniarti, 2025) | JBI Critical Appraisal Checklist for Cross-Sectional Studies | A |
| A4 | (Dearden, 2023) | JBI Critical Appraisal Checklist for Quasi-Experimental Studies | A |
| A5 | (Arnita, 2020) | JBI Critical Appraisal Checklist for Cross-Sectional Studies | B |
| A6 | (Natalie, 2025) | JBI Critical Appraisal Checklist for Qualitative Research | A |
| A7 | (Sutinbuk, 2024) | JBI Critical Appraisal Checklist for Quasi-Experimental Studies | A |
| A8 | (Fitriahadi, 2023) | JBI Critical Appraisal Checklist for Quasi-Experimental Studies | B |
| A9 | (Amri Yeni Putri, 2022) | JBI Critical Appraisal Checklist for Cross-Sectional Studies | B |
| A10 | (Erfina, 2025) | Mixed Methods Appraisal Tool (MMAT) | A |

Table 2. Summary of Articles Included in the Review

| Article Code | Author (Year) | Study Title | Country | Population (P) | Exposure (E) | Outcome (O) | Study Design (S) | Key Notes |
|--------------|------------------|---|-----------|---|--|--|---------------------------------------|--|
| A1 | (Irwanti, 2020) | Description of Pregnant Women's Knowledge About Stunting in Cibentar Village, Jatiwangi District, Majalengka Regency | Indonesia | There were 45 pregnant women. | Pregnant women's knowledge (good, adequate, insufficient). | Influencing factors include maternal education, sources of information, age, and parity. | Prevalence Studies, Quantitative | The majority of pregnant women in Cibentar Village, Jatiwangi Subdistrict, Majalengka Regency, have insufficient knowledge about stunting (60%). Education and health counseling are urgently needed to improve pregnant women's understanding of the importance of exclusive breastfeeding, complementary feeding, and nutrition during pregnancy in efforts to prevent stunting. |
| A2 | (Salim, 2023) | Analysis of Mothers' Knowledge Levels in Special Stunting Prevention Areas: A Preliminary Study of Mothers' Knowledge in One of the Special Stunting Prevention Areas | Indonesia | A total of 50 mothers. | Mothers' knowledge was measured using a questionnaire with 14 questions regarding stunting and 21 questions regarding pregnancy. | Influencing factors include educational level, access to health services, sources of information, mothers' attitudes and motivation, knowledge, and age. | Prevalence Studies, Quantitative | Mothers' knowledge about stunting (52%) and pregnancy (66%) was mostly in the "adequate" category; however, many mothers still lacked knowledge regarding stunting prevention. This highlights the need for improved education to prevent stunting in children in the future. |
| A3 | (Juniarti, 2025) | Determinant Factors Influencing Stunting Prevention Behaviors Among Working Mothers in West Java Province, Indonesia: A Cross-Sectional | Indonesia | Working mothers with children under 5 years of age, totaling 225 mothers. | Mothers' knowledge of stunting prevention, maternal well-being, and work-related stress. | Mothers' behaviors regarding stunting prevention. | Cross-Sectional Studies, Quantitative | Low maternal well-being increases the risk of poor stunting prevention behaviors by 3.30 times, while insufficient knowledge increases the risk by 2.79 times. The results of this study emphasize the importance of mothers' psychological well-being and knowledge in stunting prevention behaviors, as well as |

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|----|-----------------|--|-----------|---|--|--|--|--|
| A4 | (Dearden, 2023) | Study The Impact of a Large-Scale Social and Behavior Change Communication Intervention in the Lake Zone Region of Tanzania on Knowledge, Attitudes, and Practices Related to Stunting Prevention | Tanzania | 14,996 female caregivers and 6,726 male heads of household. | Knowledge, attitudes, and behaviors related to stunting prevention. | Social and behavior change communication (SBCC) intervention, including mass communication (radio, TV) and interpersonal communication (home visits by public health workers). | Quasi-Experimental Studies, Quantitative | the need for interventions to improve both. The results of the SBCC intervention can improve mothers' knowledge and attitudes toward stunting and child care; however, changes in practices such as ANC checkups and the provision of complementary foods remain low. The increase in knowledge about exclusive breastfeeding and complementary foods highlights the importance of media-based education and interpersonal communication in the prevention of stunting. |
| A5 | (Arnita, 2020) | The Relationship Between Mothers' Knowledge and Attitudes and Stunting Prevention Efforts Among Toddlers in the Service Area of the Simpang Kawat Community Health Center, Jambi City | Indonesia | A total of 87 mothers. | Mothers' knowledge and attitudes. | Exclusive breastfeeding, nutritious food, maintaining hygiene, monitoring child growth and development, and attending nutrition education sessions. | Cross-Sectional Studies, Quantitative | There is a significant association between mothers' attitudes and stunting prevention efforts (p-value = 0.030), whereas there is no significant association between mothers' knowledge and stunting prevention (p-value = 0.373). The authors conclude that improving mothers' knowledge, coupled with positive attitudes, can enhance stunting prevention efforts. Recommendations for community health centers should focus on stunting education as a primary prevention strategy. |
| A6 | (Natalie, 2025) | Determinants of Nurturing Care Behaviors in Malawi: An Ethnographic Study | Malawi | Pregnant women or mothers with children under 2 years of age. | Caregiving behaviors related to nutrition, child development, and low involvement of | Provision of nutritious food, exclusive breastfeeding, and complementary feeding, although limited by poverty and | Qualitative Research | This study found that children in Malawi lack adequate care to thrive, with key challenges including poor dietary patterns, lack of complementary foods, poor sanitation, and limited |

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|----|--------------------|--|-----------|---|--|---|--|--|
| | | | | | fathers in child care. | food insecurity. | | access to health services . Poverty, gender inequality, and economic shocks influence child-rearing practices. A multisectoral approach is needed to prevent malnutrition and design more effective stunting prevention interventions. |
| A7 | (Sutinbuk, 2024) | Effectiveness of the ERKADUTA Model in Increasing Stunting Prevention Behaviors Among Mothers with Toddlers in Indonesia: A Quasi-Experiment | Indonesia | A total of 112 mothers: intervention group and control group. | Mothers' knowledge, attitudes, and practices regarding stunting prevention. | The ERKADUTA (RT Kawal Baduta) intervention model. | Quasi-Experimental Studies, Quantitative | Significant changes occurred in knowledge, attitudes, and practices regarding stunting prevention in the intervention group compared to the control group. The ERKADUTA model effectively improved knowledge, attitudes, and practices regarding stunting prevention, with a dominant effect on the practice variable. This model emphasizes community empowerment through the guidance of community health workers to monitor child development and provide education to mothers. |
| A8 | (Fitriahadi, 2023) | Improving Knowledge and Awareness of Stunting as an Effort to Prevent Stunting | Indonesia | A total of 112 mothers. | -based educational outreach on stunting prevention through community-based activities. | Improving mothers' knowledge, awareness, and understanding regarding stunting prevention in toddlers. | Quasi-Experimental Studies, Quantitative | The team's activities successfully improved mothers' knowledge of stunting prevention in Padukuhan Glidag. Most mothers felt they had a better understanding of prevention methods after attending the educational sessions. This initiative effectively raised community awareness and supported the government's efforts to reduce the prevalence of stunting in Gunung Kidul, with educational sessions conducted through routine activities such as mothers' social |

| | | | | | | | | |
|-----|-------------------------|--|-----------|--|---|--|---------------------------------------|--|
| A9 | (Amri Yeni Putri, 2022) | The Relationship Between Mothers' Knowledge Level Regarding Stunting and Stunting Prevention Efforts in Preschool-Age Children | Indonesia | A total of 177 mothers. | Mothers' knowledge level regarding stunting was measured using a questionnaire. | Monitoring of child growth and development, exclusive breastfeeding, and complementary feeding. | Cross-Sectional Studies, Quantitative | gatherings. The majority of mothers have sufficient knowledge about stunting and are effectively implementing prevention efforts. There is a significant association between mothers' knowledge and stunting prevention efforts (p -value = 0.012), demonstrating the importance of mothers' knowledge in preventing stunting among preschool-aged children. |
| A10 | (Erfina, 2025) | Development and Evaluation of Blended Interventions to Prevent Stunting in Children of Adolescent Mothers: A Mixed Methods Study | Indonesia | A total of 60 pregnant adolescent mothers, divided into two groups: an intervention group and a control group. | Knowledge, attitudes, and practices regarding stunting prevention among pregnant adolescent mothers, as well as the frequency of consumption of foods that support stunting prevention. | Blended interventions that combine face-to-face education and mobile applications effectively improve knowledge and practices regarding stunting prevention among pregnant adolescent mothers. | Mixed Methods Appraisal Tool | There was a significant increase in adolescent pregnant women's knowledge about stunting prevention and the frequency of consuming healthier foods in the intervention group (p -value = 0.001 and p -value = 0.035). On the other hand, there was no significant difference in the mothers' attitudes (p -value = 0.341). The authors recommend that a mixed-methods intervention combining face-to-face education and a digital app is effective in improving knowledge and nutritional practices among adolescent pregnant women. |

Article Characteristics by Country

Of the ten articles reviewed by the researchers, 80% were conducted in Indonesia, illustrating the high severity of stunting as a national health issue. Studies in Indonesia focus on the primary role of mothers in preventing stunting, which aligns with government policies aimed at reducing stunting rates. Meanwhile, 20% of the studies originated from Tanzania and Malawi, providing an international perspective on maternal caregiving influenced by structural factors such as low income and gender norms. Research in Indonesia places greater emphasis on community-based educational interventions and support, while global studies focus more on structural and socio-cultural approaches to changing maternal behavior, including family support and improvements in socioeconomic conditions..

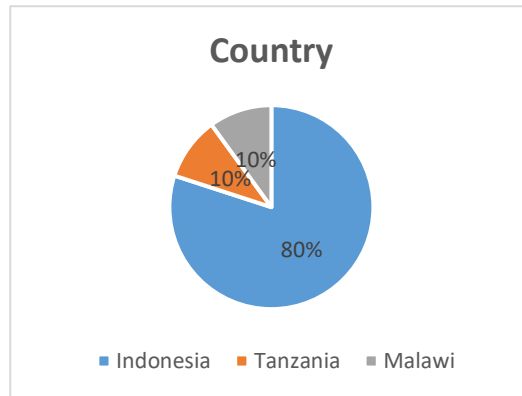


Figure 2. Article Characteristics by Country

Article Characteristics by Research Design

There is variation in research designs within the results of this scoping review mapping. The dominant research designs are cross-sectional and quasi-experimental, each used in three articles (30%). Cross-sectional studies focus on mapping conditions and relationships between variables, while quasi-experimental studies assess the effectiveness of interventions. Prevalence studies (20%) were used to measure the magnitude of the problem, whereas qualitative and mixed-methods designs were each used in one article (10%) to explore mothers' experiences and integrate quantitative and qualitative analyses. The dominance of observational quantitative and quasi-experimental designs highlights the need for the development of more comprehensive research designs to strengthen stunting prevention strategies.

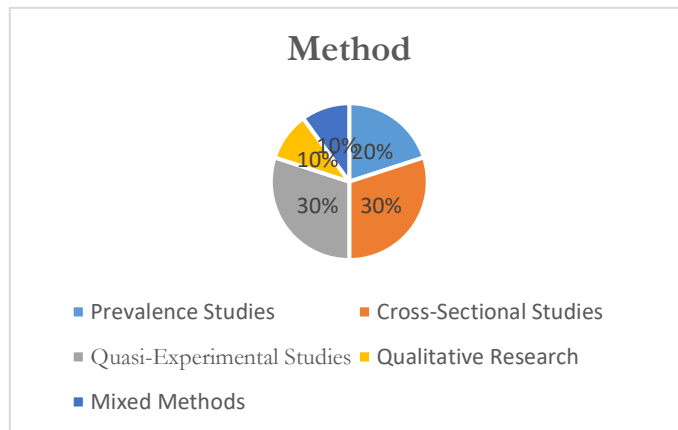


Figure 3. Article Characteristics by Research Design

Article Characteristics by Grade

Methodological quality assessment of the ten articles analyzed in this scoping review was conducted using two instruments appropriate for each study's design: the Joanna Briggs Institute (JBI) Critical Appraisal Tool and the Mixed Methods Appraisal Tool (MMAT). A total of seven articles (70%) received Grade A (High Quality), indicating that these articles met high methodological standards, with the use of valid and reliable instruments, as well as appropriate data analysis. Quality assessment using the JBI was applied to both quantitative and qualitative articles to facilitate a thorough evaluation of research methodology, while the MMAT was used for articles with mixed-methods designs to comprehensively assess the integration of quantitative and qualitative components. Meanwhile, three articles (30%) received a Grade B (Moderate Quality); although these articles met the inclusion criteria and topic relevance, the final assessment results indicated methodological limitations, such as a lack of detailed explanation regarding the validity and reliability of the instruments, as well as the absence of control for confounding factors in the data analysis. Nevertheless, these articles still provide a valuable contribution to the development of stunting prevention interventions. Overall, this distribution of methodological quality reflects that the majority of the included studies have acceptable quality to provide scientific contributions regarding the role of mothers in stunting prevention.

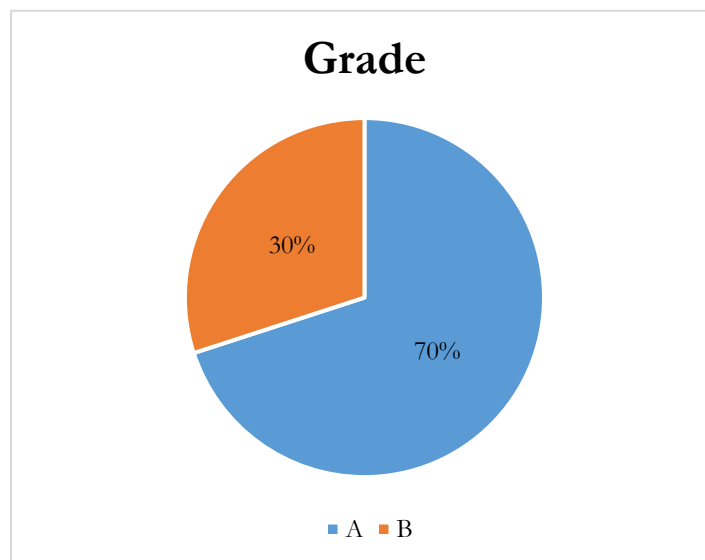


Figure 4. Article Characteristics by Grade

Theme Identification

Based on the results of mapping and data analysis of the ten evaluated articles, the researchers identified four main themes that reflect the primary focus of the research on mothers' efforts to prevent stunting. These four themes are described in Table 3.

Table 3. Analysis and Mapping of Research Articles

| Themes | Sub-Themes | Articles |
|--|---|---|
| Mothers' Knowledge, Attitudes, and Behaviors in Stunting Prevention Efforts | Knowledge, Attitudes, and Behaviors Regarding Exclusive Breastfeeding | (Irwanti, 2020) , (Salim, 2023) , (Arnita, 2020) , (Amri Yeni Putri, 2022) |
| | Knowledge, attitudes, and behaviors regarding complementary foods (MP-ASI) | (Irwanti, 2020) , (Arnita, 2020) , (Amri Yeni Putri, 2022) |
| | Knowledge, attitudes, and behaviors regarding stunting and its impacts | (Juniarti, 2025) , (Erfina, 2025) , (Dearden, 2023) |
| | Knowledge, attitudes, and behaviors regarding balanced nutrition for children | (Irwanti, 2020) , (Salim, 2023) , (Arnita, 2020) , (Dearden, 2023) , (Erfina, 2025) |
| | Knowledge, attitudes, and behaviors regarding monitoring child growth and development | (Arnita, 2020) , (Amri Yeni Putri, 2022) , (Fitriahadi, 2023) |
| Determining Factors | Children's knowledge, attitudes, and behaviors regarding hygiene and sanitation | (Irwanti, 2020) , (Salim, 2023) , (Arnita, 2020) |
| | The influence of maternal employment status on stunting prevention behaviors | (Juniarti, 2025) |
| Intervention Models and Strategies | The effect of maternal education on stunting prevention efforts | (Arnita, 2020) , (Amri Yeni Putri, 2022) |
| | Testing the effectiveness of educational media in stunting prevention | (Dearden, 2023) , (Sutinbuk, 2024) , (Fitriahadi, 2023) |
| Culture and Child-rearing | Development of a community-based education model for stunting prevention | (Erfina, 2025) , (Sutinbuk, 2024) |
| | The influence of culture on child rearing for stunting prevention | (Natalie, 2025) |
| | Social and Gender Norms in Child-Rearing for Stunting Prevention | (Natalie, 2025) , (Dearden, 2023) |

Discussion

Theme 1: Mothers' Knowledge, Attitudes, and Behaviors in Stunting Prevention Efforts

Mothers' knowledge regarding exclusive breastfeeding is a key factor in stunting prevention. Most mothers possess basic knowledge about exclusive breastfeeding; however, many remain inconsistent in its implementation (Irwanti, 2020) and (Salim, 2023) . Mothers' positive attitudes toward exclusive breastfeeding are influenced by several factors such as education, family support, social environment, and employment, which can play a role in sustaining exclusive breastfeeding (Arnita, 2020) and (Amri Yeni Putri, 2022) . Maternal education also changes understanding of the long-term impact of exclusive breastfeeding on child development and the reduction of stunting risk (Kuswanti and Khairani Azzahra, 2022) . This aligns with the report (WHO, 2019) which states that low maternal nutrition literacy contributes to delayed understanding of stunting risks.

Providing nutritious complementary foods is a crucial step in preventing stunting after the exclusive breastfeeding period. Although mothers' knowledge of complementary foods is relatively good, their actual feeding practices remain suboptimal, particularly regarding the variety of healthy foods in line with recommendations and nutritional needs (Irwanti, 2020) and (Arnita, 2020) . Mothers' attitudes toward complementary feeding are also influenced by education and

household income (Amri Yeni Putri, 2022) . These findings align with the study (Kusumaningrum, Anggraini, and Faizin, 2022) , which indicates a gap between knowledge and caregiving practices in middle-income countries.

Some mothers understand stunting as a condition where a child is short, but their understanding of the long-term consequences for the child's physical and cognitive development remains limited (Juniarti, 2025) and (Dearden, 2023) . Mothers' knowledge of the dangers of stunting influences their attitudes and preventive behaviors, including providing proper nutrition and monitoring children's growth and development (Salim, 2023) . Stunting can hinder children's physical growth, brain development, learning abilities, and academic performance; therefore, preventive measures through adequate nutrition are crucial (Dessie *et al.*, 2025) .

Mothers' knowledge of balanced nutrition plays a crucial role in preventing stunting. Mothers with good knowledge tend to prioritize nutritious foods for their children, although their practices are still influenced by social and economic factors (Irwanti, 2020) and (Arnita, 2020) . This aligns with the fact that stunting prevention requires the fulfillment of balanced nutrition through animal protein, vegetables, fruits, milk, and foods rich in calcium, iron, vitamin A, and folate, including nutritious complementary foods (Fahmida *et al.*, 2022) . Media-based interventions are crucial in raising mothers' awareness of balanced nutrition (Dearden, 2023) .

Consistent monitoring of children's growth and development has a significant impact on the prevention of stunting. Mothers with good knowledge will consciously take their children to a posyandu or health facility for routine checkups (Amri Yeni Putri, 2022) . These observations include measuring height, weight, and head circumference to detect growth delays early on, allowing for immediate nutritional interventions or medical treatment (Fitri *et al.*, 2024) . However, implementation remains inconsistent among some mothers, even though they recognize the importance of such monitoring (Fitriahadi, 2023) .

Good hygiene and sanitation are crucial in preventing infections that contribute to stunting. Although mothers understand the importance of hygiene, its application remains inadequate in daily life (Irwanti, 2020) and (Salim, 2023) . WASH programs, through handwashing practices, water treatment, and adequate toilet facilities, can reduce exposure to infections and the impact of stunting on children (Huo *et al.*, 2022) . Social barriers and limited access to sanitation continue to affect mothers' hygiene practices, so sanitation education needs to be strengthened (Arnita, 2020) .

Mothers' knowledge plays an active role in stunting prevention efforts, but their attitudes and behaviors also significantly influence the effectiveness of such prevention. Education that enhances knowledge, coupled with interventions that support changes in attitudes and behaviors, is essential to address stunting. Interventions based on educational media, community-based education, and family empowerment can accelerate positive changes in mothers' attitudes and behaviors, which will ultimately reduce stunting rates.

Theme 2: Determinants

Mothers' stunting prevention behaviors are influenced by multidimensional determinants, particularly factors related to education, socioeconomic status, access to health services, and family support. Maternal education is the most stable component as it relates to health literacy, understanding of nutritional information, and the ability to apply appropriate child-rearing practices (Arnita, 2020) and (Amri Yeni Putri, 2022) . This aligns with the social gradient in health theory, which posits that education plays a crucial role in fostering healthy behaviors (Sartika, 2022) . Additionally, socioeconomic status, access to healthcare services, and family support influence a mother's ability to prevent stunting, particularly in vulnerable areas with limited access to basic services (Juniarti, 2025) and (Roba *et al.*, 2021) .

A mother's employment status has a significant impact on stunting prevention. Working mothers may face time constraints in child care, which can affect the consistency of feeding and

monitoring of their children's growth (Amri Yeni Putri, 2022) . However, a mother's employment can also maximize household income, which has the potential to support children's nutritional needs when accompanied by a supportive family environment. Low household income is associated with an increased prevalence of stunting, particularly among children under 2 years of age (Karlsson, Kim, and Hasman, 2023) . Additionally, mothers' participation in the labor force can help reduce stunting if supported by nutrition education and the promotion of exclusive breastfeeding (Wanka *et al.*, 2025) .

The determinants of stunting prevention behaviors cannot be understood in isolation. Education, socioeconomic conditions, employment status, and family support interact to shape mothers' caregiving capacity. Therefore, stunting prevention policies need to adopt a cross-sectoral approach that considers the social determinants of health.

Theme 3: Intervention Models and Strategies

Education-based interventions are the most widely used strategy in stunting prevention and are effective in improving mothers' knowledge and caregiving practices. Structured nutrition and child health education can enhance mothers' understanding of appropriate nutritional needs and care (Dearden, 2023) and (Fitriahadi, 2023) , which aligns with global evidence that nutrition education positively impacts caregiving behaviors (Muluye, Lemma, and Diddana, 2020) . The effectiveness of interventions is significantly enhanced when implemented in a participatory and community-based manner through the involvement of health cadres and continuous support, compared to one-way education (Sutinbuk, 2024) and (Ho *et al.*, 2023) .

The use of digital media is a potential approach in stunting prevention interventions because it can expand reach and ensure the continuity of health information, especially for mothers with limited time and access to services (Erfina, 2025) . Digital interventions also have the potential to improve mastery of the material and adherence to health practices (Mesra and Rahman, 2025) . Educational media, such as newspapers, radio, television, mobile phones, and the internet, are effective in disseminating information on nutrition, hygiene, and sanitation to support stunting prevention behaviors, particularly among mothers with low educational levels (Jung *et al.*, 2025) . Thus, stunting prevention interventions need to be multimodal, sustainable, and integrated with primary health care and community services.

Theme 4: Culture and Child-rearing

Culture and parenting practices are contextual factors that shape stunting prevention practices. Cultural norms and social values can influence mothers' perceptions of child growth, feeding practices, and health decisions (Natalie, 2025) . Practices such as dietary restrictions for pregnant or breastfeeding mothers, limited dietary diversity for children, early introduction of formula milk, and delayed or inappropriate complementary feeding can increase the risk of malnutrition and stunting (Sarilisnawati, Hamzah Hasyim, 2022) . These findings align with the nurturing care framework, which emphasizes the importance of responsive care that is culturally appropriate (Arief *et al.*, 2025) .

Cultural values shape gender roles within the family, so that child care is often placed more heavily on mothers and can limit optimal parenting practices. Fathers' involvement in household chores and child care through SBCC programs can support child health and the prevention of stunting (Dearden, 2023) . Support from fathers and extended families also contributes positively to children's nutritional needs and stimulation (McCann *et al.*, 2024) . Therefore, stunting prevention interventions must be culturally sensitive, involve families and communities, and consider social norms to ensure they are more accepted, effective, and sustainable (Prayitno *et al.*, 2025) .

Thematic Synthesis

Prevention of stunting can be influenced by mothers' knowledge, attitudes, and behaviors regarding exclusive breastfeeding, complementary feeding, balanced nutrition, growth and development monitoring, as well as hygiene and sanitation. However, in practice, prevention does not rely solely on knowledge but is also influenced by education, socioeconomic background, employment, access to health care facilities, family support, and child-rearing culture. Therefore, stunting prevention interventions must be integrated, sustainable, community-based, culturally sensitive, and involve families as well as primary health care services.

Limitations

This scoping review has several limitations, including the scope and methods of the study. The literature search was limited to specific databases and publication periods, so there is a possibility that relevant studies were not identified because they fell outside the scope of the researchers' search. Additionally, the number of articles reviewed is relatively limited, and most studies in this review used observational designs, reflecting the characteristics of the available evidence on this topic. Consistent with the objectives of a scoping review, this review provides a comprehensive mapping of existing scientific evidence and identifies patterns, themes, and research gaps related to stunting prevention.

CONCLUSION

The results of this scoping review demonstrate that mothers' knowledge, attitudes, and behaviors, social determinants, educational intervention models, as well as cultural and caregiving contexts are key elements in stunting prevention. These findings indicate that stunting prevention policies need to integrate continuous maternal education, a multisectoral approach to address social determinants, and culturally sensitive interventions that involve families and communities. The policy considerations reported in this study are based on the review findings, namely the need for comprehensive, contextual, and integrated stunting prevention strategies within health and community service systems.

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AUTHOR CONTRIBUTION STATEMENT

Friescha Fricillia Martin contributed to the design of the research concept and objectives, the development of the scoping review procedures, literature exploration and screening, data extraction, thematic analysis, and the writing and revision of the manuscript. Sulistyarningsih participated in scientific oversight, verification of methodology and results, and provided conceptual and methodological input throughout all stages of the research. Asri Hidayat optimized critical observation of results, academic structure development, and manuscript editing to ensure consistency, coherence, and scientific accuracy. All authors have read and approved the final version of this manuscript.

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