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VIDEO-BASED DIGITAL HEALTH EDUCATION FOR INCLUSIVE STUNTING PREVENTION AMONG PREGNANT WOMEN: A SCOPING REVIEW

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ABSTRACT

Stunting is still a public health problem that has an impact on children's physical growth, cognitive development, and quality of life. The gestational period is an important stage in stunting prevention because maternal knowledge, nutritional status, and health practices play a role in child growth. Video-based digital health education is an innovative approach to increase access to maternal health information and support changes in stunting prevention behavior. This study aims to identify and map scientific evidence regarding the use of video-based digital health education in efforts to prevent stunting in pregnant women. This study uses a scoping review method based on the Arksey and O'Malley framework with the Population, Concept, Context (PCC) framework. Literature search was conducted on the PubMed, ScienceDirect, Wiley, EBSCO, and Neliti databases. Article selection was reported using the PRISMA 2020 diagram, while the quality of the articles was assessed using the Joanna Briggs Institute Critical Appraisal Tools and the Mixed Methods Appraisal Tool. A total of 12 articles met the inclusion criteria. The results of the study showed that video-based digital health education was implemented through audiovisual media, digital platforms, community approaches, and behavior change communication. These interventions contributed to improving knowledge, attitudes, self-efficacy, maternal nutrition practices, and social support in stunting prevention. In conclusion, video-based digital health education has the potential to be a promotive and preventive strategy in preventing stunting in pregnant women. Optimal implementation requires technology integration, assistance for health workers, community support, and adjustments to the needs and socio-cultural context of the target.
Keywords: Digital Health Education; Educational Videos; Pregnant Women; Stunting Prevention.

INTRODUCTION

Stunting is a manifestation of chronic nutritional problems that reflect the accumulation of health and nutritional disorders since the early period of life, including

pregnancy. This condition not only causes linear growth disorders in children, but is also related to cognitive development barriers, decreased learning capacity, and economic productivity in adulthood. Globally, around 148 million children under five were stunted in 2022, showing that stunting prevention is still a public health priority, especially in low- and middle-income countries. Indonesia has seen a decrease in stunting prevalence from 24.4% in 2021 to 21.5% in 2023, but this figure still shows the need for more effective intervention strategies, especially through promotive and preventive approaches from the time of pregnancy (Permatasari et al., 2021).

Pregnancy is a critical period in stunting prevention because the nutritional status and health behavior of the mother play a role in determining fetal growth and development. Health education interventions for pregnant women are an important strategy because knowledge about maternal nutrition, food consumption practices, and the use of health services can affect the quality of maternal and child health care. Previous studies have shown that nutrition and reproductive health education in pregnant women is able to increase maternal health knowledge and behaviors that support the prevention of nutritional disorders in children (Permatasari et al., 2021). However, conventional education approaches still face challenges in the form of limited-service coverage, dependence on health workers, and gaps in access to information in groups of pregnant women with different social and geographical conditions.

Digital transformation in the health sector offers an alternative approach to expand access to maternal health education through more flexible and user-centered media. One of the emerging approaches is video-based digital health education, which is the use of video media as a means of delivering health information through a combination of visual, audio, and narrative elements. These characteristics allow for the delivery of health messages that are easier to understand, especially for individuals with diverse levels of health literacy. Previous research has shown that video-based education can increase pregnant women's knowledge about nutrition and stunting prevention (Patty et al., 2023). In addition, digital technology-based educational interventions also show the potential to increase access to maternal nutrition information through a more practical and sustainable approach (Peiris et al., 2023).

Although the evidence for the effectiveness of digital education on maternal health continues to grow, the available research is still diverse in the characteristics of interventions, platforms, delivery methods, and measured outputs. The aspect of inclusivity has also not been widely mapped, especially related to technology access, digital literacy, language and cultural suitability, and the needs of vulnerable groups. Therefore, evidence mapping is needed to understand the application of video-based digital health education in stunting prevention as well as the factors that support and hinder access and implementation.

Based on these gaps, this study aims to conduct a scoping review to map the use of video-based digital health education in the prevention of inclusive stunting in pregnant women, including the characteristics of the intervention, educational content, platforms,

outputs, as well as aspects of accessibility and inclusivity. The results of the study are expected to be the basis for the development of effective, adaptive, and equitable maternal digital health education.

METHOD

Research Design

Scoping this review uses a framework (Arksey H, 2005) by identifying research questions using the PCC (Population, Concept, Context) framework. The population (P) in this study is pregnant women. Concept (C) is video-based digital health education, while Context (C) focuses on stunting prevention in an inclusive manner. The included study includes quantitative and mixed-methods research designs. The literature search process is carried out through several databases, namely PubMed, ScienceDirect, Wiley, EBSCO, and Neliti. Furthermore, relevant articles are identified and selected according to the criteria that have been set, then data extraction, mapping, summarizing, and presenting the results of the scoping review findings are carried out systematically.

Search Strategy

The literature search strategy in this scoping review was prepared based on the PCC (Population, Concept, Context) framework and was carried out systematically by combining Boolean operators (AND and OR), truncation techniques (*), and Medical Subject Headings (MeSH) according to the characteristics of each database. The keywords used included: (pregnan OR "pregnant women") AND ("digital health education" OR "video-based learning") AND (stunting* OR "stunting prevention" OR "maternal nutrition education*"). All articles were exported to Rayyan for duplication identification and selection process.

Inclusion Criteria

The inclusion criteria in this scoping review include primary research articles published in 2020–2026, in Indonesian or English, and available in full text. The included articles discuss video-based digital health education interventions in efforts to prevent stunting in pregnant women, both through educational video media, digital health applications, online learning platforms, and other forms of digital interventions that use video as the main component of education. Articles must also discuss educational aspects related to maternal nutrition, stunting prevention knowledge, maternal health behaviors, or increasing health literacy during pregnancy, as well as considering aspects of accessibility and inclusivity of digital education. The research design used includes quantitative and mixed-methods research.

Exclusion Criteria

Exclusion criteria include articles that do not discuss video-based digital health education in stunting prevention, articles that focus on non-educational interventions

such as supplementation, therapy, or medical measures, and articles that discuss stunting in general without explaining the form, implementation process, or results of digital health education interventions.

Study Selection

Article selection is carried out through two stages. The first stage is the screening of titles and abstracts based on inclusion and exclusion criteria. The second stage is a full-text assessment to ensure the suitability of the article with the focus of the review. Articles that meet all criteria are then included in the data extraction process. The selection process is reported using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 flowchart to increase reporting transparency.

Data Charting and Extraction

The data charting process is carried out using data extraction sheets that are compiled based on the objectives of the scoping review and the PCC framework. The information extracted includes the article code, author name, year of publication, article title, research country, population characteristics, sample size, research design, health education intervention concept, stunting prevention context, types of health education interventions, main results, author conclusions, and relevant methodological notes. Data extraction is carried out by the main researcher and re-examined by other researchers to ensure compatibility with the original article. If there are differences in interpretation, discussions are held until an agreement is reached. The data charting process is carried out iteratively so that the extraction format can be adjusted if important information is found that is relevant to the purpose of the scoping review.

Quality Assessment

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

RESULTS AND DISCUSSION

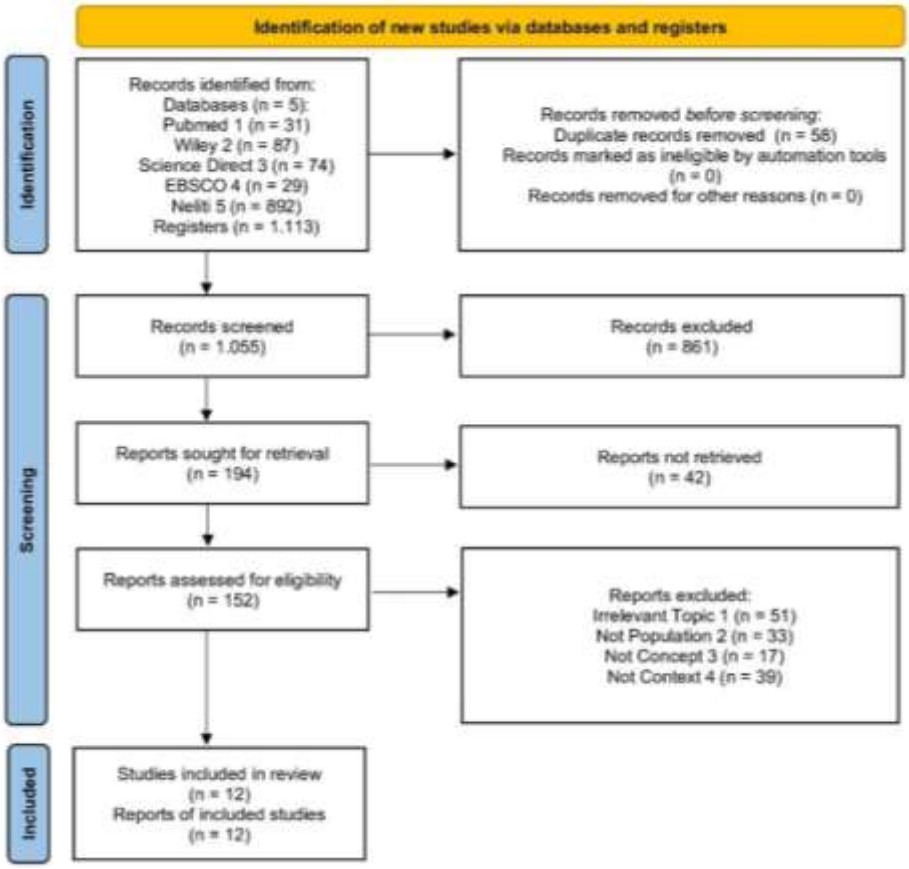


Figure 1. PRISMA 2020 Flowchart

Figure 1 presents a flowchart of PRISMA 2020 which describes the process of identification, screening, feasibility assessment, and final inclusion of articles in the scoping review regarding video-based digital health education in the prevention of inclusive stunting in pregnant women. The identification stage found 1,113 articles from five databases, namely PubMed (n=31), Wiley (n=87), ScienceDirect (n=74), EBSCO (n=29), and Neliti (n=892). A total of 58 duplicate articles were deleted, leaving 1,055 articles to be screened based on titles and abstracts.

At the screening stage, a total of 861 articles were removed because they were not in accordance with the focus of the research. Furthermore, 194 articles were searched for full-text retrieval, but 42 articles were not successfully obtained because access to the full text was not available. A total of 152 articles were then assessed for eligibility based on inclusion criteria and the PCC (Population, Concept, Context) framework.

At the full-text assessment stage, a total of 140 articles were excluded because they did not meet the criteria, consisting of 51 articles because the topic was irrelevant, 33 articles because the population was not suitable, 17 articles because the intervention concept was not suitable, and 39 articles because the research context was not in accordance with inclusive stunting prevention. After going through all stages of

selection, as many as 12 articles met the inclusion criteria and were included in the scoping review for data extraction and synthesis of research findings.

After the article selection was carried out, the researcher conducted a critical assessment to evaluate the methodological quality of each selected study design. The researcher concluded that factors such as internal validity, relevance, and generalization of the research results were assessed to determine their contribution to the stunting prevention context. This assessment used a rating system categorized into three levels of quality: Excellent (Grade A), Good (Grade B), and Adequate (Grade C), which was applied to 12 articles that passed the feasibility assessment stage. The results of this assessment showed that most of the selected articles had Excellent methodological quality, with some of them receiving good grades.

Table 1. Quality Assessment Article

Article Code	Author (Year)	Critical Appraisal	Grade
A1	(Maharjan et al., 2022)	Quasi-Experimental Studies	A
A2	(Peiris et al., 2023)	Mixed Methods Appraisal Tool	A
A3	(Metin & Baltacı, 2024)	Randomized Controlled Trial	A
A4	(Kadiyala et al., 2021)	Randomized Controlled Trial	A
A5	(Boynito et al., 2025)	Randomized Controlled Trial	A
A6	(Wilkinson et al., 2023)	Cohort Studies	B
A7	(Komakech et al., 2024)	Randomized Controlled Trial	A
A8	(Nemerimana et al., 2023)	Cohort Studies	B
A9	(Dearden, 2023)	Quasi-Experimental Studies	A
A10	(Erfina et al., 2025)	Mixed Methods Appraisal Tool	A
A11	(Sutinbuk et al., 2024)	Quasi-Experimental Studies	A
A12	(Sarmaida & Anggraini, 2020)	Quasi-Experimental Studies	B

Table 2. Data Charting and Extraction

Article Code	Author (Year)	Study Title	Country	Participants/ Sample Size	Study Design	Results
A1	(Maharjan et al., 2022)	Socio-Culturally Adapted Educational Videos Increase Maternal and Newborn Health Knowledge in Pregnant Women and Female Community Health Volunteers in Nepal's Khotang District	Nepal	101 pregnant women and 39 Female Community Health Volunteers (total n=140)	Quasi-Experimental Studies	Video education based on sociocultural context increases pregnant women's knowledge related to ANC, pregnancy danger signs, and newborn care. This intervention has the potential to support stunting prevention through increasing maternal health literacy, as well as increasing FCHVs knowledge related to the prevention and management of postpartum bleeding.
A2	(Peiris et al., 2023)	Mobile Phone-Based Nutrition Education Targeting Pregnant and Nursing Mothers in Sri Lanka	Sri Lanka	996 pregnant women and breastfeeding mothers (pre-assessment), 720 participants (post-assessment)	Mixed Methods Appraisal Tool	Mobile phone-based nutrition education improves maternal health knowledge, attitudes, and practices. In pregnant women, increasing nutrition knowledge shows the potential of digital education in supporting stunting prevention.
A3	(Metin & Baltacı, 2024)	The Effects of Video-Assisted Breastfeeding Education Given to Primiparous Pregnant Women on Breastfeeding Self-Efficacy: Randomized Control Study	Turkey	80 primipara pregnant women (40 interventions; 40 controls)	Randomized Controlled Trial	Video-based breastfeeding education significantly increased the breastfeeding self-efficacy of pregnant women compared to controls. These findings show the potential of digital video education in improving breastfeeding readiness during pregnancy as part of efforts to support

						maternal and child health.
A4	(Kadiyala et al., 2021)	Effect of Nutrition-Sensitive Agriculture Interventions with Participatory Videos and Women's Group Meetings on Maternal and Child Nutritional Outcomes in Rural Odisha, India (UPAVAN Trial): A Four-Arm, Observer-Blind, Cluster-Randomised Controlled Trial	India	4,480 mothers/mother-child pairs at baseline; 4,291 mothers at endline	Randomized Controlled Trial	Nutrition-based participatory video interventions improved the quality of maternal and child diets. Video education showed potential in supporting stunting prevention through improved maternal and child nutrition practices, although it did not show a direct change in anthropometric status.
A5	(Boynito et al., 2025)	Effects of Video-Based Health Education on Birth Outcomes and Anaemia Status of Mothers in Dirashe District South Ethiopia: A Cluster Randomized Controlled Trial	Ethiopia	596 first trimester pregnant women (519 completed to delivery)	Randomized Controlled Trial	Video-based health education improves compliance with IFA consumption, infant birth weight, hemoglobin levels, and reduces maternal anemia. This intervention has the potential to support stunting prevention through improving maternal health and nutrition from pregnancy.
A6	(Wilkinson et al., 2023)	Evaluation of the Pragmatic Implementation of a Digital Health Intervention Promoting Healthy Nutrition, Physical Activity, and Gestational Weight Gain for Women Entering Pregnancy at a High Body Mass Index	Australia	132 pregnant women (35 interventions; 97 controls) with a pre-pregnancy BMI of ≥25 kg/m²	Cohort Studies	Digital health interventions based on SMS, websites, and videos improve the quality of diet and nutritional behavior of pregnant women. The program shows potential as a digital education strategy to support maternal health and prevention of nutritional problems from the time of pregnancy.
A7	(Komakech et al., 2024)	Care Groups in an Integrated Nutrition Education	Uganda	390 third trimester	Randomized	Care Group-based nutrition education increases infant growth and reduces the

		Intervention Improved Infant Growth Among South Sudanese Refugees in Uganda's West Nile Post-Emergency Settlements: A Cluster Randomized Trial		pregnant women (321 mother-baby pairs completed the study)	Controlled Trial	incidence of stunting and underweight through increased social support and maternal nutrition practices.
A8	(Nemerimana et al., 2023)	Factors Associated with Recovery from Stunting at 24 Months of Age Among Infants and Young Children Enrolled in the Pediatric Development Clinic (PDC): A Retrospective Cohort Study in Rural Rwanda	Rwanda	179 infants and young children with stunting at 11 months of age	Cohort Studies	As many as 20.7% of children recover from stunting at the age of 24 months. Early stunting and stunting severity are associated with low chances of recovery, demonstrating the importance of nutritional and preventive interventions from the early stages of life.
A9	(Dearden, 2023)	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 households with children aged <2 years	Quasi-Experimental Studies	SBCC's mass media-based program and interpersonal communication improves knowledge, attitudes, and practices related to maternal health, child feeding, and stunting prevention behavior.
A10	(Erfina et al., 2025)	Development and Evaluation of Blended Interventions to Prevent Stunting in Children of Adolescent Mothers: A Mixed Methods Study	Indonesia	14 adolescent mothers + 20 health workers (qualitative phase); 60 adolescent	Mixed Methods Appraisal Tool	A combination of face-to-face educational interventions and video-based digital applications increased knowledge of stunting prevention and food consumption practices of adolescent pregnant women. The blended intervention approach shows potential as a digital maternal health

				pregnant women (30 interventions; 30 controls)		education strategy for vulnerable groups.
A11	(Sutinbuk et al., 2024)	Effectiveness of ERKADUTA Model to Increase Stunting Prevention Behaviors Among Mothers with Toddlers in Indonesia: A Quasi-Experiment	Indonesia	112 mothers with children aged <2 years (56 interventions; 56 controls)	Quasi-Experimental Studies	The ERKADUTA model significantly improves maternal knowledge, attitudes, and practices in stunting prevention. The cadre mentoring approach is effective in strengthening community-based stunting prevention behavior.
A12	(Sarmaida & Anggraini, 2020)	The Influence of Audio Visual Media on the Level of Knowledge and Attitudes in Pregnant Women about Stunting Prevention in Cinta Rakyat Village	Indonesia	42 pregnant women	Quasi-Experimental Studies	Audio-visual media-based education significantly increases the knowledge and attitudes of pregnant women about stunting prevention (knowledge p=0.001; attitude p=0.004). Video/audio-visual media has the potential to be a maternal health education strategy in supporting stunting prevention.

Characteristics of Articles by Country

Based on the characteristics of the article's country of origin, of the 12 articles included in this scoping review, most of the research came from Indonesia, which was 3 articles (25%). Meanwhile, articles from Turkey, Nepal, Sri Lanka, India, Uganda, Ethiopia, Rwanda, Australia, and Tanzania amounted to 1 article each (8.3%). This distribution shows that research on video-based digital health education in stunting prevention in pregnant women is most commonly found in the Indonesian context, but has developed in various countries with different social, cultural, and health service systems. The diversity of these countries illustrates that technology-based educational interventions, including educational videos, are becoming an increasingly used approach to improve knowledge, maternal health behaviors, and stunting prevention efforts in a more inclusive manner.

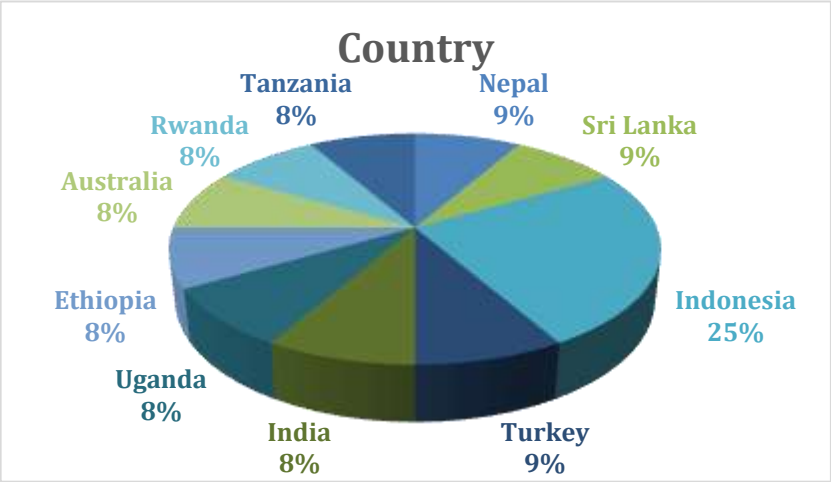


Figure 2. Characteristics of Articles by Country

Characteristics of Articles According to Research Methods

Based on the characteristics of the research methods in the 12 articles included in this scoping review, the most widely used research designs were Randomized Controlled Trials (RCT) and Quasi-Experimental Studies, each with 4 articles (33.3%). Furthermore, Cohort Studies were found in 2 articles (16.7%), and Mixed Methods Studies as many as 2 articles (16.7%) were assessed using the Mixed Methods Appraisal Tool (MMAT). This distribution shows that most studies use intervention designs to evaluate the effectiveness of video-based and digital health education in improving knowledge, attitudes, health behaviors, and maternal nutritional factors related to stunting prevention. RCT studies provide stronger evidence of the effectiveness of interventions through randomization and comparison groups, while quasi-experimental studies are widely used to assess changes before and after education in the target group. In addition, the cohort and mixed methods approach provide a broader understanding of behavioral change, acceptance of interventions, and contextual factors that affect the implementation of digital health education in supporting stunting prevention.

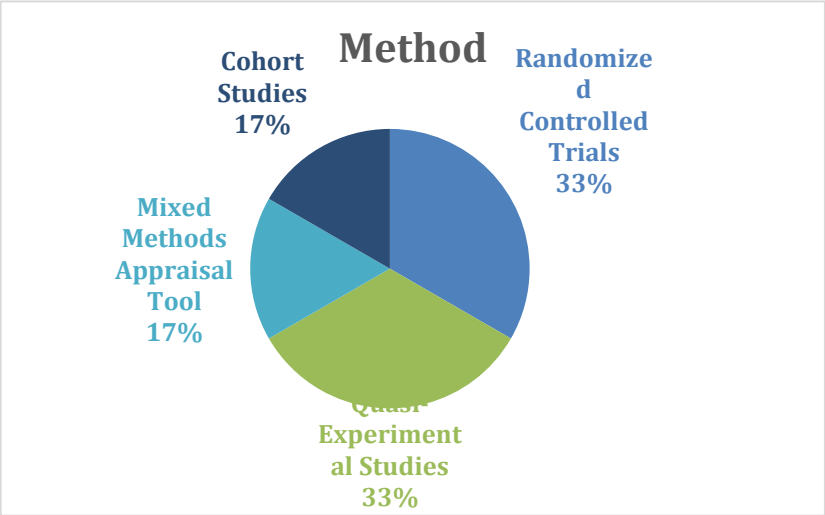


Figure 3. Characteristics of Articles According to Research Methods

Characteristics of Articles by Grade

Based on the results of the quality assessment on the 12 articles included in this scoping review, most of the articles obtained a Grade A (Excellent) as many as 9 articles (75%), while 3 articles (25%) obtained a Grade B (Good). Articles with Grade A showed strong methodological quality based on the suitability of the research design, the clarity of the digital/video health education intervention, the validity of outcome measurement, and the accuracy of the data analysis. Meanwhile, the articles with Grade B still met the inclusion criteria, but had some methodological limitations such as the absence of randomization, the design of a single group without control, the use of retrospective data, or limitations in the follow-up process. There were no articles with Grade C, so all articles analyzed had adequate methodological quality to support the mapping of evidence regarding video-based digital health education in stunting prevention in pregnant women.

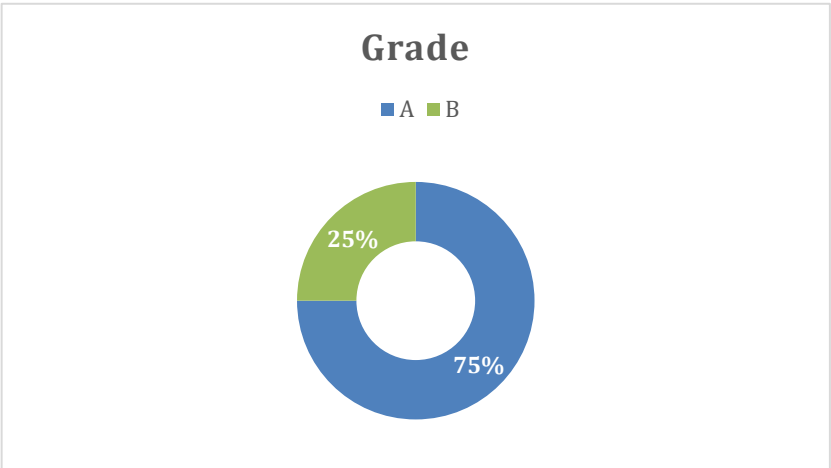


Figure 4. Characteristics of Articles by Grade

Theme Identification

Table 3. Analysis and Mapping-Of Research Article

Themes	Sub-Themes	Article Code
Media and Digital Platform Innovation in Maternal Health Education	Video and audiovisual as a means of delivering health information	A1, A10, A12
	The use of digital platforms to support access to health education	A3, A8
Changes in Maternal Health Capacity and Practice as an Impact of Educational Interventions	Improvement of knowledge, attitudes, and self-efficacy of mothers	A1, A10, A12
	Changes in nutritional behavior and health practices during pregnancy	A2, A3, A11
Digital-Based and Community Education Implementation Model	Integration of technology with mentoring and empowerment approaches	A4, A7, A8
	Communication of family- and community-based behavior change	A5, A9
The Contribution of Maternal Education Interventions to Stunting Prevention	Improvement of maternal risk factors and early childhood growth	A2, A4, A5, A6
	Optimizing stunting prevention strategies through the First 1000 Days of Life approach	A7, A9, A11

Theme 1: Media and Digital Platform Innovation in Maternal Health Education

The results of the synthesis show that digital media innovation in maternal health education has evolved from simple audiovisual media to a more interactive digital platform. Educational videos are the dominant approach because they are able to visually present health information, increase maternal understanding, and facilitate the application of health messages related to pregnancy, breastfeeding, and maternal nutrition. Video education that is tailored to the socio-cultural context has been proven to increase the health knowledge of pregnant women and health workers in supporting optimal maternal practices (Maharjan et al., 2022).

In addition to increasing knowledge, video media also plays a role in building maternal readiness and confidence in health practices. Video interventions in pregnant women showed an increase in breastfeeding self-efficacy and breastfeeding readiness because information was conveyed through visual demonstrations that were easier to understand than text-based education (Metin & Baltacı, 2024). This is reinforced by research showing that video-based health education can be well received by mothers and health workers because it has flexibility in use and supports the maternal counseling process (Boynito et al., 2025).

Technological developments further show a shift towards digital health platforms through a combination of applications, websites, SMS, and online consultations. The integration of various digital media allows education to be provided repeatedly, personally, and not limited to antenatal service visits. Website-based, short message, and video digital interventions have been proven to increase knowledge, behavior

change, and maternal involvement in health management during pregnancy (Wilkinson et al., 2023). The findings are in line with a systematic study that shows that video is one of the most frequently used maternal digital education formats and has a positive impact on improving knowledge and changing health behaviors (Gabriel, 2022).

The latest approach leads to a blended digital education model, which is a combination of digital media with the support of health workers. The integration of video-based digital applications with online consultations has been proven to increase adolescent pregnant women's knowledge about stunting prevention and improve nutritious food consumption practices (Erfina et al., 2025). This combination model shows that digital technology is more effective when it functions as a means of strengthening educational relationships between mothers, health workers, and service systems.

In the context of stunting prevention, digital media innovation has strategic value because it allows interventions to be carried out from the pregnancy period through increasing maternal health literacy. Audiovisual education for pregnant women has been proven to increase knowledge and attitudes related to stunting prevention, thereby supporting mothers' readiness to implement health behaviors related to child growth (Sarmaida & Anggraini, 2020). Overall, the evidence shows that videos and digital platforms are not only a medium for delivering information, but are developing into an instrument of maternal empowerment to support maternal health decisions from the antenatal period.

Theme 2: Changes in Maternal Health Capacity and Practice as an Impact of Educational Interventions

The results of the article synthesis show that maternal health education interventions contribute to increasing maternal capacity through changes in knowledge, attitudes, and readiness to understand health needs during pregnancy. The article included in this theme shows that increased maternal knowledge is related to a better understanding of pregnancy nutrition, antenatal care, and risk factors related to stunting. This capacity building is an important basis in shaping the mother's ability to make more informed health decisions during the pregnancy period. Nutrition and reproductive health education in pregnant women has been proven to improve maternal health knowledge, attitudes, and practices that support the prevention of child growth disorders (Permatasari et al., 2021).

Changes in maternal capacity are further seen through increased readiness and ability to implement maternal health behaviors. The results of the article show that education is able to strengthen maternal understanding of infant health needs and early life care practices, thereby supporting the formation of preventive behaviors from the antenatal period. Increased maternal knowledge is also reported to be related to the mother's ability to understand health information and apply it in daily practice (Maharjan et al., 2022). However, changes in knowledge do not always directly result in

changes in practices because maternal behavior is also influenced by family support, socioeconomic conditions, and supportive environments (Abu-Baker et al., 2022).

In addition to changes in individual capacity, the article on this theme shows changes in maternal health practices, especially in the aspect of nutrition during pregnancy. Nutrition education for pregnant women can increase understanding of nutrient needs, improve food consumption behavior, and support the prevention of growth disorders since the antenatal period (Muhamad et al., 2023). Changes in health behavior are also seen in increased adherence to efforts to prevent anemia during pregnancy through increased maternal knowledge and preventive behaviors (Arifah, 2023).

Overall, the results of the synthesis suggest that maternal education interventions play a role in establishing a pathway of change from increased knowledge to the implementation of health practices that support stunting prevention. However, the available evidence suggests that the success of interventions is not only determined by increased maternal cognitive capacity, but also by the ability to sustain behavioral change through environmental support and sustainability of health assistance.

Theme 3: Implementation Model of Digital-Based and Community-Based Education

The results of the synthesis show that the implementation model of digital- and community-based maternal health education does not only focus on information delivery, but integrates group empowerment, mentoring, and community involvement. A participatory video approach combined with women's groups shows that education can run more effectively when the community is involved as part of the learning process through discussion and social support (Kadiyala et al., 2021).

The community-based approach is also seen through the Care Group model which places facilitators and mothers' groups as liaisons in the implementation of maternal nutrition education. This model strengthens the sustainability of interventions because health messages are not only delivered individually, but are reinforced through social interaction and community support (Komakech et al., 2024). The role of community health cadres and workers is also an important component because it is able to bridge health information with the needs of the community and improve program sustainability (Patil et al., 2022).

The implementation of maternal education is also strengthened through a Social and Behavior Change Communication (SBCC) strategy that combines health communication, family support, and strengthening social norms. This approach shows that changes in maternal and child health behaviors require a supportive social environment, not just increased access to health information (Dearden, 2023). Public communication-based education has also been proven to increase family involvement and strengthen the implementation of stunting prevention practices at the household level (Ayue et al., 2025).

The integration of digital technology with direct mentoring is becoming an increasingly developing implementation model because it is able to combine the flexibility of information access with interpersonal support. The community-based digital approach shows the potential to expand the reach of maternal education, especially when combined with the involvement of health workers and cadres as companions (Rinawan et al., 2021). The use of health education applications also shows that digital media can support stunting prevention programs if developed according to the needs of users and the context of health services (Marsita, 2026).

Overall, the maternal education implementation model shows a shift from a one-way educational approach to a collaborative system that connects digital technologies, families, communities, cadres, and health workers. An identifiable novelty is that the success of educational interventions in stunting prevention is not only determined by the media used, but by the strength of the implementation system in building community participation and program sustainability.

Theme 4: The Contribution of Maternal Education Intervention to Stunting Prevention

Maternal health education interventions contribute to stunting prevention through improving risk factors from the pregnancy period, especially related to nutrition literacy, maternal health practices, and parenting readiness. Technology-based and community-based nutrition education shows that increased access to information can support mothers in understanding nutritional needs during pregnancy and the First 1000 Days of Life period (Peiris et al., 2023). Nutrition education approaches involving community groups also play a role in improving feeding practices and the quality of maternal and child intake as an important factor in preventing growth disorders (Kadiyala et al., 2021).

Stunting prevention is also related to the control of maternal risk factors such as anemia, diet quality, and readiness for health behaviors during pregnancy. Video-based educational interventions show that health message delivery can increase maternal adherence to iron consumption and improve maternal health indicators related to birth outcomes (Boynito et al., 2025). Maternal nutrition improvement strategies from pregnancy are an important component because the nutritional status of the mother affects fetal growth and the risk of child growth disorders (WHO, 2021).

In addition to maternal factors, stunting prevention requires a sustained approach to the early period of a child's life through family and community support. Care Group models and behavior change communication show that community involvement can strengthen health practices, growth monitoring, and the implementation of stunting prevention behaviors at the household level (Komakech et al., 2024). The community-based approach has also been shown to increase program ownership as communities are directly involved in the educational process and behavior change (Dearden, 2023).

Overall, the results of the synthesis show that the contribution of maternal education to stunting prevention does not only come from increasing maternal

knowledge, but through system changes that include improving maternal nutrition, community support, and strengthening parenting practices since the First 1000 Days of Life. The integration of digital education with a community approach is a potential strategy because it is able to expand access to information while maintaining social support in stunting prevention (Ariyani et al., 2022). The digital approach combined with health mentoring is also reported to be able to increase health literacy and support a more sustainable stunting prevention strategy (Faridah et al., 2024).

CONCLUSION AND RECOMMENDATION

The results of the scoping review show that video-based digital health education has the potential to be an effective strategy in supporting stunting prevention in pregnant women. This intervention is able to improve knowledge, attitudes, self-efficacy, and maternal health practices, especially related to nutrition, breastfeeding preparation, and understanding stunting prevention. The effectiveness of digital education is not only influenced by the media used, but also by the intervention design, socio-cultural contextuality, health worker involvement, and community support. The integration of digital technology with mentoring approaches is a promising model to expand access to maternal education inclusively.

The development of digital video-based maternal health education needs to pay attention to the aspects of accessibility, digital literacy, cultural suitability, and integration with the assistance of health workers and communities so that it can be implemented sustainably. Further research is recommended to evaluate the long-term effectiveness of digital interventions on maternal health outcomes and stunting prevention, including aspects of user acceptance, program sustainability, and its application to pregnant women groups with diverse characteristics.

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