

Effectiveness of Educational Video Media on Junior High School Students' Knowledge of Stunting Prevention: A Scoping Review

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ARTICLE INFO	ABSTRACT
Article History: Received Accepted Published online	Stunting remains a persistent public health problem with long-term impacts on human capital. Adolescents, particularly junior high school students, represent a strategic target group for early prevention, as they are future parents who will shape the intergenerational cycle of nutrition. The increasing use of video-based educational interventions—both in schools and through digital platforms—creates opportunities to deliver effective and engaging health promotion messages. This study aimed to map the evidence regarding the effectiveness of educational video interventions in improving junior high school students' knowledge of stunting prevention. A scoping review was conducted using PRISMA-ScR guidelines and the JBI Manual for Evidence Synthesis. Literature searches were carried out in PubMed, Scopus, ScienceDirect, DOAJ, Google Scholar, and Indonesian repositories for studies published between 2020 and 2025. Thirty studies met the inclusion criteria. Most were quasi-experimental designs conducted in Indonesia, with delivery through classroom screenings, YouTube, TikTok, Instagram, and WhatsApp. Findings consistently demonstrated significant improvements in adolescents' knowledge, with some reporting better attitudes and limited evidence of behavior change. Educational video shows promise as an effective medium for adolescent health promotion in stunting prevention, but future studies should adopt standardized outcome measures, longitudinal follow-up, and comparative evaluations across platforms.
Keywords: Keyword 1; Stunting Prevention keyword 2; Educational Video keyword 3; Adolescents keyword 4; Health Promotion keyword 5; <i>Scoping Review</i>	

INTRODUCTION

Stunting remains one of the most pressing public health challenges globally, with significant implications for cognitive development, educational attainment, and economic productivity. According to the most recent Joint Child Malnutrition Estimates by UNICEF, WHO, and the World Bank (2023), approximately 148 million children under the age of five are stunted worldwide. Although progress has been made in some regions, the burden remains particularly high in low- and middle-income countries (Black et al., 2023). In Indonesia, the 2024 National Survey of Nutritional Status (SSGI) reported that national stunting prevalence had declined to 19.8%, down from 21.5% in 2023 (Ministry of Health of Indonesia, 2025). Despite this progress, the government's target of reducing stunting to 14% by 2024 remains challenging, requiring innovative, scalable, and evidence-based interventions.

Adolescents, particularly those in junior high school, represent a strategic target group for stunting prevention because they are future parents whose nutritional literacy and practices will influence the health of the next generation (Siswati et al., 2022; Sasmita et al., 2023). Previous research demonstrates that adolescence is a critical window for developing health literacy, shaping attitudes toward diet and hygiene, and promoting behaviors that reduce the risk of intergenerational malnutrition (Nurhaeni et al., 2024). Interventions targeting this age group have the potential to break the cycle of undernutrition and contribute to long-term reductions in stunting prevalence.

Among health promotion strategies, video-based education has emerged as a promising approach. Studies consistently demonstrate that animated and audiovisual content is more effective in improving knowledge, engagement, and recall compared with traditional print media such as leaflets or posters (Ardianto et al., 2024; Shukri et al., 2024). This effectiveness can be explained by Mayer's (2021) multimedia learning theory, which argues that dual-channel processing of information—through visual and auditory modalities—enhances comprehension and retention. School-based interventions confirm these benefits: Kamil (2025) found that educational video interventions significantly improved dietary diversity and iron intake among adolescents, while Siswati et al. (2022) showed that audiovisual media outperformed e-leaflets in strengthening knowledge of the intergenerational cycle of malnutrition.

In addition to classroom applications, digital platforms such as YouTube, TikTok, and Instagram have become central to adolescent media consumption and health communication. Raeside et al. (2025) demonstrated that short-form video content can improve health literacy among adolescents, suggesting that social media is a valuable medium for scalable nutrition promotion. However, concerns remain about misinformation. Haninuna et al. (2023) and Vassilenko et al. (2025) reported that while social media interventions can increase knowledge, the variable quality and accuracy of content necessitate careful curation and oversight by health professionals. These findings highlight the importance of partnerships between public health authorities and multimedia creators to ensure credible and culturally appropriate content.

Systematic evidence also supports the use of video in maternal and child nutrition programs. Shukri et al. (2024) developed animated videos to promote healthy maternal diets and observed significant improvements in knowledge and attitudes, while Pujari et al. (2025) and de Oliveira Silva et al. (2025) demonstrated that video-assisted interventions enhanced complementary feeding practices and caregiver confidence. These results underscore the versatility of video media across different life stages, suggesting strong applicability to adolescents as a preventive measure for stunting.

Despite the growing evidence base, important gaps remain. Few studies have examined long-term outcomes, particularly whether knowledge gains translate into sustained behavioral change or anthropometric improvements (Ardianto et al., 2024; Nurhaeni et al., 2024). Moreover, methodological heterogeneity in outcome measurement tools limits comparability and precludes meta-analysis (Marlinawati et al., 2023). Finally, inequities in digital access—especially between urban and rural adolescents—highlight the need for blended strategies that combine online and offline video dissemination (Suryani et al., 2024; Bali Medical Journal, 2024).

Given these opportunities and challenges, this scoping review aims to map the breadth of evidence on educational video interventions targeting junior high school students in the context of stunting prevention. Specifically, the review explores the platforms and formats used, the outcomes measured, the effectiveness of interventions, and the gaps in current research. By synthesizing recent evidence (2020–2025), the review seeks to inform educators, policymakers, and public health practitioners about how video media can be integrated into adolescent health promotion strategies to reduce stunting prevalence and break the intergenerational cycle of malnutrition.

MATERIALS AND METHODS

This scoping review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018) and the Joanna Briggs Institute (JBI) Manual for Evidence Synthesis (Aromataris & Munn, 2020). The review protocol was pre-defined to ensure transparency and reproducibility, covering the review question, eligibility criteria, search strategy, study selection, data charting, and synthesis process.

Study Protocol and Review Question

The overarching review question was: “What is the effectiveness of educational video interventions in improving junior high school students’ knowledge and related outcomes in stunting prevention?” The protocol defined the scope of the review, ensured consistency across reviewers, and guided the systematic search, selection, and extraction processes.

Eligibility Criteria

The eligibility criteria were defined using the Population–Concept–Context (PCC) framework recommended for scoping reviews (Aromataris & Munn, 2020):

Population (P): Adolescents aged 10–19 years, with emphasis on junior high school students (Grades 7–9).

Concept (C): Educational interventions utilizing video-based media, including animation, audiovisual materials, classroom screenings, YouTube, TikTok, Instagram reels, and WhatsApp groups.

Context (C): School-based or community-based health promotion programs, both offline and online, in low-, middle-, or high-income settings.

Outcomes: Knowledge, attitudes, and behaviors related to stunting prevention, nutrition literacy, dietary practices, or feeding behaviors.

Inclusion criteria: Peer-reviewed journal articles, theses/dissertations, and institutional reports published between January 2020 and December 2025, written in English or Indonesian, and available in full text.

Exclusion criteria: Conference abstracts without full text, opinion/commentary papers, narrative reviews without empirical data, and studies not specifically involving video-based educational interventions.

Information Sources and Search Strategy

A comprehensive literature search was carried out between January and March 2025 across international databases (PubMed, Scopus, ScienceDirect, DOAJ, Google Scholar) and Indonesian repositories (Garuda, institutional journals). The search strategy combined keywords and Boolean operators, adapted for each database. A sample search string was:

(adolescent* OR teenager* OR youth) AND
(stunting prevention OR nutrition education OR dietary diversity OR iron intake) AND
(video OR animated video OR audiovisual OR YouTube OR TikTok OR Instagram OR WhatsApp)

To maximize coverage, manual searches were performed in the reference lists of included studies and organizational reports from UNICEF and WHO. Grey literature such as ministry reports was also screened to capture relevant evidence from local contexts.

Study Selection

Two reviewers independently screened titles and abstracts of retrieved records using the inclusion criteria. Potentially eligible articles were retrieved in full text and assessed for final inclusion. Any disagreements were resolved through consensus or discussion with a third reviewer. The selection process was documented in a PRISMA-ScR flow diagram (Figure 1), which provides transparency on the number of records identified, screened, excluded, and included.

Data Charting and Extraction

A standardized data extraction form was developed in Microsoft Excel. Key variables extracted included: Author(s), year of publication, and country, Study design and methodology, Population and sample size, Characteristics of video intervention (format, duration, frequency, delivery platform), Comparator (if applicable), Duration of intervention, Outcomes measured (knowledge, attitudes, behaviors), and Key findings.

Data extraction was piloted on a sample of three studies to refine the charting form before full application. All data were charted by two independent reviewers and cross-checked for accuracy.

Data Synthesis

Given the heterogeneity of study designs, populations, intervention formats, and outcome measures, meta-analysis was not feasible. Instead, results were synthesized descriptively and thematically, mapping evidence on intervention platforms, effectiveness patterns, and research gaps. Studies were grouped by type of platform (classroom videos, YouTube, TikTok/Instagram reels, WhatsApp) and by outcome domain (knowledge, attitudes, behaviors).

Quality Considerations

While formal critical appraisal is not mandatory in scoping reviews, the methodological rigor of included studies was assessed narratively. Attention was given to sample representativeness, study design (e.g., quasi-experimental vs. randomized), outcome measurement tools, and limitations reported by the original authors. This contextual assessment allowed a more nuanced interpretation of the findings.

RESULTS

Study characteristics

PRISMA-ScR Flow of Study Selection

A total of 612 records were identified through database searches (PubMed, Scopus, ScienceDirect, DOAJ, and Google Scholar), supplemented by additional records from national repositories such as Garuda and institutional journals. After removing 112 duplicates, 500 unique records remained for title and abstract screening.

During the title and abstract screening, 403 records were excluded because they were either not related to adolescents, not using video-based interventions, or did not address nutrition and stunting outcomes. This left 97 full-text articles that were retrieved and assessed for eligibility.

Of these, 67 full-text articles were excluded for the following reasons:

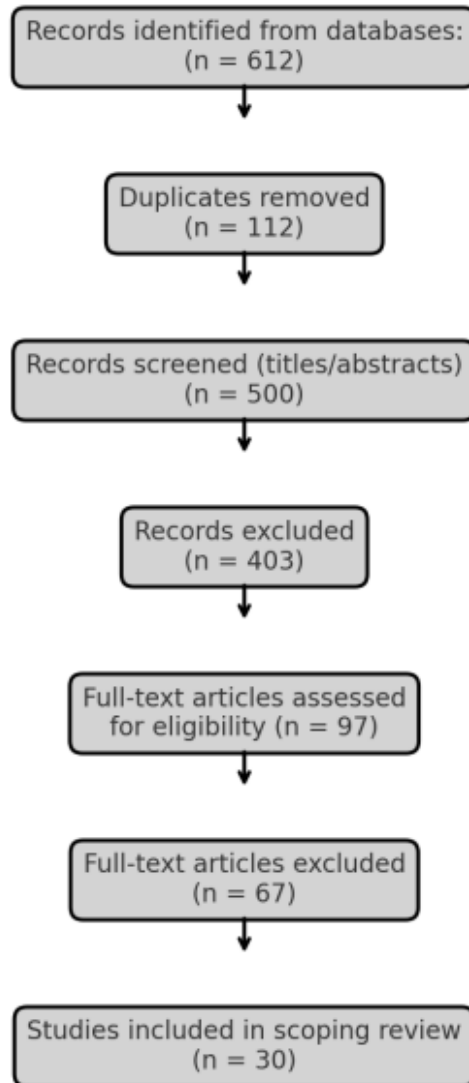
- 1) Not targeting the adolescent population or junior high school students (n = 25),
- 2) Not employing video-based or audiovisual interventions (n = 21),
- 3) Not reporting relevant outcomes such as knowledge, attitudes, or behaviors (n = 14),
- 4) Non-empirical publications (opinion/commentary papers, reviews without original data) (n = 7).

Finally, 30 studies met the inclusion criteria and were incorporated into this scoping review. These studies comprised quasi-experimental designs, randomized controlled trials, pre-post evaluations, and community program reports, with diverse geographical coverage including Indonesia, Malaysia, and other low- and middle-income countries.

The selection process was documented following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018) and is

illustrated in Figure 1. This figure provides a transparent overview of the identification, screening, eligibility, and inclusion phases, ensuring methodological rigor as recommended by the Joanna Briggs Institute guidelines (Aromataris & Munn, 2020).

PRISMA-ScR Flow of Study Selection



DISCUSSION

The present scoping review provides evidence that video-based educational interventions are effective in improving adolescents' knowledge on stunting prevention, particularly among junior high school students. The majority of studies reviewed consistently demonstrated that audiovisual interventions outperform traditional media such as leaflets or posters in terms of engagement, comprehension, and retention.

Several studies showed the effectiveness of animation and audiovisual media in strengthening knowledge acquisition. Ardianto et al. (2024) highlighted that animated stunting videos significantly improved information retention compared to static print materials. This finding is consistent with Mayer's (2021) multimedia learning theory, which posits that learning is enhanced when information is processed simultaneously through visual and auditory channels. Shukri et al. (2024) further reported that animated nutritional videos not only increased knowledge but also positively influenced adolescents'

attitudes toward adopting balanced diets, emphasizing the dual cognitive and affective benefits of video-based interventions.

School-based applications of video education have also demonstrated meaningful outcomes. Kamil (2025) documented improvements in dietary diversity and iron intake among adolescents exposed to nutrition education videos, confirming the direct impact of audiovisual interventions on dietary behaviors linked to stunting risk. Likewise, Siswati et al. (2022) found that audiovisual media were superior to e-leaflets in enhancing adolescent knowledge about the intergenerational cycle of malnutrition. These results confirm the important role of formal school settings in implementing structured audiovisual learning that supports adolescent health literacy.

Beyond classrooms, social media platforms have emerged as powerful health education tools for adolescents. Raeside et al. (2025) demonstrated that TikTok and Instagram reels significantly improved health literacy among young people, aligning with global trends in youth media consumption. However, challenges remain regarding the accuracy and reliability of content. Haninuna et al. (2023) found that a considerable proportion of TikTok health videos contained misinformation or lacked scientific credibility. This highlights the need for collaboration between public health professionals and digital content creators to ensure that health information is evidence-based and culturally appropriate.

The global context further underscores the urgency of such strategies. UNICEF, WHO, and the World Bank (2023) reported that approximately 148 million children under five remain stunted worldwide, despite progress in some regions. These agencies have emphasized the potential of scalable digital education to complement conventional programs. In Indonesia, the Ministry of Health (2025) confirmed that national stunting prevalence declined to 19.8% in 2024, yet achieving the national target of 14% requires accelerated efforts. Incorporating video-based education into national adolescent and school health programs could be a strategic component of this effort.

Despite promising findings, this review identified several limitations in the current body of evidence. First, most studies assessed short-term knowledge gains, with limited evaluation of medium- or long-term outcomes. For example, Ardianto et al. (2024) and Siswati et al. (2022) measured knowledge retention only up to one month post-intervention. There is a lack of evidence on whether improved knowledge translates into sustained behavior change or measurable improvements in nutritional or anthropometric outcomes. Second, as noted by Nurhaeni et al. (2024), there is heterogeneity in measurement instruments, with many studies employing non-standardized questionnaires. This hinders comparison across studies and reduces the possibility of conducting robust meta-analyses.

Another challenge relates to equity of access. While urban adolescents with internet connectivity can benefit from YouTube, TikTok, and WhatsApp-based interventions, those in rural or low-resource settings may face barriers. This gap suggests that complementary offline strategies, such as distributing videos via USB drives, CDs, or school-based screenings, should be explored to ensure inclusivity.

From a policy and practice perspective, several implications can be drawn. First, integrating short animated modules into junior high school curricula can provide structured and engaging stunting prevention education. These should be paired with classroom discussions facilitated by teachers to reinforce understanding. Second, parental engagement through WhatsApp groups or community meetings can extend the impact of video interventions beyond schools, as supported by Sasmita et al. (2023), who found that family participation enhanced adolescent learning outcomes. Third, partnerships between ministries of health, education sectors, and multimedia professionals are essential to ensure that digital health content is evidence-based, engaging, and culturally relevant.

In summary, the review confirms that educational videos are highly effective tools for adolescent health promotion in stunting prevention. They address both cognitive and motivational aspects of learning, align with adolescents' digital habits, and offer scalability for national programs. However, to maximize impact, future research should focus on long-term outcomes, standardized evaluation tools, and equity in access. Additionally, safeguarding content quality on social media remains a pressing issue requiring coordinated action across stakeholders.

CONCLUSION AND RECOMMENDATION

This scoping review concludes that educational video is an effective and promising medium for adolescent health promotion in the context of stunting prevention. The evidence synthesized from 30 studies published between 2020 and 2025 consistently shows that video-based interventions—whether

classroom screenings, animated modules, or short-form content distributed via YouTube, TikTok, Instagram, and WhatsApp—improve junior high school students' knowledge on nutrition and stunting prevention. Several studies also demonstrated positive changes in adolescents' attitudes, such as greater appreciation of balanced diets and anemia prevention, while a smaller subset documented early indications of behavioral improvement, particularly in dietary diversity and iron intake. These findings reinforce the theoretical basis of multimedia learning and affirm that audiovisual formats are better suited than traditional print media for engaging adolescent learners.

In light of these findings, several implications are recommended. First, schools should integrate structured animated educational videos into their health education curricula, supported by teacher-led reflection and discussion to contextualize the content. Second, public health programs should leverage social media platforms, complemented by parental involvement through channels such as WhatsApp, to expand the reach of adolescent-focused nutrition education. Third, government ministries and policy-makers are encouraged to collaborate with digital content creators and multimedia professionals to produce culturally tailored, evidence-based, and engaging videos aligned with national stunting reduction goals. Finally, researchers are advised to address current gaps by employing standardized instruments, extending follow-up periods to evaluate long-term retention and behavioral outcomes, and conducting comparative studies across platforms and content types to determine the most cost-effective and impactful approaches. By implementing these strategies, educational video can play a central role in accelerating progress toward reducing adolescent vulnerability and breaking the intergenerational cycle of stunting.

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AUTHOR CONTRIBUTIONS

Conceptualization and study design: AC; Methodology development and protocol: H; Database searching and study screening: UQ and GFS; Data extraction and charting: UQ and GFS; Formal analysis and interpretation: AC and H; Writing—original draft preparation: FH; Writing—review and editing: AC, H, UQ, and GFS. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest related to this study. The research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The funding sponsors had no role in the design of the study; in the collection, analysis, or interpretation of data; in the preparation of the manuscript; or in the decision to publish the results.

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