



THE EFFECT OF TIKTOK-BASED ANEMIA EDUCATION ON KNOWLEDGE, ADHERENCE TO IRON SUPPLEMENT CONSUMPTION, AND HEMOGLOBIN LEVELS AMONG ADOLESCENT GIRLS: A LITERATURE REVIEW

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ABSTRACT

Anemia among adolescent girls remains a significant public health problem, largely driven by inadequate iron intake and low adherence to iron supplementation programs. Traditional health education methods are often less engaging for Generation Z, highlighting the need for innovative digital approaches. TikTok, a widely used social media platform, offers short-form audiovisual content that may enhance health education delivery. This study aimed to examine the effectiveness of TikTok-based anemia education in improving knowledge, adherence to iron supplementation (Tablet Tambah Darah/TTD), and hemoglobin levels among adolescent girls. A literature review was conducted using articles retrieved from PubMed/MEDLINE, ScienceDirect, Google Scholar, and the Indonesian Publication Index (IPI). The search covered publications from 2020 to 2025 using the keywords: ("TikTok" OR "short-form video" OR "social media intervention") AND ("anemia" OR "iron deficiency") AND ("adolescent girls") AND ("knowledge" OR "adherence" OR "hemoglobin"). A total of 116 articles were initially identified. After screening titles and abstracts, 74 articles were retained, and 44 full-text articles were assessed for eligibility. Based on predefined inclusion and exclusion criteria, 20 studies were included in the final analysis. Data were analyzed using thematic analysis to identify patterns related to intervention characteristics, outcomes, and effectiveness. The findings indicate that TikTok-based and other audiovisual educational interventions significantly improve adolescents' knowledge of anemia, increase adherence to iron supplementation, and contribute to improved hemoglobin levels. TikTok-based education represents an effective and innovative digital health promotion strategy for strengthening anemia prevention efforts among adolescent girls.

Keywords: anemia education; digital health promotion; hemoglobin; tiktok

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INTRODUCTION

Anemia is a pathological state characterized by an insufficient number of red blood cells or an inadequate concentration of hemoglobin, which severely impairs the blood's capacity to transport oxygen to vital body tissues. Globally, this condition disproportionately affects adolescent girls due to a complex intersection of rapid physiological growth, the onset of menarche leading to cyclic blood loss, and suboptimal nutritional intake often driven by social pressures related to body image and weight management (Prasad et al., 2022). Data from the 2023 Indonesian Health Survey (SKI) indicates that the national prevalence of anemia among adolescents stands at 15.5%. However, a more critical situation is observed at the regional level, such as in Semarang City, where the prevalence reaches 29.19%, nearly double the national average. In adolescent girls, this high incidence is multifactorial, driven by inadequate intake of iron and essential micronutrients, improper supplement consumption habits, high frequency of ultra-processed food consumption, insufficient vegetable intake, physiological blood loss during menstruation, and genetic predispositions (Dianita et al., 2024).

The urgency of addressing adolescent anemia stems from its profound and multifaceted negative impacts. Beyond its high prevalence, anemia significantly impairs cognitive function and concentration, which directly affects academic performance. Furthermore, it causes stunted physical growth and development, and compromises the immune system, leaving adolescents more susceptible to infectious diseases (Utami et al., 2021). These conditions are often exacerbated by unhealthy lifestyles, poor dietary patterns, a lack of health literacy, and inadequate vitamin supplementation (Talitha & Karjoso, 2022).

To mitigate the rising trend of anemia, the World Health Organization (WHO) (2023) emphasizes several strategic interventions, including the enhancement of health infrastructure, structured educational activities, public health outreach, and the administration of Iron-Folic Acid (IFA) supplements—locally known as Tablet Tambah Darah (TTD). In Indonesia, the free distribution of TTD to high school students is a mandated government initiative under Government Regulation No. 28 of 2024, which serves as an implementing regulation for Law No. 17 of 2023 concerning Health (Perpres RI, 2024).

Despite an increase in the coverage of TTD distribution in recent years, actual consumption rates among adolescent girls remain critically low (Winurini, 2025). The data from SKI 2023 report identifies several barriers to adherence in Central Java, including lack of awareness (46.9%), distribution failures by health officers (30%), perceived lack of necessity (13.3%), and sensory issues such as unpleasant taste or smell (1.8%) (Badan Kebijakan Pembangunan Kesehatan, 2024). This low consumption reflects a high level of non-compliance, which is a primary determinant of treatment failure and can lead to disease progression, increased mortality, and higher healthcare costs (Ulhaq et al., 2022; Anggraeni et al., 2025). Consequently, there is an imperative need for innovative socialization and education strategies to improve compliance (Winurini, 2025). Current educational modalities range from traditional lectures and discussions to visual media such as leaflets, posters, comics, pocketbooks, and increasingly popular digital formats like educational videos and (Christiansi et al., 2025; Sari, 2024; Kusuma, 2022).

The failure of traditional health promotion methods is becoming increasingly evident. Methods such as classroom lectures, paper-based brochures, and static posters are often perceived by Generation Z as didactic, unengaging, and disconnected from their reality. Today's adolescents are "digital natives" who favor fast-paced, visually stimulating, and non-linear information consumption. TikTok, with its sophisticated algorithm and over a billion active users, has evolved from a mere entertainment platform into a primary source of information and social validation for young people. It allows health messages to be delivered through a "pull" rather than a "push" mechanism, where content is integrated into the user's daily leisure activities (Sari and Putri, 2023).

This literature review explores the potential of TikTok as a transformative health education tool. It examines the "digital journey" starting from initial engagement with short-form video content to the internalizing of health knowledge, the resulting behavioral shifts in supplement adherence, and the final physiological manifestation in increased hemoglobin levels. By synthesizing current research and theoretical frameworks, this paper provides a roadmap for modernizing public health interventions in the digital age.

METHOD

This study employed a comprehensive literature review design to synthesize and critically evaluate current findings on digital health interventions. The methodology was structured to ensure a high degree of transparency and reproducibility in selecting studies that specifically utilized TikTok or similar short-form video architectures.

Search Strategy and Databases The research involved an exhaustive search across prominent

electronic databases: PubMed/MEDLINE, Google Scholar, ScienceDirect, and the Indonesian Publication Index (IPI). The search timeframe was restricted to the last five years (2020–2025) to reflect the rapid evolution of social media algorithms and user behavior. Boolean operators were used to refine the search: (TikTok OR "Short-form video" OR "Social media intervention") AND (Anemia OR "Iron Deficiency") AND ("Adolescent Girls" OR "High School Students") AND (Knowledge OR "Health Literacy" OR Adherence OR Hemoglobin).

Inclusion and Exclusion Criteria To maintain academic rigor, specific criteria were established:

1. Inclusion: (a) Peer-reviewed original research, systematic reviews, or meta-analyses; (b) Studies involving adolescent girls aged 10-19; (c) Interventions utilizing TikTok as a primary or secondary educational tool; (d) Studies measuring at least one outcome related to knowledge, adherence, or Hb levels.
2. Exclusion: (a) Gray literature, blog posts, or non-peer-reviewed content; (b) Studies focused exclusively on pregnant women; (c) Interventions using outdated digital media (e.g., SMS-only or static websites).

Data Extraction and Quality Assessment Selected articles underwent a thematic analysis. Data points extracted included the intervention's duration, the type of content (user-generated vs. expert-led), participant demographics, and the statistical significance of the outcomes. Particular attention was paid to the "dose-response" relationship between social media engagement and health behavior changes. A summary of the number of articles at each selection stage is shown in the following flowchart:

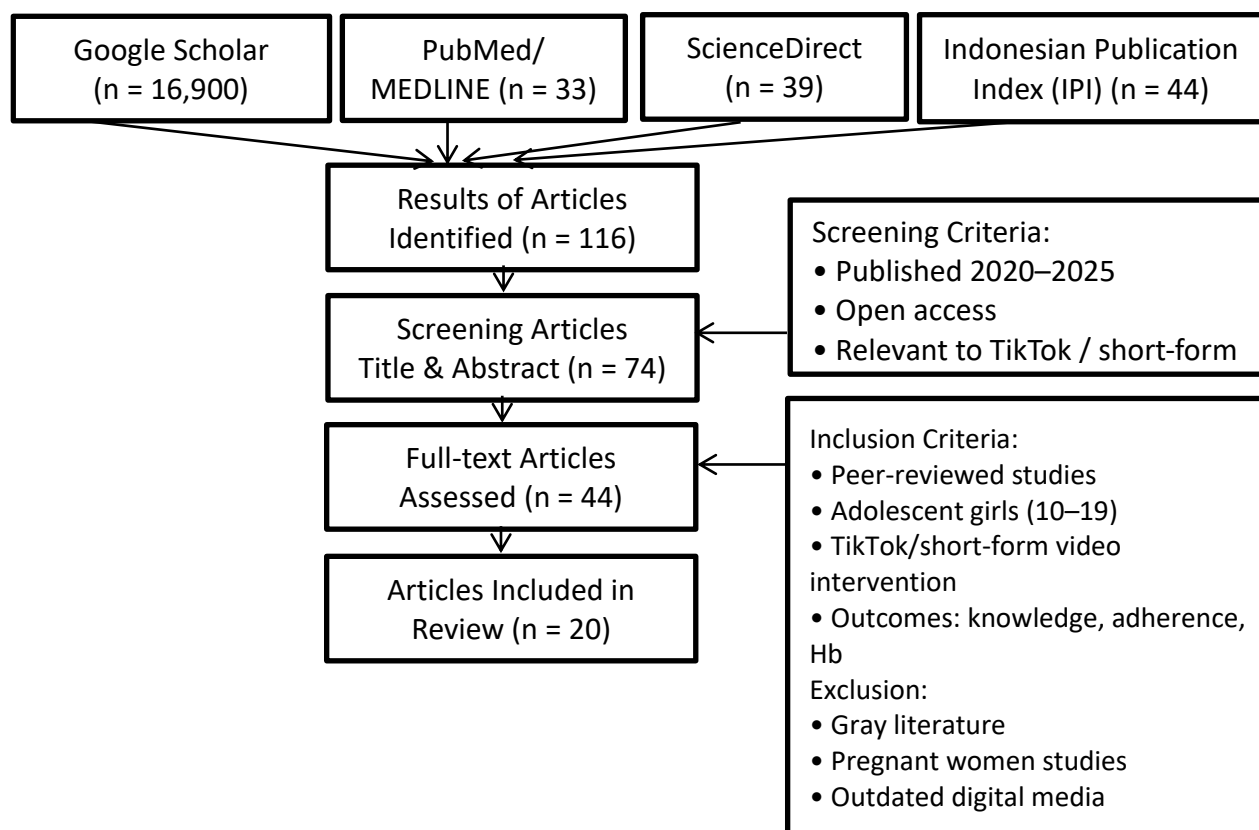


Figure 1 article search flow

RESULT

Based on a literature search in various databases such as PubMed, Science Direct, and Google Scholar between 2020 and 2025, twenty articles met the inclusion criteria and were relevant to the

topic of the effect of tiktok-based anemia education on knowledge, adherence to iron supplement consumption, and hemoglobin levels among adolescent girls. These articles discuss various factors that influence the success of health education through various digital platforms, including the level of knowledge, compliance in taking iron supplement tablets in adolescent girls as shown in the following table.

Table 1.
Results of the Review of 20 Articles

No	Title and Researcher	Subject	Method	Research	Results Findings
1	The Effect of Using Educational Media, TikTok Videos and Infographics, on Anemia Knowledge in Adolescent Girls. (Firdawiyanti & Kurniasari, 2023)	Teenage girls	Quantitative with a pre-test and post-test design with a control group design	This study shows that the use of TikTok video and infographic educational media significantly increases adolescent girls' knowledge about anemia with a p-value of 0.000. Although both media are effective, infographics provide a higher increase in knowledge scores than TikTok videos due to their ability to present visual information that is more easily processed by the brain.	Effectiveness of Visual Media: The use of visual media (TikTok and infographics) has proven effective because it facilitates the delivery of complex concepts in a more concise and engaging way for adolescents. TikTok videos effectively increase adolescents' learning motivation because they offer non-monotonous counseling, combining verbal messages with elements of movement, images, and music that stimulate creativity. Educational Implications: The knowledge gained through this media is crucial because good nutritional knowledge provides a foundation for adolescent girls to change their eating behavior and comply with anemia prevention efforts.
2	The Effect of Education Through TikTok Social Media About Anemia Prevention on the Knowledge and Attitudes of Adolescent Girls at SMP Negeri 1 Natar in 2024 (Ningsih <i>et al.</i> , 2025).	Teenage girls	Quantitative using pre-experimental using one group pretest post-test design research design	The average knowledge score of young women increased significantly from the initial value of 6.76 to 9.68 after being given intervention through TikTok. Attitude Change: There was a positive improvement in attitude, where the average score increased from 37.58 to 41.91. The results of the statistical test showed a p-value = 0.000, which proves that there is a very significant influence of the use of TikTok social media on the knowledge and attitudes of young women at SMP Negeri 1 Natar in 2024.	There is an influence of TikTok social media on the knowledge and attitudes of female adolescents about anemia at SMP Negeri 1 Natar in 2024.
3	Utilizing Videos Through the TikTok Application and Printed Comics to Increase Knowledge About Anemia in Female Students at SMK Negeri 41 Jakarta. (Dewi <i>et al.</i> , 2025).	Teenage girls	The research type is quasi-experimental, quasi-experimental design with a pretest-posttest group design.	There was a difference in respondents' knowledge before and after being given education through comics ($p = 0.000$) and TikTok videos ($p = 0.000$). There is an effect of nutrition education through comics and TikTok videos on knowledge about anemia in female adolescents at SMK Negeri 41 Jakarta.	The use of educational videos and printed comics can influence knowledge levels related to anemia. Nutrition education using animated videos is more effective than printed comics.
4	The Effect of Using Educational Media Videos Using the TikTok Application on Increasing Knowledge About Anemia in Adolescent Girls at SMAN Kota	Teenage girls	Quantitative research using a pre-experimental research design with a one-group pretest-	The majority of respondents experienced an increase in knowledge to the good category, namely 54 people (84.4%). Hypothesis Test: The results of the analysis show a p-value = 0.000 ($p < 0.05$), which means that there is a significant influence	This study shows that education through TikTok videos significantly improved the knowledge of adolescent girls at SMAN Kota Jambi regarding anemia. The use of this popular platform successfully shifted respondents' knowledge levels from

	Jambi. (Aprianti <i>et al.</i> , 2024).		posttest design.	on the use of TikTok educational media on increasing knowledge of anemia.	poor to good through engaging and innovative information delivery.
5	Research Development of TikTok Video Media About Anemia Prevention in Adolescent Girls at SMP Negeri 18 Surakarta. (Handayani <i>et al.</i> , 2024).	Teenage girls	The Borg & Gall Research and Development (R&D) method uses the data collection, research planning, product design, design validation, design revision, product trials, and product revision.	Media Expert Validation obtained an average score of 3.5 (Category: Very Appropriate). The assessment results from female student respondents showed an average score of 3.61 (Category: Very Appropriate/Very Interesting). Based on the validator's assessment and field trials, this TikTok video media was declared to meet the quality requirements as a health education medium.	This research successfully developed TikTok-based anemia prevention educational media, which was deemed highly suitable by experts and users at SMP Negeri 18 Surakarta. This media is effective as a health promotion tool due to its engaging format and its suitability for today's digital learning styles of adolescents.
6	Improving Adolescent Girls' Compliance in Taking Iron Supplements through the Utilization of Digital Technology: A Literature Review. (Masrurroh <i>et al.</i> , 2024).	Teenage girls	Literature review method	Based on the reviewed literature, the use of reminder apps and social media (such as WhatsApp and TikTok) significantly increased adherence to iron tablet consumption compared to a control group (without digital intervention). Effectiveness: Digital technology provides faster access to information and a reminder system that minimizes the risk of "forgetting" among adolescents.	This literature review concluded that the use of digital technologies such as apps and social media is highly effective in increasing compliance among adolescent girls in taking iron supplements. This intervention successfully addressed the challenges of forgetfulness and lack of motivation through an interactive reminder system and engaging visual education.
7	The Effect of Anemia Education Videos on Compliance in Taking Blood Booster Tablets. (Handayani <i>et al.</i> , 2024).	Teenage girls	Quantitative with pre-experimental design method One group pre-test and post-test.	Compliance Score: The mean score of respondents' compliance increased significantly from 1.41 before the intervention to 1.95 after watching the educational video. Hypothesis Test: The results of the statistical analysis showed a p-value = 0.000 ($p < 0.05$).	The use of video is considered highly appropriate for the junior high school age group because it provides a concrete visual depiction of the impact of anemia and the benefits of iron supplementation, making it more memorable than text or oral methods. Solution to Low Coverage: The results of this study provide a solution to the problem of the low percentage of adolescents taking iron supplementation as recommended (previously only 1.4% in the region), by utilizing media that engages students. There is a significant influence of providing educational videos on the level of compliance of adolescent girls in consuming iron tablets.
8	The Effect of Providing Nutrition Education on the Incidence of Anemia on the Level of Knowledge and Attitudes of Adolescents. (Anisah <i>et al.</i> , 2024).	Teenage girls	Literature review method	The average score on the knowledge variable increased from 12.06 to 13.85 with a p-value = 0.000. Attitude Variable: The average score increased from 44.55 to 47.24 with a p-value = 0.000. There is a significant influence of providing nutritional education on increasing knowledge and improving adolescent attitudes regarding anemia ($p < 0.05$).	This study demonstrated that providing nutrition education significantly improved the knowledge and attitudes of adolescents in the Ubung Community Health Center area regarding anemia prevention. These results demonstrate that structured education with supporting media is an effective intervention strategy for improving adolescent health behaviors.
9	The Effect of Anemia Education Using Animated Videos on Compliance in Taking	Teenage girls	Quantitative using a quasi-experimental design with a	There was a significant difference in iron supplement tablet adherence ($p=0.000$) and hemoglobin levels ($p=0.000$) in	There is an influence of providing anemia education on compliance with iron supplement tablet consumption in female adolescents

	Iron Supplements and Hemoglobin Levels of Adolescent Girls at SMPN 17 Samarinda. (Dwistika <i>et al.</i> , 2023).		pre-test-post-test approach with a control group design.	the experimental group with the animated video. In the control group with the leaflet, there was an increase in iron supplement tablet adherence ($p=0.000$), but no significant difference in hemoglobin levels ($p=0.112$). There was a significant difference in mean iron supplement tablet adherence ($p=0.002$) and hemoglobin levels ($p=0.001$) between the experimental and control groups.	at SMPN 17 Samarinda, and there is an influence of providing anemia education on hemoglobin levels in female adolescents at SMPN 17 Samarinda.
10	The Effect of Explanation Videos on Knowledge and Compliance in Taking Iron Supplements at SMPN 65 North Jakarta. (Noverina <i>et al.</i> , 2020).	Teenage girls	Quantitative using a quasi-experimental design with a pre-test-post-test approach with a control group design.	There was a significant difference in the level of knowledge of the intervention group before and after being given the video ($p=0.000$), while the control group did not show a significant change ($p=0.166$). Compliance: The intervention group showed a significant increase in compliance with TTD consumption after the intervention ($p=0.000$). Comparison Test: The results of the Mann Whitney test confirmed a significant difference between the intervention group and the control group in both the knowledge ($p=0.000$) and compliance ($p=0.000$) variables.	There is an influence of explanation video media in preventing anemia in adolescent girls on knowledge and compliance with consuming iron tablets at SMPN 65 North Jakarta.
11	The Effect of TikTok Media Education on Iron Tablet Consumption Compliance in Adolescent Girls. (Nadila <i>et al.</i> , 2024).	Teenage girls	Quantitative with pre-experimental design method One group pre-test and post-test.	All respondents demonstrated low adherence to iron tablet consumption before the intervention. A significant change occurred, with 73.5% achieving moderate adherence and 26.5% achieving high adherence after the intervention. The analysis showed a p-value of 0.000.	TikTok is effective as an educational medium because its short video features, music, and visual effects can increase information retention and interest among adolescents compared to conventional methods. Behavioral Change: This intervention successfully changed adolescents' behavior, from initially neglecting to becoming more disciplined in taking iron-deficiency iron tablets (TTD), which is crucial for preventing iron deficiency anemia during growth and menstruation. Information Accessibility: The use of social media allows flexible access to health information, allowing educational messages to be received in a more relaxed yet informative manner for the middle school age group.
12	The Effect of Health Education Through Audiovisual Media on Adolescents' Knowledge of Anemia. (Rumbiak and Latul, 2025).	Teenage girls	Quantitative using a quasi-experimental design with a one-group pre-test and post-test approach.	The study showed a significant increase in the average knowledge score of adolescent girls after being given audiovisual education about anemia with an increase in the score from an average of 9.30 to 12.43.	Audio visual media is effective in conveying health information and increasing adolescents' understanding of anemia. Audiovisual media is more interesting and interactive than conventional media, helping teenagers understand anemia prevention material better.
13	The Difference in the Effect of Audiovisual and Audio Media About Iron Tablets on Iron Tablet Consumption Behavior and Iron	Teenage girls	Quantitative using a quasi-experimental design with a pre-test-post-test approach with a control	There was a significant influence of the use of both media on increasing knowledge ($p=0.021$) and improving attitudes ($p=0.040$). The results of the study showed a real influence on the actions/behaviors of	Audiovisual media is more effective in communicating health information because it involves the senses of hearing and sight simultaneously, so that messages about preventing anemia are easier to understand and remember.

	Tablet Consumption in Adolescent Girls. (Marwati <i>et al.</i> , 2024).		group design.	consuming iron tablets, which had an impact on changes in the respondents' hemoglobin (Hb) levels.	There is an influence of audio-visual and audio media about FE Tablets on knowledge, attitudes, marked actions, and hemoglobin levels
14	Animated educational video using the health belief model on the knowledge of anemia prevention among female adolescents: An intervention study. (Aisah <i>et al.</i> , 2022).	Teenage girls	Quantitative using a quasi-experimental design with a pre-test-post-test approach with a control group design.	There was a statistically significant increase in knowledge scores after the animated video was given ($p=0.001$) in the intervention group. The leaflet also showed an increase in knowledge, but not as strong as the intervention group. The test results showed a significant difference between the two groups ($p=0.001$), with the knowledge scores of the group that watched the animated video significantly higher than those of the group that read the leaflet.	Animated video media is considered superior because it can visualize abstract medical information through engaging movements and stories, thereby improving information retention in adolescents. This study concluded that animated video is a highly recommended medium for health promotion in schools due to its effectiveness in transferring knowledge quickly and engagingly.
15	The Impact of Animated Video Education on Iron Tablet Consumption for Anemia Prevention Among Adolescents. (Andriyani <i>et al.</i> , 2025).	Teenage girls	Quantitative with pre-experimental design method One group pre-test and post-test.	Animated video education significantly increases knowledge (up to 69%) and compliance (up to 62%) with iron tablet consumption for anemia prevention among adolescent girls.	Education using animated video media significantly increases knowledge and compliance with TTD consumption.
16	Effectiveness of Educational Media Instagram Reels and TikTok on Knowledge to Prevent Iron Deficiency Anemia. (Pibriyanti <i>et al.</i> , 2025).	Teenage girls	Quasi-experimental with pre-posttest group design	All three media (Instagram Reels, TikTok, and Leaflets) significantly increased respondents' knowledge ($p=0.000$). Kruskal-Wallis Test Results: Showed a $p=0.000$, indicating a significant difference in effectiveness between the three media. Short video media (Instagram Reels and TikTok) proved significantly more effective in increasing knowledge scores compared to print media (Leaflets).	Instagram Reels and TikTok excel because they present concise, engaging audiovisual information that aligns with today's youth digital content consumption habits. The use of music, dynamic text, and short durations on social media helps increase respondents' attention and retention of anemia prevention materials. Health Promotion Recommendations: The study suggests that health education for millennials and Gen Z should prioritize the use of social media platforms to achieve optimal results.
17	The Influence of Anemia Education Media on Increasing Self-Awareness and Compliance in Consuming Iron Supplements in Adolescent Girls: A Systematic Review. (Septiana <i>et al.</i> , 2025).	Teenage girls	Systematic Reviews and MetaAnalyses (PRISMA)	Audiovisual media (especially short videos like TikTok and YouTube) and Android-based apps demonstrated the strongest and most statistically consistent effects in improving knowledge scores and adherence behavior. The majority of reviewed studies reported p -values <0.05 , indicating that digital media interventions resulted in significant behavioral changes compared to conventional methods.	The use of media that combines visual, audio, and text elements has proven more effective in stimulating adolescent self-awareness in preventing anemia. This systematic review concluded that digital educational media, specifically audiovisual formats and smartphone applications, significantly increased adolescent girls' self-awareness and adherence to iron supplementation. Utilizing digital technology has proven to be the most effective strategy for changing adolescent girls' health behaviors in anemia prevention efforts.
18	The Influence of Nutrition Education Through Tiktok on the Knowledge and Attitudes of Young Women in Efforts to Prevent Anemia in	Teenage girls	Pseudo-experiment with pretest-posttest control group design	The average knowledge score in the TikTok group increased significantly from 9.92 to 15.03, and the attitude score increased from 50.62 to 59.33 ($p=0.000$). The Leaflet group also experienced an increase in	TikTok has proven more effective than print media (leaflets) in increasing knowledge and changing attitudes due to its ability to deliver interactive audiovisual information and engage young people. The use of the TikTok platform is

	Medan (Pasaribu et al., 2023).	City.		knowledge (9.85 to 12.54) and attitude (50.00 to 53.64) with $p=0.000$. The Mann-Whitney test showed that the increase in knowledge and attitude in the TikTok group was significantly higher than in the Leaflet group ($p=0.000$).	highly recommended as an innovative health promotion tool to encourage anemia prevention behaviors among the younger generation.
19	The Effect of Social Media "Tik Tok" to Increase Adolescent Girls Knowledge of Anemia Prevention at SMAN 3 Kediri. (Nurhanifah & Dwianggimawati, 2024)	Teenage girls	Quantitative with Quasi-Experimental Design (Pre-test – Post-test Control Group Design)	There was a significant increase in knowledge after education via TikTok, with a p -value of 0.000. The control group also experienced an increase in knowledge, but with a different significance level (p -value = 0.001). The Mann-Whitney test showed a significant difference in knowledge levels between the TikTok-using group and the control group (p -value = 0.000).	Using TikTok as an educational medium was significantly more effective in increasing adolescent girls' knowledge about anemia prevention compared to the control group. Creative content combining animation and short music proved to be an effective educational strategy for this age group.
20	Effect of education through video and packaging modifications of iron tablets on female adolescent behavior in the iron supplementation intake in SMPN 2 and SMPN 1 Parigi. (Madestria et al., 2021).	Teenage girls	Quantitative with Quasi-Experimental Design (Pre-test – Post-test Control Group Design)	Knowledge: There was a significant increase in knowledge scores in the intervention group ($p=0.000$) compared to the control group ($p=0.056$). Attitude: The intervention group showed a significant change in attitude ($p=0.000$), while the control group did not ($p=0.165$). Intention: There was a very significant effect on consumption intention after the combined intervention of video and packaging modification ($p=0.000$).	The Power of Visual Education: Educational videos help clarify the benefits of iron consumption, while new packaging makes it easier for students to carry and remember their consumption schedules. Behavior Change: Combined interventions (digital media + modified physical products) have been shown to be more effective in building healthy behavior intentions than providing information solely verbally or through standard print media.

DISCUSSION

Based on the analysis of 20 selected journals, various digital and conventional educational approaches have been utilized to improve anemia-related outcomes among adolescent girls. Ten journals specifically examined the use of TikTok as a medium for anemia education, while eight journals discussed anemia education delivered through video-based media, including animated videos. In addition, one journal explored the use of broader digital technology for educational purposes, and one journal examined conventional nutrition education methods. The findings indicate that digital media, particularly TikTok, demonstrate promising potential as an educational platform. Six journals reported that TikTok-based education significantly improved knowledge among adolescent girls, while two journals showed that it increased adherence to iron supplement consumption. Furthermore, three journals indicated that TikTok-based education was more effective compared to other educational media, and one journal reported that TikTok-based audiovisual media is highly suitable for use in anemia prevention education for adolescent girls. Similarly, seven journals reported that video-based anemia education, including animated videos, had a positive impact on knowledge, adherence to iron supplement consumption, and/or hemoglobin levels. Meanwhile, one journal highlighted the effectiveness of technology-based educational interventions in supporting anemia education.

The Efficacy of TikTok-Based Interventions in Enhancing Anemia Literacy

The use of TikTok as an educational platform has demonstrated a statistically significant positive impact on health literacy related to anemia among adolescent girls. A synthesis of current evidence indicates that the platform's short-form video format—integrating high-quality visuals, synchronized audio, and concise narratives—facilitates the cognitive processing of complex biomedical information, including the pathogenesis of anemia and the bioavailability of essential micronutrients. These findings are consistent with recent studies reporting substantial improvements

in knowledge levels, shifting from inadequate to adequate or optimal categories following digital educational interventions (Aprianti et al., 2024; Firdawiyanti & Kurniasari, 2023). Furthermore, TikTok's interactive structure supports a micro-learning approach in which complex clinical information is delivered in short, engaging segments, thereby enhancing knowledge retention and recall among adolescent audiences (Nadila et al., 2024).

Addressing Adherence Barriers in Iron–Folic Acid (IFA) Supplementation

One of the major challenges in national anemia prevention programs is the low adherence to Iron–Folic Acid (IFA) supplementation, commonly known as Tablet Tambah Darah (TTD). Poor adherence is frequently associated with forgetfulness, limited awareness, and low motivation among adolescents. Evidence from this review suggests that TikTok-based educational interventions can effectively address this adherence gap by leveraging psychosocial engagement and peer-driven communication. Educational content that highlights tangible health benefits and incorporates peer testimonials or social modeling has been shown to increase awareness and motivation to adhere to supplementation regimens compared with conventional educational materials, such as printed leaflets (Septiana et al., 2025). In addition, the algorithm-based content exposure characteristic of TikTok enables repeated viewing, which may function as a visual reminder and reinforce adherence behavior among adolescents (Noverina et al., 2020; Masruroh et al., 2024).

Clinical Implications for Hemoglobin Level Improvement

Educational interventions play an important role in improving clinical outcomes, including hemoglobin (Hb) levels. Increased knowledge regarding anemia prevention and consistent adherence to iron supplementation contribute directly to improved iron status among adolescents. Previous evidence indicates that improved adherence to medication regimens is closely associated with enhanced patient understanding and well-designed intervention approaches (Madury et al., 2026). In line with this, several studies have demonstrated that adolescents exposed to interactive audiovisual education experience greater improvements in hemoglobin levels compared with those receiving conventional or no educational interventions (Marwati et al., 2024). These findings highlight that behavior change resulting from targeted digital health education can lead to measurable improvements in clinical indicators and contribute to reducing the prevalence of iron deficiency anemia (Aisah et al., 2022).

TikTok as an Adaptive Health Education Medium for Generation Z

The effectiveness of TikTok in health promotion is closely related to its compatibility with the learning preferences and digital behavior of Generation Z. This generation tends to favor fast-paced, visually engaging, and easily accessible information. Compared with traditional didactic educational approaches, TikTok offers a more interactive and user-centered learning environment that encourages active engagement rather than passive information reception (Pasaribu et al., 2023; Pibriyanti et al., 2025). By delivering health information through culturally relevant and relatable content formats, TikTok allows educational messages to integrate naturally into adolescents' digital environments. This approach may enhance behavioral intention, improve self-efficacy, and ultimately support the adoption of healthier behaviors. Consequently, TikTok has the potential to serve as a valuable tool for contemporary public health education strategies targeting adolescent populations (Madestria et al., 2021; Nurhanifah & Dwianggimawati, 2024). These findings suggest that behavior change interventions should move beyond individual-focused strategies and incorporate socially embedded approaches. Leveraging social influence through peer interaction and community engagement may enhance perceived behavioral control and reshape health-related norms, thereby improving adherence and health outcomes among adolescents (Riyadi et al., 2025).

CONCLUSION

This literature review indicates that TikTok-based anemia education is a promising and innovative approach that aligns with the digital engagement patterns and learning preferences of Generation Z.

The platform's short-form audiovisual content, combined with micro-learning strategies and interactive features, has been shown to improve anemia-related knowledge and address barriers to adherence to iron supplementation (Tablet Tambah Darah/TTD) among adolescent girls. Evidence from the reviewed studies also demonstrates that audiovisual educational media, both TikTok-based and non-TikTok-based, are effective and efficient tools for delivering anemia education. These interventions contribute not only to increased knowledge and improved adherence to iron supplementation but also to measurable improvements in hemoglobin levels. Overall, the findings highlight the important role of digital health education in promoting behavioral change and improving clinical outcomes. Integrating social media-based educational strategies into public health programs may strengthen anemia prevention efforts and support the long-term health and productivity of adolescent girls.

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