

## MEDIA DEVELOPMENT OF INSTAGRAM PICTURES TO PREVENT ADOLESCENCE ANEMIA

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### ABSTRACT

**Background:** Anemia is a significant public health concern in developing countries, including Indonesia, where the prevalence among adolescents aged 15-24 years is 26.8%. Adolescent girls are particularly at risk due to chronic blood loss resulting from menstruation. Lack of knowledge about anemia's causes, symptoms, and prevention increases the risk of anemia among adolescents. Developing media that effectively communicates anemia prevention information to adolescents is crucial. Instagram, with its large user base, presents an attractive platform for reaching this audience; however, relevant content is scarce.

**Method:** This study employed a research and development approach utilizing the ADDIE model. The developed media was validated by content experts and media experts.

**Results:** The final product is a digital image with a 1x1 ratio, comprising six pages, designed for upload on the Instagram platform. The health expert's validation score was 90.09%, categorizing the media as very feasible after three revisions. Media experts concurred, assigning a score of 91.67% and deeming the media very appropriate after two revisions. A small group trial of 10 students yielded a response rate of 86.54%, while a larger group of 30 students responded with an 87.82% response rate, indicating that the media was well-received by students.

**Conclusion:** The developed media was well-received by students, but further research is necessary to assess its effectiveness in increasing knowledge and attitudes regarding anemia prevention among adolescents.

**Keywords:** Anemia, Instagram, Adolescence

### INTRODUCTION

Anemia is one of the most common health problems, especially in teenage girls or women who experience chronic bleeding due to the menstrual system. Apart from that, teenage girls tend to eat less meat than teenage boys, resulting in a lack of iron and protein levels in the body which causes low levels of hemoglobin in red blood cells. Iron is the main component in the formation of hemoglobin. During menstruation, teenage girls tend to lose their appetite due to the pain and discomfort that occur during the menstrual cycle (Ani Triana, 2023). Adolescent consumption of drinks such as

jumbo iced tea and coffee also inhibits the absorption of iron into the body.

In developing countries, the prevalence of anemia can reach 89%. This is due to low iron intake, an unbalanced diet, demographic factors, and low knowledge about anemia. The 2018 Riskesdas results show that the prevalence of anemia at ages 5–14 is 26.8% and at ages 15–24 is 32. Symptoms of anemia in general are weakness, tiredness, lethargy, headaches, dizziness, and difficulty focusing. This can cause problems with concentration in learning, decreased physical condition, decreased immunity, and impaired growth, which can be seen in abnormal body weight and height (Henwandar & Soviyati, 2018).

In the context of Industry 4.0, rapid advancements in communication technologies, particularly digital technologies, are evident. Presently, Indonesia boasts a significant internet user base, exceeding 220 million individuals, constituting 79.50% of the population, with Gen Z (aged 12-27 years) representing 87.02% of this figure. The expansive reach of digital media presents substantial opportunities for health promotion initiatives. Projections by Napoleon Cat suggest that by 2024, Instagram users in Indonesia will reach 89 million, encompassing 31.9% of the population. Research underscores a robust correlation between the use of Instagram, particularly its image-centric features, and user engagement. Leveraging Instagram as a platform for information dissemination has the potential to enhance public awareness and encourage targeted behavioral responses (Casmira et al., 2022).

In initial research conducted among students at SMA Batik 1 Surakarta, it was observed that there exists a notable deficiency in knowledge concerning anemia. Many students associate anemia solely with a deficiency in iron. Regarding preventive measures, the prevailing belief among respondents is that consuming nutritious foods, particularly green vegetables, suffices to prevent anemia. However, when queried about foods or beverages that could hinder iron absorption, nearly all respondents were unable to provide correct answers. This lack of awareness concerning anemia is attributed to the absence of specific educational content on anemia within school curricula and infrequent exposure to related information on social media platforms. Consequently, the objective of this study is to develop Instagram media aimed at enhancing students' literacy regarding anemia prevention, with a specific focus on adolescents.

## METHODS

This study employs a research and development methodology with an explanatory design, commencing with an exploration of research objectives through the collection of qualitative data pertaining to students' knowledge needs regarding anemia. The developmental framework utilized is the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model, which Branch (2010) details as suitable for media development in this context. The ADDIE model sequentially guides the phases of analyzing needs, designing media content, developing materials, implementing interventions, and evaluating outcomes, ensuring a systematic approach to enhancing student literacy on anemia prevention, particularly targeting adolescents.

The study was conducted at SMA Batik 1 Surakarta and focused on students enrolled in classes X and XI at Batik Surakarta High School. The research employed a mixed-methods approach, beginning with a qualitative preliminary study involving 10 students. This phase aimed to assess the specific needs of students regarding the development of educational media related to anemia prevention. Following this, media trials were conducted twice: first with a small group consisting of 10 students, and subsequently with a larger group of 30 students selected randomly from the target population. These trials were designed to gauge student acceptance and effectiveness of the developed media in enhancing their understanding of anemia prevention strategies.

The variable in this research is Instagram media, specifically digital image media uploaded via the Instagram platform, which contains information about preventing anemia in adolescent. These images are designed to be visually appealing, appropriate for use, and tailored to the needs of the target audience. The measuring tool in this research is a media

validation and suitability questionnaire. The questionnaire includes open-ended questions to gather suggestions for improving the media used to develop each image. The validation questionnaire will be distributed to content and media experts, while the media suitability questionnaire will be distributed to students at SMA Batik 1 Surakarta.

The analysis employed in this research is descriptive analysis, focusing on calculating the results of media validation and feasibility scores from media experts, content experts, and trials conducted with the target audience. The answer choices in this study are based on a Likert scale and are calculated using percentages, applying specific calculation formulas and validation criteria.

## RESULTS AND DISCUSSION

The outcome of this research involves the application of the ADDIE model, following the sequential stages of (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation. The developed media products consist of digital images aimed at enhancing students' literacy on the topic of anemia prevention, particularly among adolescents.

### 1. Analysis Phase

In this stage, an analysis of students' needs concerning the media being developed, specifically Instagram images for anemia prevention, was conducted. The interview results revealed that students are minimally exposed to information about anemia, both in class and on social media. The anemia-related media they have encountered on social media tend to be unengaging, not targeted towards adolescent, and ineffective. This is evident from the inaccurate knowledge they exhibit regarding the definition, causes, and prevention of anemia.

Additionally, most students expressed a preference for digital media over printed media, as digital media can be accessed at any time using their smartphones. All students

reported having social media accounts on platforms such as TikTok, Instagram, and WhatsApp. For image-based media, they favor Instagram due to its features such as image swiping (multi-image posts), commenting, and archiving.

Based on the results of this analysis, it is evident that there is a need to develop media tailored to the anemia prevention requirements of SMA Batik 1 Surakarta. students. The media to be developed will take the form of digital images, characterized by the use of simple and engaging language, clear and concise content, and easy accessibility through the Instagram platform.

The targeted students are part of Z Generation, born between 1997 and 2012, who have grown up in an era of rapid information technology development. This generation spends a significant amount of time online, seeking information, building their identity, and interacting socially (Sikumbang, 2024). According to the Indonesian Internet Service Providers Association (APJII), in 2024, Instagram will be one of the most popular social media platforms among Z Generation, with a usage rate of 51.90%, followed by TikTok and YouTube (Wisnuadi, 2024). Additionally, Instagram has proven to be an effective educational media for Z Generation (Casmira et al., 2022).

### 2. Design Phase

In this design phase, a preliminary draft of Instagram image media has been developed based on the needs analysis. The content focuses on preventing anemia in adolescents, with additional material on the definition of anemia, its characteristics, and causes. The draft utilizes the color red to symbolize blood and incorporates illustrative images that complement the educational content. Title text is rendered in a large, white font to optimize legibility. Corel Draw 2020 is employed for the media design process due to its intuitive interface and comprehensive graphic design capabilities.

In designing the media draft, researchers initially established the goal of creating media tailored to the needs and characteristics of Generation Z students. This generation is generally characterized by technological literacy, flexibility, openness, a preference for visual content such as images and videos, an inclination towards virtual interaction, and challenges with maintaining focus. Consequently, the developed media is pragmatic and concise, featuring visually appealing illustrations and easy accessibility via the internet (Prismananta, 2023). The pervasive use of information technology has led to cognitive changes in Generation Z, resulting in difficulties with maintaining focus and processing rapid, varied information on social media. Therefore, the media developed in this research is designed to be fully comprehensible within 4 to 7 minutes (Prismananta & Sari, 2022).

### 3. Development Phase

At this stage, the prepared media draft undergoes validation by both subject content experts and media specialists. Initially, the content validation is conducted, followed by the validation of the media. The media is presented on the Instagram platform, allowing subject content experts, media specialists, and students to review it in real-time using smartphones or other devices that can access Instagram.

#### a. Content Validation

The validation process focused on evaluating the suitability of the content within the media. For this task, Yunia Renny Andhikatis, SST., Bdn., M.Kes., a midwifery lecturer with expertise in adolescent girls' health, was selected as the content expert. The evaluation encompassed two primary aspects: pedagogical and content.

In the initial stage, a feasibility assessment yielded an average score of 69.09%, indicating that the material was not yet deemed appropriate. Media experts advised that additional content related to the

latest research on the factors contributing to anemia in adolescents be incorporated, as well as simple case examples of anemia in adolescents. In the subsequent stage, the material received an average score of 74.54% in the appropriate category, with experts suggesting that the content be aligned with Evidence-Based Practice (EBD) principles to prevent adolescent anemia. The third stage achieved a score of 90.09% in the very appropriate category, and as such, no further input from media experts was necessary, allowing the material to proceed to the material expert validation stage.

This material validation exercise was conducted on three occasions, yielding the following outcomes:

**Table 1.** Table of Content Validation

Aspect	Content Validation		
	First	Second	Third
Pedagogical	66,67%	76,67%	90,00%
Content	72,00%	72,00%	92,00%
<b>Average</b>	<b>69,09%</b>	<b>74,54%</b>	<b>90,09%</b>

In the learning aspect, several indicators were examined, including relevance, systematicity, suitability of objectives, clarity of material, and language and terminology. Relevance indicators showed that the presented material is closely tied to adolescent issues and behaviors related to anemia, such as menstruation, eating patterns that can contribute to anemia, and the impact of anemia on adolescents. Systematic indicators were evident in the sequencing of the material in the media development process. The final product consists of six images, presented in a logical sequence from the cover page to understanding anemia, its causes, and tips for prevention. This media aims to enhance knowledge on anemia prevention, thereby ensuring the suitability of the objectives is correctly achieved (Fatima & Lestari, 2021). Indicators of material clarity were observed in the selection of content based on up-to-date scientific sources, the use of simple language, and the choice of informal vocabulary to facilitate student understanding (Dewi et al., 2023).



The content aspect of the media is characterized by several indicators, including presentation, correctness, suitability, and quality. Specifically, the presentation of the material is concise and straightforward, enabling students to comprehend the content quickly and efficiently. The content is grounded in trusted sources, including journals and books, ensuring its accuracy and credibility. The content is also tailored to the specific needs and concerns of adolescent, addressing issues such as menstrual problems, iron requirements during growth, and food and drink consumption patterns that impact iron absorption (Waife et al., 2023). Moreover, the inclusion of illustrations facilitates comprehension and makes the content easy to digest for adolescent (Lee & Reeves, 2018).

#### b. Media Validation

The media was validated to assess its suitability in terms of visual appeal. The expert chosen for this validation was Stri Agneya Dite, S.Sn., M.Sn., a lecturer at the Indonesian Arts Institute in Surakarta. The aspects evaluated in this validation included the use of images and the use of typography. This validation was conducted twice, yielding the following results:

**Table 2.** Table of Media Validation

Aspect	Media Validation	
	First	Second
Pictures	60,00%	91,42%
Fonts	92,00%	92,00%
<b>Average</b>	<b>72,33%</b>	<b>91,67%</b>

In the initial stage of media validation, the feasibility assessment yielded a score of 72.33%, with the majority falling within the less feasible category. The media expert's feedback recommended simplifying the images by reducing unnecessary design elements, such as meaningless dotted lines, to create a more minimalist and informative visual presentation. In the second stage, the feasibility score increased to 91.67%, placing it in the very feasible category and warranting further development. The expert's suggestions for improvement at this stage included maintaining consistency in the background

theme throughout the media and reducing ornate elements that are not relevant to the theme, thus enhancing overall visual coherence and effectiveness.

In the image aspect, several indicators were evaluated, including color, vector, illustration, image quality, and image order. The media employs a color scheme featuring red and yellow, with red representing healthy blood and yellow symbolizing happiness, optimism, and creativity, thus reflecting the concept of healthy students free from anemia (Nur & Paksi, 2021). Vectors and lines are used to create outlines for the character Mia, as well as dotted lines for background accents. The use of curved and straight lines serves to diagrammatically illustrate the shape and size of objects, as well as define where one object ends and another begins. This technique emphasizes Mia's character by employing a curved edge line in red (Dafri, 2011). The illustrations used are two-dimensional cartoon-style images. The image was sourced from freepix.com, with Mia's character created manually using an iPad. The character is depicted as a Muslim high school student wearing a uniform who prioritizes health, particularly anemia awareness. The character Mia is derived from the phrase "Ane-Mia," making it easier to remember her message and attract students' attention (Rory & Wahyudi).

#### 4. Implementation and Evaluation Phase

The implementation and evaluation stages involved testing the media on target audiences, divided into smaller and larger groups. The results of the testing demonstrated the suitability of the media for its intended audience.

**Table 3.** Group Trial Result

Aspect	Average	
	Small Group (n = 10)	Big Group (n=30)
Language	85,25%	84,33%
Content	82,25%	84,28%
Pictures	86,00%	89,50%
Interesting	87,25%	91,34%
Understandable	86,50%	86,23%
Accessible	92,00%	91,25%
<b>Average</b>	<b>86,54%</b>	<b>87,82%</b>

The results of the testing revealed that the small group achieved an eligibility rating of 86.54% in the very feasible category. Within this group, students demonstrated a strong interest in the dominant character, Mia, featured in the media. In fact, most students highlighted Mia as a key aspect of the media. Following the revision of the media based on feedback from the small group, large-scale trials were conducted. The results showed a significant increase to 87.82%. Notably, all aspects of the media experienced an improvement, particularly in terms of image quality. These feasibility results suggest that the developed media possesses language and content that is easy to comprehend and visually appealing images, thereby enhancing its overall effectiveness.

The character of Mia in the media emerged as a focal point of interest for the target audience. Designed to resemble a young woman in a high school uniform, Mia's cheerful and expressive personality was intended to captivate viewers. By choosing human characters, we aimed to convey a range of emotions and poses, thereby creating a visually appealing and dynamic visual identity. A well-designed character or mascot serves as a solid foundation for effective branding, allowing for flexible implementation across various media without becoming monotonous. According to research (Kelvin and Hananto 2020), changes in posters and expressions imbue characters with a sense of life, preventing them from appearing dull or stagnant when viewed repeatedly while maintaining consistency.

One of the key factors contributing to the students' acceptance of the developed media was the use of the Instagram platform as a means of accessing it. The media was shared via links and QR codes that students could scan at their convenience, allowing for on-demand access. Furthermore, advances in technology have made it possible for students to access the internet quickly and easily from anywhere, at any time, thanks to stable and

affordable internet connectivity. As reported by Situmorang and Haryati (2023), Instagram is one of the most widely used social media platforms globally, often utilized for posting images and videos.

Students' demand for health information is driven by a desire to enhance their health literacy. Good health literacy encompasses the ability to access, process, and apply health-related information effectively. Notably, Instagram has been found to be a suitable platform for meeting students' needs in obtaining the necessary health information. Research has demonstrated that Instagram can augment an individual's capacity to acquire, comprehend, and utilize health information, thereby empowering them to make informed decisions regarding their well-being (Anisah & Kurniawan, 2021).

## CONCLUSION

The Instagram-based image media underwent a development process in accordance with the ADDIE model, tailored to the characteristics and needs of students regarding anemia prevention in adolescents. The drafted media was designed to be concise, engaging, and visually appealing. Content experts deemed the media highly feasible, with a feasibility value of 90.09%, while media experts concurred, assigning a value of 91.67%. Student acceptance of the media was equally impressive, with an acceptance rate of 87.82%, indicating that the media is well-suited for its intended purpose. The media's success can be attributed to its simplicity, easy-to-understand language, attractive visuals, and user-friendly accessibility. Future research could assess the effectiveness of this media by employing quasi-experimental methods to measure its influence on students' knowledge and attitudes regarding anemia prevention in adolescents.

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