

THE DEVELOPMENTAL OF AN EDUCATIONAL MODEL FOR PREVENTING ANEMIA IN PREGNANT WOMEN

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ABSTRACT

Anemia in pregnant women is a global health problem. The impact of anemia on pregnant women during pregnancy can threaten the development of the fetus. Compliance with consumption of Fe tablets is one of the influencing factors. Health promotion through educational video media can be used to increase knowledge in increasing knowledge. This study aims to evaluate the visigamia video educational model for preventing anemia in pregnant women.

This type of research is design and development research (Research and development) with a mixed methods approach. The development research steps are carried out using the A-D-D-I-E framework (Analysis, Design, Development, Implementation and evaluation). The sample in this study were pregnant women at the Kenali Besar Community Health Center, Jambi City, who received Fe tablets and who took part in the class of pregnant women as many as 30 people as a sample with a total sampling technique. The research was conducted in June 2022. Data was collected using a knowledge questionnaire sheet and research data were analyzed univariately and bivariately with the T-Dependent test.

The results of the development of an educational model in the form of a visigamia video which is an animated video containing material on preventing anemia in pregnant women. The implementation of the research shows a significant increase in knowledge before and after using the application and assessing the use of the application p-value 0.0001 (CI.95%). This visigamia video can be an educational medium for pregnant women which contains unique material on preventing anemia in pregnancy, and the effects of anemia in pregnancy.

Keywords: Visigamia video; knowledge; pregnant women; anemia

BACKGROUND

Iron deficiency anemia is the most common anemia in pregnancy. According to WHO, nearly 2 billion people worldwide suffer from iron deficiency, and up to 50% of them are pregnant women (WHO, 2015) (Wibowo et al., 2021). In 2019, the global prevalence of anemia was 36.5% in pregnant women, 29.6% in non-pregnant women. The highest prevalence of anemia (56%) was found among pregnant women in low- and middle-

income countries (LMICs), and the lowest (24.1%) was reported among pregnant women in South America (Turawa et al., 2021). Based on the 2018 Basic Health Research (Riskesdas) it stated that the proportion of anemia in pregnant women in 2013 was 37.1% and in 2018 it increased to 48.9%. Pregnancy anemia based on age was mostly in the age range of 15-24 years at 84.6%, aged 25-34 years reached 33.

Anemia does not only affect the mother, babies born to mothers who suffer from iron deficiency or anemia are likely to

have little or no iron reserves in their bodies even though they are not anemic. Severe iron deficiency in pregnant women can result in decreased iron reserves in the fetus and newborn, which predisposes them to iron deficiency anemia in infancy (Tanziha et al., 2016).

The impact of anemia on pregnant women during pregnancy can cause abortion, premature labor, inhibition of fetal growth and development in the uterus, easy infection, threat of Hb decompensation <6 gr/dl, premature rupture of membranes, and antepartum bleeding (Goretik et al., 2021). Risk factors for anemia in pregnancy include pregnancy history, hemoglobin levels, parity status, and pregnancy complications (Tampubolon et al., 2021).

Several factors that can cause anemia in pregnancy include gravida, age, parity, economic status, level of knowledge, and adherence to consume of Fe tablets (Ari Madi Yanti et al, 2015). Meanwhile, adherence to consuming iron tablets to avoid anemia in pregnant women is influenced by the level of knowledge (Stephen et al., 2018).

Prevention of anemia in pregnant women can be done by giving iron tablets (ferum/fe) and improving the quality of daily food Hariyani (2011). Fe tablets are minerals needed by all biological systems in the body. Fe tablets are an essential element for the synthesis of hemoglobin Bakri (2021). Iron tablets are given one tablet every day during pregnancy or at least 90 tablets (Ministry of Health RI, 2016). According to Susiloningtyas(2012) the dose of iron for pregnant women is 120 mg. Giving iron as much as 30 grams per day will increase hemoglobin levels by 0.3 dl/gr/week or in 10 days.

As for efforts that can be given to increase the knowledge and attitudes of pregnant women in consuming Fe tablets to avoid anemia, one way is to provide health promotion to pregnant women with educational media. Health education media is an effort to make it easier to

deliver and receive messages or information from communicators, whether through print, electronic, visual, and outdoor media. One of the health education efforts using audio-visual message delivery is educational videos (Rosmaria, 2021). Health education through video media has advantages in terms of providing good information so as to facilitate the absorption of knowledge (Sari, 2019). Video is included in the audio-visual media because it involves the senses of hearing as well as the sense of sight. This audio-visual media is able to produce better learning outcomes for tasks such as remembering, recognizing, recalling, and connecting facts and concepts (Rosmaria, 2021).

Based on the problems above, the researcher is interested in researching "The Developmental of an educational model for preventing anemia in pregnant women".

RESEARCH METHODS

This study uses a Research and Development research design. The large group test stage uses a quasi-experiment test, measure carried out once time using a one-group pretest- posttest. Steps of development research carried out using a framework ADDIE (Analysis, Design, Development, Implementation, and evaluation). In this framework, designers and developers use each analysis, design, development, implementation, and evaluation as the main stages. The study aims to determine the educational model for preventing anemia in pregnant women. The population in this study were pregnant women at the Kenali Besar Community Health Center, Jambi City, 30 people, sample was taken using a total sampling technique of 30 respondents.

RESULTS AND DISCUSSION

The development research steps were carried out using the ADDIE framework (Analysis, Design,

Development, Implementation, and evaluation). In using this framework, designers and developers use each analysis, design, development, implementation, and evaluation as the main stages

1. Analysis Stage

a. Needs analysis

At this stage the researcher conducted interviews with 2 health workers and 5 pregnant women who visited the Recognition Health Center, it was found that the majority of pregnant women stated that they did not know about anemia in pregnancy, how to prevent anemia in pregnancy, how to consume Fe-tablets, and the impact of pregnancy anemia. Then, based on interviews conducted with 2 health workers, they said that so far health education has been given only through leaflets and lectures, so that pregnant women easily forget after being given education, therefore health workers hope that the delivery of this education can be done by other methods like any other medium

b. Context analysis

Identification that affects the contextual problem, namely: 1) stakeholders; those involved in the implementation were the person in charge of the pregnant women class at the Kenali Besar Health Center. 2) Target group: pregnant women. 3) The physical context; the must-have facility is a smartphone 4) organizational policy context; The development of an educational model can be used by all elements who need it, namely: pregnant women, cadres, class in charge of pregnant women. 5) educational context; changes made taking into account the needs and

technological developments. 6) feasibility: The developed application has advantages, namely animated videos that contain material, with pictures and sound.

c. Design Stage

The results of the analysis of problems that are studied practically and theoretically and have been deemed worthy of being used as research objectives, the researchers and the team jointly design and build products to solve the problems. This stage will produce an initial design or prototype of the development product in the form of a storyboard, namely a storyboard in the form of a rough sketch where there are sequential pictures in the form of a series of stories consisting of several pages.

2. Development Stage

The prototype development stages consist of expert validation, one-on-one testing, small group testing and field testing stages. Evaluation is carried out by IT experts/experts as well as material experts. The results of the evaluation are in the form of qualitative data or descriptions of suggestions provided by experts which will be used to revise the intervention design resulting from the overlay. Evaluation/revision can be done by reviewing both the design, development and analysis processes. The *visgambia* video application developed is validated by practitioners to get input from the perspective of experts in this development: material experts, namely 1 (one) health expert. There are aspects of material assessment, educational aspects and communication aspects. The rating scale uses a Likert scale with a score of 1 -5, there are 12 items of assessment

indicators by material experts with a total score of 53 and an average of 4.4 with the conclusion of the application in the good category. The media expert's assessment was carried out by computer and programming experts to get input about the feasibility of the application that had been developed, the results of the assessment obtained an average of 4.7 (good category) and the advice given was to add text to the video in accordance with the material to make it easier for users to understand.

3. Implementation Stage This stage is tested:

a. One-on-one trial

The one-on-one trial was carried out by involving 2 (person) mothers who had been determined by the researcher based on the criteria of having a smartphone and being able to use it actively. Researchers and users pair one-on-one and interact to carry out practice evaluations of android-based growth and development assessment applications, researchers interact with users and observe what users do, record all perceptions and ratings given by users. The results of one-on-one trials show that visigamia can be used properly by users, video playback is smooth without interruption and sound and images can be seen and heard clearly.

b. Small Group Trial

This small group assessment is a transitional assessment between individual assessment and large group/field testing. The purpose of the assessment in this group is to ensure that the product can actually be used properly and see the temporary effects of using the product. Researchers do not

interact with users and only as observers. Researchers will provide a response if there is a serious problem. Assessment of the use of visigamia video using the assessment sheet results show a good category with an average result of 4.2.

c. Large Group Trials

The researcher conducted a pretest and posttest to see indicators of the impact of using the product, assessing differences in knowledge before and after using visigamia videos. During the process, the researchers paid attention to the efficiency of time and resources involved in using the product. Field or large group testing is carried out to improve the product both in terms of structure, function and user behavior. Currently there is no interaction between users and researchers to test whether the product can actually operate properly without the researcher's presence. Users are provided with a procedure manual for using the product. The test used a one-group pretest-posttest experimental research design.

Tabel 1. Effect of knowledge of pregnant women before and after being given an educational video to prevent anemia

Treatment with Videos	Means	Min	Max	SE	SD	p	N
(Pre-test)	5,20	2	9	0.507	1,821		
(Post-Test)	9.53	6	14	0.434	2,134	0.000	30

The conclusion is that there is a significant difference in knowledge before and after using visigamia video, while the application assessment is carried out using the study subject's assessment sheet with an average result of 4.8 (good category).

4. Evaluation Stage

The evaluation stage in the form of a summative evaluation focuses on the extent to which product use interventions can be used to produce the desired goals. In this study, a summative evaluation was not carried out because the development research carried out had not yet reached the potential impact assessment

The use of video as a means of health education is now starting to develop along with current technological advances. Health education through video media has the advantage of providing a good visual picture, facilitating the process of acquiring knowledge. Video is included in audiovisual media because it involves both hearing and sight. This audiovisual media can produce better learning outcomes for tasks such as remembering, recognizing, remembering, and connecting facts and concepts (Susanti & Anggriawan, 2020).

This research is in line with Rahmawati's research (2021) entitled the effect of video media on increasing knowledge in anemic pregnant women, that there was an increase in mother's knowledge before and after giving the intervention using anemia videos in the experimental group and the control group with a p-value of 0.001 ($p < 0,05$).

As well as research conducted by Sukmawati et al., (2019) entitled the effect of education on the prevention and treatment of anemia on the knowledge and attitudes of pregnant women. The results showed that there was an effect of education on prevention and treatment of anemia with a p-value ($0.000 < 0.05$).

The purpose of this education is to increase the knowledge of pregnant women about the prevention and treatment of anemia in pregnant women, with increased knowledge supported by a supportive attitude it is expected that pregnant women will consciously carry out the prevention and treatment of anemia. According to (Waryono, 2010) preventing anemia in pregnant women includes getting enough rest, consuming nutritious

foods that contain lots of Fe, having at least 4 prenatal checkups and consuming Fe 90 tablets during pregnancy. According to Arisman (2019) efforts to prevent anemia in pregnant women can be done by administering Fe via oral or injection, health education, monitoring of infectious diseases and fortification (enrichment) of iron in staple foods.

As for efforts that can be made to increase knowledge about preventing anemia in pregnant women, one of these ways is to provide health education to pregnant women with educational materials. Health education through the media is an effort to facilitate the transmission and reception of messages or information from communicators through print, electronic, visual and external media. One of the health education efforts using visual delivery of messages is educational videos (Rosmaria, 2021).

CONCLUSIONS AND RECOMMENDATIONS

The results of this statistical test indicate that there is an educational model development using visigamia video that can be used and increases pregnant women's knowledge about preventing anemia in pregnancy in pregnant women at the Kenali Besar Health Center, Jambi City. It is hoped that this visigamia video can be one of the efforts to prevent anemia in pregnancy through the provision of education using video so that it facilitates understanding and increases knowledge in pregnant women.

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