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Research Article

Audio Visual Education Effectivity to Increase Knowledge about Anemia in Pregnant Women

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Abstract

Aims: WHO reported 36.5% pregnant women in the world experienced anaemia, which 75.0% of them lived in developing countries. It included 63.5% of them who lived in Indonesia. The highest prevalence of anemic pregnancy in Jakarta province was located in North Jakarta, that related to iron deficiency and nutritional status. Boosting knowledge and educating women about pregnancy had to be done effectively in order to get optimal output. Choosing the right educational media was an essential part of the movement. Audio Visual Education (AVE) was commonly use to educate people, instead of limited resources. It stimulated two human sense, sight and hearing, which estimated could increase learning process.

Method: We held a quasi-experimental study by gathering 30 pregnant women to watch AVE about anemia in pregnancy who were willing to participate and havent received any education about anemia via educational video. Exclusion criteria were being uncooperative, such as not watching the video completely and didn't fill in pre- and posttest completely. We used purposive sampling to gather participants. There were pre and post-test ten minutes before and after intervention. We performed Wilcoxon Test to analyze the effectivity of AVE in order to increase knowledge about anemia ($p < 0.05$).

Results: We found AVE could boost knowledge score in the third pregnant women statistically significant. Before intervention, average knowledge score was 56,7% which increased to 91,7% after AVE (p value=0.0001).

Conclusion: This study implied AVE was an effective media to increase participant's knowledge about anemic pregnancy in pregnant women. Strengthening health literacy through planned educational programs would improve health behavior of individual and community.

Keywords:

Audiovisual Education, Health Education, Pregnant Women, Anemia

INTRODUCTION

Maternal mortality rate (MMR) is one of the essential indicators in public health. MR describes a number of death women as a result of maternal disease, started from

pregnancies to puerperium period. MMR reflected uncontrolled risk factor such as nutritional status, socioeconomic situation, individual prenatal condition, complication management during pregnancies to puerperium period, health provider and

facility availability, both prenatal and obstetric care. In 2019, according to World Health Organization (WHO), MMR reached 295 per 100,000 birth (1).

Anaemia was a global health issue, both in developed and developing countries. Anaemia is where lack of erythrocytes found. In pregnant women, this condition was defined as haemoglobin was less than 11gr% (first and third trimester) and 10.5% (second trimester) which the discrepancy was related to haemodilution(2) (3), (4) WHO reported 36,5% pregnant women in the world experienced anaemia, which 75% of them lived in developing countries. It included 63.5% of them who lived in Indonesia (5).

Anemia prevalence in Jakarta was accounted to 5.1% in 2018. Jakarta Health Secretariat Office reported anemia in pregnancy was found mostly in 15-24 years old (33.7%), 35-44 years old (33.6%) and 45-54 years old (24.0%) women. The highest prevalence of anemic pregnancy in Jakarta province was located in North Jakarta, that related to iron deficiency and nutritional status (6, 7). Iron needs was continuously increasing as pregnancy grows. In this area, pregnant women habitually came in the first trimester without following up in later trimester (8, 9).

Obstetric risk factor such as anaemia was deeply related to individual's knowledge. Boosting knowledge and educating women about pregnancy had to be done effectively in order to get optimal output. Choosing the right educational media was an essential part of the movement. Audio Visual Education (AVE) combined two sense human being, sight and hearing. This learning tool could be produced varied and creatively to get learners attention and focus (10).

Several previous studies mentioned effectivity in increasing knowledge about anaemia in pregnant women. A study of Oktaviani et al, stated health education was more effective in increasing knowledge and

attitude when using video rather than flipchart (11). Other study by Fertimah stated health education using audio-visual and Permitasi application had proven to be effective to boost mom's knowledge about anaemia and increase drug taking adherence (10, 12).

This background motivated us to investigate how effective audiovisual to educate women about pregnancy and anemia, mainly in the highest prevalence anemic pregnancy in Jakarta.

METHODS

Study design

This research was a quasi experimental study using pretest-posttest without control group approach. Intervention was an educational video about anemia in pregnancy, duration ± 15 minutes. Pre and post-test were held 10 minutes before and after intervention.

Time and Place

The study was held from November 2022 to January 2023. We gathered 30 pregnant women at Semper I Primary Health Care, North Jakarta.

Participants

Inclusion criteria were the third trimester pregnant women who were willing to participate and haven't received any education about anemia via educational video. Exclusion criteria were being uncooperative, such as not watching the video completely and didn't fill in pre- and posttest completely. We used purposive sampling to gather participants.

Instrument

Questionnaire about anemia knowledge was adopted from Choirunnisa's study (13). It was contained 30 closed question using Gutmann score, which true answer scored 1 and false answer score 0. Validity and reliability test had been done before as preliminary study, involving 20 pregnant women. Validity test score 0.5-0.8 ($\geq r$ table

= 0.4) and reliability test showed 0,9 (Cronbach alpha = 0,6). These scores showed the questionnaire was valid and reliable. Knowledge score would be categorized based on pre and posttest score into: lower (<56%), middle (56-75%), and upper (\geq 76%).

Data analysis

We gathered data by performed univariate and bivariate analysis to examine the research question and determine significance rate by 0.05 with Wilcoxon test.

RESULTS

This study was held in one primary healthcare facility in North Jakarta, December 2022. Mean age of participants were 33.7 ± 4.2 (22.0-38.0) years old. We categorized them into low and high risk pregnancies according to age. Less than 20 years old and higher than 35 years old would be included into high risk while 20-35 years old into low risk pregnancies. We also analyzed number of birth and education background that could influence participants' knowledge. Low level education explained junior high school graduate, while high level education included high school or more graduate. Table 1 showed demography background of participants in this study.

Tabel 1. Demography background (n = 30)

Variable	Frequency	%
Age (years)		
<20	0	0
20-30	14	46.6
>30	16	53.4
Risk of Pregnancy		
High risk	3	10
Low risk	27	90
Parity		
Primipara	7	23.3
Multipara	23	76.7
Education level		
Low	10	33.3
High	20	66.7

Before intervention, average knowledge score was 56.7 ± 8.0 (40-70) %. Ten people (33.3%) were included in the lower category, while the other 20 people (66.7%) in the middle category. After intervention, we found increasing average post-test score became 91.7 ± 9.21 (63.0-100.0) %. There weren't any participants in the lower knowledge category. Two people (6.7%) were in the middle knowledge category while the 28 other people (93.3%) were in the upper category.

Table 2. Knowledge Score Before and After AVE Intervention

Knowledge Score	Mean	Median	Standard Deviation	Minimum-Maximum
<i>Before intervention</i>	17	18	2.4	12-21
<i>After intervention</i>	27.5	28.5	2.8	19-30

Table 3. Frequency Distribution Before and After AVE Intervention

Knowledge Score Category	Before Intervention	After Intervention
Low	10 (33.3%)	0
Moderate	20 (66.7%)	2 (6.7%)
High	0	28 (93.3%)
Total	30	100

Bivariate analysis was done by performing Wilcoxon test which resulted $p=0.0001$. It meant significant difference between pre and posttest score among participants.

Table 4. Correlation of AVE Intervention to Knowledge Score About Anemia in the Third Trimester Pregnant Women

Knowledge Score	Mean	Negative ranks	Positive ranks	Ties	Z interval	P value
<i>Before intervention</i>	17	0	30	0	-5.0	0.0001
<i>After intervention</i>	27.5					

DISCUSSION

Knowledge is a result of human sense (eyes, nose, ears and so on). Knowledge is related to the learning process. It is influenced by various factors, such as motivation and external factors, such as availability of facilities, as well as socio-cultural circumstances (14, 15).

Based on Wawan's study, before educational video intervention was carried out, knowledge about reproductive health was still lacking and deficient. According to existing theory, an individual level of knowledge was influenced by several factors including age, level of education, interest, occupation and so on (16). In term of our participant, pregnant women, we concluded that knowledge was influenced by age which mostly were in productive age when performing ability to learn wouldn't be an issue. It also based on previous education related to the topic.

Before intervention, our study showed average of pretest score was 56.7%. It was noted that most of participant had deficient knowledge regarding to anemia in pregnancy. In line to Oktaviani study which mentioned before intervention, well-informed pregnant women, mainly about anemia in pregnancy, was found in 20% of samples (17). This number was increased after intervention, educational video, to 60% of samples. Solekheha study also showed increased knowledge after AVE about anemia in pregnancy in 18 respondents (94.7%) (10,18).

Pratiwi et al in their scoping review showed age, level of education, occupation and parity positively correlated to anaemia incidence in pregnancy (19). Health promotion using audio-visual media influenced more the factors mentioned Video as a learning tools that contained visual messages supported by sound audio helped clarifying and made it easier to absorbed (20) Effectiveness of learning tools was dominated by how much reception that was accepted by learner (21, 22). According to *Computer Technology Research* (CTR), individual could absorb 20% by a sense from sight, 30% from hearing, and 70% from combination of both senses (23, 24).

Some studies had proven Audio-Visual Education (AVE) could boost knowledge about anaemia in pregnant women. A study of Noronha et al. showed modifying health seeking behaviour and perception about anaemic pregnancy was effective to reduce the incidence (25). Oktaviani's study had proven video as health education media was more effective than flipchart, mainly when it came to increasing knowledge and improving attitude in anaemic pregnant women (11). A study of Fertimah had shown that using audio-visual media and Pemitasi application as part of health education was effective to increase pregnant women's knowledge in anaemia and also boost drug taking adherence (12). Solehekha's study also showed AVE was an important part to educate about anaemic in pregnant women (10).

Health education media was one factor related to learning success rate. Audio Visual Education (AVE) was considered as variative and creative media so it could lead to higher pupil motivation in learning (10). Using AVE as learning media could enhance pupil focus and made it easier to absorb as the learning material became more interesting and real than using writing only (26). Video's output included moving picture and sound, could be set to slower or faster as needed (26). As it involved more than one sense, information was easier to catch. Unrepeated information would be stored as short-term memory (27). We gave participants short break between videos to examine long term memory and time to fill in questionnaire.

Video as learning media seemed to be effective as it was more interesting, easy to understand. Video included two sense, sight and hearing, made them more compelling and easier to absorb (28) In case of increasing knowledge, video as learning media had high successful rate to 75-87% than other media (18).

As this was a quasi-experimental study, we could clearly define audio-visual education increase knowledge score. Limitation of the study was other factors might also influence the result, as we found no participants were younger than 20 years old and most of the participants had been pregnant more than once (multipara).

CONCLUSION

We studied using AVE to educate pregnant women about anemia in pregnancy was effective. We should investigate the same method in larger sample to investigate its limitation about maximal participation and duration. Strengthening health literacy through planned educational programs would improve health behavior of individual and community.

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