Vol. 4. No.2. 2026 E-ISSN 2987- 2081

Holistic Nursing PLUS
Pillars, Longevity, Ubiquitary, Solicitude

SAKU
SAHABAT PUBLIKASI KUU

The Effect Of Audiovisual Educational Media On Improving Nutrition Knowledge Of Pregnant Women In Maternity Clinic At Palembang, Indonesia

Aminah Maya[1,2], Jayasree S Kanathasan[3], Renda Natalina[2], Suzanna[4], Chessya Putri[5]

[1] Health Science Study Program, Lincoln University College, Malaysia
[2]Midwifery Study Program, Universitas Muhammadiyah Ahmad Dahlan, Palembang, Indonesia
[3]Faculty of Applied Science, Lincoln University College, Malaysia
[4]Nursing Study Program, Universitas Muhammadiyah Ahmad Dahlan, Palembang, Indonesia
[5]Midwifery Study Program, Universitas Muhammadiyah Ahmad Dahlan, Palembang, Indonesia

Academic Editor: Ika Novita Sari
Received: 15 August 2026
Accepted: 26 October 2026
Published: 31 October 2026

Publisher's Note: HNP stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

Abstract

Background: The high Maternal Mortality Rate (MMR) is closely related to the quality of nutrition during pregnancy. Besides anemia, malnutrition during pregnancy also increases the risk of babies being born with low birth weight and stunted growth at an early age. More interactive, contextual, and easily accessible education is really needed so that nutrition messages are not just delivered but also understood and practiced by pregnant women. Audio-visual media approaches, like educational videos, are seen as effective in improving literacy and promoting strategy in primary care.
Purpose: This study aimed to assess the effect of video-based nutrition education on improving pregnant women's knowledge in maternity clinic at Palembang in 2026
Methods: A quasi-experimental study with a two-group pre-test and post-test design was conducted. The sample consisted of 34 third-trimester pregnant women divided into an intervention group (Education with Audio visual educational media, n=17) and a control group (Education with Mother Child Health Book, n=17) using purposive sampling. Data were analyzed with the Wilcoxon and Mann-Whitney tests due to non-normal distribution
Results: The intervention group showed a significant improvement, with pre-test scores ranging from 25%–68.8% and reaching 100% in the high category at post-test. The control group demonstrated lower and more varied improvement (68.8%–100%). Final analysis revealed a higher Mean Rank in the intervention group (24.74) compared to the control group (10.26). The Mann-Whitney test yielded Z = -4.312 and p-value = 0.000 ($p < 0.05$). Conclusions: Audio visual educational media was proved significantly more effective than the independent use of the MCH Book in improving pregnant women's nutritional knowledge in Maternity Clinic at Palembang.

Keywords: Audiovisual Educational Media, MCH Book, Knowledge, Pregnancy Nutrition

Introduction

Globally, anemia in pregnant women remains one of the main nutrition issues significantly affecting both maternal and fetal health. The prevalence of anemia in pregnant women aged 15–49 is still high, with the global average exceeding a third of the population. This condition is mainly caused by iron deficiency, which increases the risk of obstetric complications, including preterm birth and high maternal morbidity (World Health Organization, 2024). This shows that maternal nutrition challenges are still significant in efforts to achieve the third Sustainable Development Goal (SDG), which focuses on improving maternal and child

health through evidence-based nutrition interventions, like iron supplementation and strengthening antenatal services (UNICEF, 2023). According to the South Sumatra Provincial Health Office (2023), the prevalence of anemia among pregnant women reaches 42 percent, and in Palembang City, the rate even touches 44 percent. This data indicates that maternal nutrition problems in the area are still quite high. It shows a gap between the availability of health services and the understanding and eating habits of pregnant women. This situation needs serious attention through education-based interventions to raise public awareness (Palembang City Health Office, 2023).

The Indonesian government has initiated various programs to tackle nutrition issues in pregnant women, including the First 1000 Days of Life Program, providing at least 90 iron tablets during pregnancy, and Balanced Nutrition Education integrated into Antenatal Care (ANC) services. In addition, the National Movement for Accelerating Nutrition Improvement (GNPPG) and Specific Nutrition Interventions are also continuously promoted to reduce the prevalence of anemia and stunting. However, the effectiveness of these programs highly depends on pregnant women's knowledge, attitudes, and awareness of the importance of meeting balanced nutrition. Therefore, there is a need for innovations in delivering education that are more engaging, practical, and easy to understand (Amalia et al., 2024).

More interactive, contextual, and easily accessible education is highly needed so that nutrition messages are not only delivered but also understood and practiced by pregnant women. Approaches based on audio-visual media, like educational videos, are considered effective in improving nutrition literacy because they are more engaging, practical, and suited to the participants' characteristics. Pregnancy is a critical period for the health of both mother and baby; however, in many areas, low nutrition literacy among pregnant women is still found, leading to suboptimal eating practices. Low nutrition knowledge is often linked to high rates of anemia, micronutrient deficiencies, and inadequate calorie/protein intake. This phenomenon is visible both globally and nationally, and even though maternal health interventions are available, mothers' access to and understanding of nutrition messages remain limited, so a more effective and easily accessible educational approach is needed for pregnant women at primary care facilities (Adam R, 2023).

Nutrition problems during pregnancy can seriously affect the health of both the mother and the baby. A lack of nutrients, especially iron and folic acid, can cause anemia, fatigue, increased risk of bleeding during childbirth, and raise the chances of premature birth and low birth weight (LBW) babies. In the long run, malnutrition also contributes to developmental issues in children and increases maternal and neonatal morbidity and mortality rates. This highlights the importance of nutrition education to boost awareness and promote good nutritional habits during pregnancy (Hao et al., 2023). The low effectiveness of conventional

education nowadays calls for new breakthroughs in how information is delivered. Audio-visual (video) based education is considered a more effective solution because it's engaging, practical, and easy for pregnant women to access on their own. Educational videos are an efficient and interactive health communication tool, making them easier for people to accept compared to regular lectures (Mustikaningrum et al., 2024).

The effectiveness of using audiovisual media to improve nutrition literacy has been proven by various previous studies. A study by Adam et al. (2023) in South Africa showed that short animated videos could significantly increase maternal knowledge. In Indonesia, research by Amalia et al. (2024) found that education through videos and booklets could improve both mothers' knowledge and behavior in preventing stunting. Similarly, Mustikaningrum et al. (2024) also demonstrated that balanced nutrition education using video media effectively enhances the understanding of pregnant women at the primary healthcare level.

Method

Design

This study used a quasi-experimental design with a pre-test and post-test group approach. The intervention group will be given an educational video about pregnancy nutrition, while the control group will not receive the video but will be educated using the Mother Child Health (MCH) book. The difference in knowledge scores between the two groups will show the effectiveness of the intervention.

Participants and Setting

This study is a quantitative study with a quasi-experimental design using a two-group pre-test and post-test design. The research was conducted at the Maternity Clinic of Ria Tisnawati in Palembang, South Sumatra, in 2026. Respondents were divided into two groups: the intervention group, which received nutrition education through audio visual media, and the control group, which received education using the MCH Book. Knowledge about nutrition was measured before (pre-test) and after (post-test) the intervention to assess changes in knowledge in each group. The sampling was done using a non-probability sampling technique with purposive sampling method. The total sample was 34 respondents, divided into two groups, with 17 respondents in each group.

Ethical consideration

This research has received ethical approval from the Ethics Committee of Muhammadiyah Ahmad Dahlan University Palembang with letter No: 002465/ETHICS Muhammadiyah Ahmad Dahlan University Palembang/2026

Data collection

Data collection was done using a research instrument in the form of a pregnancy nutrition knowledge questionnaire that had gone through validity and reliability tests. The data collection started with giving a pre-test to all respondents. Then, the intervention group was given education using a video about pregnancy nutrition, while the control group was given education using the Maternal and Child Health Book. After all interventions were completed, both groups were given a post-test using the same questionnaire to measure changes in the respondents' knowledge level.

Data analysis

Data analysis was done using a univariate approach to describe the characteristics of the respondents as well as the level of knowledge before and after the intervention in each group. Before conducting bivariate analysis, a statistical prerequisite test, namely the data normality test, was carried out first. Since the data were not normally distributed, bivariate analysis was then continued using nonparametric tests, specifically the Wilcoxon Signed Rank Test to find out the differences in knowledge levels before and after the intervention in each group, and the Mann-Whitney U Test to analyze the differences in knowledge improvement between the intervention group and the control group with a significance level (α) of 0.05.

Results And Discussion

Result

Based on the results of research conducted at Maternity Clinic in Palembang, with a research sample of 17 respondents in the intervention group (Educational Video) and 17 respondents in the control group (MCH Book), the results of this study are presented in the form of tables and text as follows:

Table 1. Wilcoxon Test on the Intervention Group (Educational Video)

Group	Variable	N	Mean	p-Value
Intervention	Pretest	17	7,71	
	Post test	17	14,76	0,000

Based on Table 1, the Wilcoxon Signed Rank Test results for the intervention group showed a significance value of 0.000 ($p<0.05$), which means there was a significant difference between the pretest and posttest, with the average score increasing from 7.71 to 14.76.

Table 2. Wilcoxon Test on the Control Group (Mother and Child Health Book)

Group	Variable	N	Mean	p-Value
Control	Pretest	17	7,60	0,000
	Post test	17	10,58	

Based on Table 2, the Wilcoxon Signed Rank Test results in the control group showed a significance value of 0.000 ($p<0.05$), which means there is a significant difference between the pretest and posttest, with the average score increasing from 7.60 to 10.58.

Table 3. Mann-Whitney U Test between the Two Groups

Groups	**N**	**Mean**	**Mean Rank**	**Mean**	**Sig**
Intervention	17	14,76	24,74	4,18	0,000
Control	17	10,58	10,26		

Based on Table 8, the results of the Mann-Whitney test show that the mean rank of the intervention group was 24.74, much higher than the control group at 10.26, with an average increase difference (Δ) of 4.18 points. The Asymp. Sig. (2-tailed) value of 0.000 ($p<0.05$) indicates a significant difference in knowledge improvement effectiveness between the two groups. Therefore, Ho is rejected and Ha is accepted, confirming that nutrition education through video media has a significant effect on increasing pregnant women's nutritional knowledge at Maternity Clinic Palembang in 2026.

Discussion

Based on the final stage of the comparative hypothesis test aimed at examining post-treatment differences in effectiveness between the two media, an analysis was conducted on posttest scores using the non-parametric Mann-Whitney U Test. This step was taken because the final score data in both groups was proven to be not normally distributed according to the previous prerequisite test. The statistical test results showed a significance value (Asymp. Sig. 2-tailed) of 0.000, which is smaller than the critical threshold of 0.05 ($p < 0.05$). This confirms the rejection of the Null Hypothesis (H_0) and the acceptance of the Alternative Hypothesis (H_1). The difference is also evident from the mean score gap of 4.18. This difference serves as empirical evidence that the Educational audio visual media is far more effective than the MCH Book in improving pregnant mothers' nutritional knowledge at maternity clinic in Palembang City (Primary Data, 2026).

The cognitive performance advantage achieved by this intervention group clinically justifies that dynamic visualization can transfer complex midwifery information into actionable simulation forms. Abstract guidelines on macronutrient portions, anemia prevention, and stunting mitigation are presented through attractive animated movements and clear voice narration, effectively cutting through the psychological fatigue that often arises when reading text-heavy MCH books (Utami et al., 2024). Based on dual coding theory, the simultaneous combination of visual and auditory stimuli in educational videos has been proven to help the cerebral cortex convert external information into long-term memory, leading to more balanced and deeper conceptual understanding among respondents (Pratama, 2023).

The results of this study align with the findings of Mirna et al. (2026), which showed that animated video media are effective in increasing nutrition knowledge among pregnant women in their second and third trimesters at Bangkala Community Health Center. In that study, the average knowledge score increased significantly from 58.3 in the pretest to 83.6 in the posttest ($p = 0.000$), with most respondents moving to the good knowledge category. This confirms that animation-based audiovisual media can convey nutrition information in a more engaging and easy-to-understand way compared to conventional methods (Mirna et al., 2026).

Next, research by Pratama (2023) also supports this result, where the use of audiovisual media increased pregnant women's knowledge about nutrition from an average of 74.76 on the pretest to 86.60 on the posttest. The Wilcoxon Signed Rank Test analysis showed a Z value of -6.044 with a p-value of 0.000 (<0.05), which means there is a significant difference. Audiovisual media is considered more effective because it can provide clear visualizations, make it easier to absorb information, and is flexible to access via digital devices (Pratama, 2023).

In line with Sofiyah & Chasani's research (2025), they confirmed the effectiveness of audiovisual media in preventing stunting by improving pregnant women's nutrition knowledge. The Wilcoxon test results showed $p = 0.000$, with the average score increasing from 59.40 to 98 after the intervention. These findings strengthen the evidence that audiovisual media not only boosts knowledge but also has the potential to change attitudes and nutrition practices among pregnant women, thus contributing to a reduced risk of stunting (Sofiyah & Chasani, 2025).

The researchers' analysis shows that although the MCH Book for the control group was proven to boost knowledge from the pretest baseline, the limitations of its static, one-way print format held back the acceleration of the final scores to only a moderate level. On the other hand, the Educational Video acted as

an innovative medium that was highly adaptive to the characteristics of respondents at Maternity Clinic most of whom were of healthy reproductive age, had low parity, and were well-educated. Pregnant women with this sociodemographic profile are open to technology and have high logical reasoning capacity, so exposure to animated videos doesn't just increase cognitive knowledge theoretically, but also touches the affective domain by fostering independent awareness to actually practice the video content when planning daily meals at home (Mirna et al., 2026).

The results of this study align with Green's health promotion theory, which emphasizes that the effectiveness of educational media in changing cognitive domains is determined by the instrument's ability to capture attention and maintain the subject's information retention (Green & Kreuter, 2020). These empirical findings support previous midwifery research, which concluded that modifying health promotion media into a digital audiovisual format is significantly more effective in boosting maternal nutrition knowledge compared to conventional print media (Helmalia & Elfira, 2022). Therefore, adopting Educational audiovisual media is highly recommended to be integrated into the standard operational procedures of antenatal care to accelerate improvements in maternal nutrition status and help break the chain of stunting starting from the prenatal period (Ministry of Health of the Republic of Indonesia, 2024).

Based on the results of the Mann-Whitney test, educational videos have proven to be much more effective than the MCH Book in improving pregnant women's nutrition knowledge and reinforce the idea that dynamic visualization through videos can transfer obstetric information in a more practical and engaging way compared to static print media. Even though the MCH Book is an official national tool with fully standardized content validity, it relies on written text and static illustrations, which are passive (Nadiya & Rahma, 2020). The effectiveness of the MCH Book largely depends on reading interest, available free time, and the individual's own literacy level at home. Pregnant women who feel bored reading or have limited clinical guidance tend to skip important pages about nutrition management, which ultimately explains why some respondents still fall into the low knowledge category after the intervention.

Psychologically and cognitively, using audiovisual media activates both the sense of sight and hearing at the same time, which strengthens memory retention and speeds up the process of absorbing information into long-term memory. For pregnant women, this interactive method is effective in overcoming limited knowledge or boredom that often happens with conventional education methods like one-way lectures. Animated video interventions provide strong stimuli that spark learning interest and health awareness among pregnant women about the importance of balanced nutrition during pregnancy (Sari et al., 2025).

The superior cognitive performance of the intervention group shows that the combination of visual and auditory stimulation in animated videos makes it easier to internalize information into long-term memory, resulting in a deeper conceptual understanding. This finding aligns with previous research confirming the effectiveness of audiovisual media in enhancing maternal nutrition knowledge and potentially changing the attitudes and practices of pregnant women regarding nutrition. Therefore, animated educational videos on maternal nutrition are worth integrating into antenatal care standards as an innovative strategy to improve the nutritional status of pregnant women and prevent stunting from the prenatal period.

Conclusion

This study shows that nutrition education through both video media and the KIA Book can improve the knowledge of third-trimester pregnant women at TPMB "R" Palembang, but with significantly different levels of effectiveness. The group that received education via video had a much higher increase in knowledge scores compared to the group that only received education through the KIA Book, with the Mann-Whitney test results confirming a significant difference in effectiveness between the two groups ($p=0.000$). So, it can be concluded that educational videos have a significant impact on improving pregnant women's nutrition knowledge and can be considered a more effective health education medium compared to conventional printed materials. These findings suggest that midwives, as frontline healthcare workers in antenatal care, can make the most of video media as part of their routine nutrition education strategy. This is aimed at helping reduce the prevalence of anemia and stunting by boosting maternal nutrition literacy from pregnancy. Future research is recommended to develop study designs with a larger sample size and longer observation periods to assess knowledge retention and its impact on sustainable changes in pregnant women's nutrition behavior.

Bibliography

Adam, M., Kwinda, Z., Dronavalli, M., Leonard, E., Nguyen, V. K., Tshivhase, V., Bärnighausen, T., & Pillay, Y. (2023). Effect of Short, Animated Video Storytelling on Maternal Knowledge and Satisfaction in the Perinatal Period in South Africa: Randomized Controlled Trial. Journal of Medical Internet Research, 25, e47266. https://doi.org/10.2196/47266

Adam, M., Lestari, H., & Nugroho, B. (2023). Maternal nutrition literacy and its relationship with the incidence of anemia in primary healthcare facilities. Indonesian Journal of Nutrition and Health, 9(1), 12–21.

Adam, R. (2023). The Relationship Between Nutrition Literacy and Anemia Prevalence in Pregnant Women. Journal of Reproductive Health, 14(2), 101–110. https://doi.org/10.33086/jkr.v14i2

Amalia, Z., Pamungkasari, E. P., & Priyatama, A. N. (2024). The effect of nutrition education through videos and booklets on improving knowledge, attitudes, and behaviors of pregnant women in preventing stunting. Journal of Health Research and Development, 34(4), 962–973. https://doi.org/10.34011/jmp2k.v34i4.2303

Green, L. W., & Kreuter, M. W. (2005). Health program planning: An educational and ecological approach (4th ed.). McGraw-Hill.

Hao, J., Yang, L., Wang, Y., Lan, Y., Xu, X., Wang, Z., Li, Z., Ma, L., Li, J., Zhang, S., & Sun, Y. (2023). Mobile Prenatal Education and Its Impact on Reducing Adverse Pregnancy Outcomes: Retrospective Real-World Study. JMIR MHealth and UHealth, 11. https://doi.org/10.2196/46910

Helmalia, J. P., & Elfira, S. F. (2022). Effectiveness of Nutrition Education for First Trimester Pregnant Women with Hypertension Through Animated Video Media at Bahagia Health Center in the Year. STIKES Abdi Nusantara, 4(3)

Ministry of Health of the Republic of Indonesia. (2024). Indonesia Health Profile 2023.

Mirna, Ahmad, A., Asmirah, R., & Prianti, A. T. (2026). Effectiveness of Animated Video Media in Improving Nutrition Knowledge of Second and Third Trimester Pregnant Women in the Working Area of Bangkala Health Center. INHEALTH: Indonesian Health Journal, 5(1), 1–8

Mustikaningrum, A. C., Nafilah, N., & Eliyana, E. (2024). Balanced nutrition education using video media on pregnant mothers' knowledge. Abdi Wiralodra: Journal of Community Service, 6(2). https://doi.org/10.31943/abdi.v6i2.161

Nadiya, S., & Rahma, R. (2020). The effect of counseling using booklet media on pregnant mothers' nutritional knowledge during pregnancy in Pulo Kiton Village, Kota Juang District, Bireuen Regency. J Healthc Technol Med, 6(1), 383–392.

Palembang City Health Office. (2023). Profile of the Palembang City Health Office.

Pratama, R. N. (2023). The effect of using audiovisual educational media on increasing pregnant mothers' knowledge about nutrition during pregnancy. Masker Medika, 11(2), 251–257. https://doi.org/10.52523/maskermedika.v11i2.547

Sari, R. A., Jayanti, K. D., Hidayat, A. D., Pangestuti, A., & Triyaningtyas, R. (2025). Overview of infant mortality aged 0-11 months at Kediri Regency General Hospital in the first to third quarters of 2024. Antigen: Journal of Public Health and Nutrition Science, 3(2), 37–50.

Sofiyah, Y., & Chasani, S. (2025). The Effectiveness of Education through Audiovisual Media on Pregnant Women's Nutrition Knowledge in Stunting Prevention. 'Aisyiyah Nursing Journal, 12(1), 1–10.

UNICEF. (2023). Maternal Nutrition Report: Global Progress on Micronutrient Deficiency.

Utami, Q. Z., Iskandar, S., & Siswati, T. (2024). The Effectiveness of Nutrition Counseling Using Video and Leaflet Media on Increasing Mothers' Knowledge in Stunting Management. Poltekkes Kemenkes Yogyakarta.

World Health Organization. (2024). World Breastfeeding Week: UNICEF and WHO call for equal access to breastfeeding support.