



The Influence of Video-Based Nutrition Education on Knowledge of Pregnancy Nutrition in Pregnant Women in Sinar Pasemah Village

Wayan Nilawati^{1*}, Riska Ismawati², Dian Monalisa³

^{1,2,3}STIKES Guna Bangsa Yogyakarta, Indonesia

Address: Jl. North Ring Road, Ngringin, Condongcatur, Depok District, Sleman Regency, Special Region of Yogyakarta

*Author correspondence: wayannw7@gmail.com

Abstract. The percentage of pregnant women chronic energy deficiency in Indonesia is 9.7%, in Lampung Province it is 13.62%. The prevalence of chronic energy deficiency risk for pregnant women in Bandar Lampung is 17.36% and for non-pregnant women is 17.02%. One of the causes of malnutrition in pregnant women is the lack of knowledge of mothers about nutritious foods during pregnancy. The purpose of the study is to determine the influence of video-based nutrition education on pregnant women's knowledge about pregnant women's nutrition in Sinar Pasemah Village. Experimental quasi research design designed by Two Group Pre-Post Test with Control Group Design. The population is 46 pregnant women. A total of 46 samples were selected with a total sampling, consisting of 23 respondents from the video group and 23 respondents from the lecture group. Univariate data analysis with frequency distribution tables, Bivariate analysis with Wilcoxon test and Mann Whitney test. The average knowledge of pregnancy nutrition before video-based education was 63.26 and the average knowledge of pregnancy nutrition after video-based education was 78.48 with ap value of 0.000. Meanwhile, the average knowledge of pregnancy nutrition before lecture education was 63.04 and the average knowledge of pregnancy nutrition after lecture education was 74.57 with ap value of 0.000. The results of the Mann Whitney test were obtained 0.020. There is an influence of video-based education and lecture education on pregnancy nutrition knowledge and there is a difference in the influence of video education and lecture education on pregnancy nutrition knowledge in pregnant women in Sinar Pasemah village.

Keywords: Lectures, Knowledge, Pregnancy Nutrition, Videos.

1. BACKGROUND

Indonesian society is still facing nutritional problems. The biggest nutritional problem is stunting in children which is directly related to nutritional problems in pregnancy or called Chronic Energy Deficiency (CED). Data reported by *the World Health Organization* (WHO) states that globally the incidence of CED in pregnancy is in *the range* of 35-75% (Hartati, Sumarni and Anonymous, 2021).

According to the Ministry of Health (2021), in Indonesia the average KEK in pregnant women is around 9.7%. However, there are several regions in Indonesia that still have a percentage of KEK pregnant women of more than 16%, including Maluku, Papua, and NTT (SSGI, 2023). Based on the 2022 report covering 34 provinces, it is known that KEK was recorded by 8.7%, lower than the 2021 target of 14.5%. In Lampung Province, KEK in pregnant women is 13.62%. For Bandar Lampung City, KEK among pregnant women reached 17.36%, while in non-pregnant women it was 17.02% (Jupri et al., 2022).

During pregnancy, there is an increase in energy metabolism in the body. The increase in energy and nutrients is needed for the growth and development of the fetus, so that if there is a deficiency of certain nutrients, it can cause the fetus to grow imperfectly (Sari and Sapitri, 2021). In addition, malnutrition in pregnant women will trigger stunting in children. This is closely related to the child's nutritional intake from in the womb to the first 1000 days of life (Directorate of Statistics of People's Welfare, 2021) .

One of the causes of malnutrition in pregnant women is due to lack of knowledge. Knowledge or cognitive is a very important aspect in shaping a person's actions. Good knowledge will have an impact on the actions of pregnant women to meet nutritional intake during pregnancy which is useful for fetal growth and development (Mirza, Sunarti and Handayani, 2023).

Knowledge can be obtained from various methods and media, one of which is video. Research by Teguh, et al. (2019) showed that pregnant women with KEK showed an increase in knowledge, attitudes, and awareness of the importance of balanced nutrition during pregnancy, as seen from the increase in scores on the pretest and posttest given. (Teguh *et al.* , 2019).

Video as an educational media can attract the attention of counseling participants. With videos, participants are able to understand the messages and information conveyed. In addition, messages can be presented more concisely, are easy to remember, and are able to clarify abstract concepts with more realistic explanations (Lestari, Azka and Syah Putri, 2023).

The video used in this study is an educational video about the nutritional needs of pregnant women by the Lampung Province BKKBN (2022). This video, which is approximately 7 minutes long, has been widely used as an educational medium because the material presented is short, concise and clear, making it easy to receive and process the message conveyed properly. The next consideration is that this video comes from the same province as the research site.

2. THEORETICAL STUDY

Fulfillment of nutrition and nutrition for pregnant women is an important aspect that must be considered during pregnancy. Nutritional status reflects the balance between nutrient intake and body needs. Healthy and balanced foods are highly recommended for consumption by pregnant women in larger quantities than when not pregnant (Mirza, Sunarti and Handayani, 2023).

The types of food consumed by pregnant women greatly affect their nutritional status. A balanced intake of nutritious food, such as carbohydrates, proteins, healthy fats, vitamins, and minerals, is very important to meet energy and nutritional needs during pregnancy. Deficiencies or excesses of certain nutrients, such as iron, calcium, folate, or vitamin D, can cause nutritional problems, such as anemia or micronutrient deficiencies, which have an impact on fetal growth and maternal health (Sari et al, 2020).

The level of knowledge of pregnant women about nutrition, the importance of a healthy diet, and the specific nutrients needed during pregnancy greatly affects their nutritional status. Mothers who have sufficient information tend to be better able to maintain a balanced nutritional intake. The economic condition of the family has a major influence on the mother's ability to buy healthy and nutritious food. Pregnant women from low-income families may have difficulty obtaining quality food, which can lead to malnutrition (Apriliani, 2019).

Many pregnant women experience changes in appetite, nausea, and vomiting, especially in the first trimester, which can lead to decreased food intake. This condition is known as morning sickness and can have an impact on nutritional status if severe. During pregnancy, the body's metabolism changes, which affects how the body absorbs and utilizes nutrients. Increased needs for calories and certain nutrients can affect the nutritional status of pregnant women (Sari et al, 2020).

Teenage pregnant women (under 20 years old) are often at risk of malnutrition because their bodies are still growing. Meanwhile, pregnant women over 35 years old may be at risk of pregnancy complications that affect their nutritional status, such as gestational diabetes or hypertension (Sari et al, 2020).

3. RESEARCH METHODS

The design in this study is a *quasi-experimental design*. This research design uses *Two Group Pre-Post Test with Control Group Design*. The experimental group will be given a video-based educational intervention and the control group will be given an educational intervention using the lecture method. The population in this study were all pregnant women in the period January - March 2024 who lived in Sinar Pasemah Village, totaling 46 pregnant women. The *sampling technique* used *total sampling*. The number of samples in this study was 46 pregnant women, 23 pregnant women in the lecture group and 23 pregnant women in the video-based education group. Data analysis used univariate analysis and bivariate analysis. The bivariate tests used were *the Wilcoxon Test* and *the Mann Whitney t-test*.

4. RESULTS AND DISCUSSION

The frequency distribution of respondent characteristics consisting of age, parity, education, occupation and knowledge can be seen in table 1.

Table 1. Frequency Distribution of Respondent Characteristics

characteristics	Group intervention		Group control		N	%
		%	f			
< 20 years	5	11	6	13	11	24
20 – 35 year	12	26	11	24	23	50
> 35 years	6	13	6	13	12	26
Total					46	100
ty						
≤ 3 children	15	32.6	16	34.7	31	67.3
> 3 children	8	17.4	7	15.3	15	32.7
Total					46	100
k						
Work	8	17.4	9	19.6	17	37
No Work	15	32.6	14	30.4	29	63
Total					46	100
cation						
Low	8	17.4	7	15.3	15	32.7
Tall	15	32.6	16	34.7	31	67.3
Total					46	100
wledge						
Good	10	21.7	8	17.4	18	39.1
Enough	7	15.3	10	21.7	17	37.0
Not enough	6	13.3	5	10.6	11	23.9
Total					46	100

Table 1 shows that most respondents were aged 20-35 years, had a parity of ≤ 3 children, were unemployed, had higher education and had good knowledge of nutrition during pregnancy.

Table 2. Effect of Video-Based Education on Pregnancy Nutrition Knowledge in Pregnant Women

Group	Pretest		Post test		p value
	Mean	Min	Mean	Min	
Video	63.26	80	78.48	85	0.000

Table 2 explains the *Wilcoxon* test of the effect of video-based education on knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village. The results obtained were an average knowledge of pregnancy nutrition before video-based education of 63.26 and an average knowledge of pregnancy nutrition after video-based education of 78.48, meaning that there was an increase in the average knowledge of 15.22. The significant value obtained was

p: 0.000 <0.05, meaning that there was an effect of video-based education on knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village.

Table 3. The Effect of Lecture Education on Pregnancy Nutrition Knowledge in Pregnant Women

Group	Pretest			Post test			<i>p value</i>
	Mean	Max	Min	Mean	Max	Min	
Lecture	63.04	75	50	74.57	80	65	0,000

Table 3 explains the results of the *Wilcoxon* test of the effect of lecture education on knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village. The results obtained were an average knowledge of pregnancy nutrition before lecture education of 63.04 and an average knowledge of pregnancy nutrition after lecture education of 74.57, meaning that there was an increase in the average knowledge of 11.53. The significant value obtained was p: 0.000 <0.05, meaning that there was an effect of lecture education on knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village.

Table 4. Differences in the Effect of Video-Based Education and Lecture Education on Pregnancy Nutrition Knowledge in Pregnant Women

Group	Mean Rank	Mean Rank Difference	Sum of Rank	<i>p value</i>
Video	27.78	8.56	639.00	0.020
Lecture	19.22		442.00	

Mann Whitney test in table 4 obtained a p value: 0.020 <0.05, so it can be concluded that there is a significant difference between the influence of video-based education and lecture education on increasing knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village. Based on the difference in mean values, it can be concluded that video-based education is more effective in increasing knowledge of pregnancy nutrition in pregnant women.

a. Respondent characteristics

Based on the results of the study conducted on 46 pregnant women, the characteristics of the respondents were obtained, consisting of age, parity, occupation, education and knowledge. The most age characteristics were 20-35 years old, as many as 23 people (50%).

According to the Indonesian Ministry of Health (2022), the ideal age for a mother to get pregnant and give birth is in the range of 20-35 years. At this age, the fertility rate is very high and the quality of the egg cells is very good. Meanwhile, getting pregnant and giving birth at the age of <20 years has contributed to the high neonatal, infant, and toddler mortality rates. The 2017 Indonesian Demographic and

Health Survey (SDKI) showed that the neonatal, postneonatal, infant and toddler mortality rates in mothers under 27 years of age were higher than in mothers aged 20-35 years.

Meanwhile, age > 35 years, according to BKKBN (2022) will be risky for pregnant women. These risks include difficulty in the fertilization process, the risk of increased blood pressure, the risk of increased blood sugar levels and others.

Based on parity characteristics, the largest number of children found was parity ≤ 3 children, as many as 331 people (67.3%). Parity is the number of living or dead children a woman has (Ministry of Health of the Republic of Indonesia, 2020).

According to Wiknjastro (2016) viewed from the perspective of maternal mortality, parity that is considered safe is ≤ 3 children and unsafe > 3 children. The risk of complications in pregnant women is more common in mothers with high parity than low parity (Prawirohardjo, 2016).

Based on job characteristics, it was found that more respondents were unemployed, namely 63%, while respondents who worked were 37%. Work in this study is a routine activity outside the home that generates income or salary. The busyness of work can take up the time of pregnant women so that they ignore nutritional needs during pregnancy. In addition, a lot of work can cause fatigue which can trigger health problems such as anemia, KEK and others.

Based on educational characteristics, respondents with higher education are more than those with lower education, which is 67.3%. Education can be obtained officially through school or non-officially.

According to Kartikasari et al (2014) formal education is education that is held in a structured institutional environment, such as schools, colleges, and universities. This education has an official curriculum, is recognized by the government, and usually has clear levels and levels. While non-formal education is education that is carried out outside the formal path and is often more flexible in time, place, and method. This education aims to improve more specific skills and knowledge, and usually does not issue official diplomas.

Based on the characteristics of knowledge, it was obtained that good knowledge was obtained in the video group respondents as many as 10 people (43.4%), sufficient knowledge was obtained in 7 people (30.4%) and insufficient knowledge was obtained in 6 people (26.2%). The category of good knowledge in the lecture group respondents

was 8 people (34.7 %), sufficient knowledge was obtained in 10 people (43.4%) and insufficient knowledge was obtained in 5 people (21.9%).

b. The influence of video-based education

Research that has been conducted on 23 respondents in the video-based education group obtained the following results: The *Wilcoxon* test , namely *p value* 0.000, means that there is an influence of video-based education on knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village.

The results of this study are in line with research conducted by Hidayah et al (2022) where a *p value* of 0.000 was obtained, indicating that there is an educational influence of infographic videos about nutrition on the knowledge of pregnant women.

Research by Suryani and Nadia (2022) showed the same results, namely that there was a relationship between animated video-based education about nutrition and maternal nutritional knowledge during pregnancy, where *the p value* = 0.000 ($p < 0.05$) was obtained.

Hasim et al (2023) in a study entitled " *Effects of Educational Videos to Increase Knowledge, Attitudes and Sleep Quality of Pregnant Women with Chronic Energy Deficiency* ", indicates there is difference knowledge before And after video educational animation. Nutrition animation video effective in increase status nutrition Mother pregnant woman.

Video is an effective media for delivering educational materials, because it can combine visual and audio elements, making learning more interesting and easier to understand (Novianto, 2015).

The process of delivering information in counseling or education activities requires the right media and methods so that the message delivered can be received and understood by the counseling target. Video-based education can be an option to improve knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village because it can attract the attention of counseling participants with the visualizations displayed, easier to understand, efficient and effective.

c. The influence of lecture method education

The results of the research conducted on 23 respondents in the lecture education group obtained the following results: $p: 0.000 < 0.05$ means that there is an influence of lecture education on knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village.

The results of this study are in line with Hartanti's (2021) study which showed that there was an influence of lecture education on knowledge and attitudes about Stunting Prevention in Premarital Women of Childbearing Age. Rahayu et al (2021) in a scientific work entitled "Education and Practice of Fulfilling Balanced Nutrition for Pregnant Women", stated that lecture education on nutrition for pregnant women can increase knowledge as evidenced by the results of *the pretest* and *posttest* which increased knowledge.

Lecture is a conventional learning method with oral narration and explanation. Before information technology experienced rapid progress, the lecture method was the most commonly used learning method. The role in the lecture method is to listen carefully and take notes on important points.

Rahayu et al (2022) research explains that lecture education has an influence in increasing nutritional knowledge compared to experimental/simulation-based methods. Knowledge gained through intensive lecture-based education may be more effective in making pregnant women recognize the need to improve eating habits by providing a logical and academic background.

The lecture method can be said to be the only most economical method for delivering information. This method does not require expensive costs such as for making leaflets or renting electronic equipment such as laptops, projectors and others. This is still needed especially in remote areas or villages that are constrained by internet connections.

According to research assumptions, knowledge about pregnancy nutrition in pregnant women can be increased by lecture method counseling because there is a process of providing information that can increase pregnant women's insight into nutrition with the hope that the knowledge obtained can provide a positive effect on attitudes and behavior to meet nutritional needs during pregnancy.

d. Differences in the Effect of Video-Based Education and Lecture Education on Pregnancy Nutrition Knowledge in Pregnant Women

Mann Whitney test to compare the differences in the influence of video-based education with lecture education on knowledge of pregnancy nutrition in pregnant women obtained a p value: $0.020 < 0.05$, meaning that there is a difference between the influence of video-based education and lecture education on increasing knowledge of pregnancy nutrition in pregnant women in Sinar Pasemah village. Based on the

difference in mean values, it can be concluded that video-based education is more effective in increasing knowledge of pregnancy nutrition in pregnant women.

Audiovisuals displayed in pregnancy nutrition education videos have a significant influence on changes in people's behavior, especially in terms of information and persuasion. Educational videos are a very effective tool because they activate two main senses, namely sight and hearing, which have been proven to increase the absorption of information. By involving sight, which according to research is responsible for 75% to 87% of the information that reaches the brain, videos can display concrete and clear visualizations, making it easier to understand and retain information.

Audiovisual media, such as videos, are very effective in increasing knowledge because they involve more human senses. According to research, knowledge is obtained from the intensity of attention and individual perception of objects or information. The use of media that combines visual and audio elements, as stated by Arneliwati, Agrina & Dewi (2019), has a much stronger effect compared to written media, because it activates both senses simultaneously.

As mentioned by Notoatmodjo (2018), the effectiveness of storing information delivered through audiovisual media reaches around 20%, while information that is practiced directly in real activities can be stored up to 70%. This means that real experience or direct practice has a more significant impact on building in-depth knowledge.

The sense that transmits the most knowledge to the brain is through the eyes, which is around 75% to 87%. Audiovisual media provides stimulation through the eyes and ears. The more senses are stimulated, the easier it is for information to enter. The combination of information channels through the eyes (75%) and ears (13%) will provide sufficient stimulation to provide optimal results (Arneliwati, Agrina & Dewi, 2019).

In this study, the pregnancy nutrition material contained in the video is the same as the material explained verbally with the lecture method. The lecture method has weaknesses in several ways, for example, it seems monotonous and less interesting, lecture method education is more easily forgotten because it only emphasizes the sense of hearing and requires systematic understanding.

5. CONCLUSION AND SUGGESTIONS

Based on the results of the study, it was concluded that there was an influence of video-based education and lecture method education on pregnant women's knowledge of pregnancy nutrition. It is expected that health workers will continue to improve counseling efforts related to pregnancy nutrition by paying attention to the use of effective and efficient media and methods.

REFERENCE

- Apriliani, S. L., Nikmawati, E. E., & Yulia, C. (2019). Nutritional knowledge of pregnant women in Kertasari district, Bandung regency. *Media Education, Nutrition, and Culinary*, 8(2), 67–75. <https://doi.org/10.17509/boga.v8i2.21967>
- Arneliwati, A., Agrina, & Dewi, A. P. (2019). The effectiveness of health education using audiovisual media on increasing family behavior in preventing dengue hemorrhagic fever (DHF). *Enfermería Clínica*, 29(2013), 30–33. <https://doi.org/10.1016/j.enfcli.2018.11.013>
- Directorate of People's Welfare Statistics. (2021). *Special index report for handling stunting 2019-2020*. Central Statistics Agency. [Preprint].
- Hartati, H., Sumarni, S., & Anonim, T. (2021). The effect of modified online learning on increasing knowledge of pregnant women with chronic energy deficiency (CED). *Jurnal Lintas Keperawatan*, 2(1), 1–6. <https://doi.org/10.31983/jlk.v2i1.6848>
- Hasim, A., et al. (2023). Effects of educational videos to increase knowledge, attitudes, and sleep quality of pregnant women with chronic energy deficiency. *Poltekita: Journal of Health Sciences*, 17(1), 57–66. <https://doi.org/10.33860/jik.v17i1.2125>
- Hidayah, N. M., Mintarsih, S. N., & Ambarwati, R. (2022). Balanced nutrition education using video media on the knowledge and attitudes of adolescent girls. *Sport and Nutrition Journal*, 4(1), 6–11.
- Jupri, A., et al. (2022). Nutrition education for pregnant women as an effort to reduce the increase in stunting rates. *Jurnal Abdi Insani*, 9(3), 1209–1216. <https://doi.org/10.29303/abdiinsani.v9i3.735>
- Lestari, P. D., Azka, A., & Syah Putri, S. R. (2023). Education of pregnant women's nutrition through video media on increasing estimated fetal weight of pregnant women. *Journal of Obstetrics*, 10(1), 46–51. <https://doi.org/10.48092/jik.v10i1.226>
- Mirza, M. M., Sunarti, S., & Handayani, L. (2023). The effect of nutritional status of pregnant women on the incidence of stunting: Literature study. *Indonesian Journal of Public Health*, 18(2), 22. <https://doi.org/10.26714/jkmi.18.2.2023.22-27>
- Notoatmodjo, S. (2018). *Public health science and art*. Jakarta: PT. Rineka Cipta.
- Prawirohardjo, S. (2016). *Obstetrics*. Jakarta: Bina Pustaka.

- Rahayu, L. S., Suraya, I., & Maulida, N. R. (2022). Education and practice of fulfilling balanced nutrition for pregnant women. *Shihatuna: Journal of Community Health Service*, 2(1), 7–12.
- Sari, I., & Sapitri, A. (2021). Examination of nutritional status in pregnant women as an effort to detect chronic energy deficiency (CED) early. *Indonesian Midwifery Journal*, 12(1), 16–23. <https://doi.org/10.36419/jki.v12i1.434>
- SSGI. (2023). *Results of the Indonesian nutritional status survey*. Ministry of Health of the Republic of Indonesia. Retrieved from <https://promkes.kemkes.go.id/materi-hasil-survei-status-gizi-indonesia-ssgi-2022>
- Suryani, S., & Nadia, N. (2022). The role of animated video media in improving nutritional knowledge of pregnant women. *Nursing Care and Health Technology Journal (NCHAT)*, 2(1), 37–47. <https://doi.org/10.56742/nchat.v2i1.34>
- Teguh, N. A., et al. (2019). Factors influencing the incidence of chronic energy deficiency (CED) in pregnant women in the working area of UPT Puskesmas I Pekutatan, Jembrana, Bali. *Intisari Sains Medis*, 10(3), 506–510. <https://doi.org/10.15562/ism.v10i3.432>
- Wiknjastro, H. (2016). *Midwifery* (4th ed., 8th printing). Jakarta: Bina Pustaka Sarwono Prawirohardjo Foundation.