

Effect of video-based intervention of nutritional knowledge of pregnant women in the first 1 000 days of life in Banggai Regency

Efecto de la intervención basada en video del conocimiento nutricional de mujeres embarazadas en los primeros 1 000 días de vida en Banggai Regency

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SUMMARY

Background: *The period of the first 1 000 days of life is the best period to directly affect survival and quality of life. The three stages of the first 1 000 days of human life give rise to certain vulnerabilities, namely the embryonic stage, perinatal stage, and lactation stage. Methods:* *The design of this research is quasi-experimental. Preconception mothers in the intervention group received video-based education while the control group did not receive video-based education but were free to listen to nutritional advice from existing health workers. The sample in this study consisted of 28 mothers in the not video-based intervened (NVBI) group and 28 mothers in the video-*

based intervened (VBI) group. Results: *Preconception mothers and pregnant women in the VBI group showed an increase in knowledge after receiving education in the form of educational videos. Based on the Wilcoxon test obtaining a p value of 0.0001, it was concluded that there are differences between the pre-test and post-test scores, indicating an effect of video-based education on nutritional knowledge in pregnant women. Conclusion:* *The provision of nutrition education in video-based intervention through family companions can increase the knowledge of pregnant women. This intervention has the potential to be adopted and developed by incorporating elements of local culture for wider-scale implementation by utilizing more modern technology and easily accessed by the community in the context of stunting prevention. Keywords:* *Maternal, video-based nutrition education, Pregnant women*

DOI: <https://doi.org/10.47307/GMC.2022.130.2.13>

RESUMEN

Introducción: *El período de los primeros 1 000 días de vida (DDV) es el mejor período para afectar directamente la supervivencia y la calidad de vida. Las tres etapas de los primeros 1 000 días de la vida humana dan lugar a ciertas vulnerabilidades, a saber, la etapa embrionaria, la etapa perinatal y la etapa de lactancia. Métodos:* *El diseño de esta investigación es cuasi-experimental. Las madres antes de la concepción en el grupo de intervención recibieron educación basada en videos, mientras que el grupo de*

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Recibido: 9 de marzo 2022

Aceptado: 23 de abril 2022

control no recibió educación basada en videos, pero pudieron escuchar los consejos nutricionales de los trabajadores de la salud existentes. La muestra en este estudio consistió en 28 madres en el grupo sin intervención basada en video (NVBI) y 28 madres en el grupo con intervención basado en video (VBI).

Resultados: *Las madres antes de la concepción y las mujeres embarazadas en el grupo VBI mostraron un aumento en el conocimiento después de recibir educación en forma de videos educativos. Basados en la prueba de Wilcoxon y la obtención de un valor de p de 0.0001, se puede concluir que existen diferencias en los puntajes del pre-test y del post-test, indicando que la educación por video en el conocimiento nutricional de las gestantes. Conclusión:* *La provisión de educación nutricional mediante la intervención basada en videos a través de acompañantes familiares puede aumentar el conocimiento de las mujeres embarazadas. Esta intervención tiene el potencial de ser adoptada y desarrollada mediante la incorporación de elementos de la cultura local para una implementación a mayor escala mediante el uso de una tecnología más moderna y de fácil acceso para la comunidad en el contexto de la prevención del retraso del crecimiento.*

Palabras clave: *Educación nutricional materna basada en videos, mujeres embarazadas.*

INTRODUCTION

The period of the first 1 000 days of life refers to a child's life from the moment they are conceived until they have reached 2 years of age that cover the entire intrauterine life and the first two years of extrauterine, the survival, growth, and development of the human being is determined by a whole series of finely tuned genetic, environmental, and social factors. This period is crucial and affects survival and quality of life. Three stages of these first 1 000 days of life of human beings incur particular vulnerabilities: the embryonic stage, the perinatal period, and the lactation stage (1). Optimized nutrition during the first 1 000 days is critical for healthy development and healthy life for the newborn. Pregnancy and the postpartum period are accompanied by physiological changes, increased energy needs, and changing requirements in the nutrients critical for optimal growth and development. In this respect, Martin et al. (2020) stated that maternal knowledge about nutrition greatly influences nutrition in the first 1 000 days of life (2). Growth

and development in the first 1 000 days of life are strongly influenced by the nutritional status of the mother in the past and can affect susceptibility to non-communicable diseases in the future (3). Strong evidence reviewed by Wrottesley et al. (2015) shows that support for the relationship between the nutritional status of pregnant women and neonatal health, foetuses, infants, and births is still lacking in African countries. Globally, was found a relationship between outcomes in intervention and anthropometric outcomes in mothers. However, the high rates of malnutrition during pregnancy, as well as the effects of supplementation on pregnant women, suggest that improving the nutritional status of pregnant women can have a significant effect on better pregnancy outcomes (3-5).

Pregnancy is an important condition for increasing nutritional knowledge, nutrition education interventions are very supportive of pregnant women's knowledge in the first 1 000 days of life to prevent stunting as early as possible. In Indonesia, almost a third of children under the age of 5 are stunted. Stunting can be optimally prevented during pregnancy as the initial phase of the first 1 000 days of life (6,7). Therefore, there is a need for varied and interesting educational interventions, one of which could be through education in the form of videos. Pregnant women who received educational interventions showed significant improvements in attitudes, knowledge, and reproductive health and nutrition practices (6). Health status during pregnancy and the health of the foetus it contains are strongly influenced by the state of the mother's previous nutritional status. Therefore, especially during pregnancy, food and nutrition experts can provide adequate dietary advice to optimize nutrition, as well as guidance on selecting appropriate dietary supplements, recommending fulfilling a good nutritional intake such as a healthy diet and balanced nutrition that can be practiced daily life. Maternal nutrition must be met during pregnancy for the availability of sufficient energy and nutrients to meet the needs of the mother during pregnancy, as well as the needs of the growing and developing foetus in the uterus. Mothers are also highly recommended to maintain their nutritional intake which is necessary for the health of the foetus and baby as well as preparation

for breastfeeding practices when the baby is born (7,8). Goodarzi-Khoigani et al. (2017) and Fallah et al. (2013) in Iran found that interventions in the form of nutrition education affect the nutritional awareness of pregnant women and the portion of food pregnant women eat every day during pregnancy (9,10). Thus, here we assessed the effect of the provision of nutrition education in video-based intervention on the nutritional knowledge of pregnant women.

MATERIAL AND METHOD

Design and Population Study

The method in this study was a quasi-experimental approach with a pre-test post-test group with a control group design. Preconception mothers in the intervention group (VBI) received application video education while the control group (NVBI) were not given video education but were free to listen to nutritional advice from existing health workers. This research was conducted in Banggai Regency, Central Sulawesi Province, Indonesia. The population of this study consisted of 250 pre-conception mothers at the stunting locus and 250 pre-conception mothers at the non-locus who wished to become pregnant with the inclusion criteria: not on family planning, planning to have children, not being married for 5 years. The sample in this study was preconception mothers who were then followed up until they became pregnant, totaling 56 people consisting of 28 (NVBI) and 28 (VBI). The research was carried out during the COVID-19 pandemic, so researchers were limited in collecting research samples. Because many samples do not want to be found and some have moved to other cities.

Data Collection

Data were collected by interview or post before playing educational videos to respondents and education was given at every Integrated Health Center (posyandu) visit once a month until the age of 9 months of pregnancy. If the individual was not present at the Integrated Health Center, a home visit was made to provide education, if accepted. Then a post-test was carried out

at the end of the study, namely at 9 months of gestation. The education provided is in the form of application-based videos that are specifically given to Family Facilitators, namely nurses or midwives to be shown to preconception mothers, pregnant women, and families. The content of the material in the video is about balanced nutrition, nutrition for pregnant women, and personal hygiene in children. This video has been tested and translated from English to Indonesian and from Indonesian to the dialect of the Banggai Regency community. Before giving video education, the researcher first gave informed consent and then gave a pre-test questionnaire of 16 questions. After the pregnant woman was in the third trimester, the researcher again gave post-test questions with the same questions in the pre-test. then the researchers conducted data analysis.

This research was conducted with the permission of the Ethics Committee of the Faculty of Public Health, Hasanuddin University, Makassar, Indonesia. All respondents were given a detailed explanation of the actions to be taken by the mother before the interview. Mother starts from preconception to pregnancy. All information and data in this study were only used for scientific purposes and the identity of the research subject was kept confidential.

RESULT

Characteristics

As shown in Table 1.1, the characteristics of mothers based on age, mother's education, and mother occupation, the proportions of the two NVBI and VBI groups showed no significant statistical differences with a $p > 0.05$.

Data Normality Test

Based on Table 1.2 the results of the analysis (output) it was found that the normality test of the data was declared abnormal by looking at the sig value on the Shapiro-Wilk that the values in the pre-test and post-test were all $p < 0.05$, which means that the data were not normal. Furthermore, an alternative test was carried out using the Wilcoxon test.

Table 1.1
Mothers Characteristics in Banggai Regency in 2020

Variable	NVBI (n=28)		VBI (n=28)		Total (n=56)		P value
	n	%	n	%	n	%	
Age							
<20 year	2	7.14	0	0.00	2	3.6	0.221
20-35 year	23	82.14	22	78.57	45	80.4	
>35 year	3	10.71	6	21.43	9	16.0	
Education							
Low	13	46.4	10	35.7	23	41.1	
Hight	15	53.6	18	64.3	33	58.9	
Occupation							
Yes	3	10.7	4	14.3	7	12.5	1.000
No	25	89.3	24	85.7	49	87.5	

Source: Primary Data 2020. *Chi-Square

Table 1.2
Results of Data Normality Test Analysis

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	0.181	56	0.0001	0.916	56	0.001*
Post test	0.209	56	0.0001	0.892	56	0.0001*

Difference Test (Wilcoxon)

Based on Table 1.3, states that the negative rank or the difference (negative) between the results of the pre and post-test video education is 0, both in the N value, Mean rank, and Sum Ranks. A value of 0 indicates that there is no decrease in the Pre-Test value to Post Test value. Meanwhile,

based on the Wilcoxon test, it is known that the value of Asymp. sig (2-tailed) is 0.0001. Because the value of 0.0001 is smaller than 0.05, it can be concluded that there is a difference between the values of pre-test and post-test, and it can be said that there is an effect of video-based education on nutritional knowledge in pregnant women.

Table 1.3
Test Results of Differences in Knowledge of Pre-Test and Post Test

	N	Mean Rank	Sum of Ranks	Z	Asymp. Sig. (2-tailed)
Pos-test	Negative Ranks	0 ^a	0.001	-6.537 ^b	0.0001*
Pre-test	Positive Ranks	56 ^b	1 596.00		
	Ties	0 ^c			
	Total	56			

Wilcoxon Signed Ranks Test*

DISCUSSION

The research shows that the average age of the mother is at the age of 20-35 years, namely 23 respondents (82.74 %) in the NVBI group and 22 respondents (78.57 %) in the VBI group, while for the mother's education, those who have low and high education were all in the VBI group respectively 13 respondents (46.4 %) and 18 (64.3 %) based on statistical analysis showing that there was no difference in the level of education in each group ($p=0.587$). For work, the average mother does not work whereas in the NVBI group 25 respondents (89.3 %) and VBI 24 respondents (85.7 %). The results of statistical tests showed that there was no difference in employment between mothers in the NVBI and VBI groups. For someone who has a high education, it will be easier to receive the information to increase his knowledge, but if the level of education of a person is lower, it will be more difficult to receive information that affects his knowledge. Low education will also hinder a person in the process of developing attitudes in responding to the new values introduced to him. In addition, someone who has a low education will hinder his intellectuality. Where it can be influenced by various reasons, including the influence of other people and cultures. This is supported by research that shows that there is an effect of family-based education on the intention of attitudes, knowledge, and behavior of pregnant women with toddlers to optimize nutrition in preventing stunting (11).

Statistical analysis to assess the effect of video education on the study concluded that there was an effect of Application-Based Video Intervention on the Nutritional Knowledge of pregnant women in the first 1 000 days of life. Education through video is a very effective education, where this media involves the five senses in the form of eyes and ears where the two senses are the most influential on knowledge because they involve the five senses of the eye to see and the ear to hear. As physiological organs, the sense organs do not carry out thought processes, but as exemplary organs, they are integrated with the mind. Our sensory organs and heart are interconnected and shape each other to influence our cognition of reality (12). In this study, the

application-based educational media used was a video with a duration of 30 minutes, which could be watched by pregnant women through supporting devices provided by health workers in the Integrated Health Center. The video contains the importance of nutrition during pregnancy. Video is an audio-visual medium and has better and more interesting capabilities.

This video-based education method is one strategy that is consistent and contributes to reducing the prevalence of stunting in Indonesia, through educational videos to improve attitudes, knowledge, and practices regarding nutrition (13,14). Permatasari et al. (2021) found that the increase in knowledge, attitudes, and practices of pregnant women was caused by the provision of nutrition and reproductive health education through small groups with interactive methods (6). However, Kellam's (2018) concluded that in a study on the effect of providing video education that was only given once in a prenatal clinic, it did not affect the duration of breastfeeding or exclusive breastfeeding in low-income women. However, this educational video can provide comprehensive benefits to the program to promote breastfeeding (15). In addition, the reason why video education is not effective is that it is not personal like other educational approaches, such as motivational interviews or face-to-face interactions (16).

A study on the effectiveness of video-based education on fertility awareness, a randomized controlled trial with partnered women found that video fertility interventions appear to partially increase fertility awareness (FA) in the long term (17). During the last few decades, health communication methods such as face-to-face education, pamphlets, audio-visual training clips, and mass media have been used to encourage healthy behavior among pregnant women. Modernization of life today has changed the orientation of learning for pregnant women, namely by utilizing electronic technology such as cellphones to increase knowledge of pregnant women compared to paper-based formats (18,19). M-Health education using the Android-based smartphone media application "Mama ASIX" for the third trimester of pregnant women can help mothers prepare for exclusive breastfeeding by increasing knowledge and attitudes about

breastfeeding for their babies (20). Providing education in the form of videos can increase the knowledge of pregnant women about nutritional preparation in pregnancy to the stage of breastfeeding. For this reason, proper education is needed so that it can provide significant changes in maternal nutritional knowledge before pregnancy, during pregnancy, and breastfeeding. Health workers also need to pay attention to a holistic approach to provide optimal education. Therefore, ANC visits play an important role in providing awareness to mothers about the importance of nutrition in pregnancy (21).

Lack of knowledge of mothers about the importance of nutrition during pregnancy will have an impact not only on the mother but also on the baby. Babies will be born in a small state, lightweight, and short body length. Because nutrition is the main and fundamental pillar of human life that is needed for health and throughout the life cycle and during pregnancy (22) will have an impact on weight gain or obesity during pregnancy, anemia, low birth weight, and even premature birth (7).

CONCLUSION

Health education videos were delivered by health workers in this case is Family Facilitators, namely midwives and nurses in Community Health Center. There was an important effect of Application-Based Video Intervention on Nutritional Knowledge of pregnant women in the first 1 000 days of life in the Stunting Locus of Banggai Regency. This intervention is expected to contribute to reducing stunting in the first 1 000 days of life.

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