

## THE EFFECT OF BALANCED NUTRITION INTAKE EDUCATION WITH ANIMATED VIDEOS ON THE KNOWLEDGE OF MOTHERS UNDER FIVE IN SIDOMULYO VILLAGE, MESUJI DISTRICT MESUJI REGENCY

Agia Kresnawati<sup>1</sup>, Yuli Yantina<sup>2</sup>, Dessy Hermawan<sup>3</sup>

<sup>1,2,3</sup> Faculty of Health Sciences, Malahayati University, Bandar Lampung  
Email correspondence [agiakresnawati@gmail.com](mailto:agiakresnawati@gmail.com)

### ABSTRAK : PENGARUH EDUKASI ASUPAN GIZI SEIMBANG DENGAN VIDEO ANIMASI TERHADAP PENGETAHUAN IBU BALITA DI DESA SIDOMULYO KEC. MESUJI KABUPATEN MESUJI

Latar Belakang: Gizi seimbang penting untuk tumbuh kembang balita. Ketidakseimbangan gizi dapat menyebabkan stunting, wasting, dan menurunkan kualitas hidup anak. WHO mencatat 148,1 juta anak di dunia mengalami stunting, dan 45 juta wasting. Di Indonesia, prevalensi stunting sebesar 15,8% dan gizi kurang 12,9%. Di Desa Sidomulyo, 18% balita mengalami stunting dan 6% wasting. Rendahnya literasi ibu balita membuat edukasi gizi konvensional kurang efektif. Video animasi dipilih sebagai media edukasi karena bersifat visual, menarik, dan mudah dipahami.

Tujuan: Penelitian ini bertujuan untuk mengetahui pengaruh edukasi gizi seimbang menggunakan video animasi terhadap pengetahuan ibu balita.

Metode: Jenis penelitian kuantitatif, rancangan quasy eksperimen desain two group pretest and posttest. Populasi seluruh ibu Balita sebanyak 328 balita dengan sampel 82 dibagi menjadi 2 kelompok yaitu 41 pada kelompok video dan 41 pada kelompok lembar balik menggunakan teknik simple random sampling. Pengumpulan data menggunakan lembar observasi. Analisis data secara univariat dan bivariat.

Hasil: Hasil penelitian diketahui rata-rata pengetahuan ibu balita kelompok video animasi sebelum edukasi 74,32 dan sesudah adalah 88,56 sedangkan rata-rata pengetahuan ibu balita kelompok lembar balik sebelum adalah 72,15 dan sesudah adalah 81,00. Ada pengaruh edukasi asupan gizi seimbang dengan video animasi terhadap pengetahuan ibu balita di Desa Sidomulyo Kec.Mesuji Kabupaten Mesuji Tahun 2025 (p-value = 0,000).

Kesimpulan: Edukasi gizi seimbang menggunakan video animasi efektif meningkatkan pengetahuan ibu balita.

Saran Saran bagi ibu balita rutin menonton media edukasi digital tentang gizi seimbang dan mempraktikkan isi pesan dalam menu harian balita untuk meningkatkan status gizi anak secara berkelanjutan.

Kata Kunci: Edukasi Gizi, Ibu Balita, Pengetahuan, Video Animasi

### ABSTRACT

Background: Balanced nutrition is crucial for the growth and development of toddlers. Poor nutritional balance can lead to stunting, wasting, and reduced quality of life in children. According to the World Health Organization (WHO), 148.1 million children worldwide experience stunting, and 45 million suffer from wasting. In Indonesia, the prevalence of stunting is 15.8% and undernutrition is 12.9%. In Sidomulyo Village, 18% of toddlers are stunted, and 6% suffer from wasting. Low maternal health literacy has rendered conventional nutrition education less effective. Animated videos were chosen as an educational medium because they are visual, engaging, and easy to comprehend.

Purpose: This study aimed to assess the effect of balanced nutrition education delivered through animated videos on the knowledge of mothers of toddlers.

Methods: This quantitative study employed a *quasi-experimental design with a two-group pretest-posttest* approach. The population comprised 328 mothers of toddlers, with a sample of 82 respondents divided equally into two groups: 41 in the animated video group and 41 in the flipchart group, selected through *simple random sampling*. Data were collected using observation sheets and analyzed using univariate and bivariate methods.

Results: The findings revealed that the average knowledge score of mothers in the animated video group increased from 74.32 before education to 88.56 after education, whereas in the flipchart group, it rose from 72.15

to 81.00. Balanced nutrition education using animated videos had a significant effect on improving mothers' knowledge in Sidomulyo Village, Mesuji District, Mesuji Regency, 2025 ( $p\text{-value} = 0.000$ ).

Conclusion: Balanced nutrition education using animated videos effectively increases the knowledge of mothers of toddler.

Suggestion: It is recommended that mothers routinely engage with digital educational media on balanced nutrition and apply the information to their toddlers' daily diets to improve child nutrition sustainably.

Keywords: Nutrition education, mothers of toddlers, knowledge, animated videos

## INTRODUCTION

Balanced nutrition is an important factor in children's development, especially in toddlerhood. Unbalanced nutrition can have a negative impact on children's physical and cognitive development, increase the risk of infectious diseases, and reduce the quality of life in the future. Therefore, nutrition education for mothers under five is one of the important efforts in preventing nutritional problems in children (Nadira et al., 2023). More intensive efforts are needed if the world is to achieve the global target of reducing the number of children experiencing stunting to 89 million by 2030. The World Health Organization (WHO) reported that in 2022, globally, 148.1 million (22.3%) children under the age of 5 were stunted, 45 million children were wasting, and 37 million children were overweight. Almost all affected children live in Asia (52 percent of the global share) and Africa (43 percent of the global share). In 2022, an estimated 6.8 percent of children under the age of 5 will be affected by wasting, of which 13.6 million (2.1 percent) suffer from severe wasting. More than three-quarters of all underweight children live in Asia and another 22 percent live in Africa (WHO, 2023).

In Indonesia, nutritional problems in toddlers are still a big challenge. Data from the Indonesian Health Survey (SKI) in 2023 shows that the prevalence of undernutrition is 12.9% and malnutrition is very undernourished at 3.0%, while stunting is 15.8% (SKI, 2024). According to the 2023 Ministry of Health data, in Lampung Province for underweight toddlers by an average of 3.3% and stunted toddlers by 2.6%. (Lampung Health Office, 2024). Mesuji Regency, as one of the regions in Lampung Province in 2023, noted that the prevalence of stunting in this district reached 5.3%, with a wasting rate of 4.9%, these two nutrition indicators with values above the provincial average (Lampung Health Office, 2024). Mesuji is an area with limited health facilities and a low level of public education, which contributes to the high cases of malnutrition in children under five. Therefore, innovative and easy-to-understand interventions by the community are the solutions needed to increase

maternal understanding of the importance of balanced nutrition.

The government through national programs such as Foster Parents for Stunting Children (BAAS) and specific nutrition interventions is trying to reduce this number (Mulistin et al., 2025). However, the lack of maternal knowledge about balanced nutrition is often a factor that hinders the success of these programs. Therefore, effective educational methods are needed to increase mothers' understanding of the importance of balanced nutritional intake for children under five. Factors such as parenting, maternal education level, and access to nutritional information are the main challenges in efforts to improve the nutritional status of toddlers (Martony, 2023). In Sidomulyo Village, Mesuji District, the nutritional problem of toddlers is also a major concern. Based on data from the local Health Center in 2024, it was recorded that 18% of toddlers were stunting and 6% were wasting. In addition, the results of the initial survey show that many mothers under five do not understand the concept of balanced nutrition, especially in terms of providing nutritious food according to the age of the child. The lack of effective nutrition education in this village is the main factor in the low level of mothers' knowledge about the importance of balanced nutritional intake for their children. Data from the Sidomulyo Health Center shows that of 527 toddlers spread across three villages, in Nipah Kuning Village out of 82 toddlers, there are 7 (8.53%) toddlers with underweight based on age and 1 (1.2%) toddlers with very underweight. In Sidomulyo Village, out of 328 toddlers, there were 25 (7.6%) toddlers with underweight based on age and 6 (1.8%) toddlers with very underweight. Meanwhile, in Wiralaga Mulya Village, out of 117 toddlers, there are 3 (2.5%) underweight toddlers based on age and 10 (8.54%) toddlers with very underweight (Mesuji Health Office, 2025).

Health education has so far still used many conventional methods, such as direct counseling and leaflet distribution, which are less interesting and difficult to understand for mothers under five who have limited literacy. Therefore, the use of

more interesting educational media, such as animated videos, can be a more effective alternative in improving mothers' understanding of balanced nutrition (Aldrin, A. N., & Rahayu, 2024). Animated videos have the advantage of presenting information visually and interactively, making them easier for audiences to understand and remember (Ryan et al., 2025). Balanced nutritional intake is very important in supporting the growth and development process of children, especially in toddlerhood, which is the golden period of growth. Nutritional deficiencies or imbalances during this period can have a negative impact on children's physical, cognitive, and immune development. Children with poor nutritional intake are at risk of developing growth disorders such as stunting and wasting, and are more susceptible to infectious diseases. If left unchecked, this condition can affect the quality of life of children in the future (Nadira et al., 2023). Therefore, nutrition education for mothers under five is an important effort to prevent nutritional problems and support the optimal development of children.

Previous research has shown that the use of video media in health education is able to improve understanding and behavior change in various aspects of health. A study conducted by (Widyaningrum et al., 2022) The results of the pre-test and post-test showed an increase in maternal knowledge after being given counseling. Health promotion through media counseling, leaflets and videos can increase mothers' knowledge about balanced nutrition in children under five. The research (Kinasih, 2023) The results of the study were that the mean value of knowledge rank in the experimental group was 48.71 while in the control group it was only 26.79. The mean rank value of attitude in the experimental group was 47.16 while in the control group it was only 28.14. The provision of Eduting with video media has an effect on the knowledge ( $p$  value = 0.000) and attitude ( $p$  value = 0.000) of mothers under five in Ngepung Village. It can be concluded that video media is more influential when compared to leaflets when viewed from the same initial ability.

The research (Sari et al., 2024) The results of the study obtained the distribution of knowledge of mothers under five about balanced nutrition before being given a video with the adequate category and after being given a video with a good category. The results of the bivariate analysis showed that there was an effect of balanced nutrition education using video media on the knowledge of stunted mothers under five at the Posyandu of Seberang Padang Village ( $p$  value  $z$

0.000). In line with research (Zahra & Kurniasari, 2023) where there was a change in balanced nutritional knowledge in students ( $p=0.000$ ) before and after the provision of nutrition interventions with animated video media. Research (Faradila, 2024) The results of the study showed a significant increase in the knowledge and attitudes of mothers under five in the experimental group after being given nutrition education with animated videos. The average value of knowledge increased by 12.2%, and attitudes increased by 15.4%.

Nutrition education has been predominantly using conventional methods such as oral counseling and print media (leaflets), which are considered less effective for women with limited literacy. Therefore, innovations are needed in educational methods that are more interesting and easy to understand, one of which is through animated video media. This media can convey nutritional information visually and interactively, making it easier for mothers under five to understand and remember (Aldrin & Rahayu, 2024; Ryan et al., 2025). With animation video-based education, it is hoped that there will be an increase in mothers' knowledge in providing balanced nutritional intake, so that it can support the optimal growth and development of toddlers and prevent nutritional problems. Providing education about balanced nutritional intake using animated videos can be explained through the Stimulus-Organism-Response Theory (S-O-R) and Lawrence Green Theory. In the perspective of the S-O-R Theory, the education provided acts as a stimulus that stimulates mothers under five to receive and process information in their minds (organisms). This process then produces a response, namely an increase in mothers' knowledge about balanced nutrition. Along with increasing understanding, mothers are expected to be able to apply this information in their daily lives, so that there is a change in behavior in feeding patterns for toddlers (Kinasih, 2023).

Meanwhile, according to Lawrence Green's theory in the Precede-Proceed model, changes in maternal behavior in fulfilling child nutrition are influenced by various factors. Mothers' knowledge before receiving education is a predisposing factor that determines their readiness to receive new information (Khalifahani, 2021). Educational media based on animated videos is a possible factor, because this method is more interesting and easy to understand than conventional education (Ramdani, 2021). In addition, support from health workers, families, and the surrounding environment acts as a reinforcing factor, which assists mothers in applying their understanding to real actions (Mamahit et al

2022). Thus, nutrition education using animated videos not only increases the knowledge of mothers under five but also encourages better behavioral changes in parenting and fulfillment of children's nutrition. The combination of these two theories illustrates how the educational process can be an effective tool in shaping healthy behaviors through the continuous improvement of understanding.

Based on the results of a presurvey conducted by researchers on February 17-21, 2025, it is known that out of 10 mothers of toddlers with children with undernourished status so far have not paid attention to the food menu consumed by their children, as many as 60% of mothers said that they were not unable to buy food but children who did not want to consume the food made, children snacked more and consumed only the food they liked so that to avoid their children crying. The action taken by the mother was to give food, while as many as 40% of mothers give food to children according to the food consumed by the family due to limited budgets if they have to distinguish processed food for their children and mothers think that their children like the food served even though they only eat little. Health workers had previously provided education using flip-back media, but no evaluation was carried out on improving maternal knowledge. In addition, education is not sustainable, and many mothers are unable to attend counseling sessions. The participants who attended the counseling were different from the mothers who were presurvey respondents, because at the time of the counseling, some mothers were traveling or had young babies so they could not participate in the activity.

The title of this research was taken based on the problems found in the field, namely the low knowledge of mothers under five about the importance of balanced nutritional intake for their children. The education that has been provided previously using the media of flip sheets has not shown maximum results, because there is no evaluation and limited presence of mothers in counseling sessions. To overcome these problems, animated video-based educational media was chosen as a more effective alternative. Animated videos have several advantages that can have a positive effect on increasing maternal knowledge, including: conveying information visually and audibly at the same time, making the material more interesting, easy to understand, and accessible or replayed at any time. Visualization in videos helps strengthen the mother's memory and understanding of the material, especially when compared to

conventional methods that are one-way and less interactive.

Based on the Precede-Proceed model by Lawrence Green, animated videos act as an enabling factor that supports behavior change. This media bridges the limitations of direct education access and increases motivation to study independently. With increased knowledge, it is hoped that mothers of toddlers can change their parenting behavior and food selection for the better and in accordance with the principles of balanced nutrition. Therefore, this title was chosen because it is relevant to field conditions and supports more effective and sustainable health education innovations in increasing maternal awareness of the importance of balanced nutrition for children under five. It is hoped that the results of this research can contribute to the development of more effective educational strategies in increasing awareness of mothers under five about the importance of balanced nutrition.

Based on the description of the problem above, the researcher intends to conduct a study titled *The Effect of Balanced Nutrition Intake Education with Animated Videos on the Knowledge of Mothers Under Five in Sidomulyo Village, Mesuji District, Mesuji Regency in 2025*.

## RESEARCH METHODS

This study uses a quantitative approach with a quasi-experimental design type two group pretest and posttest design to evaluate the effect of balanced nutrition education using animated video media on the knowledge of mothers under five. The research was conducted in Sidomulyo Village, Mesuji District, Mesuji Regency, after obtaining proposal approval. This design allows for comparisons between two groups that each received a different intervention: the first group was educated through animated videos, and the second group through flip-back media. Before and after the intervention, both groups were given a pretest and a posttest to measure changes in the knowledge of mothers under five.

The population of this study is all mothers under five in Sidomulyo Village, with a total of 328 people. The sample was determined using a simple random sampling technique, which is a random selection through a lottery or the help of digital devices such as Microsoft Excel and Random Number Generator, until 41 respondents were selected for the intervention and control groups, with a total of 82 respondents. The calculation of the number of samples was based on the formula of two independent mean difference tests, taking into

account standard deviation, group average, and significance level, resulting in a sample of at least 41 respondents per group.

The variables in this study consisted of independent variables in the form of education using animated videos, and bound variables, namely the knowledge of mothers under five about balanced nutrition. Maternal knowledge was measured using a closed questionnaire in the form of multiple choice prepared based on indicators of balanced nutrition understanding. This questionnaire has been tested for validity and reliability on 30 respondents in Wiralaga Mulya Village. The results of the validity test showed that all question items had a correlation value of  $>0.361$  so that they were declared valid, while the reliability test with Alpha Cronbach produced a value of 0.961, which showed that the instrument used was very reliable.

Data collection is carried out through several stages, ranging from licensing, approaching respondents, providing informed consent, filling out pretest questionnaires, implementing education according to each group, to filling out posttests. All data is collected and processed using editing, scoring, data entry (processing), and cleaning steps before analysis. Data analysis was conducted univariately to describe the distribution and average knowledge of respondents, and bivariate to test the effect of intervention using a t-dependent test

(paired sample t-test). The normality test using Shapiro-Wilk is done first to determine the appropriate type of test. If the data is normally distributed, then a t-test is used; otherwise, then the Wilcoxon nonparametric test is used. The results were analyzed with a significance level of 0.05, where a p-value of  $\leq 0.05$  showed a significant influence of the intervention on improving the knowledge of mothers under five.

## RESEARCH RESULTS

### Univariate Analysis

Based on Table 1, it can be seen that the average knowledge of mothers under five before Health Education was carried out using flip sheet media in Sidomulyo village was 72.15 with a standard deviation of 4.731, the lowest knowledge was 60 and the highest was 80. Meanwhile, in the post test score after being given Health Education, the average knowledge value of mothers under five has increased. Meanwhile, it can be seen that the average knowledge of mothers under five before Health Education was carried out using video media in Sidomulyo village was 74.32 with a standard deviation of 4.793, the lowest knowledge was 67 and the highest was 83. Meanwhile, in the post test score after being given Health Education, the average knowledge value of mothers under five was 88.56 with a standard deviation of 5.518.

**Table 1**  
**Distribution of Knowledge Frequency Before and After Health Education Using Flip Media and Animated Videos in Sidomulyo Village, Mesuji District in 2025**

| Knowledge            | Sum | Average | Difference | Standard Deviation | Min | Max |
|----------------------|-----|---------|------------|--------------------|-----|-----|
| Flip Media           |     |         |            |                    |     |     |
| Pre test             | 41  | 72,15   | 8,85       | 4,731              | 60  | 80  |
| Post test            | 41  | 81,00   |            | 5,196              | 67  | 90  |
| Animated Video Media |     |         |            |                    |     |     |
| Pre test             | 41  | 74,32   | 14,24      | 4,793              | 67  | 83  |
| Post test            | 41  | 88,56   |            | 5,518              | 77  | 97  |

Data Normality Test

**Table 2**  
**Data Normality Test Results**

| Variabel                   | Shapiro-Wilk |    |        |
|----------------------------|--------------|----|--------|
|                            | Statistic    | Df | Itself |
| Niai Pre Test Sheet Back   | .898         | 41 | .001   |
| Post Test Score Flip Sheet | .942         | 41 | .036   |
| Video Pre Test Score       | .910         | 41 | .003   |
| Post Test Video Score      | .906         | 41 | .002   |

Based on table 2, the results of the normality test using Shapiro-Wilk in the control group (flip-sheet media) obtained a p-value of  $< 0.05$  and the intervention group (video media) with a p-value of  $< 0.05$  so that it can be concluded that the data is not distributed normally. Thus, the test used to see the influence between the two methods is a non-parametric test of two paired groups, namely the Wilcoxon Ranked Test.

#### Bivariate Analysis

Based on table 3, the results of the Wilcoxon Signed Ranks Test are known that the p-value =  $0.000 < 0.05$  so that an alternative hypothesis is accepted. If the hypothesis is accepted, it can be concluded that there is a significant influence of the use of animated videos on the knowledge of mothers under five regarding balanced nutrition intake education. All respondents (41 people) showed increased knowledge (positive ranks) after being educated using animated videos.

**Table 3**  
**Wilcoxon Signed Ranks Test Results**

| Animated Video Media         |                | N  | p-value |
|------------------------------|----------------|----|---------|
| Pre test-Post Test Knowledge | Negative Ranks | 0  | 0,000   |
|                              | Positive Ranks | 41 |         |
|                              | Ties           | 0  |         |

## DISCUSSION

### Univariate Analysis

The results of the univariate analysis showed an increase in the knowledge of mothers under five after being given health education, both in the control group (flip media media) and the intervention group (animated video). The control group's average knowledge score increased from 72.15 to 81.00, while the intervention group showed a more significant increase from 74.32 to 88.56. This indicates that although conventional methods such as flipping can increase knowledge, animated video media is more effective because it is able to convey information visually and interactively. Education with an audiovisual approach has proven to be more interesting, especially for mothers with limited literacy, and is able to increase understanding more deeply. The increase in knowledge limited to the control group was suspected to be due to the limitations of the media in generating interest and interaction, so that respondents were less actively involved in the learning process.

### Bivariate Analysis

Bivariate analysis showed that there was a significant influence between nutrition education using animated videos on the improvement of knowledge of mothers under five (p-value  $0.000 < 0.05$ ). Animated video media has proven to be effective as a means of education because it is able to optimize the functions of the senses of sight and hearing, thereby strengthening the process of receiving and storing information. This is in line with the multisensory learning theory and knowledge theory according to Skinner and Budiman, where

the learning process involving various senses results in stronger understanding. The use of technology-based educational media has also been proven to be able to reach mothers with diverse educational backgrounds and significantly increase knowledge. Factors of productive age, cognitive readiness, and support from the social environment also strengthen the effectiveness of this education. These findings are consistent with various previous studies that have shown the effectiveness of animated media in improving knowledge and attitudes related to balanced nutrition, making it a potential strategy for public health promotion.

## CONCLUSION

1. The average knowledge of mothers under five before being given balanced nutrition intake education using animation video media was 74.32 and the average knowledge after being given balanced nutrition intake education was 88.56.
2. The average knowledge of mothers under five before being given health education using flip sheet media was 72.15 and the average knowledge after being given balanced nutrition intake education was 81.00.
3. There was an effect of balanced nutrition intake education with animated videos on the knowledge of mothers under five with p-value =  $0.000 < 0.05$ .

## SUGGESTION

### For Toddler Mothers

It is expected that mothers will actively seek information through digital media and participate in

nutrition counseling activities organized by health centers or posyandu cadres to improve understanding and practice of providing balanced nutrition to children.

### For the Village Government

The village government together with the Health Office are expected to support the spread of nutrition education through digital media, including providing facilities such as screens or video players at community service places (Posyandu or village hall), as well as integrating this education program into routine community activities.

### For Malahayati University

To be a source of reference in the development of research on balanced nutrition education video media, especially for mothers who have toddlers in the community.

For the next researcher

For further research, it is expected to conduct research with other health promotion media.

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