

The Effect of Structured Educational Intervention Using Animated Videos on Stunting Prevention Knowledge Among Mothers of Children Under Five

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ABSTRACT

Stunting caused by chronic malnutrition remains a major public health problem among children under five in Indonesia. Improving mothers' knowledge through health education is considered an important strategy for supporting stunting prevention. This study aimed to assess changes in mothers' knowledge of stunting prevention following a structured educational intervention using animated videos in Bujel Village, Kediri City. A pre-experimental study employing a one-group pretest-posttest design was conducted among 44 mothers of children aged 12–59 months selected through simple random sampling from a population of 301 mothers. The intervention consisted of two approximately five-minute structured educational sessions using animated videos on child nutrition and stunting prevention. Mothers completed the same knowledge questionnaire before and immediately after the intervention. Data were analyzed using the Wilcoxon Signed-Rank Test. The proportion of mothers with good knowledge increased from 68.2% before the intervention to 88.6% afterward. The improvement in knowledge was statistically significant ($p = 0.015$). These findings indicate that a structured educational intervention using animated videos was associated with improved maternal knowledge of stunting prevention. However, because this study employed a one-group pretest-posttest design without a control group, the findings should be interpreted as evidence of improved knowledge following the intervention rather than definitive proof of intervention effectiveness.

INTRODUCTION

Stunting is a chronic growth disorder resulting from prolonged nutritional deficiency, making the child shorter than they should be for their age group. Stunting does not just harm

physical growth; over time, it also damages brain development, the ability to learn, future productivity, and overall human resource quality. Based on the 2024 Indonesian Nutritional Status Survey (SSGI), the country's stunting



rate stood at 19.8%, which actually shows a drop from the year before.

East Java Province is among the six provinces with the highest number of children under five affected by stunting in Indonesia. Consequently, the province has been designated as one of the national priority areas for accelerating stunting reduction efforts. At the local level, the Government of Kediri City has implemented various nutrition-specific and nutrition-sensitive interventions to prevent stunting. Nevertheless, stunting cases remain prevalent, particularly within the service area of Sukorame Community Health Center.

According to data from Sukorame Community Health Center in 2025, Previous studies have reported that animated videos can improve knowledge about nutrition and stunting prevention. However, evidence on the use of a structured animated-video intervention among mothers of children under five at the community level in Kediri City, particularly in Bujel Village, remains limited. This study was therefore conducted to address this gap by assessing changes in maternal knowledge following the intervention. A main reason why stunting happens is

that mothers often do not know enough about how to feed their kids, raise them properly, keep things clean, and track their growth and development. Improving mothers' knowledge can be achieved through well-designed and structured health education programs. Because they combine sight and sound, animated videos have become a great teaching tool. They make health tips much more interesting and simpler to grasp compared to traditional listening-only lectures. As an audiovisual learning tool, animated video simultaneously combines moving images, text, and narration, thereby facilitating mothers' understanding of stunting prevention strategies. This approach is expected to enhance both maternal knowledge and awareness regarding the fulfillment of children's nutritional needs and appropriate child-care practices.

The objective of this study was to assess changes in mothers' knowledge of stunting prevention following a structured educational intervention using animated videos among mothers of children under five in Bujel Village, Kediri City.



RESEARCH METHODS

The researchers chose a pre-experimental method, specifically the one-group pretest-posttest design. It took place in Bujel Village, an area covered by the Sukorame Community Health Center in Kediri City, Indonesia.

The target population consisted of 301 mothers of children aged 12–59 months residing in Bujel Village, Kediri City. The sample size was determined using Cohen's formula, resulting in 44 respondents who were selected through simple random sampling. Primary data were collected using a structured questionnaire administered before and immediately after the educational intervention. Primary data were collected directly from the respondents. The study was conducted in Bujel Village, Kediri City, from March to April 2026. Data collection was carried out in three stages: (1) administration of a pre-test questionnaire, (2) delivery of two structured educational sessions using animated videos, each lasting approximately five minutes, and (3) administration of a post-test questionnaire immediately after completion of the intervention.

The animated video used in this intervention was a two-session

presentation, each session lasting approximately five minutes, developed to summarize key information on stunting prevention among children under five. Its content was organized around the same core topics reflected in the study instrument, namely the definition and characteristics of stunting, its causes and risk factors, exclusive breastfeeding, complementary feeding practices, the relationship between infectious disease and stunting, the impact of stunting on child growth and development, and preventive health interventions, with the material drawn from established maternal and child health references. The video was delivered using a laptop connected to a projector and external speaker, allowing the combination of moving images, narration, and sound to be presented clearly to participants in the community setting.

Data were collected using a structured questionnaire adapted from Kusuma et al. (2023) to assess mothers' knowledge of stunting prevention. The questionnaire consisted of 18 true-or-false items covering seven domains: (1) the definition and characteristics of stunting, (2) causes and risk factors of stunting, (3) exclusive breastfeeding



practices, (4) complementary feeding (MP-ASI), (5) the relationship between infectious diseases and stunting, (6) the impacts of stunting on child growth and development, and (7) health interventions for stunting prevention. Each correct response was scored as 1 and each incorrect response as 0, resulting in a total score ranging from 0 to 18. Knowledge levels were classified as poor ($\leq 55\%$ of the total score), fair (56–75%), and good (76–100%). Prior to data collection, the questionnaire underwent validity and reliability testing. All questionnaire items were declared valid ($r\text{-count} > r\text{-table} = 0.361$), and the instrument demonstrated good internal consistency with a Cronbach's alpha coefficient of 0.874. The validated questionnaire was administered to all participants before and immediately after the structured educational intervention using animated videos. The researchers used univariate analysis to explain who the participants were and how much they knew. Then, to figure out if the video lessons actually changed the mothers' knowledge, they ran a bivariate analysis using the Wilcoxon Signed-Rank Test at a 95% confidence level ($\alpha=0.05$).

Before gathering any data, the

researchers got ethical clearance from the Health Research Ethics Committee. The approval code for this was No.DP.04.03/F. .XIII.31/0055/2026.

RESULTS AND DISCUSSION

Respondents' Characteristics

A total of 44 mothers of children aged 12–59 months participated in this study. The respondents were selected using simple random sampling from mothers residing in Bujel Village, Kediri City.

Table 1. Characteristics of Respondents

Characteristics	N=44	%
Age (years)		
<20	3	6.8
20–35	24	54.5
36–50	16	36.4
>50	1	2.3
Education		
Elementary school	2	4.5
Junior high school	8	18.2
Senior high school	25	56.8
Bachelor's degree	9	20.5
Occupation		
Housewife	32	72.7
Entrepreneur	7	15.9
Employee	4	9.1
Civil servant	1	2.3

As presented in Table 1, most respondents were aged 20–35 years (54.5%), had completed senior high school (56.8%), and were housewives (72.7%). These findings indicate that the majority of participants were



mothers of productive age with a secondary education level.

Respondents' General Mothers' Knowledge Before and After the Structured Educational Intervention

The distribution of mothers' knowledge regarding stunting prevention before and after the structured educational intervention using animated videos is presented in Table 1. Data were obtained from 44 mothers of children aged 12–59 months in Bujel Village.

Table 2. Distribution of Mothers' Knowledge Levels Before and After the Structured Educational Intervention

Knowledge Level	Pretest (%)	Posttest (%)
Poor	9.1	0
Fair	22.7	11.4
Good	68.2	88.6
Total	100	100

As shown in Table 2, before the intervention, 68.2% of respondents had good knowledge regarding stunting prevention, whereas 22.7% had fair knowledge and 9.1% had poor knowledge. Following the intervention, the proportion of respondents with good knowledge increased to 88.6%, while no respondents remained in the poor knowledge category. To determine whether the observed changes in knowledge were statistically significant, pretest and posttest scores were compared using the Wilcoxon Signed-Rank Test.

Table 3. Results of the Wilcoxon Signed-Rank Test

Variable	Group	N	Mean Rank	Sum of Ranks
Posttest – Pretest	Negative Ranks	4	7	28
	Positive Ranks	13	9.62	125
	Ties	27	-	-
	Total	44		

As presented in Table 3, 13 respondents demonstrated higher posttest scores than pretest scores (positive ranks), 4 respondents showed lower posttest scores (negative ranks), and 27 respondents had identical pretest and posttest scores (ties). The Wilcoxon

Signed-Rank Test yielded a Z value of –2.427 with an Asymp. Sig. (2-tailed) of 0.015, indicating a statistically significant difference in mothers' knowledge before and after the structured educational intervention.

Mothers' Knowledge Before the



Structured Educational Intervention

Before receiving the educational intervention, most mothers already demonstrated a good level of knowledge regarding stunting prevention (68.2%). However, approximately one-third of the respondents still had fair or poor knowledge, indicating that maternal understanding of stunting prevention remained varied. Differences in knowledge may be influenced by maternal characteristics such as educational attainment, age, previous exposure to health information, and access to health services. Previous studies have also reported that higher maternal education and exposure to health information are associated with better knowledge regarding stunting prevention.

Mothers' Knowledge of Stunting Prevention After the Structured Educational Intervention

Following the intervention, the proportion of mothers with good knowledge increased from 68.2% to 88.6%, while no respondents remained in the poor knowledge category. The structured educational intervention used animated videos presented in two approximately five-minute sessions,

allowing participants to receive information through both visual and auditory channels. This audiovisual approach may facilitate understanding and improve knowledge retention regarding child nutrition and stunting prevention. These findings are consistent with previous studies reporting that animated video-based education improves maternal knowledge of child nutrition and stunting prevention. Animated videos present health information in a more attractive and understandable format than conventional educational methods, thereby encouraging participants to pay greater attention to the educational content.

Effect of the Structured Educational Intervention on Mothers' Knowledge of Child Nutrition

The Wilcoxon Signed-Rank Test demonstrated a statistically significant difference between mothers' knowledge before and after the intervention ($p = 0.015$). These findings indicate that mothers' knowledge improved following participation in the structured educational intervention using animated videos.

The improvement observed in this study may be explained by the



Cognitive Theory of Multimedia Learning, which suggests that information presented simultaneously through visual and auditory channels is processed more effectively than information delivered through a single modality. Consequently, animated videos may facilitate comprehension and retention of health information related to stunting prevention. However, because this study employed a one-group pretest-posttest design without a control group, the findings should be interpreted as showing an improvement in maternal knowledge following the intervention rather than establishing a causal effect of the intervention itself.

Study Limitations

This study has several limitations. First, the one-group pretest-posttest design without a control group limits the ability to attribute improvements in knowledge solely to the educational intervention, as external factors may also have influenced the results. Second, the study involved only 44 mothers from Bujel Village, Kediri City, which may limit the generalizability of the findings to other populations. Third, the posttest was administered immediately after the intervention, preventing assessment of

long-term knowledge retention and whether increased knowledge translated into sustained preventive practices. Future studies are recommended to employ randomized controlled or quasi-experimental designs with larger samples and longer follow-up periods.

CONCLUSIONS

This study indicates that structured health education delivered through animated videos is associated with a meaningful improvement in mothers' knowledge of stunting prevention among children under five in Bujel Village, with a clear shift toward better understanding of core prevention topics after the intervention. These findings support animated video as a practical, engaging educational medium that can help convey nutrition and stunting-prevention information more clearly, particularly for mothers with limited health literacy. Because the study relied on a one-group pretest-posttest design without a comparison group and did not assess knowledge retention over time, the results should be viewed as evidence of a short-term knowledge gain linked to the intervention rather than conclusive proof of its long-term effectiveness.



Building on these findings, future studies are recommended to adopt a controlled or quasi-experimental design with larger samples and longer follow-up periods, while health workers may consider incorporating animated video-based education into routine maternal and child health services, such as posyandu activities, to strengthen mothers' understanding of stunting prevention.

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